A systematic review of the research evidence on cross-country features of illegal abortions

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Abstract

Background: There are contrasting debates about abortions and prohibitory regulations posed serious public health challenges especially in underdeveloped and developing countries. Due to paucity of the empirical evidences this study was conducted to explore the existent cumulative knowledge with special focus on the applied methodology.

Methods: A comprehensive review of published articles from January 1995 to December 2015 was performed. Several databases including: Embase, PubMed, Cochrane and also databases of the Iranian medical journals were searched using combinations of relevant Medical Subject Headings (MeSH terms) and their equivalents, i.e., induced abortion, embryotomy, criminal abortion and illegal abortion. The STrengthening the Reporting of OBservational studies in Epidemiology (STROBE) statement for appraisal of the cross-sectional studies and Consolidated Criteria for Reporting Qualitative Research (COREQ) checklist for the qualitative reports were utilized. After removal of duplicates and irrelevant publications 36 articles remained for data analysis.

Results: A wide heterogeneity was observed in the utilized methodology with no standard data collection tool. Face to face interview and self-administered questionnaire were the most common reported data collection/tool respectively. Married and unemployed women of 26-30 years old age group with low socioeconomic backgrounds were the most typical illegal abortees in the included studies.

Conclusion: Despite limitation in accessing all relevant publications and including only those reports written in English or Persian languages, the accumulated knowledge might be applicable to develop a potentially inclusive data collection tool and hence, improve the quality of data collection and/or application of a more robust study design in future investigations.

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Introduction

There are contrasting debates about abortions irrespective of the reasons or circumstances in which they were performed. A wide diversity exists in the abortion law and regulation across the globe e.g., it is restrictively illegal in some countries or legal in other countries only when a woman's life is endangered by the continuation of her pregnancy or other medical reasons. Prohibitory laws and regulation; however, posed serious public health challenges in different countries especially in underdeveloped and developing countries.1-4 Induced abortion by definition is intentional termination of a pregnancy by medical or surgical means before the fetus can be viable.5 Unsafe abortion; however, refers to ending of a pregnancy by individuals who lack the required medical skills to perform the procedure, its administration in a sub-optimal environment condition which is deficient in the basic and minimal medical standards, or both.5 In countries where a total ban has been imposed on induced abortion or it is merely legally allowed under certain conditions many women in consequence; search for clandestine abortion or what literally is called backyard abortion, that is too often unsafe and endanger women's life or leave serious complications.4

It is reckoned that about 13% of maternal death can be attributable to unsafe abortions worldwide and...
thus considering almost 22 million abortions that are
carrying out unsafely each year, 47 000 women die and
further 5 million become disabled annually.\(^4\) Incomplete
abortion, post abortion sepsis, hemorrhage, genital injury
and abortion related deaths are among the recognized
consequences of unsafe abortions. It is predicted that
only in developing countries about 5 million women
are admitted to hospitals due to complications of unsafe
abortion each year and millions of them endure long-term
health consequences including infertility and thousands
die after an unsafe abortion.\(^6\)

Varying strategies and methodologies have been applied
in different studies on the incidence of unsafe abortions,
environmental circumstances in which they were
performed or on its contributing factors.\(^5\) \(^7\) \(^8\) Question
about incident(s) of unsafe abortion based on the social
networks of abortees\(^7\) and use of self-administered
questionnaire\(^8\) or interview\(^8\) as data collection approach,
tool or procedure were among the reported applied
methodologies in the literature.

Number of conducted studies in Iran on abortion which is
only endorsed in cases of life endangerment, rape or severe
fetal anomalies is meager. Due to paucity of the empirical
evidences both in national and international level about
the illegal abortions this study was conducted to explore
existant cumulative knowledge on the phenomenon with
special focus on the features of conducted studies and
applied methodologies to inform future investigations.

**Materials and Methods**

A comprehensive review of published articles in
international and national scope from January 1995 to
December 2015 was performed to appraise research
evidence on the applied methodology in the studies of
illegal and unsafe abortion. Several electronic databases
including: Embase, PubMed, Cochrane, Scopus, Web of
Knowledge (ISI), Google Scholar, Global Health, Medline,
Proquest, Science Direct and also databases of the Iranian
medical journals, i.e., Irandoc, Iranmedex, SID and
Magiran were searched.

**Inclusion Criteria**

**Types of studies**

This systematic review involved all quantitative and
qualitative non-interventional publications published
in English and Persian language from January 1995 to
December 2015 that recruited women who themselves
or their close relatives or friends underwent medical or
surgical illegal abortions at any age. The chosen time span
was decided to warrant up datedness and propensity of the
study findings.

