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Self-assessment of the outcome of first trimester medical abortion compared to routine clinic follow-up: A systematic review

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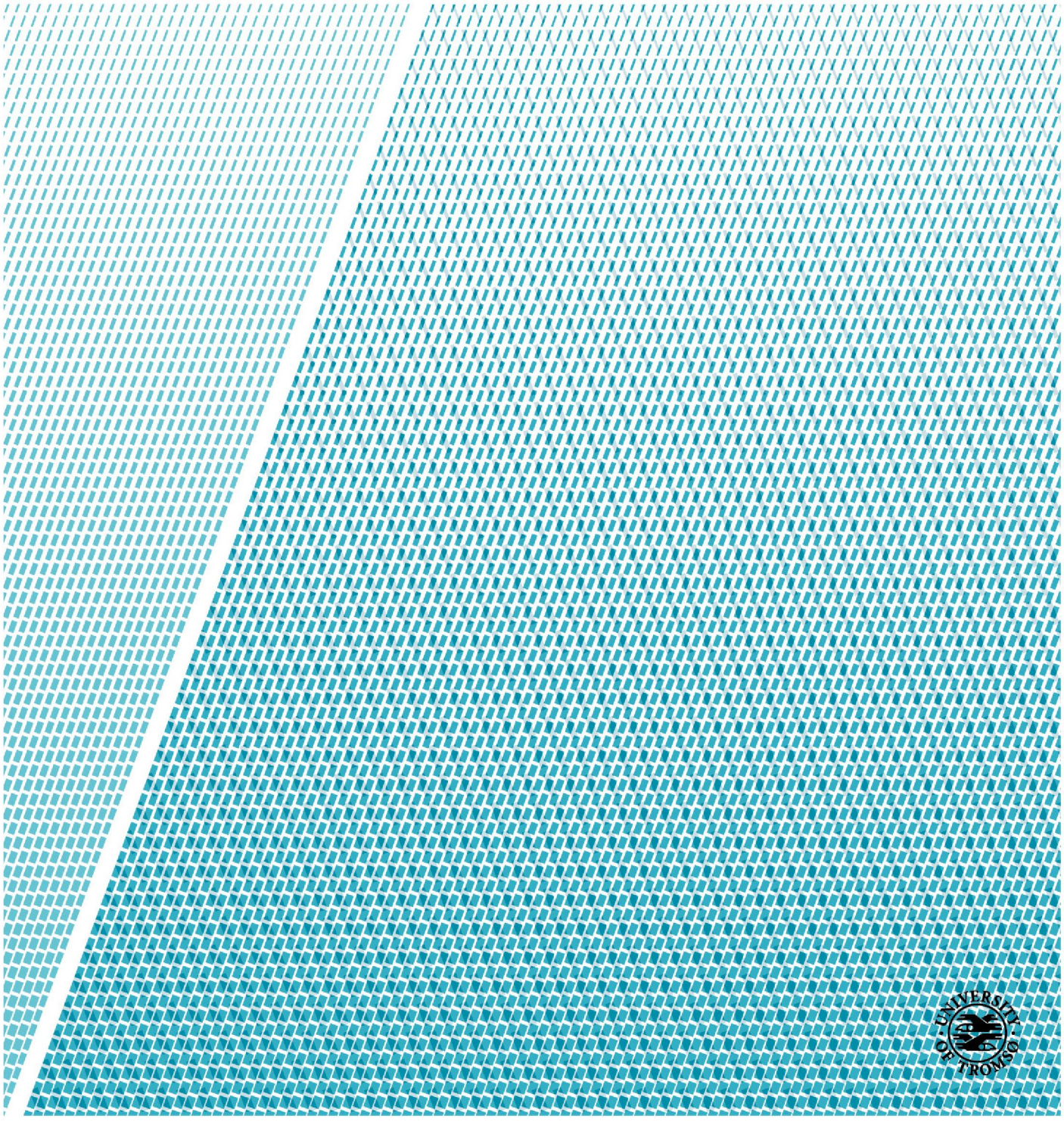

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ABSTRACT

Background: Home self-administration of misoprostol for medical abortion has been suggested as safe, efficient, feasible and acceptable. However, it remains inaccessible for many women especially in low-resource settings**.** Administration of misoprostol at home and self-assessment by urine pregnancy tests (UPTs) to confirm complete termination of pregnancy with follow-up by home visits or telephone call after 12-15 days after the intake of mifepristone helps to de-medicalize abortion and provides privacy to women.

