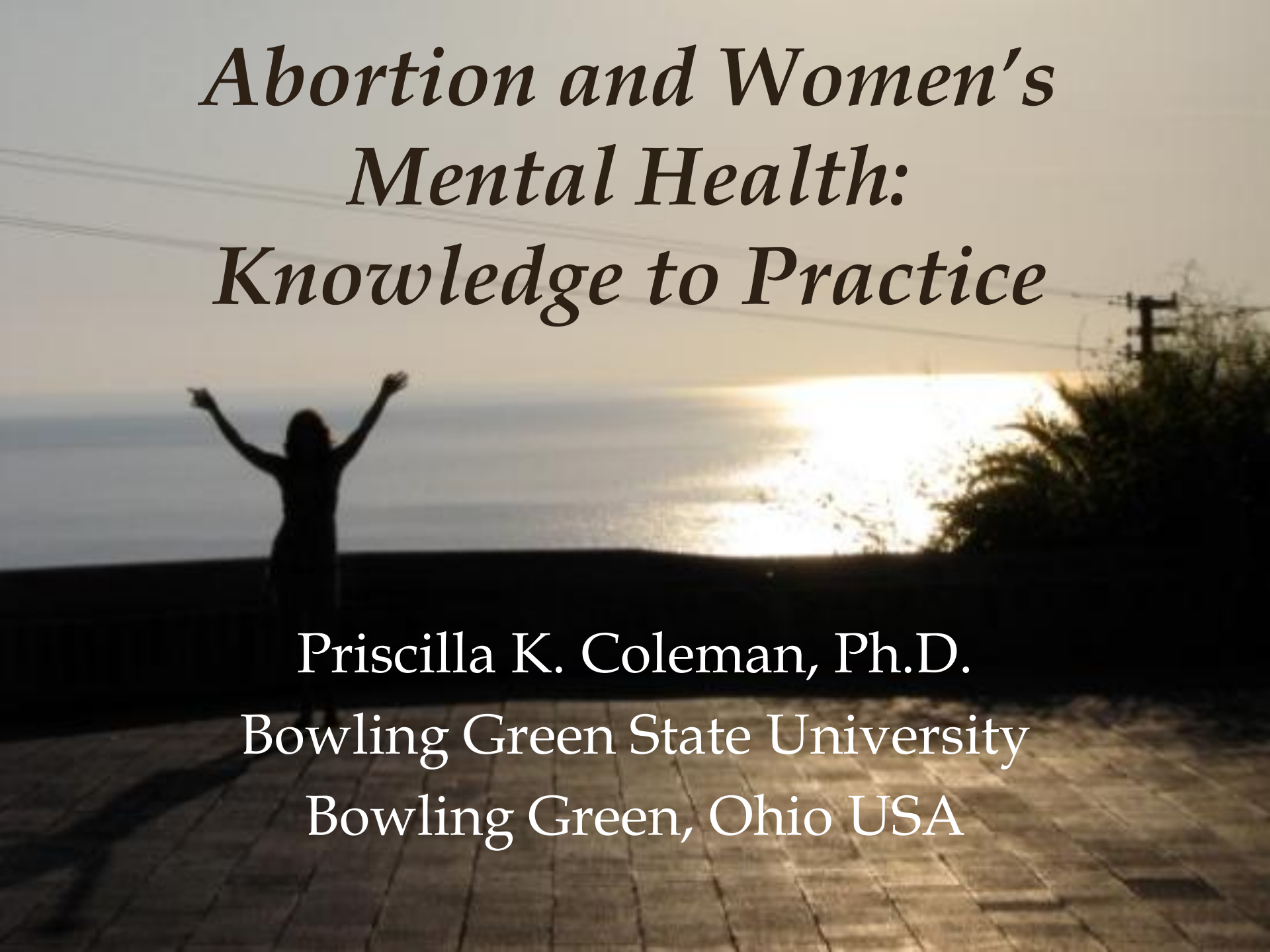

Abortion and Women's Mental Health: Knowledge to Practice

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Questions I'll be addressing today…

What does the peer-reviewed literature on abortion and mental health tell us?

How do we effectively transmit the best available evidence and improve health care delivery ?

The world literature on abortion and women's mental health has grown considerably over the past few decades and the scientific rigor of the published studies has increased substantially.

The focus of the research has been on ***identification of risk factors for,*** and the **f*requency of,* post-abortion psychological problems.**

Risk Factors for Post-Abortion Psychological Problems

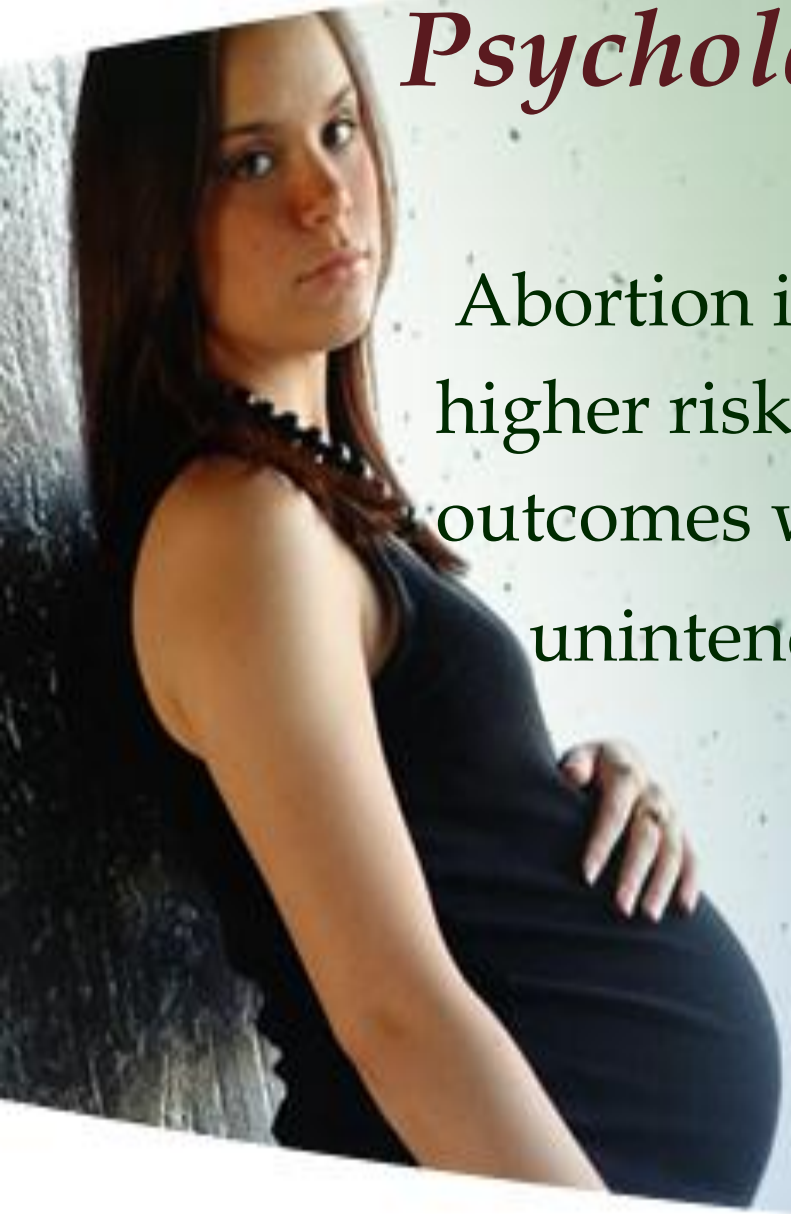
- Timing in adolescence
- Unmarried
- 2nd trimester abortion
- Prior emotional problems or unresolved trauma
- Conservative views of abortion and/or religious affiliation

