



Table 1: Research Identifying Posttraumatic Stress Symptoms and Posttraumatic Stress Disorder Associated With Induced Abortion

STUDY	SAMPLE	METHOD	RESULTS
Biggs, M. et al. (2016). Does abortion increase women's risk for post-traumatic stress? Findings from a prospective longitudinal cohort study. <i>BMJ Open</i> , 6(2) e009698.	338 U.S. women who obtained an abortion	Used PTSD screen to assess PTSD & PTSS at 1 wk, & every 6 mo for 4 yrs following abortion – sample retention only 38%	<ul style="list-style-type: none"> • “Among those who attributed their symptoms to the index pregnancy experience (n=64), many (n=19) succinctly stated that ‘the abortion’ was the source of their Posttraumatic Stress symptoms” - 14% among women at risk of PTSD (139)
Giannandrea, S. et al. (2013). Increased risk for post-partum psychiatric disorders among women with past pregnancy loss. <i>Journal of Women's Health</i> , 22(9), 760-768.	192 U.S. women at 1 st year pediatric well-child visit	Completed depression screening tools and a standard semi-structured psychiatric diagnostic interview - SCID	<ul style="list-style-type: none"> • Among women with past abortion experience, 10% met criteria for PTSD
Curley, M. & Johnson, C. (2013). The characteristics and severity of psychological distress after abortion among university students. <i>Journal of Behavioral Health Sciences & Research</i> , 2013, 1-14 DOI 10.1007/s11414-013-9328-0	89 Canadian & U.S. women who had experienced abortion	An ex post-facto descriptive design was used to compare psychological outcome after abortion among university students. Compared post-abortive women who preferred treatment to those who did not. Employed standardized measures: IES, PGS, BSI, BDI, STAI	<ul style="list-style-type: none"> • 50% (48) of the women who had abortions preferred to have psychological follow-up services to address postabortion distress • For those postabortive women who preferred psychological services, their distress comprised moderate to severe symptoms of psychological trauma, including avoidance & intrusion • Avoidance was the primary means of coping among women seeking psychological care • For those women seeking psychological care, symptoms of perinatal grief was moderate in severity and significantly higher than those not seeking care • Findings support previous single studies associating abortion with PTSD, depression, anxiety, and perinatal grief
Lundell, W. et al. (2013). The prevalence of post-traumatic stress among women requesting induced abortion. <i>European Journal of Reproductive Health Care</i> , 18(6), 480-488.	1470 Swedish women assessed prior to obtaining an abortion	Standardized measures used to assess posttraumatic stress pre-abortion	<ul style="list-style-type: none"> • 41% experienced trauma before abortion • 4% had PTSD prior to abortion • 23% had posttraumatic stress symptoms (PTSS) prior to abortion • women with anxiety & depression preabortion were more likely to have ongoing PTSD & PTSS postabortion • Screening was recommended in preabortion counseling
Lundell, W. et al. (2013). Posttraumatic stress among Women after induced abortion: A Swedish multi-	1457 Swedish	Standardized measures used to assess posttraumatic	<ul style="list-style-type: none"> • at 3 mo, 2.0% = PTSD & 4.6% = PTSS

Centre cohort study. <i>BMC Womens Health</i> , 13-52, doi: 10.1186/1472-6874-13-52.	women who obtained an abortion	stress symptoms pre-abortion and at 3 mo & 6 mo postabortion	<ul style="list-style-type: none"> • at 6 mo, 1.9% = PTSD & 6.1% = PTSS • dropouts had higher rates of PTSD & PTSS
Huang, Z, et al. (2012). The impact of prior abortion on anxiety and depression symptoms during a subsequent pregnancy: Data from a population-based cohort study In China. <i>Bulletin of Clinical Psychopharmacology</i> , 22 (1), 51-58.	6,887 Chinese women, of whom 3,264 (47.4%) experienced at least one abortion. The rates of spontaneous abortion and induced abortion were 8.3% and 41.6%, respectively.	A random subsample of pregnant women were administered the CES-D to assess depression and the SAS to measure anxiety during the first and second trimesters of pregnancy.	<ul style="list-style-type: none"> • Women with a history of induced abortion were significantly more likely to report cases of depression and cases of anxiety during the first trimester of a subsequent pregnancy than women with no history of abortion. Controlling for confounding variables yielded similar results. • No significant differences in cases of anxiety or depression were observed when comparing women who had experienced a spontaneous abortion and those with no abortion history.