Objective: To assess the effectiveness, safety, and acceptability of self-assessment of the outcome of medical abortion in a non-inferiority comparison with routine clinic follow-up after medical abortion at home.

Methodology: A systematic review for randomized controlled trials (RCTs) of self-assessment of the outcome of medical abortion compared with routine clinic follow-up was conducted. The systematic review followed the Cochrane Handbook of Systematic Reviews for Intervention. A thorough search was performed in databases such as Medline, Embase, Cochrane Central Register of Controlled Trials (CENTRAL), Web of Science, CINAHL, British Nursing Index and Archive, Scopus and Google Scholar. Searches were also done in ClinicalTrials.Gov and WHO-ICTRP for ongoing studies.

The population was women of reproductive age, 15 years or above, who had a confirmed pregnancy and who had requested a medical termination of pregnancy up to 9 weeks (63 days) of gestation age, which they performed at home. The intervention, self-assessment of outcome done by UPTs by women themselves at home combined with a follow-up by telephone call or home visit to confirm the complete termination of pregnancy, was compared with assessment of the outcome of medical abortion performed by medical/health care personnel during routine clinic follow-up visits. The primary outcome was effectiveness of self-assessment of the outcome of medical abortion compared to routine clinic follow-up, while its safety and acceptability were the secondary outcomes.

Risk of bias (RoB) assessment was performed for each included RCT in accordance with the criteria in the Cochrane Handbook for Systematic Reviews of Interventions. The outcomes were

analysed as risk ratios (RR) with 95% confidence intervals (CI). Review Manager 5.3 (RevMan 2014) was used to pool the data (meta-analysis) and to generate forest plots to display the results. A GRADE (Grading of Recommendations Assessment, Development, and Evaluation) assessment was conducted to assess the certainty of the evidence.

Results: Four studies met the inclusion criteria (n = 5394 participants). All were RCTs, two of these were non-inferiority RCTs, which described the results of self-assessment of the outcome of induced abortion with mifepristone and misoprostol at home. The studies were conducted in low to high resource setting countries. There was low risk of bias associated with the included studies. Pooled analyses from all studies showed no statistically significant difference in complete abortion rates between self-assessment and routine clinic follow-up: RR= 1.00; 95% CI = 0.99 to 1.01 (high quality evidence). The point estimates for the pooled safety measures were: need for surgery (RR= 0.92; 95% CI = 0.7 to 1.21), occurrence of haemorrhage (RR= 1.48; 95% CI = 0.84 to 2.60), occurrence of fever and infection (RR= 0.41; 95% CI = 0.08 to 2.12), and drug administration for haemorrhage (RR= 1.81; 95% CI = 0.61 to 5.35). There were no statistically significant differences between the groups with respect to safety of the assessment technique (moderate to low quality evidence). The results showed that the preference of follow-up method is significantly greater for self-assessment compared to routine clinic follow-up. Overall, these results show that self-assessment at home is as safe as routine clinic follow-up.

Author's Conclusions: This systematic review summarizes and presents that there is high quality evidence that the effectiveness of self-assessment of the outcome of medical abortion at home is not inferior to routine clinic follow-up. Further, it shows that self-assessment with telephone or home follow-up is safe and acceptable compared to routine clinic follow-up. This intervention is feasible to implement. Therefore, it can be incorporated as an alternative to abortion services in both low and high resource settings, giving women a choice whether to do the assessment by themselves or in clinics.

Key words: medical abortion, self-assessment, home, routine clinic follow-up, urine pregnancy tests

TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

LIST OF ABBREVIATIONS

CENTRAL	Cochrane Central Register of Controlled Trials
CI	Confidence Interval
CINAHL	Cumulative Index to Nursing and Allied Health Literature
EPICOT	Evidence, Population, Intervention, Comparison, Outcome, Time-frame
EPOC	Effective Practice and Organization of Care
GRADE	Grading of Recommendations Assessment, Development, and Evaluation
HSPT	High Sensitivity Pregnancy Test
ITT	Intention-To-Treat
LSUPT	Low Sensitivity Urine Pregnancy Test
MD	Mean Differences
M-H	Mantel-Haenszel
NIPH	National Institute of Public Health
Non-RCTs	Non- Randomized Controlled Trials
PICO	Population, Intervention, Comparison, Outcome
RCT	Randomized Controlled Trial
RoB	Risk of Bias
RR	Risk Ratio
SMD	Standardized Mean Differences
SoF	Summary of Findings
SQUPT	Semi-Quantitative Urine Pregnancy Test
UiT	University of Tromsø
UPTs	Urine Pregnancy Tests
WHO	World Health Organization
WHO (ICTRP)	World Health Organization's International Clinical Trials Registry Platform

