

## Abortions in the United States: Are there psychological consequences for adolescents?

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### Abstract

**Purpose: Objectives:** The aim of this paper is to identify the psychological effects of abortions in adolescents in the United States. **Problem Statement:** According to the literature, since the 1990s, abortion rates in the U. S have been declining. However, rates of abortion for poor and minority women remain high. In fact, the rates have increased for black women and black teenagers. While abortions offer a solution to an unintended and unwanted pregnancy, the adverse mental health effects associated with abortions can be troubling for adolescents who are incapable of dealing with the psychological consequences or do not have the resources to seek help. While there are numerous studies showing a risk for negative psychological sequelae in abortion patients, especially adolescents, there is controversy surrounding the claim that abortions pose a risk for psychological harm. **Method:** The literature search for academic articles in peer-reviewed journals on the subject of negative psychological effects of abortions in adolescents in the United States was conducted using terms "abortion," "adolescents," "psychological health," "abortion," "adolescents," "emotional health," "abortion," "depression," "abortion," "teens," "health outcomes" in databases such as EBSCO, MEDLINE, Academic Search Complete, and SCOPUS. A total of 15 articles were included in this review. **Results:** Studies have shown an association between abortions and psychological sequelae. Some studies indicate that women who have abortions are at risk of developing psychological problems like depression and anxiety after the procedure, and adolescents may be at a greater risk for these effects. The psychological effect can be both short-term and long-term. On the other hand, other studies have shown no association between abortions and psychological sequelae. While the controversy around this claim continues, in the meantime, there are clinical implications that need to be addressed. **Conclusion:** Though we cannot say that abortions lead to psychological problems, it is evident that there are some women who are affected psychologically after an abortion. Thus, additional studies are needed for additional evidence and possible explanations as to why some women are at greater risk than others. In addition, if evidence is showing that abortion patients are at risk for negative psychological outcomes, there needs to be policy enacted to address the care that women receive after abortions to address and help anyone who may need counseling care.

**Keywords:** abortion, adolescents, psychological health, emotional health," "abortion," health outcomes.

### 1. Introduction

Pregnancy is a normal part of life. Because women have unintended and unwanted pregnancies, abortion is a common medical procedure in the lives of women and adolescents of reproductive age.

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In the United States, teen pregnancy and childbearing are important social problems because of the possibility for adverse health and social outcomes. Whereas the rates of abortions have been declining, abortion rates for the poor and minorities remain high and have increased for black adolescents. Although legal abortions are considered safe, there are concerns that abortions may have negative mental health outcomes. Some studies have found that women who have had abortions are at risk of developing psychological problems after having abortions. The ongoing debate around questions of psychological harm in adolescents who have had abortions have led to the citation of many empirical studies in legislative and judicial testimony, which have led some states to restrict abortion laws for minors (Medoff, 2010; Robinson, Stotland, Russo, Lang, & Occhiogrosso, 2009). This paper will examine whether or not abortions have psychological effects on adolescents in the United States, the risk factors for this group, and the ways to prevent and help those experiencing psychological sequelae.

## 1.2 Definitions

**Adolescent** is a young person between 10 and 19 years of age (WHO).

**Abortion** is pregnancy termination in early stage of pregnancy by methods of medical and surgical (Davis, & Beasley, 2009). It is the removal of the fetus from the uterus. It can occur spontaneously, which is known as a miscarriage, or it can be induced.

**Medical abortion** is a common type of abortion. It is a non-surgical procedure in which two pills are given, mifepristone followed by misoprostol up to 63 days of gestational age.

**Surgical abortion** is a surgical method done up to 15 weeks of gestation by suction or vacuum aspiration (Davis, & Beasley, 2009).

## 2. Statistical Overview

According to Davis & Beasley (2009), "four out of five pregnancies in teenagers in the United States are unintended and about one-third of all adolescent pregnancies end in induced abortion" (p. 390). Approximately 800,000 to 900,000 adolescents become pregnant each year. The rates are higher in Black and Hispanics compared to their white counterparts. In the early 1990s, abortion rates declined in adults and adolescents, however, the rates remained high among minority women and the poor (Harper, Henderson, & Darney, 2005). Adolescent abortion rates have been noticed to decline at a faster rate than that of adults (Harper et al., 2005). Between 1987 and 2002, the rates have declined by 22% and the demographic characteristics of women of reproductive age and having abortions have also changed (Finer, Frohworth, Dauphinee, Singh, & Moore, 2005).