Risk Factors for Post-Abortion Psychological Problems

- Pre-abortion ambivalence or decision difficulty
- Emotional investment in the pregnancy/intended pregnancy
- Involvement in unstable or violent relationships

Risk Factors for Post-Abortion Psychological Problems

- Perceptions of one's partner, family members, or friends as non-supportive
- Feeling forced by one's partner, others, or by life circumstances



Psychological Consequences

Abortion is further associated with a higher risk for negative psychological outcomes when compared with unintended pregnancy carried to term.

Psychological Consequences

..and the data indicate that risk for long-term psychological injury is considerably higher with abortion than with other forms of perinatal loss.

Psychological Consequences

An abundant literature comprised of methodologically sophisticated studies from around the world now indicates abortion significantly increases risk for the following mental health problems:

- Depression
- Anxiety
- Substance abuse
- Suicide ideation and behavior


A minimum of
20 to 30% of
women who abort
suffer from serious,
prolonged negative
psychological consequences.

Strengths of Studies Published Over the Last 10 years

- **Larger samples, many nationally representative**
- **Statistical control over prior psychological history**
- **Controls for personal & situational variables predictive of abortion**

Strengths of Studies Published Over the Last 10 years

- **Prospective or longitudinal data collection with lower drop out rates**
- **Use of appropriate control groups**
- **Comprehensive measures of mental health, often with actual diagnostic codes assigned by professionals**

A Sampling of Recent Studies from Around the Globe

New Zealand

In 2008 Fergusson and colleagues published a longitudinal study in the *British Journal of Psychiatry* revealing the following increased risks associated with abortion compared to unintended pregnancy delivered:

- Suicide ideation: 61%
- Alcohol dependence: 188%
- Illicit drug dependence: 185%
- Major depression: 31%
- Anxiety Disorder: 113%

Australia

Published in the same issue of the *British Journal of Psychiatry* was a study conducted by Australian researchers Dingle and colleagues.

Australia

Women with an abortion history had nearly twice the risk for **depression** compared to women who had not aborted.

Abortion history was further associated with an almost 3 times greater risk for **illicit drug use** and twice the risk for an **alcohol use disorder**.

Norway

Norwegian sociologist, Pedersen, published two studies linking abortion to mental health problems.

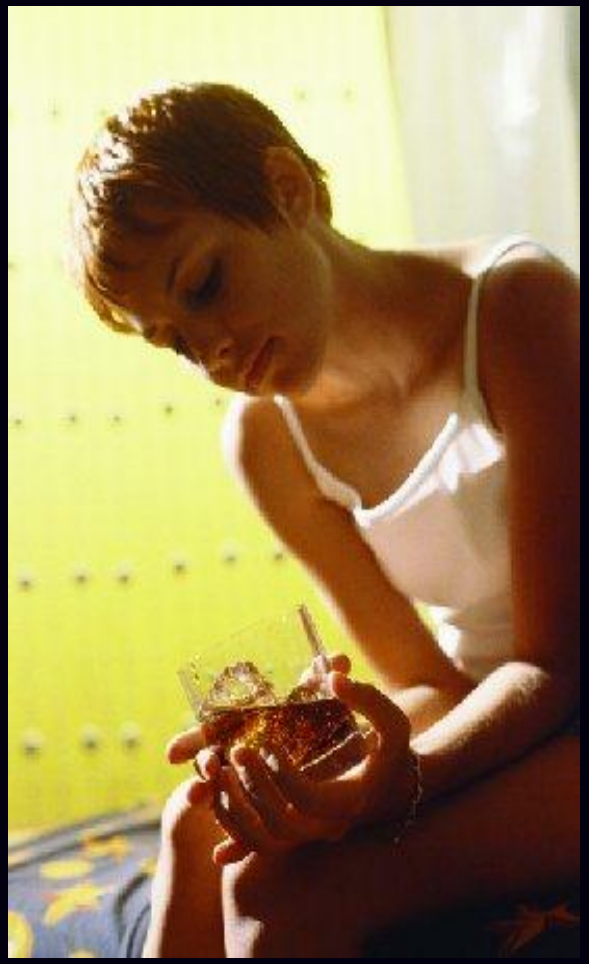
Data for both studies was from the *Young in Norway Longitudinal Study*, which is nationally representative and includes over 700 respondents.

Norway

Women who aborted had increased risks of

- Nicotine dependence: 400%
- Alcohol problems: 180%
- Marijuana use: 360%
- & other illegal drugs: 670%

They were also nearly 3 times as likely as their peers without an abortion experience to report significant depression.