CHAPTER 1: INTRODUCTION

1.1 Background

The termination of pregnancy by removing fetus or embryo before it can survive outside the uterus is called 'abortion' (1). The two main types of induced abortion are surgical abortion and medical abortion. Surgical abortion is the method that involves the contents of pregnancy being removed vaginally from the uterus by an experienced doctor or clinician with or without the use of anaesthesia (2). Medical abortion is the use of abortifacient pharmaceutical drugs (3-5).

In 1988, medical abortion with mifepristone and prostaglandin was first introduced (6). The anti-progesterone mifepristone in combination with a prostaglandin analogue, was licensed for ending the pregnancy up to 63 days (9 weeks) of gestation in 1991 (7). Medical abortion has three different methods: the drug mifepristone followed by misoprostol, the drug methotrexate followed by misoprostol, and misoprostol alone. The World Health Organization (WHO) recommends the mifepristone-misoprostol combination regimen for medical abortion (8, 9). The mifepristone-misoprostol regimen works faster and is more effective at later gestational ages than the other regimens (10).

Medical abortion using mifepristone, followed 24-48 hours later by buccal or vaginal misoprostol is considered to be more effective than even surgical abortion (vacuum aspiration), in case of early abortions, i.e., up to 49 days of gestational age, particularly when detailed inspection of aspirated tissue is not included in the clinical practice (11). The mifepristone-misoprostol combination regimen is approximately 98% effective up to 9 weeks gestational age (12). For the past 25 years, mifepristone-misoprostol is considered safe and acceptable because this method is simple, requires fewer resources than surgical abortion and provides women with a choice of intervention (13). The procedure can be done either at a clinic or at home (14). A

systematic review performed by Ngo et.al. in 2011 concluded that home-based medical abortion is safe and there are no differences in effectiveness or acceptability between home-based and clinic-based medical abortion across countries (15).

Follow-up, be it after medical abortion or surgical abortion should provide individualized care (16). Women having an early medical abortion require follow-up to confirm complete and successful termination of pregnancy. In general, follow-up after medical abortion is done by an ultrasound examination (17). Routine follow-up includes ultrasonography, measurement of human chorionic gonadotropin (hCG) in serum or urine, and pelvic examination. This can involve more than one clinical visit (13). An alternative method of detecting ongoing pregnancy after medical abortion at home includes measurement of urine hCG by pregnancy tests kits, either alone or in combination with questions about bleeding and symptoms of pregnancy (14, 17). Pregnancy tests determine pregnancy by detecting the hormone hCG in women's urine. Test sensitivity is the hCG threshold at which point a positive result is indicated. There are different test sensitivity pregnancy test kits such as low sensitivity urine pregnancy test (LSUPT), semi-quantitative urine pregnancy test (SQUPT), or high-sensitivity pregnancy test (HSPT); the lower the threshold, the higher the test sensitivity (14, 18). To select the best test among the home pregnancy tests, three major factors should be taken into considerations: test sensitivity, the ease of use/interpretation, and price (18). Recently, studies have shown that the self-assessment of outcome of medical abortion done by urine pregnancy test (UPT) kits with a follow-up telephone call, text message, or online can be an alternative method of clinical follow-up after medical abortion. A study has shown that a telephone follow-up with self-test is a feasible and accurate method of determining the outcome after medical abortion (14, 17).

In Britain (19), France (20), Switzerland (21), and the Nordic countries (22), early medical abortions account for the majority of abortions before 9 weeks of gestational age, while in the

United States, the percentage of early medical abortions is lower (23, 24). In 2015, the percentage of medical abortion in Scotland, Norway, and Sweden accounted for 81%, 86%, and 91% respectively. In Finland, early medical abortion accounted for 95% of all medical abortion in 2014. The rates for England and Wales were 55% and in Switzerland it was 70% in the year 2015, while the rate was 58% in France in 2013 and only 23% in the United States in 2011 (25).