The demographic changes show an increase in the proportion of poor women who had an abortion between the year 1994 and 2000 (Finer & al., 2005). In addition, the percentages of women having abortions that already has one or more children have also increased. Low-income women were found to have more abortions when compared to high-income women because they tend to have more unintended pregnancies (Harper et al., 2005). In 2000, the rate of abortions for low-income women was 44 per 1000 compared to a rate of 10 per 1000 for those with high income. While the rates decreased in high and middle-income women during the mid-nineties to 2000, for low-income women, teenagers, and Medicaid recipients, the rates increased (Harper & al., 2005). Moreover, when compared to other ethnic/racial groups, Black women were more likely to have unintended pregnancies. Thus, they are more likely to have abortions. The rates were 49 per 1000 for Blacks, 33 per 1000 for Hispanics, 31 per 1000 for Asians, and 13 per 1000 for whites. According to data from a nationally representative survey of women who had abortions in 2000-2001, the overall abortions rate in adolescents aged 15-19 years old was 25 per 1000; a rate of 15 per 1000 for younger adolescents aged 15-17 years old, and 39 per 1000 for those 18-19 years old. The highest rate was among women aged 20-24 years old, a rate of 47 per 1000 (Harper et al., 2005).

## 3. Methods

A literature search for articles on the subject of negative psychological effects of abortion in adolescents in the United States was conducted using terms "abortion," "adolescents," "psychological health," "abortion," "adolescents," "emotional health," "abortion," "depression" "abortion," "teens," and "health outcomes" in databases such as EBSCO, MEDLINE, Academic Search Complete, and SCOPUS. The search criteria were limited to peer reviewed articles in English from year 2000- 2012 in the U.S.

The search resulted in 257 articles in Academic Search Complete. Using the terms "abortion" and "adolescents" with the same criteria resulted in 20 articles in EBSCO. Articles not based in the U.S. and used a language other than English were excluded. In total, 15 articles have been reviewed.

#### **4. Findings**

This paper examines the psychological effects of abortions on adolescents in the United States. Of the 12 articles reviewed, some studies supported the claim that abortions are associated with psychological effects such as anxiety and depression, and others rejected it. The results will be organized under two themes: No association to psychological sequelae, and an association to psychological sequelae. In addition, I will discuss how, among studies that support the claim, the adverse response can be either short-term or long-term, and what variables are associated with the adverse response post-abortion. Lastly, the clinical implications surrounding this topic are important to address because it is important that health professionals understand the potential psychological effects and make sure that women get the care that they need post-abortion.

##### **4.1 No association to psychological sequelae**

Many studies have found no association between abortion and psychological disorders. Adler, Ozer, & Tschann (2003) argued that a number of studies have shown that the risk of psychological harm following an abortion is low. While some women have experienced some psychological dysfunctions after having an abortion, post-abortion rates for dysfunction and distress are found to be lower than pre-abortion rates. Moreover, there is a concern that adolescents are at greater risk. However, there is a lack of support from the empirical data. In a study of adolescent abortion, 360 adolescents were interviewed when they were seeking pregnancy tests and they were followed over a period of two years after the interview. Of the 360 adolescents, some tested negative, some were pregnant and carried their pregnancy to term, and some had abortions. The results showed that two years after baseline, those who underwent an abortion showed a significant drop in anxiety, an increase in self-esteem, and they appeared to function as well as or better than those who were not pregnant or those who carried their pregnancy to term.

In addition, Adler and colleagues argued that there have been studies that assessed whether or not legal minors are at greater risk of adverse psychological reactions following an abortion than are older patients. A study by Quinton, Major, & Richards (2001) compared answers of 38 abortion patients who were under 18 years old to 402 adults. The women were randomly recruited at one of three abortion clinics in Buffalo and New York. A pre-abortion questionnaire was done prior to the procedure, follow-up interviews were also done at one month and 2 years after the procedure. Potential adolescent risk factors were assessed day of the procedure. The factors include, pre-abortion depression, personal conflict, fear of the abortion procedure, perceived parental conflict, coercion to abort, parental disclosure, self-efficacy appraisals, and avoidant coping strategies. There were significant results for only 3 of the 7 risk factors: Perceived parental conflict, self-efficacy appraisals for coping with the abortion, and avoidant coping. When compared to adults, minors perceived more parental conflict related to the abortion, had lower self-efficacy appraisals, and used more avoidant coping strategies. Measuring psychological functioning, a standardized measure for depression showed that there were no differences one month or two years post-abortion. At one month post-abortion, the minors were less satisfied of the abortion compared to the adults. However, as time passed, minors' scores became more positive. After two years, no differences were observed by age (Quinton et al., 2001). There is no evidence that mean post-abortion scores on psychological measures are outside the normal bounds for minors and adults. "The data do not suggest that legal minors are at heightened risk of serious adverse psychological responses compared with adult abortion patients or with peers who have not undergone abortions" (Adler et al., 2003, p. 213).