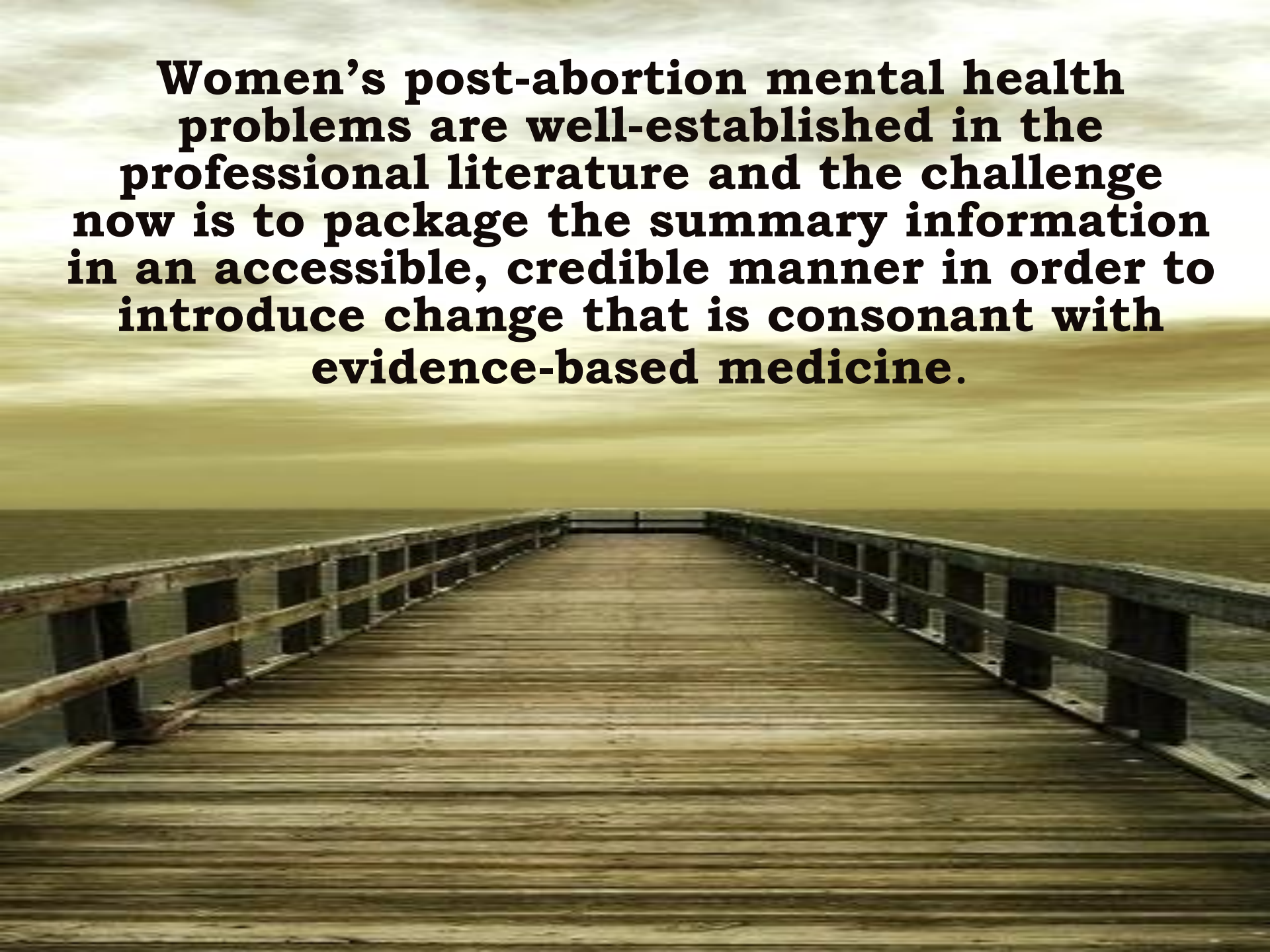
Dingle, Fergusson, Pedersen, and others are representative of a new wave of international researchers who have the courage to publish objective, politically incorrect data, ushering in great hope that women's post-abortion suffering will eventually receive the professional attention deserved.

Evidence-Based Medicine

Evidence-based medicine is defined as *a process integrating clinical expertise with the best external evidence and patient choice* to maximize the quality and quantity of life for the patient.

Evidence-Based Medicine

Ironically as awareness of the need for evidence-based medicine has grown over the last decade and strategies are being developed to revamp health care delivery to close the gap between knowledge and practice, the divide is greater than ever relative to conferring *accurate unbiased information on risks of abortion to women considering the procedure.*


Women’s post-abortion mental health problems are well-established in the professional literature and the challenge now is to package the summary information in an accessible, credible manner in order to introduce change that is consonant with evidence-based medicine.

