Induced abortion: Global trends, local research methods

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WHY ESTIMATE ABORTION INCIDENCE?

- To help monitor trends in abortion and unintended pregnancy
- To motivate investments in prevention of unintended pregnancy and unsafe abortion
- To help ensure an informed discourse on abortion
Objectives

PRIMARY:

- To calculate subregional, regional and global levels and trends in abortion incidence in 1990 to 2014

SECONDARY:

- To calculate the proportion of pregnancies that end in abortion
- To examine whether abortion rates vary with the legal status of abortion
Key findings

ABORTION INCIDENCE IN 2010-2014:

- 56 million induced abortions occurred each year, on average
- There were 35 abortions per 1,000 women aged 15-44
- One in four pregnancies ended in abortion
- 73% of abortions were obtained by married women
- The abortion rate has declined in the developed world, but not in the developing world
Methodology
Abortion estimation: past and present

BASIS OF PRIOR ABORTION ESTIMATES:
- Available abortion data
- Informal inference to countries without data

BASIS OF NEW ESTIMATES:
- Available abortion data
- Data on factors associated with abortion incidence
- Hierarchical time series model
Conceptual Framework

Predictors of overall rates

Abortions among women:

\[
\text{Total number of abortions} = \text{with unmet need for contraception} + \text{using contraception (with failure)} + \text{with no need for contraception}
\]
Conceptual Framework

Predictors of subgroup rates

Abortions to women with unmet need

- Frequency of sex
- Fecundity
- Strength of motivation to avoid an unplanned birth
- Ability to act on fertility intentions
Percent of women 15-44 represented by at least one observation on abortion incidence

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<tr>
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<tbody>
<tr>
<td>World</td>
<td>69%</td>
<td>68%</td>
<td>67%</td>
<td>63%</td>
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</table>
Findings
About 56 million abortions took place each year in 2010-2014
The global abortion rate fell slightly

The graph shows the abortion rate per 1,000 women 15-44 for the World from 1990 to 2014. The rate trended downward from 40 abortions per 1,000 women in 1990 to 35 abortions per 1,000 women in 2014.
The abortion rate fell significantly in the developed world, but not in the developing world

This is reflected in the regional trends
The percent of pregnancies ending in abortion is increasing in the developing world

Developed countries

Developing countries

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The abortion rate is similar in countries grouped by legal status

Abortions per 1,000 women 15-44

Prohibited altogether or to save woman's life: 37
Physical health: 43
Woman's mental health: 33
Socio-economic grounds: 31
On request: 34

The abortion rate is higher among married women than unmarried women.
Married women account for the majority of abortions

Percent of abortions

World
Developed countries
Developing countries

Married
Unmarried

73
69
73

27*
31*
27*

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ADDITIONAL FINDINGS

- 88% of abortions were obtained in the developing world

- The decline in the abortion rate in the developed world occurred mostly among married women

- Prior global abortion estimates were conservatively low
Findings in context (Discussion)
UNMET NEED FOR CONTRACEPTION

- 225 million women in the developing world want to avoid getting pregnant but are not using a modern method of contraception

- Women’s reasons for not using a method include:
  - Concerns side effects and health risks of methods
  - Thinking they can avoid pregnancy without a method
  - Stigma related to not being married
UNSAFE ABORTION: DEFINITION AND MEASUREMENT

- **WHO definition of unsafe abortion:**
  - Abortions done by untrained persons or in hygienic settings

- **Method for estimating unsafe abortions, 1990-2008:**
  - Unsafe abortions are illegal abortions

- **Method for estimating unsafe abortions, 2010-2014:**
  - Safety is related to strength of health care systems, gender equity, access to misoprostol
OUTCOMES OF UNSAFE ABORTION

- **Treated complications:**
  - 6.9 million women in developing countries are treated for complications from unsafe abortion each year
  - 1 out of every 5 abortions in the developing world leads to a treated complication

- **Maternal deaths:**
  - At least 22,000 women died from unsafe abortion in 2014
  - Abortion case fatality rate: TBD
POLICY RECOMMENDATIONS

- Address barriers to contraceptive use in developing countries
  - Improve the *quality* of family planning services

- Ensure women have access to safe abortion care
  - Abortion is prevalent throughout the world

- Ensure access to post-abortion care
  - Millions of women experience complications from unsafe abortions
Estimating abortion incidence in a country with clandestine abortion
Background

- National and subnational estimates of abortion incidence are needed to:
  - Inform policy decisions
  - Monitor progress towards achieving goals
  - Assessing the impacts of relevant policies

- With the advent of medication abortion (MA), new estimation methods are needed
Approaches

A few approaches to estimating abortion incidence in restrictive settings have been used:

– Direct estimation approaches ask women about their abortion experiences, but tend to suffer from underreporting.

– Indirect approaches use data on treatment for post-abortion care to infer the total number of abortions.
Research aims

- Apply novel methods and some prevailing approaches to estimating abortion incidence in one country (Ghana)

- Compare the different approaches with respect to potential sources of bias and the magnitude of these biases
Current methods for estimating abortion incidence

- Direct questioning
- Abortion Incidence Complications Methodology (AICM)
- Sealed envelope method
- Randomized response technique
- Prospective studies
- The residual method
Innovative methods for estimating abortion incidence

- The List Experiment (LE)
- The Best Friend Approach (BFA)
- The Anonymous Third Party Reporting Method (ATPR)
1. AICM

The AICM involves two surveys:

- a nationally representative survey of health facilities
  - to estimate the number of induced abortion complications treated in facilities

- a survey of experts knowledgeable about abortion
  - to estimate, for each complication reaching a facility, how many induced abortions occur without complications or with untreated complications
1. AICM