In order to assess adverse psychological outcomes in younger adolescents, a study compared 14-18 year olds to 18-21 year olds to see whether the younger group experienced greater adverse outcomes and whether or not all adolescents are at risk for negative sequelae and what the predicting factors are for negative outcomes (Pope, Adler, & Tschann, 2001). A total of 96 young women seeking counseling for unwanted pregnancies participated in the completion of the Beck Depression Inventory (BDI), it was used as a pre abortion questionnaire a day or two before the abortion, which also served as a baseline test score. Four weeks after abortion, 63 of the participants were re-interviewed and they completed the Beck Depression Inventory, an emotional scale, Rosenberg Self-esteem Scale, Spielberg State Anxiety Inventory, Impact of Events Scale, and Positive State of Mind Scale. In addition, four measures of psychological functioning were tested: Anxiety, self-esteem, stress, and positive states of mind. The ethnic background of the participants varied, 32% were African-American, 22% Latina, 21 % White, 11% Asian, and 14% were mixed or other.

The results showed that adolescents were less comfortable with their decisions compared to the older group. However, there were no other differences observed and no differences were found on ethnicity. Both groups had shown significant improvement in their psychological responses. Thus, they concluded that there was no evidence showing that abortion poses a threat to the psychological well-being of adolescents (Pope et al., 2001).

In a population-based cohort study, data from girls aged 15 years old or younger and women with no documentation of mental disorders who had either a first-trimester induced abortion or a first childbirth between 1995 and 2007 were used. The study linked information from the Danish Civil Registration System to the Danish Psychiatric Central Register and the Danish Register of Patients (Munk-Olsen, Laursen, Pedersen, Sc., Lidegaard, & Mortensen, 2011). The participants were followed up to twelve months after the event, until a psychiatric event, until death, or until December 31, 2007. Rates of first-time psychiatric contact were projected for any kind of mental disorder within a twelve-month period after the event as compared with the nine months period before the event. Psychiatric contact is defined as an inpatient admission or outpatient visit for any kind of mental disorder. The results showed that the incidence rate of first psychiatric contact per 1000 person-years between girls and women who had an abortion to be higher after an abortion than before, 15.2 to 14.6. The rates between girls and women who had their first childbirth were 6.7 after birth and 3.9 before delivery. While the rates are higher after abortions as compared to before abortions, the relative risk did not differ significantly. However, the rate increased after childbirth as compared to before birth. Since the incidence rates are considered similar, the result does not support the hypothesis that there is an increased risk of mental disorders after a first-trimester induced abortion.

Steinberg & Russo (2008) used data from the National Comorbidity Survey (NCS) and the United States National Survey of Family Growth (NSFG) to assess the association of abortion to anxiety in two different studies. The result for the NSFG showed that a variety of factors accounted for a significant association found amongst first pregnancy outcome and experiencing subsequent anxiety symptoms. The factors include age at abortion and delivery, pre-pregnancy anxiety symptoms, race, rape history, income, education, subsequent abortions/deliveries, and marital status. However, the NCS analysis, did not find a significant association between first pregnancy outcome and subsequent rates of anxiety, social anxiety, generalized anxiety disorder (GAD), and post-traumatic stress disorder (PTSD). The association observed in the NSFG results between anxiety symptoms and abortion was explained by the presence of covariates like pregnancy intention and violence exposure. While a significant relationship between first pregnancy outcome and rates of GAD, social anxiety, and/or PTSD could not be found, multiple abortions were discovered to be related with much higher rates of PTSD and social anxiety. The length of time from the event to the onset of anxiety symptoms varied from one to six months, to twenty years (Steinberg & Russo, 2008).