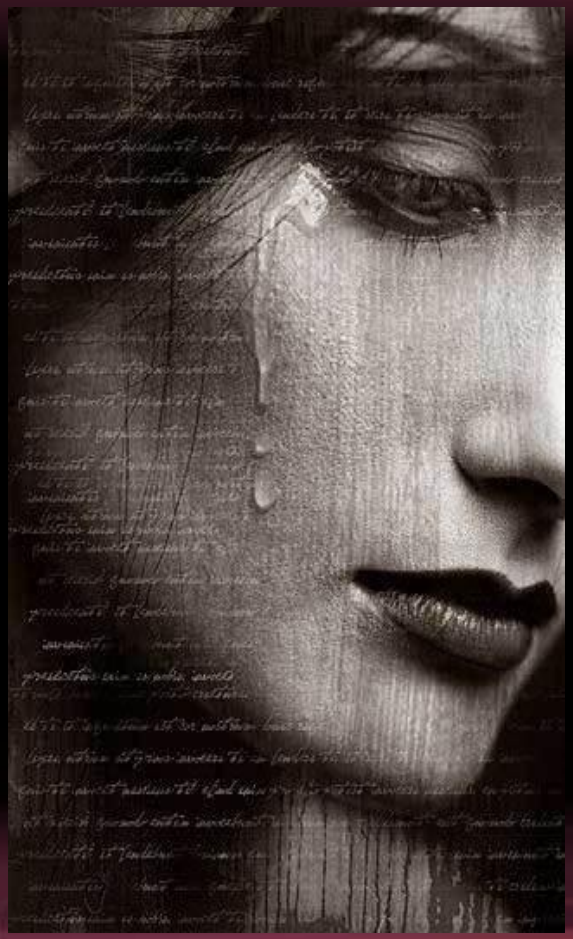
Three Contemporary Challenges

1. Produce accurate, easily understood synopses of the best available evidence

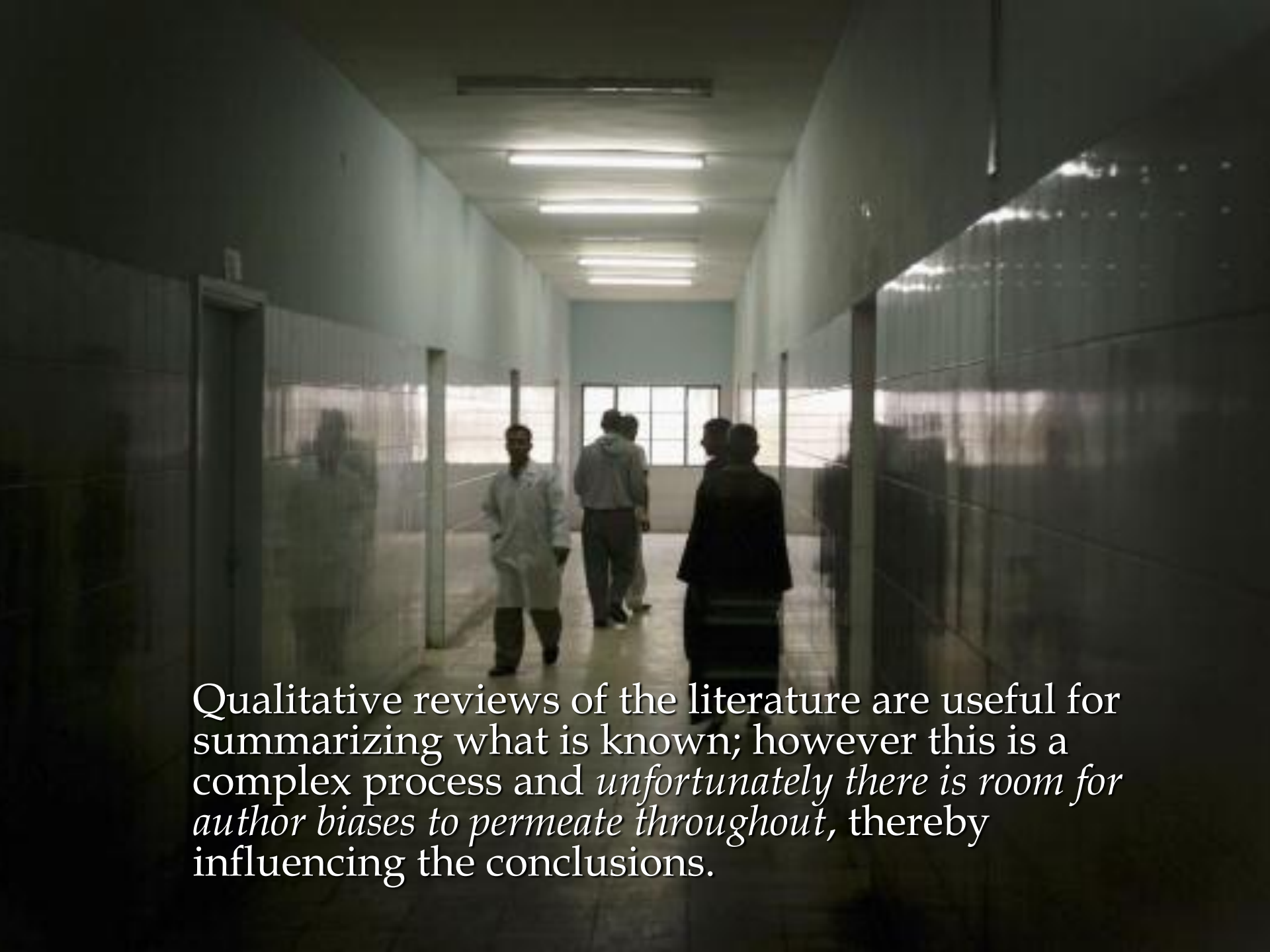
2. Continue actively researching this topic, addressing neglected areas

3. More effectively transmit scientific information to professional organizations, practitioners, and society generally…in order to improve the quality of health care

First Challenge: Need for Systematic Reviews of the Evidence



Strong qualitative and quantitative reviews are now urgently needed to counter the claims of biased reviews and accurately reflect the extensive published research documenting the psychological risks of abortion.



Qualitative reviews of the literature are useful for summarizing what is known; however this is a complex process and *unfortunately there is room for author biases to permeate throughout*, thereby influencing the conclusions.

Meta-Analysis (Quantitative Review)

By systematically combining the numerical results from many high quality studies addressing the same general question, (e.g., *is there an association between abortion and mental health?)* very reliable results are produced.

Studies are weighted statistically and meta-analysis offers a logical, more objective alternative to qualitative reviews when the area of study is embedded in political controversy.

Meta-Analysis

I conducted a meta-analysis knowing the truth of countless women's suffering is in the published data and this is the most reliable and defensible method for pooling the information.

Coleman, P.K. (September, 2011)Abortion and Mental Health: A Quantitative Synthesis and Analysis of Research Published from 1995-2009. *British Journal of Psychiatry*.

Meta-Analysis Inclusion Criteria

1. Sample size of 100 or more participants.

2. Use of a comparison group (no abortion, pregnancy delivered, or unintended pregnancy delivered).

3. One or more mental health outcome variable(s): depression, anxiety, alcohol use, marijuana use, or suicidal behaviors.

Meta-Analysis Inclusion Criteria

4. Controls for 3rd variables.

5. Use of odds ratios (which turned out to be an unnecessary criterion, as no otherwise qualifying studies were identified that used means testing procedures.)