Zulcic-Nakic, V. et al. (2012). Psychological problems sequelae in adolescents after artificial abortion. <i>Pediatric Adolescent Gynecology</i> , 25, 241-247.	120 female adolescent war survivors in Bosnia-Herzegovina	Standardized measures used to assess psychological state 30 days postabortion. Control case study to assess outcomes for adolescents up to 12 wks of pregnancy compared to non-pregnant adolescents – none of whom had a history of somatic or psychiatric disease	<ul style="list-style-type: none"> • among 60 adolescents who aborted, 18 (30%) met DSM IV criteria for PTSD compared to 60 adolescents who were not pregnant and 8(13.3%) of whom met criteria for PTSD • Adolescents who had abortion reported significantly more severe intensity of post-traumatic (PT) symptoms of disturbing dreams, loss of interest, feeling distant from others, emotionally numb or inability to have loving feelings for close person(s), difficulty concentrating, and being super alert.
Rousset C., Brulfert C., Séjourné N., Goutaudier N., Chabrol H. (2012). Posttraumatic stress disorder and psychological distress following medical and surgical abortion. <i>Journal of Reproductive and Infant Psychology</i> , 29(5):506–517. doi: 10.1080/02646838.2012.654489.	86 French women who experienced either medical or surgical abortion	Multiple standardized measures (IES-R, MSPSS, PDEQ, PEL, HADS, PGS, TGI) used to assess women a few hours after and again at six weeks after abortion.	<ul style="list-style-type: none"> • Six weeks post abortion, 38% of women reported potential PTSD. • Peritraumatic dissociation and peritraumatic emotions were the main predictors of the intensity of post-abortion PTSD symptoms. • Compared to surgical abortion, medical abortion was associated with increasing the risk of developing PTSD.

<p>Montmasson, H., Bertrand, P., Perrotin, F. & El-Hage, W. (2012). Predictors of postpartum post-traumatic stress disorder in premarital mothers. <i>Journal of Gynecology, Obstetrics & Biological Reproduction</i>, 41(6), 553-560.</p>	<p>212 French hospitalized primiparous mothers</p>	<p>This longitudinal prospective study evaluated the prevalence of obstetric complications and psychiatric disorders (anxiety, depression, psychic dissociation, PTSD, personality) in the immediate postpartum and after 3-6 months.</p>	<ul style="list-style-type: none"> • The prevalence of PTSD symptoms was high and stable through the postpartum (12.7% versus 13.6%) • History of abortion (OR=6.2); p<0.01) was identified as a significant risk factor associated with postpartum PTSD
<p>Canário C., Figueiredo B., Ricou M. (2011). Women and men's psychological adjustment after abortion: a six months prospective pilot study. <i>Journal of Reproductive Infant Psychology</i>, 29(3):262–275. doi: 10.1080/02646838.2011.592974.</p>	<p>50 Portuguese women and 15 of their male partners</p>	<p>Participants assessed at one and six months after abortion using the IES-R, the Brief Symptoms Inventory, and the Relationship Questionnaire.</p>	<ul style="list-style-type: none"> • Results suggested that participants who had elective abortions and had higher levels of perceived quality in couple relationship presented lower trauma symptoms. • Trauma symptoms declined over time.