Major, Cozzarelli, Cooper, Zubek, Richards, Wilhite, & Gramzow, (2000) examined women's emotions, evaluations, and mental health after an abortion. The study was a longitudinal study with 4 assessments done at one hour before the abortion, one hour, one month, and two years after the procedure. Of 1043 eligible women, 882 women agreed to participate, 442 of the 882 women were followed for two years. Of the women who participated, the mean age was 23.68 years compared to a mean of 25.92 years for those who refused. The results showed that 2 years after the abortion, 301 (72%) of 418 women were satisfied with their decisions, 306 (69%) of 441 women said they would do it again, 315 (72%) of 440 reported more benefits than harm, 308 (80%) were not depressed, and 6 (1%) reported PTSD. Moreover, depression was found to have decreased and self-esteem increased from pre-abortion to post-abortion. However, negative emotions increased and decision satisfactions did decrease over time. Severe psychological distress was concluded to be rare after an abortion. Mental health did not decline post-abortion. Women who experienced psychological problems tend to have a history of depression (Major et al., 2000).

#### **4.2 There is an association to psychological sequelae**

Many studies in the past have shown evidence that there is a correlation between abortion and negative psychological effects. However, there are not as many relative risk studies done to establish as to whether or not adolescent abortion is associated with greater risk to psychological issues (Coleman, 2006). According to the reviews, the adverse responses of post-abortion may vary from one person to the next. Two of the disorders found to be a consequence of abortions are anxiety and depression. Additionally, the length of the response may be either short-term or long-term.

While there are potential negative psychological effects to abortion, not everyone experiences them. There are variables that are believed to be associated with adverse post abortion response and will also vary from person to person. An observed association does not indicate that abortion causes psychological disorders. However, it's important to note the clinical implications in this topic.

The factors associated with adverse post abortion response may differ for women and adolescents. Some of the factors include age, religion, length of gestation, pregnancy intention, social support, relationship with partner, and coping expectancies (Pope et al., 2001). Moreover, education, socioeconomic status, ethnicity, secrecy, decreased social support, and location of residence may place women at risk for adverse psychological effects post abortion (Harris, 2003). In Zolse and Blacker's study (1992) (as cited in Williams, 2001), psychological disturbances associated with elective abortions may be severe or persistent in few women, studies in which standardized psychiatric instruments were used, a negative outcome was reported to be 10-20% (Williams, 2001). In addition, the risk for psychological sequelae is more prevalent in certain people. For instance, younger women compared to adults, those with a history of psychiatric problem, women with poor social support, and multiparous women.

Most of the pregnancies in adolescents are unintended (75-86%) and they are widely recognized as a stressful event for most women regardless of age (Coleman, 2006). Almost 25% of U.S. abortions are performed on women under age 20 and younger women may be particularly susceptible to experiencing post-abortion difficulties as compared to adults. (Coleman, 2006). An explanation for the likely elevated risk for post-abortion emotional problems during adolescence is the pressure applied by others. Adult women who decide to abort and are supported by important people in their lives tend to have a positive adjustment after abortion. In comparison to when they are pressured into having an abortion or by other circumstances, a negative post-abortion outcome is more common (Coleman, 2006). Moreover, adolescents may be at a higher risk for post-abortion adjustment difficulties because they are generally less prepared to take the responsibilities of parenthood, more inclined to engage in denial of the pregnancy, and delay in decision-making than adults who tend to be more matured.

In Zabin, Hirsch, & Emerson's study (as cited in Andrews & Boyle, 2002), discussed findings of a study done to compare responses of African-American adolescent and adult women. The study was conducted to examine the psychological effects of abortion on adolescents. There were 252 women aged 16- 64 years who participated, at the time of time of the abortion they were between the ages of 14-40 years old. The women completed questionnaires and the findings indicated that adolescents had greater psychological distress after having an abortion than their adult counterparts, specifically complaining that they felt uninformed and were pressured into having the abortion. However, in Andrews & Boyle study of 12 African -American adolescents aged 15-18 years old that was conducted 6-8 months after the abortion, the participants reported that others supported their decisions, they didn't feel forced into having the abortion. Though they felt sadness 2-4 weeks after the abortion, they felt relief and had no regret (Andrews & Boyle, 2002).

Studies have shown that history of abortions is associated with an increase in anxiety disorders. In 2009, Coleman, Shuping, & Rue conducted a study using data from the national comorbidity survey (NCS) to examine the associations between abortion, a range of anxiety disorders, and mood disorders including depression (Coleman, Coyle, Shuping, & Rue, 2009). The study had 8098 participants, a response rate of 82.6%. The independent variable was abortion history, to test whether abortion had a similar effect as other large-scale studies. The study controlled for 22 socio- demographic and personal history characteristics hypothesizing an independent contribution of abortion to a range of mental health concerns. In order to get accurate and nationally representative results, sample weighting was completed. As a result, the abortion group was found to have a significantly greater frequency for each disorder. With regard to anxiety disorders (panic attack and disorder, PTSD, and agoraphobia), history of abortion was associated with an increased risk when compared to no history of abortion. Thus, abortion was concluded to be associated with an increased risk for a range of anxiety disorders. In a study by Steinberg and colleagues, data analyses of the NCS found that multiple abortions are associated with a higher rate of social anxiety and PTSD as compared to zero abortions. However, it was not significantly higher than women who reported 1 abortion (Steinberg et al., 2008). This relationship was explained by pre-pregnancy mental health disorders and their connection with higher rates of violence.