1.2 Description of the condition (problem)

It is estimated that worldwide, in every 1000 women in the age group 15-44 years, approximately 35 abortions occurred annually in the years 2010-14. With the increase in the population, the annual number of abortions also globally increased by 5.9 million from the years 1990-1994 to 2010-14 (26). Worldwide, approximately 56 million abortions occur each year (26), of which almost half is done unsafely (27). Unsafe abortions cause around 47,000 deaths and 5 million hospital admissions each year. The health risk of abortion principally depends on whether it is performed safely or unsafely (28). Studies show that induced abortions can decrease the risk of long-term mental or physical problems when they are performed legally and safely (28, 29). The WHO recommends that legal and safe abortions should be available to all women (30). Legality of abortion often favors that a woman has the right to make her own decisions about her own body (31).

Despite the fact that early first trimester medical abortion is a safe and effective method for induced abortion, the procedure still remains inaccessible for many women in low-resource settings. Consequently, this reduces access to safe abortion and leads women to seek unsafe abortion. Globally, unsafe abortion is an important cause of maternal mortality. In India alone, 8% of maternal deaths is caused by unsafe abortion (14). Worldwide, it is estimated that 7.9% of all maternal deaths is due to abortion. Even in areas where induced abortion is legal, because of religious beliefs and cultural perceptions, women are likely not to disclose the abortion

attempts and their relatives or health personnel do not report deaths related to it. Thus, the fact that abortion related deaths are under-reported might lead to under-estimation of the death rates. This means that apart from the estimation done, there might be some increase in the abortion related death rates (32).

As stated, the main purpose of a routine follow-up visit after medical abortion is to ensure the termination of pregnancy. The number of routine clinic follow-up visits required in medical abortion is one of the most important barriers affecting access and acceptability of medical abortion, because the clinic visit is perceived as burdensome for women with low autonomy and limited financial resources. Furthermore, for many women, the long travel time required for clinic visits results in lost wages and difficulties in ensuring privacy (14).

1.3 Description of the intervention

In the mifepristone-misoprostol combination regimen, the intake of mifepristone orally (200 mg) is followed by use of misoprostol (800mcg) within 48 hours, either at clinic or at home (14). Administration of misoprostol at home aids to de-medicalize abortion and provides privacy to women (13). The route of misoprostol administration might be sublingual, vaginal or oral, differing across clinics according to their standard protocols (14). An assessment is required to confirm the outcome of the medical abortion. The primary outcome is complete termination of pregnancy without the need for additional clinical intervention within 30 days. The assessment can be performed by health personnel at a clinic or be self-assessed. Self-assessment of the outcome at home is done with a UPT, typically LSUPT, SQUPT, or HSPT. One of the most important reasons for the use of a UPT after medical abortion is to recognize if there is any cases of ongoing pregnancy which might go undetected in the absence of routine clinic follow-up (33). For self-assessment of the outcome, women are provided with a UPT and the assessment is to be done 10-14 days after the intake of mifepristone. They are provided with

detailed instructions at the clinic on how to use the test kit and asked to seek assistance with clinical personnel if they encounter any health problems or a positive or an unclear test result. Follow-up of women to screen for pregnancy continuation or complications is done by home visits, telephone call, text message or online 12-15 days after intake of mifepristone (14).

1.4 How the intervention might work

Home self-administration of misoprostol for medical abortion has been suggested as safe, efficient, feasible and acceptable by a handful of studies from the United States (34-38). Administrating medical abortion at home allows the women to carry out abortion in a more familiar environment, allows more privacy, and therefore avoids the inconvenience and reduces the cost of the additional clinical visits. Studies have shown it to be highly acceptable and the majority of women specified that they would prefer home administration of medical abortion again in the hypothetical situation of needing another abortion (7). Women reported that it is much easier to tolerate the side effects in the known, comfortable environment of their homes with someone familiar nearby to support them, which ultimately prepare them for any problems that could arise later (39).

The Royal College of Obstetricians and Gynaecologists in its recent guidance has advised that telephone follow-up and urine pregnancy testing method may be considered appropriate in the absence of evidence to recommend one particular procedure for routine follow-up to exclude ongoing pregnancy after medical abortion (17). Further, home pregnancy tests with different sensitivity levels are easy to use and interpret. These are easily available commercially in the market at an affordable price. In addition, these tests are very accurate exhibiting over 99% accuracy, if done in clinical settings. However, the accuracy rate depends on how correctly it is performed and interpreted (18). Various health professionals consider a routine ultrasound superior to self-assessment with LSUPT in combination with a telephone follow-up to identify

the outcome of medical abortion, and state that the latter is only suitable for low-resource settings (17). However, the study done by Cameron et al. showed that, both in theory and practice, a telephone follow-up was a popular choice for women. It showed that more than three out of four women elected to consult via telephone follow-up rather than to re-attend the clinic for a routine ultrasound. The main reason was to avoid another trip to the hospital and this follow-up method was convenient and satisfactory (17).