<p>Coleman, P., Coyle, C. & Rue, V. (2010). Late-term elective abortion and susceptibility to posttraumatic stress symptoms. <i>Journal of Pregnancy</i>, Vol. 2010, Article ID 130519, 1-10.</p>	<p>374 women from multiple countries who experienced abortion (81% were U.S.)</p>	<p>Using online survey, women in the 1st trimester were compared with women in the 2nd/3rd trimester using standardized PTSD measure, PCL-C</p>	<ul style="list-style-type: none"> • Later abortions were associated with higher Intrusion subscale scores and with a greater likelihood of reporting disturbing dreams, reliving of the abortion, and trouble falling asleep • Reporting the pregnancy was desired by one's partner, experiencing pressure to abort, having left the partner prior to the abortion, not disclosing the abortion to the partner, and physical health concerns were more common among women who received later abortions • Social reasons for the abortion were linked with significantly higher PTSD total and subscale scores • 52.5% of women obtaining a 1st trimester abortion met PTSD criteria • 67.4% of women obtaining a 2nd trimester abortion met PTSD criteria
<p>Vukelic, J., Kapamadzija, A. & Kondic, B. (2010). Investigation of risk factors for acute stress reaction following induced abortion. <i>Med. Pregl.</i>, 63(5-6), 399-403.</p>	<p>40 Serbian women who abortions</p>	<p>Women received a research questionnaire 7 days after their induced abortion which included the Acute Stress Reaction Scale.</p>	<ul style="list-style-type: none"> • 52.5% met criteria for Acute Stress Disorder • Less education, lower income, more religious, not approving of abortion and worse relationship with their partners after the were linked to women with ASD versus those without ASD • Women with ASD after the abortion developed guilt, irritability, shame, self-judgement, fear from God and self-hatred • 32.5% met criteria for PTSD
<p>Coyle C. T., Coleman P. K., Rue V. M. (2010). Inadequate preabortion counseling and decision conflict as predictors of subsequent relationship difficulties and psychological stress in men and women. <i>Traumatology</i>, 16(1):16–30. doi: 10.1177/1534765609347550.</p>	<p>374 women 198 men</p>	<p>Psychological stress was assessed using the PTSD Checklist–Civilian Version (PCL-C).</p>	<ul style="list-style-type: none"> • For women, perceptions of preabortion counseling inadequacy predicted relationship problems, symptoms of intrusion, avoidance, and hyperarousal, and meeting full diagnostic criteria for PTSD • Incongruence in the decision to abort predicted intrusion and meeting diagnostic criteria for PTSD among women

<p>Hamama, L. et al. (2010). Previous experience of Spontaneous or elective abortion and risk for post-traumatic stress and depression during subsequent pregnancy. <i>Depression & Anxiety</i>, 27(8), 699-707.</p>	<p>221 U.S. women who had prior elective abortion & 206 women who had prior miscarriage</p>	<p>Completed standardized telephone assessments including trauma history, PTSD, depression, and pregnancy wantedness, and religiosity as they impact subsequent pregnancy</p>	<ul style="list-style-type: none"> • of those women who experienced either elective abortion or miscarriage, 32.6% (n=132) rated it as their index trauma (i.e., their worst or second worst lifetime exposure) • 12.6% (51) experienced PTSD in subsequent pregnancy • 16.8% (68) experienced depression in subsequent pregnancy • 5.4% (22) experienced both PTSD and depression
<p>Kelly T., Suddes J., Howel D., Hewison J., Robson S. (2010). Comparing medical versus surgical termination of pregnancy at 13–20 weeks of gestation: a randomised controlled trial. <i>British Journal of Obstetrics Gynaecology</i>, 117(12):1512–1520. doi: 10.1111/j.1471-0528.2010.02712.x.</p>	<p>120 UK women randomized to medical (MTOP) or surgical (STOP) groups</p>	<p>2 weeks after TOP, distress assessed by the Impact of Events Scale (IES), and acceptability assessed by the proportion of women who would opt for the same procedure again.</p>	<ul style="list-style-type: none"> • At 2 weeks post-procedure there was no difference in total IES score between groups. • Compared with women undergoing STOP, women undergoing MTOP had a higher score on the IES intrusion subscale and a higher score on the general health questionnaire (GHQ) • Women found STOP less painful and more acceptable than MTOP