In order to compare adolescent psychological and behavioral outcomes associated with childbirth and abortion choices, demographic, educational, family, and psychological variables were controlled for potential confounding factors (Coleman, 2006).

The study tested the hypothesis that “compared to giving birth, abortion during adolescence is expected to be associated with a greater likelihood of needing counseling for psychological or emotional problems” (Coleman, 2006, p. 905). After controlling for the variables, it was found that those who aborted a pregnancy were more likely to seek psychological counseling for emotional and psychological problems associated with frequent problem sleeping. For instance, adolescents who aborted were 4 times more likely than those who gave birth to seek counseling for an emotional or psychological problem. Sleeping disorders are a common complaint associated with PTSD, which is a form of anxiety disorder (Coleman, 2006).

Cogle, Reardon, & Coleman (2005) conducted a study to examine risk of generalized anxiety following abortion or childbirth of unintended pregnancies. A representative sample of 10,847 women between the age of 15 and 44 years old was interviewed. The women were mostly Black and Hispanics. It is not clear as to when after the abortion or birth did the study take place. Looking at the age of first pregnancy and interview, I estimated the study to have taken place 6-12 years after the event. According to the results, the women who aborted were found to have significantly higher rates of generalized anxiety after controlling for race and age than the women who carried to term. When compared to older women, younger women under the age of 20 had higher rates of generalized anxiety (Cogle et al., 2005).

Moreover, there is evidence that there is an association between abortion and an increased risk for depression. Coleman, (2006), noted that in an analysis of the National Longitudinal Study of Youth, Reardon and Cogle (2002) discovered that women who had an abortion were at significantly higher risk for clinical depression when compared to those who gave birth to an unwanted child. The difference was the same after controlling for variables like age, income, race and psychological measure prior to the pregnancy.

In a study evaluating the relationship between depression and other psychological problems in adolescents terminating pregnancies, it's noted that 40% of the participants reported elevated levels of depression, stress, guilt, confused thinking, and low self-esteem (Ely, Flaherty, & Cuddeback, 2010). The study suggests, “adolescent pregnancy termination patients are a group at-risk for depression” (Ely et al., 2010, p.277). According to Reardon et al., 2003, women who had an abortion, have a considerably higher depression score when compared to those who carry an unintended pregnancy to term.

A study by Wheeler & Austin, (2001) examined the impact of early pregnancy loss of 164 low socio-economic and never married 13-19 year old females. The participants were placed in 4 groups: Never pregnant, pregnant, early pregnancy loss, and early pregnancy loss and subsequent pregnancy. Measurements were done testing for family relationships, grief responses, perception of life changes, self-esteem, and symptoms of depression. Results showed that the early pregnancy group scored significantly higher than the other groups' grief subscales, overall grief responses, and depressive symptoms. Significant differences were seen in all four groups on depression symptoms.

**4.3 Short term and long-term effects.** The adverse response experienced by abortion patients vary patient to patient in term of how long it takes for the onset of the psychological problem and how long it last. For some women, the experience was short lived, for others they experienced the problem for years. In a study by Reardon et al., (2003), psychiatric admission rates were compared in women 13-49 years old from 90 days to 4 years after an abortion or birth. The goal of the study was to examine psychiatric admission in relation to previous pregnancy outcomes over a long period of time. Controlling variables were socioeconomic status, history of past psychiatric problems, and age of eligibility for state funded medical care. The results showed that women and teens who had an abortion, were significantly at a greater relative risk of psychiatric admission. When compared to women who carry their pregnancies to term, consecutive admissions are more common in low-income women who have an abortion, both in the short and longer term.

In order to explore the long-term post-abortion experience of women, a study was conducted with women who had induced abortions 6-31 years ago, the age at first abortion ranged from 14-43 years old. At the time of the interview, the women were 23-60 years old (Hess, 2004). The sample consisted of 17 women and they were interviewed for 30 minutes to two hours. The women described the abortion experience more than 5 years later. They explained the effects it had on their lives, and the meaning it had on their lives at that time.