1.5 Why is it important to do this review

Health care providers, researchers, and policy makers need to update the existing knowledge and information they have regularly. Systematic reviews efficiently incorporate prevailing information and provide data for rational decision making eventually managing the inundated amounts of information within the health system. Additionally, meta-analyses can increase power and precision of estimates of treatment effects and exposure risks, improving the reliability and accuracy of conclusions (40).

Grossman et al. in their review in 2010 stated that the alternative techniques such as women's self-assessment without using any tests, clinician's assessment, serum hCG measurements, urine pregnancy testing or a combination of these techniques to routine in-person follow-up visits after medical abortion are accurate at diagnosing the primary outcome (complete termination of pregnancy) of medical abortion. However, the researchers added that there is a need for additional research to determine the accuracy, acceptability, and feasibility of alternative follow-up modalities in practice, particularly of home-based urine testing with self-assessment (41).

Furthermore, recently, a number of studies including randomized controlled trials (RCTs) have been conducted, comparing the self-assessment of outcome of medical abortion with clinic follow-up visits (13, 14). These might generate new facts and/or provide stronger evidence to

support the prevailing knowledge. Therefore, this systematic review can be expected to refine and add to the existing information of home-based self-assessment of the outcome of medical abortion compared to routine clinic follow-up visits.

1.6 Review question

Is self-assessment of the outcome of medical abortion at home comparable to assessment performed by medical/health care personnel during a routine clinic follow-up in terms of effectiveness, safety, and acceptability?

1.7 Objective

The objective of this systematic review was to assess the effectiveness, safety, and acceptability of self-assessment of the outcome of medical abortion in a non-inferiority comparison with routine clinic follow-up after medical abortion at home.

CHAPTER 2: METHODOLOGY

It is recommended by the Cochrane Organization that systematic reviews should have at least two reviewers involved at its various steps to reduce the risk of bias (RoB) (42). Therefore, for this systematic review, two persons were involved in selection of studies, data extraction, assessment of RoB of the included studies, and the Grading of Recommendations Assessment, Development, and Evaluation (GRADE) assessment. However, since this is a thesis work, beside the main author, other persons who were involved in various steps have no contribution to the main contents of the thesis. The study protocol is registered in PROSPERO (Reference no.: 2017: CRD42017055316) (43).

2.1 Search Strategy

The main author conducted literature searches in the following databases: Medline, Embase, Cochrane Central Register of Controlled Trials (CENTRAL), Web of Science, Cumulative Index to Nursing and Allied Health Literature (CINAHL), British Nursing Index and Archive, Scopus and Google Scholar. Searches were also done in ClinicalTrials.Gov and World Health Organization's International Clinical Trials Registry Platform (WHO-ICTRP) for ongoing studies.

The reference lists of systematic reviews, literature reviews, and other relevant publications were manually checked to identify relevant studies that were not covered by the database searches.

Medical abortion with mifepristone and prostaglandin was first introduced in the year 1988 (6), while it was licensed for ending the pregnancy up to 63 days of gestational age in the year 1991

(7). Therefore, the databases were searched only from the year 1991 to the mid of February 2017. In addition, the searches were filtered to identify human studies.

The sets of search terms combined were terms for — Abortion AND Pregnancy Test AND Home (for details, see Appendix 1).

The search strategy was drafted by the main author and reviewed by the supervisor and the co-supervisor. The strategy was first tested, revised, and then finalized by search librarians from University of Tromsø (UiT)-The Arctic University of Norway and Norwegian Institute of Public Health (NIPH). The finalized strategy was then used for the searches.

Auto alert for new searches in databases like Cochrane library and Web of science was done for almost a month after the first search. It was then stopped to continue into the next steps of the review.