**Types of outcome variables**

Considered primary outcome variables were applied
data collection tools and strategies to study illegal
abortion. Characteristics of the women who reported
to have illegal abortion, attributes of the illegal abortion
providers, reasons to seek for induced abortion and
conditions in which the abortions had been carried out
also incorporated.

**Search strategy**

Combinations of Medical Subject Headings (MeSH terms)
and their equivalents, i.e., induced abortion, abortion
rate, embryotomy, criminal abortion and illegal abortion
were used to search for relevant scientific evidence (e.g.,
illegal abortion [Title/Abstract]) OR criminal abortion
[Title/Abstract]) OR induced abortion [Title/Abstract])
OR embryotomy [Title/Abstract] Filters: Journal Article;
Meta-Analysis; Multicenter Study; Observational Study;
Published Erratum; Review; Systematic Reviews; Full text;
published in the last 10 years; Humans] string was used to
search PubMed).

**Selection of studies and data extraction**

Two reviewers (FA and AS) independently assessed the
eligible studies based on a uniform set of priori quality
criteria and all discrepancies in the assessment results were
resolved by consensus. A generic data extraction template
was constructed to obtain the required data about the pre-
determined properties of the included publications.

**Results**

The primary study search yielded 10 572 articles and after
removal of duplicates and irrelevant publications 1020
articles remained for further scrutiny. In the next step, title
and abstracts of the articles were investigated to retrieve
those publications that fulfill the study objectives. Thus;
full text of the 201 articles that considered to have the
inclusion criteria were obtained and carefully inspected.
Each publication at this stage was assessed based on its
quality and strength. To minimize probability of selection
bias the STROBE (STrengthening the Reporting of
Observational studies in Epidemiology) statement\(^9\)
for assessment of the cross-sectional studies and COREQ
(Consolidated Criteria for Reporting Qualitative
Research) checklist\(^10\) for appraisal of the qualitative study
reports were utilized. All disagreements about the quality
and eligibility of the identified publications were resolved
by consensus and finally 36 articles remained for data
analysis (Figure 1).

The extracted data from the identified relevant studies
based on the researchers’ names, study type, sample and
location were tabulated in Table 1.

A validated data collection instrument was not identified
to be applied in studies on illegal abortion. However,
different data collection methods including face to face
interview, filling of a self-administered questionnaire,
in-depth interview, telephone interview and focus group
discussion were suggested in the literature for data
collection purposes (Table 2).

Other studied features of abortees in the retrieved
publications included age, marital status, numbers
of children, educational level, employment and
socioeconomic status (Table 3).

Extricated data about the reported providers of illegal
abortion in the identified publications were summarized
in Table 4. As indicated non-skilled individuals were the
most reported provider of illegal abortion in the included
studies.

The reasons stated by the abortees for requesting an
illegal abortion in the included studies were presented in Table 5. Having an unplanned/unwanted pregnancy was the most frequent declared rationale to illegally terminate pregnancy.

Reported places that had been used to perform illegal abortions in the identified studies were displayed in Table 6. Based on the summarized data the frequency of studies that reported performing of abortion cases in unhealthy and improper places (private house or office) is comparable to performing the procedure in healthy and reliable settings (hospitals).

**Discussion**

Main purpose of this study was to accumulate the existent scientific evidence about methodological features of empirical studies on illegal abortion. The prime focus; however, was on the data collection tools and methods. A wide heterogeneity was observed in the utilized methodology with no standard data collection tool that was validated for research purposes. Face to face interview, questionnaire, and application of a self-administered questionnaire in queries about illegal abortion were the most common reported data collection method respectively. The study’s findings have also revealed that married, unemployed women of 26-30 years old age group with 1-2 children and low socioeconomic background were the most typical illegal abortion seekers in the included studies. The observed partial inconsistency in the attributes of the abortees in the quoted studies; however, may reflect inherent cultural differences regarding pre-marital sexual relationship, out of wedding pregnancies or aberrant methodologies used.

A sizable number of included studies have reported that illegal abortions had been performed by an unskilled person in unhealthy non-standard or suboptimal conditions. Having desired number of children was the most referred rationale to seek for illegal termination of a pregnancy in communities where abortion laws for mothers is criminalized.

In general, liberal abortion related laws and regulations may justify the sparse number of studies that were reported to examine illegal abortion in the developed countries but this may pose restriction in the applicability of the research evidence originated mostly from less developed or developing countries to design research in other countries of the world.