Some of the women described their reasons for choosing abortion and several women explained the negative aftermath and how they had to seek medical help for suicidal thoughts. One woman explained that she was depressed; she was starting to hate herself so she went to the doctor who then prescribed her antidepressants. A number of women gained new perspective on the abortion. They realized that the abortion had affected them emotionally when they were dealing with reproductive issues like miscarriage and trouble getting pregnant.

Furthermore, Hess (2004) indicated that many studies have shown that many women convey diverse feelings shortly after the procedure. Some of the feelings include guilt, a sense of anger, loss, and even a sense of relief. According to some studies, 5% to 20 % of women have emotional distress for up to 2 years after an abortion. In some instances, psychiatric intervention was needed. Moreover, many of the women had concealed the abortion and any other history of abortion because of shame and fear of how their family and friends would react. These women tried to suppress their emotions for many years, resulting in distress for many years. Increased secrecy may lead to increased suppression of thoughts and decreased emotional openness, thus resulting in depression.

**Table 1: Articles and studies showing an association between abortion and psychological sequelae N= 9**

Study	Sample	Design	Outcome	Findings	Association	Duration	Race	Variables
Coleman et al. 2009	National Comorbidity survey. 15-54 years. 8098 participants 82.6%	Interview-qualitative	Link of h/o abortion & no history to Panic disorder, attack, PTSD, etc.	Abortion= increased risk for a variety of mental health problems	Yes	Not stated	White Black Hispanic Other	PERSONAL, situational, demographic, history (22)
Coleman, 2006	65 abortion 65 delivered	Data analysis	Psychological & behavioral	"Adolescents who aborted were more inclined to seek psychological counseling than those who delivered"	Yes, However no significant differences for behavioral	1 year		Demographic, psychological, Educational, family
Ely et al. 2010	120 US pregnancy termination patients, 14-21 y/o. depressed vs. non-depressed	Survey	Depression and psychosocial problems	"Adolescent abortion patients are at risk for depression and those with symptoms above the established cut-score are at risk for elevated levels of stress, self-esteem problems, guilt & confused thinking"	Yes	Immediately after patient sought abortion	72 % White 11% AA 3% Other	
Williams, 2001	93 women: 45 h/o abortion, 48 no history-	Descriptive comparative study	Nature & intensity of short-term grief	"Higher trend of grief in those with h/o abortion	Yes	1-14 months	34 White 12 Black 46 Hispanic 1 other	Pressure to abort, number of abortions, Presence of living children

	women			compared to no history"				
Wheeler et al. 2001	13-19 year old	Cross-sectional comparison study	Depression Grief response Self-esteem Emotional	Adolescents who experience early pregnancy loss maybe at risk for emotional, social, cognitive grief responses, and depressive symptoms	Yes	Not stated	Caucasian African-American Other	Loss of a loved one
Reardon et al. 2003	13-49 year old	Data analysis	Psychiatric admissions	Women with history of abortion had a higher relative risk of psychiatric admission	Yes	90 days to 4 years		Previous history Socioeconomic status Age and months of eligibility for state-funded medical care
Steinberg et al. 2008	US national survey of family growth (NSFG)  NCS	2 studies Data analysis-quantitative	Abortion Vs. Delivery to Anxiety, generalized anxiety disorder, PTSD	Rates of anxiety were higher in delivery group, PTSD higher in abortion group. Differences not significant	Yes in the NSFG study	Varies	White Black Hispanic Other	Pre-existing anxiety, violence exposure, unintended pregnancy
Hess, 2004	17 women	Interview	Post abortion experience	Percentage of negative long-term effects may increase with time	Yes	5 years +	X	Religious affiliation Geographic region Number of abortion
Cogle et al., 2003	10,847 women aged 15-44	Interview	Examine risk of generalized anxiety following abortion or childbirth	Those who aborted had significantly higher rates of generalized anxiety	Yes	Not clear  Maybe 2-6 years	White Black Hispanic Other	Age Race