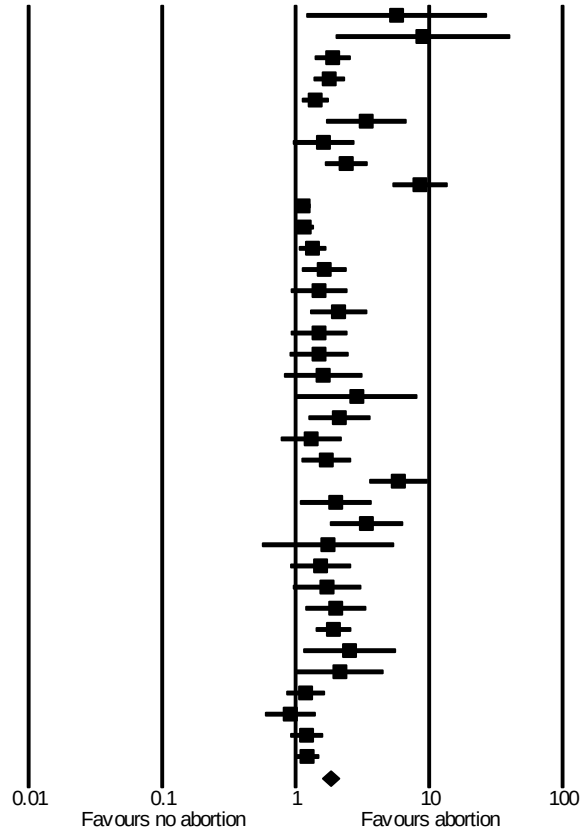
6. Publication in English in peer reviewed journals between 1995 and 2009.

Meta-Analysis Results

The 1st meta-analysis, which included all 36 adjusted odds ratios from the 22 studies identified, resulted in a pooled odds ratio of 1.81 (95% CI: 1.57-2.09), p<.0001. Women who have had an abortion experience an 81% higher risk for mental health problems of various forms compared to women who have not had an abortion.

Figure 1

Study name	Upper limit	Odds ratio	Lower limit	Z-Value	p-Value
Coleman 2006 [ALCO]	27.268	5.720	1.200	2.189	0.029
Coleman 2006 [MARIJ]	40.697	9.000	1.990	2.854	0.004
Coleman, Coyle, Shuping, & Rue 2009 [ALCO]	2.595	1.898	1.388	4.014	0.000
Coleman, Coyle, Shuping, & Rue 2009 [ANX]	2.348	1.787	1.360	4.171	0.000
Coleman, Coyle, Shuping, & Rue 2009 [DEP]	1.776	1.405	1.111	2.841	0.004
Coleman, Maxey, Spence, & Nixon 2008 [ALCO]	6.810	3.390	1.688	3.430	0.001
Coleman, Reardon, & Cougle 2005 [ALCO]	2.761	1.620	0.950	1.773	0.076
Coleman, Reardon, Rue, & Cougle 2002 [ALCO]	3.474	2.396	1.652	4.609	0.000
Coleman, Reardon, Rue, & Cougle 2002 [MARIJ]	13.787	8.554	5.307	8.814	0.000
Coleman, Reardon, Rue, & Cougle 2002b [ANX]	1.300	1.140	1.000	1.958	0.050
Coleman, Reardon, Rue, & Cougle 2002b [DEP]	1.375	1.160	0.979	1.711	0.087
Cougle, Reardon, & Coleman 2005 [ANX]	1.705	1.340	1.053	2.381	0.017
Cougle, Reardon, Coleman 2003 [DEP]	2.420	1.639	1.110	2.485	0.013
Dingle, Alati, Clavarino, Najman & Williams 2008 [DEP]	2.449	1.500	0.919	1.620	0.105
Dingle, Alati, Clavarino, Najman, & Williams 2008 [ALCO]	3.446	2.100	1.280	2.937	0.003
Dingle, Alati, Clavarino, Najman, & Williams 2008 [ANX]	2.449	1.500	0.919	1.620	0.105
Dingle, Alati, Clavarino, Najman, & Williams 2008 [MARIJ]	2.500	1.500	0.900	1.556	0.120
Fergusson 2008 (suicidal ideation)	3.171	1.610	0.818	1.377	0.168
Fergusson 2008 [ALCO]	8.196	2.880	1.012	1.982	0.047
Fergusson 2008 [ANX]	3.649	2.130	1.243	2.752	0.006
Fergusson 2008 [DEP]	2.224	1.310	0.772	1.000	0.317
Gilchrist 1995 (intentional self harm)	2.614	1.700	1.106	2.418	0.016
Gissler, Hemminki, & Lonnqvist 1996 [SUIC]	9.784	5.900	3.558	6.878	0.000
Pedersen 2007 [ALCO]	3.717	2.000	1.076	2.192	0.028
Pedersen 2007 [MARIJ]	6.411	3.400	1.803	3.782	0.000
Pedersen 2008 [DEP]	5.484	1.750	0.558	0.960	0.337
Reardon & Cougle 2002 [DEP]	2.608	1.540	0.909	1.606	0.108
Reardon, Coleman, & Cougle 2004 [ALCO]	3.112	1.720	0.951	1.793	0.073
Reardon, Coleman, & Cougle 2004 [MARIJ]	3.390	2.000	1.180	2.575	0.010
Reardon, Cougle, Rue et al. 2003 [DEP]	2.623	1.924	1.411	4.140	0.000
Reardon, Ney, Scheuren, et al. 2002 [SUIC]	5.665	2.540	1.139	2.278	0.023
Rees & Sabia, 2007 [DEP]	4.573	2.150	1.011	1.988	0.047
Schmiege & Russo 2005 [DEP]	1.663	1.190	0.852	1.019	0.308
Steinberg & Russo 2008 [ANX/NCS]	1.420	0.914	0.588	-0.400	0.689
Steinberg & Russo, 2008 {ANX/NCFG]	1.609	1.210	0.910	1.310	0.190
Taft & Watson 2008 [DEP]	1.507	1.220	0.988	1.846	0.065
	2.092	1.814	1.573	8.195	0.000



Meta-Analysis Results

A 2nd meta-analysis was conducted with separate effects based on the type of outcome measure.