Limitation in accessing all relevant publications and including only those reports written in English or Persian languages were potential sources of bias in this study. In contexts where abortion cases due to prohibitory laws
### Table 1. Attributes of the included studies in the systematic review of the research evidence on cross-country features of illegal abortions

| Author/ Date         | Location     | Study Type         | Population                                                                 | Sample size |
|----------------------|--------------|--------------------|---------------------------------------------------------------------------|-------------|
| Koster-Oyekan et al  | Zambia       | Cross-sectional    | 1) School girls, 2) Women                                                  | 1273, 803   |
| Ahmed et al (1999)   | Bangladesh   | Qualitative        | Women seeking abortion-related care                                        | 143         |
| Rasch et al (2000)   | Tanzania     | Cross-sectional    | Patients with the diagnosis of incomplete abortion                        | 603         |
| Uygur et al (2000)   | Turkey       | Cross-sectional    | Women who requested abortion                                               | 588         |
| Mogilevkina et al    | Ukraine      | Case-control       | Women of fertile age (15–49)                                               | 1694        |
| Rasch et al (2002)   | Denmark      | Case-control       | Pregnant women                                                             | 809         |
| Larsson et al (2002) | Sweden       | Cross-sectional    | Women requesting an early pregnancy termination                            | 591         |
| Ban et al (2002)     | Sri Lanka    | Cross-sectional    | Clients at an abortion clinic                                              | 356         |
| Granat and Hirve     | India        | Qualitative        | 1) Married women who had an induced abortion 2) Abortion services' providers| 1717, 159   |
| Ilboudo et al (2014) | Burkina Faso | Cross-sectional    | Women seeking post abortion care                                           | 549         |
| Silvo et al (2003)   | France       | Cross-sectional    | 18 to 44 year old women                                                    | 1034        |
| Perera et al (2004)  | Sri Lanka    | Cross-sectional    | Pregnant women                                                             | 210         |
| Bozkurt et al (2004) | Turkey       | Cross-sectional    | Ever married women                                                          | 1491        |
| Senbeto et al (2005) | Ethiopia     | Cross-sectional    | Women aged 15 to 49                                                        | 1346        |
| Adanu et al (2005)   | Ghana        | Cross-sectional    | Cases of complicated abortions                                             | 150         |
| Osr et al (2015)     | Kenya        | Mixed-method       | Women treated for complication of unsafe abortion                          | 963         |
| Nojomi et al (2006)  | Iran         | Cross-sectional    | Women aged 15 to 55 years                                                  | 2470        |
| Lara et al (2006)    | Mexico       | Cross-sectional    | Women ages 15 to 55                                                        | 1792        |
| Maral et al (2007)   | Turkey       | Cross-sectional    | Women aged 15 years or older                                               | 2455        |
| Dahlbäck et al (2007)| Zambia      | Cross-sectional    | Girls aged 13 to 19 years                                                  | 34          |
| Hess et al (2007)    | Africa       | Qualitative        | Women with a history of induced abortion                                   | 5           |
| Tsakiridu et al (2008)| Spain      | Cross-sectional    | Women prostitutes                                                           | 212         |
| Rahim and An (2008)  | Pakistan     | Cross-sectional    | Married women in reproductive age                                          | 50          |
| Dibaee and Sadati (2008)| Iran     | Cross-sectional    | Women undergone abortion                                                   | 85          |
| Rasch et al (2009)   | Tanzania     | Cross-sectional    | Women admitted with alleged miscarriage                                     | 751         |
| Erfani (2011)        | Iran         | Cross-sectional    | Married women aged 15–49                                                   | 2934        |
| Motavalli et al (2012)| Iran       | Cross-sectional    | Married women aged 15–49                                                   | 1200        |
| Veisi and Zangeneh (2012)| Iran      | Cross-sectional    | Women with a history of induced abortion                                   | 91          |
| Ranji (2012)         | Iran         | Cross-sectional    | Women aged 15 to 45                                                        | 3250        |
| Nur (2012)           | Turkey       | Cross-sectional    | Ever-married women aged 15-49 years                                        | 1264        |
| Souza et al (2014)   | Brazil       | Cross-sectional    | Women of childbearing age                                                   | 860         |
| Fusco et al (2012)   | Brazil       | Cross-sectional    | Women 15-54 years                                                           | 375         |
| Rocca et al (2013)   | Nepal        | Cross-sectional    | Women admitted for post abortion care                                      | 527         |
| Motaghi et al (2013) | Iran         | Qualitative        | Women with a history of abortion / unwanted pregnancy/ service providers   | 72          |
| Awoyemi and Novignon (2014)| Nigeria | Cross-sectional    | Women between 19-49 years                                                  | 308         |
| Klutsey and Ankoma (2014)| Ghana | Case-control      | Case: women who had induced abortion Control: never had an induced abortion| 380         |