<p>Mota, N., Burnett, M. & Sareen, J. (2011). Associations between abortion, mental disorders, and suicidal behaviour in a nationally representative sample. <i>Canadian Journal of Psychiatry</i>, 55, 239-247.</p>	<p>3,291 U.S. women</p>	<p>Data from National Comorbidity Survey-Replication (NCS-R) using WHO's CIDI</p>	<ul style="list-style-type: none"> • 16.8% (88) met psychiatric classification for PTSD among 452 women who acknowledged having had an abortion in the NCS-R • After controlling for age, marital status, race, education, income, and violence, women who had an abortion when compared to women with no abortion experienced a 46% increased risk for PTSD
<p>Coleman, P., Coyle, C., Shuping, M., Rue, V. (2009). Induced abortion and anxiety, mood, and substance abuse disorders: Isolating the effects of abortion in the National Comorbidity Survey. <i>Journal of Psychiatric Research</i>, 43, 770–776 & Corrigendum (2011) 45, 1133-1134.</p>	<p>3,049 U.S. women</p>	<p>Study used the National Comorbidity Survey (NCS), a stratified, multi-stage area probability sample of individuals between the ages of 15-54. The sample included 350 woman who had either one abortion (81.9%) or more (18.1%) abortions and 2582 women who did not report an abortion.</p>	<ul style="list-style-type: none"> • Eleven of the 15 diagnoses examined revealed significant differences between the abortion and no abortion groups • Abortion made significant independent contributions to 8 of the 15 mental health variables above and beyond the effects of the 22 control variables. Increased risks are as follows: PTSD (95%), Agoraphobia with or without Panic Disorder (124%), Agoraphobia without Panic Disorder (132%), Alcohol Abuse with or without dependence (105%), Alcohol Dependence (134%), Drug abuse with or without dependence (70%), Drug Dependence (104%), and Major Depression with hierarchy (42%). • the abortion variable made a significant independent contribution to more mental health problems than several variables, including a childhood history of maltreatment (sexual abuse, physical abuse, and neglect) as well as physical assault in adulthood • 8.3% PTSD (PAR)

<p>van Emmerik A. A. P., Kamphuis J. H., Emmelkamp P. M. (2008). Prevalence and prediction of re-experiencing and avoidance after elective surgical abortion: a prospective study. <i>Clinical Psychology & Psychotherapy</i>, 15(6):378–386. doi: 10.1002/cpp.586.</p>	<p>67 Dutch women presenting for first-trimester surgical TOP</p>	<p>Utilized self-report measures for dissociative tendency and alexithymia. Traumatic dissociation was measured immediately post-abortion. Re-experiencing and avoidance were measured 2 months post-abortion.</p>	<ul style="list-style-type: none"> • Participants reported moderately elevated levels of re-experiencing and avoidance that exceeded a clinical cut-off point for 19.4% of the participants • 23.9% met clinical cut-off point (35) for posttraumatic stress on the IES • Re-experiencing and avoidance after elective surgical abortion represent a significant clinical problem that is predicted by peritraumatic dissociation and alexithymia
<p>Fergusson, D., Horwood, L. & Boden, J. (2008). Abortion and mental health disorders: Evidence from a 30 year longitudinal study. <i>British Journal of Psychiatry</i>, 193, 444-451</p>	<p>534 New Zealand women</p>	<p>The data used here were gathered over the course of the Christchurch Health and Development Study (CHDS). The CHDS is a longitudinal study of a birth cohort of 1265 children born in the Christchurch urban region in New Zealand who have been studied at birth, 4 months, 1 year and annual intervals to age 16 years, and again at ages 18, 21, 25 and 30.</p>	<ul style="list-style-type: none"> • “Exposure to induced abortion was consistently associated with increased rates of mental disorders, with ORs for individual disorders ranging from 1.86 to 7.08. These trends are reflected in the fact that those exposed to abortion between ages 15–30 had overall rates of mental health problems that were 1.54 (95% CI 1.28–1.85) times higher than those not exposed to abortion (P<0.001).” p. 447 • “In general, the results lead to a middle-of-the-road position that, for some women, abortion is likely to be a stressful and traumatic life event which places those exposed to it at modestly increased risk of a range of common mental health problems.” p. 450 • “These findings are consistent with the view that exposure to abortion has a small causal effect on the mental health of women.” p. 449.