2.2 Selection of literature

All the searches in the databases were imported to Endnote X7.2, a software tool to manage bibliographies. The duplicates were removed. Two reviewers screened the titles and abstracts of all records identified by the search, first independently then jointly. All records that were considered relevant were promoted to full text screening. The main author obtained these articles in full text. Two reviewers assessed all the relevant studies in full text, independently and then jointly. These full text papers were examined for inclusion based on the criteria stated below. Reasons for exclusion of full texts were recorded.

If there were any doubts on inclusion of a study, they were documented and the doubts were resolved by discussion with the supervisor and the co-supervisor. The study protocol mentioned that where there were still disagreements, the authors of the studies would be contacted for

clarification (43). However, this situation did not arise; therefore, none of the authors were contacted.

2.3 Inclusion and exclusion criteria

The inclusion and exclusion criteria for this systematic review are described below:

2.3.1 Study design

RCTs and non-randomized controlled trials (non-RCTs), interrupted-time-series, controlled before-and-after studies, and prospective cohort studies with a control group were eligible for inclusion. The study protocol mentioned that in the event that several RCTs of moderate to high methodological quality were identified, only including RCTs would be considered (43). Those studies where the outcome data were collected retrospectively were excluded.

2.3.2 Population

Women of reproductive age (15 years or above) who had a confirmed pregnancy, the confirmation of which was done by ultrasound, clinically or by a positive urine or serum hCG, and who requested a medical termination of pregnancy of up to 9 weeks (63 days) of gestation period, which they performed at home.

2.3.3 Intervention

Self-assessment of the outcome of medical abortion at home. The self-assessment done by UPTs such a LSUPT, SQUPT, or HSPT by women themselves at home with a follow-up by home visit, telephone call, text message, or online or a combination of these to confirm the complete termination of pregnancy.

2.3.4 Comparison

Assessment of the outcome of medical abortion at home performed by medical/health care personnel during routine clinic follow-up visits.

2.3.5 Outcomes

The primary outcome was the percentage of women with successful complete abortions, i.e., complete evacuation of the uterine contents with no requirement for surgery or any medical intervention within 3 months of complete abortion.

The secondary outcomes were side effects and complications, such as pain, haemorrhage (excessive bleeding), endometritis, gastrointestinal side effects (e.g., nausea, vomiting, diarrhoea), headache, dizziness, and thermoregulatory changes; loss to follow-up; number of clinic visits and number of telephone consultations; and acceptability.

2.3.6 Others

Only papers written in English language were included. The databases were searched only from the year 1991 to present.

Clinical practice guidelines, conference abstracts and proceedings, books, chapters, animal and modelling studies, reviews and publications containing only qualitative information were excluded.

2.4 Assessment of methodological quality (Risk of bias assessment)

Two reviewers assessed RoB, independently, and then jointly. RoB was assessed for each included RCT in accordance with the criteria in the Cochrane Handbook for Systematic Reviews of Interventions (42). The following key domains were used to assess RoB: sequence generation, allocation concealment, blinding of participants and personnel, blinding of outcome assessment, incomplete outcome data, selective outcome reporting, and other sources of bias. Response options of 'Low Risk', 'Unclear Risk', and 'High Risk' for each of the domains were documented. Procedures with no cause for concern were assigned low RoB, when a judgement

could not be made, the risk was assigned as unclear RoB, and procedures with cause for concern were assigned as high RoB (42).

The study protocol mentioned that in the event that other designs than RCTs were included, the Cochrane Effective Practice and Organization of Care (EPOC) group's checklist for non-RCTs (44) would be used (43). However, the study design of all the studies selected were RCTs, therefore, the Cochrane EPOC checklist was not used.

Any disagreements between the two reviewers were resolved by discussion with the supervisor.

2.5 Extraction of data

The main author extracted data from the included studies onto a standard simple Excel sheet using a pre-designed data recording form. A second person then checked the completeness and accuracy of the data extraction for all included studies. Any differences were discussed until consensus was reached.

The following core data were extracted from all included studies:

- Title, authors, and other publication details
- Study design and aim
- Setting (place and time of recruitment/data collection)
- Sample characteristics (age, gender, ethnicity, education etc.)
- Intervention characteristics (type of self-assessment, type of follow-up)
- Methods of outcome measurement (clinical, self-report, etc.)
- Results related to the outcomes (successful complete abortions, side effects and complications, loss to follow-up, number of clinic visits, number of telephone consultations, acceptability)

2.6 Data analysis

Data were summarized and presented narratively in text and tables for each comparison. The study protocol specified that for continuous data, the group post-test means and standard deviations would be used to calculate effect sizes using Review Manager 5.3 (RevMan 2014) software. When possible, the effect sizes would be expressed in the form of mean differences (MD) and 95% confidence interval (CI), but when different scales were used to measure the same outcome, standardized mean differences (SMD) with corresponding 95% CI would be calculated (43). However, none of the outcomes were presented as continuous data. All outcome were dichotomous. Dichotomous data were analysed as risk ratios (RR) with 95% CI.