**Table 2: Articles and studies showing no association between abortion and psychological sequelae N= 6**

Study	Sample	Design	Outcome	Findings	Association	Duration	Race	Variables
Steinberg et al. 2008	US national survey of family growth (NSFG)  NCS	2 studies Data analysis- quantitative	Abortion Vs. Delivery to Anxiety, generalized anxiety disorder, PTSD	Rates of anxiety were higher in delivery group, PTSD higher in abortion group. Differences not significant	No significant differences in the NCS study.  Confounding factors can explain the abortion-anxiety relationship observed	Varies	White Black Hispanic Other	Pre-existing anxiety, violence exposure, unintended pregnancy
Munk-Olsen et al., 2011	Girls & women in Denmark with no h/o mental disorder-	Pop cohort study of data from 1995-2007	Mental disorder	"The incidence rate of psychiatric contact was similar before and after a first-trimester abortion"	No	12 months after abortion		
Pope et al. 2001	96 14-21 year old	Interview	Adverse psychological outcomes	No evidence that abortion poses a threat to adolescents psychological health	No	After abortion counseling and 4 weeks post-abortion	32% African American 22% Latina 21 % White 11% Asian American 14% mixed/other	Other group populations
Andrews & Boyle 2003	12 African American 15-18 y/o	Observation/Interviews-qualitative	Interpretive theory of unplanned pregnancy and abortion	No regret, felt empowered Only felt sadness 2-4 weeks after the abortion	No	6 and 8 months after the procedure	African American	None
Quinton et al., 2001	38 minors 402 adults	Interview	Increased risk for psychological distress like depression	Minors are not at increased risk than adults for psychological distress following an abortion	No	Day of abortion  1month  2 years	Not tested	Age
Major et al., 2000	882	Interview	Examining women's emotion, evaluations, and mental health after and abortion	Depression decreased and self-esteem increased from pre-abortion to post-abortion	No	During screening  1 hour  1 month  2 years	White/other  African-American  Hispanic	

## 5. Clinical implications

While, we can't conclude that abortion causes negative psychological responses, it is important to continue research in order to understand the link between abortion and mental health. Since studies continue to show that abortion may have negative mental health outcomes, we cannot ignore the possibilities. In order to help adolescents seeking abortion from experiencing possible negative mental response, clinicians need to take precautionary measures. According to Hess, there is a need in nursing to do more to prevent unintended pregnancies, thus reducing the rate of abortions (Hess, 2004).

In addition, there needs to be an exchange of factual information between provider and patient, allow time for the woman and partner to ask questions, and an attempt to protect the patient from sights and sounds that may increase trauma. In relation to follow up care, there needs to be immediate, and long-term care that is adequate, as well as referrals to emotional, spiritual, and or psychiatric care if appropriate. Because adolescents who have abortions are at risk for developing symptoms of depression, they will require emotional support and information on grief reactions. Consequently, it is important that they have a follow-up appointment after being discharged (Wheeler et al., 2001).

## 6. Discussion

Abortion is considered a safe and common medical procedure in adults and adolescents. While the safety of abortion is not a concern for public health, the possible negative effects associated with abortion in adolescents are public health concerns. A number of studies have linked abortions to adverse psychological consequences in adults and adolescents, concluding that patients who have had abortions are at increased risk of developing psychological disorders like anxiety, depression, and PTSD. When compared to those who carry an unintended pregnancy to term, women who had an abortion, have a considerably higher depression score. Other studies on the other hand, argue that there is no evidence that abortion is associated with any psychological disorders. They also argue that the studies that assert a causal connection between abortion and mental disorders have methodological problems.

### 6.1 Strengths and weaknesses

**Study design.** Study designs include a longitudinal design that allows the use of carefully selected data from a nationally representative sample of adolescents. A cohort study design assessed the risk of a first psychiatric event after first-trimester abortion as compared with before the abortion and before childbirth by using national registry data. The use of the Danish Civil Registration System allowed the study to establish an underlying study population and to obtain information on mental disorders of the participants. A cross-sectional design compared groups of adolescents by pregnancy status in order to determine the impact of early pregnancy loss on self-esteem, family relationships, symptoms of depression, and grief responses. Coleman, (2006) study was examined the correlates of pregnancy resolution through abortion vs. childbirth. A limitation of Coleman's study is that the data derived primarily through the use of self-report measures. Major et al., (2000) also measured their outcomes with self-report instruments, which raised concern that the instruments may not accurately reflect the feelings of those women. In addition, women may not have been aware of their true feelings. In the study by Reardon et al., (2003), psychiatric admission rates were compared from 90 days to 4 years after an abortion or childbirth. Previous psychiatric history, socioeconomic status, and age were controlled. In addition, specific diagnoses were examined because the literature has shown that psychiatric illness most likely to be associated with previous abortions are neurotic, psychotic, and are affective in type. The main limitation of this study was the lack of access to complete medical histories of the women.