<p>Steinberg, J. & Russo, N. (2008). Abortion and anxiety: What’s the relationship? <i>Social Science & Medicine</i>, 67, 238-252.</p>	<p>1823 U.S. women whose pregnancy ended in abortion or live birth</p>	<p>Secondary data analysis of National Comorbidity Survey, a stratified, multistage area probability sample</p>	<ul style="list-style-type: none"> • women with multiple abortions were found to be associated with much higher rates of PTSD and social anxiety than women with one abortion or no abortions, 4.8%, 2.5% & 0.9% respectively • logistic regression analysis found women who had repeat abortions were significantly more likely to have PTSD than those who reported no abortions • 20.2% of women with unplanned pregnancies experienced anxiety after the abortion
<p>Suliman S., et al. (2007). Comparison of pain, cortisol levels, and psychological distress in women undergoing surgical termination of pregnancy under local anaesthesia versus intravenous sedation. <i>BMC Psychiatry</i>, 7, article 24. doi: 10.1186/1471-244x-7-24.</p>	<p>155 South African women were compared based on their use of local anesthesia vs. IV sedation</p>	<p>Women were assessed using clinician-administered interviews including CAPS-I and self-report measures just prior to termination, immediately post-procedure, and at 1 month and 3 months post-procedure.</p>	<ul style="list-style-type: none"> • At 3 months, 18.2% of women met criteria for PTSD • At 3 months, 20% met criteria suggestive of clinical depression • At 1 and 3 months, there were no significant differences in pain, psychological outcomes (PTSD, depression, self-esteem, state anxiety), or disability between the groups.

<p>Broen A. N., Moum T., Bødtker A. S., Ekeberg Ø. (2005). The course of mental health after miscarriage and induced abortion: a longitudinal, five-year follow-up study. <i>BMC Medicine</i>, 3, article 18. doi: 10.1186/1741-7015-3-18.</p>	<p>40 women from Norway who experienced miscarriage & 80 who experienced non-medical TOP</p>	<p>All women completed the following questionnaires 10 days (T1), six months (T2), two years (T3) and five years (T4) after the pregnancy termination: Impact of Event Scale (IES), Quality of Life, Hospital Anxiety and Depression Scale (HADS), and another addressing their feelings about the pregnancy termination.</p>	<ul style="list-style-type: none"> • Women who had had a miscarriage exhibited significantly quicker improvement on IES scores for avoidance, grief, loss, guilt and anger throughout the observation period. • Women who experienced induced abortion had significantly greater IES scores for avoidance and for the feelings of guilt, shame and relief than the miscarriage group at two and five years after the pregnancy termination. • Compared with the general population, women who had undergone induced abortion had significantly higher HADS anxiety scores at all four interviews.
<p>Hemmerling A., Siedentopf F., Kentenich H. (2005). Emotional impact and acceptability of medical abortion with mifepristone: a German experience. <i>Journal of Psychosomatic Obstetrics and Gynecology</i>, 26(1):23–31. doi: 10.1080/01443610400023056.</p>	<p>219 German women</p>	<p>Women completed HADS & IES prior to and one month after abortion.</p>	<ul style="list-style-type: none"> • Comparing data before and a month after the abortion, our study showed a significant decline of both anxiety and depression for both abortion methods. • Findings suggest that termination of an unwanted pregnancy is a positive first solution to the conflict, regardless of the chosen method.
<p>Gomez Lavin, C. & Zapata Garcia, R. (2005). Diagnostic categorization of post-abortion syndrome. <i>Actas Espana Psiquiatrica</i>, 33(4), 267-272.</p>	<p>10 Spanish women</p>	<p>Psychopathological symptoms were diagnosed in postabortive women.</p>	<ul style="list-style-type: none"> • All 10 women met diagnostic criteria for PTSD following their abortion • Symptoms of repeated and persistent dreams and nightmares related to the abortion, intense guilt feelings, and the “need to repair” were also identified • Post-Abortion Syndrome (PAS) should be considered as an additional type of PTSD
<p>Layer S. D., Roberts C., Wild K., Walters J. (2004). Postabortion grief: evaluating the possible efficacy of a spiritual group intervention. <i>Research on Social Work Practice</i>, 14(5):344–350. doi: 10.1177/1049731504265829.</p>	<p>35 women from the U.S.</p>	<p>Women completed the IES-R and the Internalized Shame Scale (ISS) pre and post-Intervention along with posttest open-ended questions.</p>	<ul style="list-style-type: none"> • Postintervention measures indicated a significant decrease in shame and PTSD symptoms.