For the reason that the included studies were sufficiently similar – similar Population, Intervention, Comparison, Outcome (PICO) – to pool the results, meta-analyses was performed of the included study outcomes. Review Manager 5.3 (RevMan 2014) was used to pool the data (meta-analyses) and to generate forest plots to display the results.

The certainty of the evidence for the primary outcome and secondary outcomes was assessed with the GRADE tool. GRADE is a method for assessing the certainty of the evidence in systematic reviews. Evidence from RCTs start as high certainty evidence but may be downgraded depending on five criteria: i) methodological study quality as assessed by review authors, ii) degree of inconsistency, iii) indirectness, iv) imprecision, and v) publication bias. Evidence from observational studies start as low certainty evidence but may be upgraded. Upgrading of results from observational studies is possible according to GRADE if there is a large effect estimate, a dose-response gradient, or if all possible confounders would only diminish the observed effect and that therefore the actual effect most likely is larger than what is suggested by the data. GRADE has four levels of certainty as following (45):

- **High quality**: We are very confident that the estimate of the effect lies close to the true effect. This means that further research is very unlikely to change our confidence in the estimate of effect.
- **Moderate quality**: We are moderately confident in the estimate of effect. Although the true effect is likely to be close to the effect estimate, there might be a possibility that it is substantially different. This means that further research is likely to have an important impact on our confidence in the estimate of effect and may change the estimate.
- **Low quality:** We have limited confidence in the estimate of effect because the true effect may be substantially different from the effect estimate. This means that further research is very likely to have an important impact on our confidence in the estimate of effect and is likely to change the estimate.
- **Very low quality:** We have very little confidence in the estimate of effect because the true effect is likely to be substantially different from the effect estimate. This means that we are very uncertain about the estimate.

GRADE assessment was performed for the primary outcome and some of the secondary outcomes, based on evidence coming from the individual primary studies contributing to the outcome (46).

CHAPTER 3: RESULTS

3.1 Results of the search

There were 831 hits from the database searches in Medline, Embase, CENTRAL, Web of Science, CINAHL, British Nursing Index and Archive, Scopus, ClinicalTrials.Gov and WHO-ICTRP (For details, see Appendix 2). Only the first 200 hits were selected from the Google Scholar search because there were more than 8000 hits, which were not possible to include in this thesis work. Thus, in total, 1,031 citations were identified from the database searches. From the reference lists of systematic reviews, literature reviews, and other relevant publications that were manually checked 38 citations were selected for the preliminary screening. After removing the duplicates from these citations, 877 remained. Titles and abstracts of all the 877 papers were screened. Among these, 755 records were discarded because they clearly did not meet the inclusion criteria. The full texts of the remaining 122 records were screened in more detail. Of these records, 117 records were excluded. The reasons for exclusion were recorded (For details, see Appendix 3). The most common reasons for exclusion were: the intervention did not match the inclusion criteria, the outcomes were not relevant, the study design did not match, and many were conference abstract presentations. In clinicaltrials.gov, three studies were completed but their results were not published yet, two studies are in progress as they are just recruiting the participants, and one study has not yet started. Therefore, these studies could not be screened for inclusion. It is possible, but unlikely, that the inclusion of these studies would change the results of this systematic review. Consequently, four studies (presented in five publications) met all the inclusion criteria that were pre-specified (13, 14, 47-49).