### Table 2. Applied data collection methods in the included studies within the systematic review of the research evidence on cross-country features of illegal abortions

| Data collection methods          | Number of reporting studies |
|----------------------------------|-----------------------------|
| Face to face-interview           | 24 (7, 9, 12, 13, 14, 15, 19, 22, 23, 25, 26, 27,28, 29, 34, 36, 37, 38, 39, 40, 41, 44) |
| Self-administered questionnaire  | 13 (8, 12, 16, 17, 18, 24, 31, 32, 33, 35, 43) |
| In-depth interview               | 14 (20, 30, 42)             |
| Telephone interview              | 1 (21)                      |
| Focus group discussion           | 1 (12)                      |
Table 3. Characteristics of the illegal abortees in the included studies within the systematic review of the research evidence on cross-country features of illegal abortions

| Characteristics             | No. of reporting publications |
|----------------------------|-------------------------------|
| Mean age                   |                               |
| ≤19                        | 5 (14, 24, 29, 34, 35)        |
| 20-25                      | 6 (8, 17, 33, 34, 35, 44)     |
| 26-30                      | 18 (13, 15, 16, 18, 21, 22, 23, 25, 26, 27, 28, 31, 35, 36, 37, 38, 41, 42) |
| 31-40                      | 2 (9, 19)                     |
| ≥40                        | Not reported                  |
| Marital status             |                               |
| Married                    | 14 (9, 13, 21, 22, 23, 25, 26, 27, 31, 33, 35, 38, 41, 43) |
| Single                     | 11 (8, 12, 14, 16, 17, 29, 34, 40, 42, 44) |
| Number of children         |                               |
| 0                          | 6 (12, 14, 17, 18, 21, 44)    |
| 1-2                        | 11 (9, 13, 16, 19, 25, 31, 34, 35, 37, 41, 43) |
| ≥3                         | 4 (22, 23, 38, 39)            |
| Educational level          |                               |
| Illiterate                 | 2 (13, 23)                    |
| Lower than high school     | 16 (14, 15, 16, 17, 18, 19, 22, 27, 29, 37, 38, 40, 41, 43, 44) |
| High school and above      | 8 (8, 9, 21, 25, 26, 31, 35, 42) |
| Employment status          |                               |
| Unemployed                 | 16 (8, 12, 23, 14, 17, 23, 25, 26, 27, 29, 35, 37, 38, 40, 43, 44) |
| Employed                   | 7 (9, 18, 21, 31, 39, 41, 42) |
| Socioeconomic status       |                               |
| Low                        | 10 (7, 13, 16, 17, 21, 27, 38, 39, 40, 42) |
| Moderate                   | 3 (33, 35, 37)                |

Table 4. Types of the illegal abortion service providers in the included studies within the systematic review of the research evidence on cross-country features of illegal abortions

| Service providers          | No. of reporting studies |
|----------------------------|--------------------------|
| Patient                    | 5 (12, 13, 25, 31, 41)   |
| Midwife                    | 5 (13, 25, 34, 36, 43)   |
| Friend/relative            | 2 (13, 37)               |
| Traditional healer         | 2 (29, 37)               |
| Gynecologist               | 2 (24, 35)               |
| General practitioner       | 1 (12)                   |

are executed underground, study respondents might be reluctant to give explicit answers regarding their or their relatives and friends experiences on abortion. Therefore, due to all above mentioned reasons interpretation of the findings must be conservative and tempered by the limitation of the imprecise data.

Conclusion
Conducting research on illegal abortion is challenging specially due to its stigmatized nature and its surrounded prohibitory laws and regulations that might prevent active participations of target populations. To the best of our knowledge this study was the first systematic investigation of research evidence on characteristics of illegal abortees and methodologies that were used to examine illegal abortions.

No gold standard method was identified to pinpoint for recommendation in future studies. However, the existent evidence might be applicable to develop a potentially inclusive data collection tool and hence improve the quality of data collection and/or application of a more robust study design in future investigations.

Use of innovative data collection instruments or methods may potentially surmount challenges in conducting research on this subterranean and criminalized phenomenon in many countries of the world.

Ethical approval
The study was granted approval from the Medical Ethics Committee of the Tabriz University of Medical Sciences (approval No. TBZMED.REC. 1393.198).

Competing interests
There are no competing interests.

Authors’ contributions
FA contributed to the conceptualization and study design, data collection and interpretation, manuscript drafting and its editing. AS’s major role was conceptualization and study design, help in interpretation of the data and critically revising several drafts of the article for improvement of its intellectual content. PS helped greatly in conceptualization and design of the study, data analysis and interpretation and also preparation of the final draft of the article. All authors have read and approved the submitted and revised final version of the manuscript and confirm that no part of this paper is copied from other sources.

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