The study by Coleman et al., (2009) was criticized for using inappropriate measures of psychiatric diagnoses. They lead people to believe that the 30-day diagnoses measure was used. In a letter to the editor, Steinberg, J.R., indicated that the findings reported by Coleman et al. were unable to be replicated. Coleman et al., later changed their claim stating that they used the 12 -month measures. However, a replication of the corrigendum analyses using correct weights showed that the authors did not use thee 30-day or 12-month diagnoses, instead they used the lifetime measures. Thus, the findings are found to be meaningless and provide no support for a number of statements in the paper.

A significant weakness observed in few of the studies is the failure to indicate how long after the abortion were the studies done. Among the studies who did not include that information were Coleman et al. (2009), Cogle et al., (2003), Steinberg et al., (2008), and Wheeler et al., (2001). This limitation makes it difficult to assess whether or not psychological effects are being experienced soon after the abortion, months, or years after. This information is critical in understand how women response to abortion which is considered a traumatic event for some.

**Control variables.** In order to assess the possibility of potential confounding variables that are related to the choice to abort vs. delivery, some controls were used to explore psychological outcomes associated with pregnancy resolution (Coleman, 2006). Pope et al., (2001) compared scores from their study sample with other groups of adolescents in order to compare responses.

**Sample size and follow-up time.** Two of the weaknesses of some of the studies are the sample size and follow-up time that limit the generalizability of the study. Small sample size may be due to the fact that abortion tends to be a secret in adolescents who abort. Locating those who have had abortions may be difficult because abortion is personal and women may fear that others will find out. In addition, the sample size may be one of convenience and those who may be eligible choose not to participate or continue with the study. As observed in Coleman, (2006), brief follow-up time frame makes it difficult to see the scope of outcomes that may transpire over time. The study of Ely et al., (2010) had a sample of convenience which makes it hard to know if the sample is representative of adolescents termination patients in other settings. In addition, the sample was small because 25% of eligible patients chose not to participate. Some of the studies with a small sample were Pope et al., (2001), Hess, (2004), and Andrews & Boyle, (2003). Studies with a high number of participants lost to follow-up is a problem because as seen in Major et al., (2000), there is concern that the final sample is not representative of the initial group. In addition, the study is not considered to be long enough because many other factors could later lead the women to reappraise their abortion.

Studies that have found no evidence of a link between abortion and psychological disorders have criticized studies that claim that there is a negative association between abortion and psychological health are methodologically flawed. The problems include "inadequate conceptualization and control of relevant variables, poor quality and lack of clinical significance of outcome measures, inappropriateness of statistical analyses, errors of interpretation, and misattribution of causal effects" (Robinson et al., 2009, p. 268). It is argued that methodological sound research is needed to assess the psychological outcomes of abortion.

## 7. Summary and recommendations

While abortion rates in the U.S have declined since the 1990s, rates for the poor and minority women remain high. Abortion in adolescents is a concern for public health officials because a number of studies have found evidence that those who have aborted a pregnancy are more likely to experience adverse psychological effects. Though other studies have denied that there is an association between abortion and negative psychological outcomes, it is important that more research is done to better understand the issue.

## Policies

There is a need for new policies to support and help adolescents who have had abortions and are experiencing adverse psychological response. In the 1992 decision *Planned Parenthood V. Casey*, states gained the right to enact legal and regulatory restrictions on abortions (Harper et al., 2005; *Planned Parenthood V. Casey*, 1992). Some of the restrictions are state-mandated waiting periods and counseling topics, insurance restrictions, and mandatory parental involvement for minors. Restrictions that target minors have a great effect on adolescents who are at highest risk of unintended pregnancies, the restrictions tend to create a burden on minors who are trying to seek abortions. Many states require some type of counseling. Five states demand that counseling is done in person at least 18 hours before the procedure. Because adolescents may have abortions in secret, they will end up paying for the procedure out of pocket. If they experience psychological effects after the abortion, they may not tell their parents or guardian and may not seek help. In order to help any adolescent who may not have the mean to seek help I propose that states laws make post-abortion counseling available upon request by the patient a few weeks after the procedure to assess the mental and emotional status of the patient. During pre-abortion counseling, patients should be educated about the potential adverse psychological effects, how to identify the symptoms, and they would be informed that post-abortion counseling is available if needed.

Additionally, since coverage for abortion costs is limited, the federal Medicaid program should extend coverage to adolescents who have parental consent when it's required. This way, they would be covered by their parents' insurance if they need counseling for negative psychological response. Currently, the federal Medicaid program pays for abortion only in case of incest, rape, or if the mother's life is at risk.

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