Strengths:

- Provides estimates of abortion incidence, incidence of treated & untreated complications, providers women use, inequities in access to safe abortion and to postabortion care (PAC)

- Most commonly used method in current abortion incidence studies, so useful for comparison

Limitations:

- Proportion of abortions that are treated may be overestimated if women are increasingly having medication abortions without help from health professionals.
2. Modified AICM

- Survey of experts is replaced by community-based survey of women (CBS)

- The proportion of all abortions that are treated in facilities is obtained from treatment rates among women’s self-reported abortions in the CBS
2. Modified AICM

**Strengths:**

- Potentially provides more accurate estimates of incidence of abortion, especially uncomplicated abortions
- Can yield rich contextual information not available from conventional AICM, such as characteristics of women who have abortions

**Limitations:**

- Assumes that women are not more likely to report abortions that had complications or that received treatment
- Women may over-report complications from MA (but not treatment rates)
3. List experiment

- Involves reading respondents a list of four non-sensitive events, and asking them *how many* of these events they have experienced (in the last 3 years), but not which ones.
- In half of the sample, abortion will be added as one of the items.
- To increase power, we will use the “double list experiment”.
3. List experiment

Strengths:

- Protects the respondent’s confidentiality and increases likelihood of honest responses.
- Can estimate subregional and subgroup abortion rates

Limitations:

- May still underestimate incidence if respondents are reluctant to include abortion in their item count
- Cannot obtain characteristics of women who have abortions, sources of abortion, incidence of complications
- Can’t tell us when the abortion happened in the last 3 years
- Doesn’t capture multiple abortions
4. Three best friends approach

- Hybrid of the ATPR and Best Friend approaches that capitalizes on the strengths of each

- We will ask each respondent to think about the three women she is closest to and whether each woman has had an abortion in the past 3 years
4. Three best friends approach

**Strengths:**
- Asking about the respondent’s three best friends will triple the sample size relative to the best friend approach and self-reports.
- We also avert the key limitation of the confidante approach
- Can report multiple abortions

**Limitations:**
- Assumes that the social networks of women who have and have not had abortions are similar.
- Medical abortions might be missed. However women might tell their best friends about their abortions, even if they do not tell a health professional.
5. Self-reports

- We will ask women directly about their abortions, in their lifetime and in the past 3 years

- However, we know that women underreport their abortions in surveys

- Self-reports will represent the minimum standard against which to compare other approaches
Comparing methods

- Compare methodologies on their conceptual merits:
  - AICM
  - Modified AICM
Comparing methods

- Compare methodologies on their conceptual merits:
  - AICM
  - Modified AICM

- Rank estimates from methods known to be prone to underreporting:
  - Modified AICM
  - List Experiment
  - 3 Best Friend Approach
  - Self reporting
Comparing methods

- Ask about other sensitive behaviors for which a gold standard exists
  - Example: ask women about their best friends’ contraceptive use and compare results with data from DHS or PMA

- Compare components of the estimates against a gold standard:
  - Example: compare incidence of treatment for miscarriage + abortion (combined) in surveys of women with estimates from surveys of facilities
Comparing methods

- Rank them on precision/power
  - Direct reporting
  - List Experiment
  - 3 BFA
  - AICM and mAICM – hardest to compute
Questions and comments?

- AICM
- Modified AICM
- List experiment
- Self-reports
- 3 best friends
Thank you

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Calculating abortion incidence

**AICM/ modified AICM:**

\[
\frac{\text{# abortion complications seen in facilities}}{\text{Proportion of all abortions with treated complications}} \times 1000
\]

* (AICM: from survey of experts)
* (Modified AICM: from survey of women)

**List experiment a:**

\[
\frac{(\text{mean # events reported by treatment gp}) - (\text{mean # events reported by control gp})}{\text{Number of women in CBS} \times 3}\]

\[\times 1000\]

**3BF a:**

\[
\frac{\text{# abortions reported by best friends in past 3 years}}{\text{Number of best friends} \times 3}\]

\[\times 1000\]

**Self-reports a:**

\[
\frac{\text{# abortions reported by women in past 3 years}}{\text{# women in CBS} \times 3}\]

\[\times 1000\]

*a:* annualized over 3 years
## Comparing and validating estimates

<table>
<thead>
<tr>
<th>APPROACH</th>
<th>Potential bias and strength of bias (*)</th>
<th>Potential impact of MA</th>
<th>Subgroup estimates</th>
<th>Measures</th>
<th>Reference period</th>
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<tbody>
<tr>
<td>AICM</td>
<td>May underestimate % of abortions with no complications ***</td>
<td>Increase bias, underestimate incidence</td>
<td>Region</td>
<td>Incidence; ratio; complication rate; treatment rate</td>
<td>1 year</td>
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<tr>
<td>Modified AICM</td>
<td>May underestimate % of abortions with no complications **</td>
<td>No impact (effects cancel out)</td>
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<tr>
<td>List experiment</td>
<td>**</td>
<td>Unclear</td>
<td>Region; urban/rural; age group</td>
<td>Incidence</td>
<td>3 years</td>
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<tr>
<td>Self-reports</td>
<td>May under-report abortions (but not over-report) ****</td>
<td></td>
<td></td>
<td>Incidence; complication rate; treatment rate</td>
<td>3 years Lifetime</td>
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<tr>
<td>3 best friends</td>
<td>May not capture uncomplicated abortions OR may overestimate % of friends who had abortion *</td>
<td>May underestimate incidence if MA less visible</td>
<td>Region; urban/rural</td>
<td>Incidence; complication rate; treatment rate</td>
<td>1 year 3 years Lifetime</td>
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