<p>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(10), SR5–SR16.</p>	<p>548 women who had obtained abortion(s) and no other losses: 331 Russian 217 U.S.</p>	<p>Institute for Pregnancy Loss Questionnaire (IPLQ) and Traumatic Stress Institute’s Belief Scale (TSI) utilized at health care facilities with 548 women. Women with pre-abortion mental health problems were excluded from the sample. Only</p>	<ul style="list-style-type: none"> • American women were more negatively influenced by their abortion experiences than Russian women. • 65% of American women and 13.1% of Russian women experienced multiple symptoms of increased arousal, re-experiencing and avoidance associated with posttraumatic stress disorder (PTSD) and 14.3% of American and 0.9% of Russian women met the full diagnostic criteria for PTSD. • Russian women had significantly higher scores on the TSI than American women indicating more disruption of

	women	those symptoms women attributed to their abortion experience were reported.	<p>cognitive schemas.</p> <ul style="list-style-type: none"> • Predictors of positive and negative outcomes associated with abortion differed across the two cultures. • Posttraumatic stress reactions were found to be associated with abortion. Consistent with previous research, the data suggest abortion can increase stress and decrease coping abilities, particularly for those women who have a history of adverse childhood events and prior traumata.
Van Rooyen, M. & Smith, S. (2004). The prevalence of post-abortion syndrome in patients presenting at Kalafong hospital's family medicine clinic after having a termination of pregnancy. <i>South African Family Practice</i> , 46 (5), 21-24.	48 South African women	Women were interviewed and specifically asked about symptoms of PAS including re-experiencing the event, avoidance, and physical symptoms.	<ul style="list-style-type: none"> • Of the 48 women recruited during the six-month study period, 16 (33%) fulfilled the diagnostic criteria of PAS. • 52% of the 48 women reported one or more ways of re-experiencing the event: recurrent dreams (27%), flashbacks (44%) and intrusive recollection of the event (52%).
Mufel N., Speckhard A., Sivuha S. (2002). Predictors of post-traumatic stress disorder following abortion in a former Soviet Union country. <i>The Journal of Prenatal and Perinatal Psychology and Health</i> , 17:41–61.	150 Belarussian women who underwent abortion	Women were interviewed regarding reproductive history and decision-making and were assessed using the IES-R to measure PTSD symptoms.	<ul style="list-style-type: none"> • 46% of the women suffered from PTSD. • Predictors of PTSD included: recognition of life of the fetus, attachment, time since abortion, and number of weeks of gestation.
Major, B. et al. (2000). Psychological responses of women after first-trimester abortion. <i>Archives of General Psychology</i> , 57, 777-784.	442 U.S. women were interviewed at post-termination (50% of 882 at baseline)	Measures include Brief Symptom Inventory, modified Diagnostic Interview Schedule, 4-item Rosenberg Self-Esteem Inventory, adapted PTSD scale, emotional reactions, satisfaction with decision, appraisal of abortion-related harm.	<ul style="list-style-type: none"> • While most women were satisfied with their decision to abort and felt relief afterwards, negative emotions increased, and positive emotions decreased over time • 1.3% experienced PTSD at 2 years follow-up
Slade P., Heke S., Fletcher J., Stewart P. (1998). A comparison of medical and surgical termination of pregnancy choice, psychological consequences and satisfaction with care. <i>British Journal of Obstetrics and Gynaecology</i> , 105(12):1288–1295.	275 UK women presenting for 1st trimester medical or surgical AB	Women were interviewed before and one month after abortion.	<ul style="list-style-type: none"> • One-quarter of women in both groups remained anxious at 4 wks postabortion. • Women who saw the fetus were most susceptible to psychological distress, including nightmares, flashbacks, and unwanted thoughts related to the procedure.