- **Marijuana:** OR=3.30; 95% CI: 1.64-7.44, p=.001)
- **Suicide behaviors:** OR=2.55; 95% CI: 1.31-4.96, p=.006
- **Alcohol use/abuse:** OR=2.10; 95% CI: 1.76-2.49, p<.0001
- **Depression**: OR=1.37; 95% CI: 1.22-1.53, p<.000
- **Anxiety:** OR=1.34; 95% CI: 1.12-1.59, p=.0001

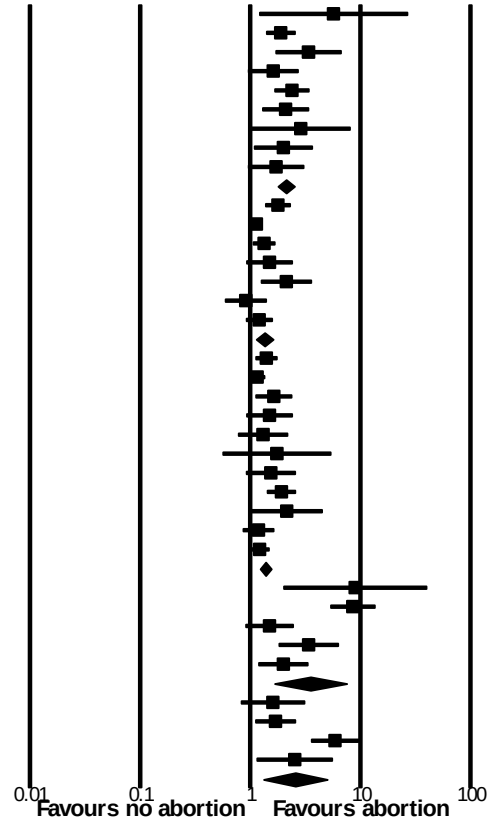
The level of increased risk associated with abortion varied from 34% to 230% depending on the nature of the outcome.

Figure 2

Group by Outcome	Study name	Upper limit	Odds ratio	Lower limit	Z-Value	p-Value
alcohol	Coleman 2006 [ALCO]	27.268	5.720	1.200	2.189	0.029
alcohol	Coleman, Coyle, Shuping, & Rue 2009 [ALCO]	2.595	1.898	1.388	4.014	0.000
alcohol	Coleman, Maxey, Spence, & Nixon 2008 [ALCO]	6.810	3.390	1.688	3.430	0.001
alcohol	Coleman, Reardon, & Cougle 2005 [ALCO]	2.761	1.620	0.950	1.773	0.076
alcohol	Coleman, Reardon, Rue, & Cougle 2002 [ALCO]	3.474	2.396	1.652	4.609	0.000
alcohol	Dingle, Alati, Clavarino, Najman, & Williams 2008 [ALCO]	3.446	2.100	1.280	2.937	0.003
alcohol	Fergusson 2008 [ALCO]	8.196	2.880	1.012	1.982	0.047
alcohol	Pedersen 2007 [ALCO]	3.717	2.000	1.076	2.192	0.028
alcohol	Reardon, Coleman, & Cougle 2004 [ALCO]	3.112	1.720	0.951	1.793	0.073
alcohol		2.494	2.100	1.768	8.464	0.000
anxiety	Coleman, Coyle, Shuping, & Rue 2009 [ANX]	2.348	1.787	1.360	4.171	0.000
anxiety	Coleman, Reardon, Rue, & Cougle 2002b [ANX]	1.300	1.140	1.000	1.958	0.050
anxiety	Cougle, Reardon, & Coleman 2005 [ANX]	1.705	1.340	1.053	2.381	0.017
anxiety	Dingle, Alati, Clavarino, Najman, & Williams 2008 [ANX]	2.449	1.500	0.919	1.620	0.105
anxiety	Fergusson 2008 [ANX]	3.649	2.130	1.243	2.752	0.006
anxiety	Steinberg & Russo 2008 [ANX/NCS]	1.420	0.914	0.588	-0.400	0.689
anxiety	Steinberg & Russo, 2008 {ANX/NCFG]	1.609	1.210	0.910	1.310	0.190
anxiety		1.599	1.340	1.123	3.253	0.001
depression	Coleman, Coyle, Shuping, & Rue 2009 [DEP]	1.776	1.405	1.111	2.841	0.004
depression	Coleman, Reardon, Rue, & Cougle 2002b [DEP]	1.375	1.160	0.979	1.711	0.087
depression	Cougle, Reardon, Coleman 2003 [DEP]	2.420	1.639	1.110	2.485	0.013
depression	Dingle, Alati, Clavarino, Najman & Williams 2008 [DEP]	2.449	1.500	0.919	1.620	0.105
depression	Fergusson 2008 [DEP]	2.224	1.310	0.772	1.000	0.317
depression	Pedersen 2008 [DEP]	5.484	1.750	0.558	0.960	0.337
depression	Reardon & Cougle 2002 [DEP]	2.608	1.540	0.909	1.606	0.108
depression	Reardon, Cougle, Rue et al. 2003 [DEP]	2.623	1.924	1.411	4.140	0.000
depression	Rees & Sabia, 2007 [DEP]	4.573	2.150	1.011	1.988	0.047
depression	Schmiege & Russo 2005 [DEP]	1.663	1.190	0.852	1.019	0.308
depression	Taft & Watson 2008 [DEP]	1.507	1.220	0.988	1.846	0.065
depression		1.535	1.370	1.223	5.421	0.000
marijuana	Coleman 2006 [MARIJ]	40.697	9.000	1.990	2.854	0.004
marijuana	Coleman, Reardon, Rue, & Cougle 2002 [MARIJ]	13.787	8.554	5.307	8.814	0.000
marijuana	Dingle, Alati, Clavarino, Najman, & Williams 2008 [MARIJ]	2.500	1.500	0.900	1.556	0.120
marijuana	Pedersen 2007 [MARIJ]	6.411	3.400	1.803	3.782	0.000
marijuana	Reardon, Coleman, & Cougle 2004 [MARIJ]	3.390	2.000	1.180	2.575	0.010
marijuana		7.441	3.503	1.649	3.261	0.001
suicide	Fergusson 2008 (suicidal ideation)	3.171	1.610	0.818	1.377	0.168
suicide	Gilchrist 1995 (intentional self harm)	2.614	1.700	1.106	2.418	0.016
suicide	Gissler, Hemminki, & Lonnqvist 1996 [SUIC]	9.784	5.900	3.558	6.878	0.000
suicide	Reardon, Ney, Scheuren, et al. 2002 [SUIC]	5.665	2.540	1.139	2.278	0.023
suicide		4.964	2.552	1.312	2.759	0.006

Statistics for each study

Odds ratio and 95% CI



Meta-Analysis Results

In a 3rd meta-analysis separate pooled odds ratios were produced based on the type of comparison group:

- **No abortion:** OR=1.59; 95% CI: 1.36-1.85, p<.0001
- **Carried to term:** OR=2.38; 95% CI: 1.62-3.50, p<.0001
- **Unintended pregnancy carried to term:** OR=1.55; 95% CI: 1.30-1.83,p<.0001

Regardless of the type of comparison group employed, abortion was associated with a 55% to 138% enhanced risk of mental health problems.

Figure 3

Group by Control Group	Study name	Upper limit	Odds ratio	Lower limit	Z-Value	p-Value
delivery	Coleman, Maxey, Spence, & Nixon 2008 [ALCO]	6.810	3.390	1.688	3.430	0.001
delivery	Coleman, Reardon, Rue, & Cougle 2002 [ALCO]	3.474	2.396	1.652	4.609	0.000
delivery	Coleman, Reardon, Rue, & Cougle 2002 [MARIJ]	13.787	8.554	5.307	8.814	0.000
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delivery	Cougle, Reardon, Coleman 2003 [DEP]	2.420	1.639	1.110	2.485	0.013
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delivery	Pedersen 2008 [DEP]	5.484	1.750	0.558	0.960	0.337
delivery	Reardon, Cougle, Rue et al. 2003 [DEP]	2.623	1.924	1.411	4.140	0.000
delivery	Reardon, Ney, Scheuren, et al. 2002 [SUIC]	5.665	2.540	1.139	2.278	0.023
delivery		3.502	2.386	1.626	4.443	0.000
no ab	Coleman, Coyle, Shuping, & Rue 2009 [ALCO]	2.595	1.898	1.388	4.014	0.000
no ab	Coleman, Coyle, Shuping, & Rue 2009 [ANX]	2.348	1.787	1.360	4.171	0.000
no ab	Coleman, Coyle, Shuping, & Rue 2009 [DEP]	1.776	1.405	1.111	2.841	0.004
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no ab	Dingle, Alati, Clavarino, Najman, & Williams 2008 [ANX]	2.449	1.500	0.919	1.620	0.105
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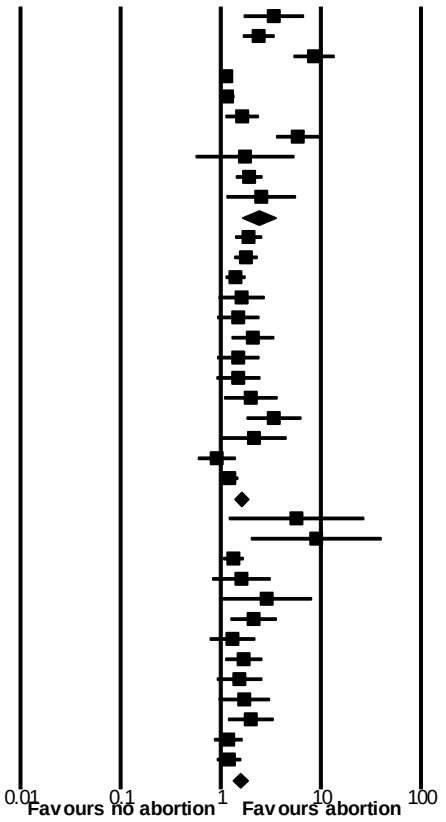
no ab	Rees & Sabia, 2007 [DEP]	4.573	2.150	1.011	1.988	0.047
no ab	Steinberg & Russo 2008 [ANX/NCS]	1.420	0.914	0.588	-0.400	0.689
no ab	Taft & Watson 2008 [DEP]	1.507	1.220	0.988	1.846	0.065
no ab		1.856	1.592	1.366	5.939	0.000
unintended	Coleman 2006 [ALCO]	27.268	5.720	1.200	2.189	0.029
unintended	Coleman 2006 [MARIJ]	40.697	9.000	1.990	2.854	0.004
unintended	Cougle, Reardon, & Coleman 2005 [ANX]	1.705	1.340	1.053	2.381	0.017
unintended	Fergusson 2008 (suicidal ideation)	3.171	1.610	0.818	1.377	0.168
unintended	Fergusson 2008 [ALCO]	8.196	2.880	1.012	1.982	0.047
unintended	Fergusson 2008 [ANX]	3.649	2.130	1.243	2.752	0.006
unintended	Fergusson 2008 [DEP]	2.224	1.310	0.772	1.000	0.317
unintended	Gilchrist 1995 (intentional self harm)	2.614	1.700	1.106	2.418	0.016
unintended	Reardon & Cougle 2002 [DEP]	2.608	1.540	0.909	1.606	0.108
unintended	Reardon, Coleman, & Cougle 2004 [ALCO]	3.112	1.720	0.951	1.793	0.073
unintended	Reardon, Coleman, & Cougle 2004 [MARIJ]	3.390	2.000	1.180	2.575	0.010
unintended	Schmiege & Russo 2005 [DEP]	1.663	1.190	0.852	1.019	0.308
unintended	Steinberg & Russo, 2008 [ANX/NCFG]	1.609	1.210	0.910	1.310	0.190
unintended		1.836	1.551	1.309	5.082	0.000



Looking at Population Attributable Risk percentages from the pooled odds ratios:

Overall: Nearly 10% of incidence of mental health problems was found to be attributable to abortion.

Population Attributable Risk Percentages for Specific Outcomes

- **Anxiety: 8.1%**
- **Depression: 8.5%**
- **Alcohol use: 10.7%**
- **Marijuana use: 26.5%**
- **Suicide: 34.9%**
- **All suicidal behaviors: 20.9%**

Second Challenge

Continue to actively study the psychology of abortion with special emphasis on treatment efficacy studies.

Future Research Directions: Treatment Efficacy Studies

1. The lack of empirically validated treatment protocols affirms the position of the APA and other professional organizations suggesting no harm and leaves many women without hope for relief.

An essential future goal is therefore to develop treatment protocols, test them, and publish the results.

Future Research Directions

2. Most of the existing studies are based on self-reports. Research incorporating data from significant individuals in women's lives and/or behavioral assessments will enhance efforts to assess the complexity of women's experiences.

3. Available research has not given sufficient attention to individual experiences of women and the range of negative effects.

Researchers need to conduct more substantive interviews with geographically diverse samples in order to more fully understand the depth and breadth of experiences.

For example, a woman in one of our qualitative studies conveyed social condemnation, shame, retreat, and pretense …. themes neglected in the scholarly research….

"Each time I have mentioned my abortion experience I have felt condemnation from those who look, but don't speak. I guess, because I don't know what they are thinking. I just retreat back to my old ways of handling my experience. That is by hiding my wall of guilt and shame or behind the illusion of having a perfect life."

4. Short-term studies are potentially misleading because women may suppress their emotions until other life events, such as a birth trigger a delayed reaction.

There is a need for studies following women over many years to more fully understand how abortion experiences intersect with other life events to impact women's quality of life.

Ghost in the House
by Amanda Lewanski

Conveys the conflicting emotions and ongoing sorrow abortion may bring to women's future lives.

Ghost in the House

Come, child. It's evening. Come to me
And sit with me once more.
Let's rock here while the others sleep.
Let's see -- your sister's four;
The baby is three months today;
Your little brother's two,
And I have not decided if
I'll tell them about you.

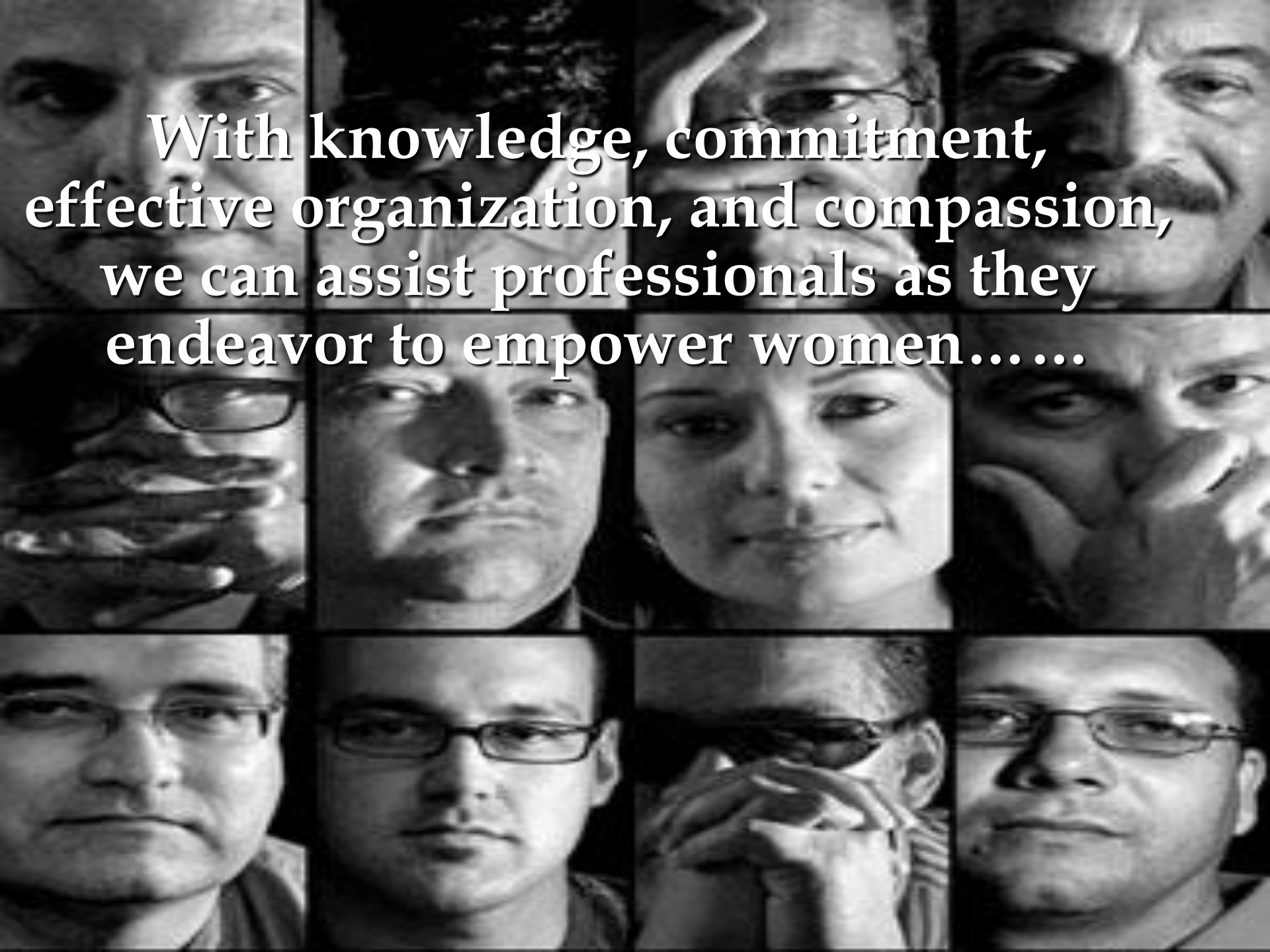
And you, you would be eight this year.
I do not know your name.
The color of your eyes, or hair,
Or where, or how, to blame.
The fear was all, the fear of change,
For I saw change as loss.
Against my dreams, my plans, my life
You seemed so small a cost,

Your scent, your weight within my arms,Your head upon my breast –
I did not know these things when I decided what was best.
And I am lost and so confused
And don't know how to feel,
For you, who were an illness,
Every year become more real;

Your sister and your brothers,
They proclaim you as they grow
And no, it isn't every day
I find your shadow here;
Most times I'm far too busy
For reflection or for tears,
But sometimes when the children
sleep and I have time alone,
I sit down in the dark, and rock,
And bring my baby home.

Third Challenge

The 3rd challenge of more **effectively transmitting scientific information to professional organizations, practitioners, and society** is difficult. This requires a cultural shift wherein there is acknowledgement that a significant percentage of women experience adverse psychological effects from abortion. With recognition, there should be more concerted efforts to prevent psychological harm and more effective interventions to meet the emotional needs of those suffering.


With knowledge, commitment, effective organization, and compassion, we can assist professionals as they endeavor to empower women……


..to make healthy decisions for themselves and their families!