3.2 Description of included studies and their context

The included studies covered a period of 4 years; they were carried out between the years 2010 and 2014. All the included studies were published in peer reviewed medical journals: The Lancet (13), The Lancet Global Health (14), Contraception (49), Obstetrics and Gynecology (47) and PloS one (48). As seen in table 1, the study area of all the studies varied from low-resource setting to high-resource setting countries: India (14), Vietnam (47), Moldova and Uzbekistan (49), and Austria, Finland, Norway, and Sweden (13). The study design of all the studies were RCTs, two of these specified their study as a non-inferiority RCT (13, 14). In one of the studies, which was done in a low-resource setting, the literacy rate of the enrolled participants was 45% only (14). The participants in all the studies were women who were opting for medical termination of pregnancies, who had less than or equal to 9 weeks (63 days) of gestational age. In the study done by Iyengar et.al., the outcome in the self-assessment group was measured by low sensitivity pregnancy test kits and follow-up was done after 2 weeks by telephone call or home visit (14). In all the other studies, the outcome in the self-assessment group was measured by semi-quantitative pregnancy test kits and follow-up was done after 2-3 weeks by telephone call. The primary outcome measured in each of the studies was complete termination of pregnancy, while the secondary outcome was safety and acceptability of medical abortion at home.

Table 1: Characteristics of included studies

(For details, see Appendix 4)

Study	General Features	Population	Intervention	Comparison	Outcome
Iyengar et. al., 2015 (14)	-Study design: RCT (non-inferiority) -Country: India -N=731 (baseline) -Mean Age: 27.1 years -Education: 45% literate	Women above 18 years with unwanted pregnancies opting for medical abortion with gestational age 9 weeks or less.	-Self-assessment of outcome at home with a LSUPT and pictorial instruction sheet. -Follow up after 2 weeks by home visit or telephone call.	Routine clinic follow up	Primary Outcome: Complete abortion without continuing pregnancy or need for surgical evacuation or additional mifepristone and misoprostol. Secondary Outcomes: Safety (no adverse events and side effects) and feasibility of home assessment
Oppegaard et. al., 2015 (13)	-Study design: RCT (non-inferiority) -Country: Austria, Finland, Norway, Sweden -N=929 (baseline) -Mean Age: 25.97 years -Education: Not stated	Women aged 18 years and above who requested medical termination of pregnancy up to 63 days of gestational age.	-Self-assessment of outcome at home with a semi-quantitative urine hCG test -Follow up after 1-3 weeks by telephone consultation.	Routine clinic follow up	Primary Outcome: Complete abortion not requiring further medical or surgical intervention within 3 months to complete abortion Secondary Outcomes: Clinical efficacy (adverse events and complications), loss to follow-up, additional visits, additional telephone consultations, acceptability, and initiation of agreed contraception.
Ngoc et. al., 2014 (47)	-Study design: RCT -Country: Vietnam -N=1433 (baseline) -Mean Age: 27 years -Education: 99.95% literate	Women opting for early medical abortion with gestational age 63 days or less.	Self-assessment of outcome at home with a SQUPT in combination with self-administered checklist. -Follow up after 2 weeks by telephone call	Routine clinic follow up	Primary Outcome: Complete abortion without surgical evacuation. Secondary Outcomes: Acceptability of phone follow-up
Platais et. al., 2015 (49)	-Study design: RCT -Country: Moldova & Uzbekistan -N=2400 (baseline) -Median Age: 27 years -Education: 100% literate	Women with pregnancies less than or equal to 63 days of gestational age who wanted a medical abortion.	Self-assessment of outcome at home with a semi-quantitative pregnancy test in combination with symptom checklist. -Follow up after 2 weeks by telephone call	Routine clinic follow up	Primary Outcome: Complete abortion without surgical evacuation. Secondary Outcomes: Acceptability of phone follow-up

The above table shows the general characteristics and PICO of the included studies. For detailed information, see 'Characteristics of included studies' in Appendix 4.

3.3 Risk of bias (RoB) assessment of included studies

This systematic review included four studies based on self-assessment of outcome of medical abortion at home where follow-up was done by telephone call or telephone call combined with home visit compared to routine clinic follow-up. The study design of all of the included studies were RCTs, which means they had consistency in methodological approach. "Performance bias" was measured in two different domains: 'Blinding of participants' and 'Blinding of personnel', because the judgements for bias assessment can be different for participants and personnel. Similarly, "Detection bias" was measured in three different domains separated for each of the major outcomes: effectiveness, safety, and acceptability. This is because the judgements for bias assessment can be different for different outcomes.

The RoB assessment with the judgement and the explanation supporting the judgement for each domains is described in more details in the 'Characteristics of included studies' (See Appendix 4) and summarized below. The figures (adapted using Review Manager 5.3 software-RevMan 2014) below provide graphical summaries of the review authors' judgements about each RoB across the studies presented as percentages (presented in Figure 1) as well as judgement of RoB for each included study (Figure 2).

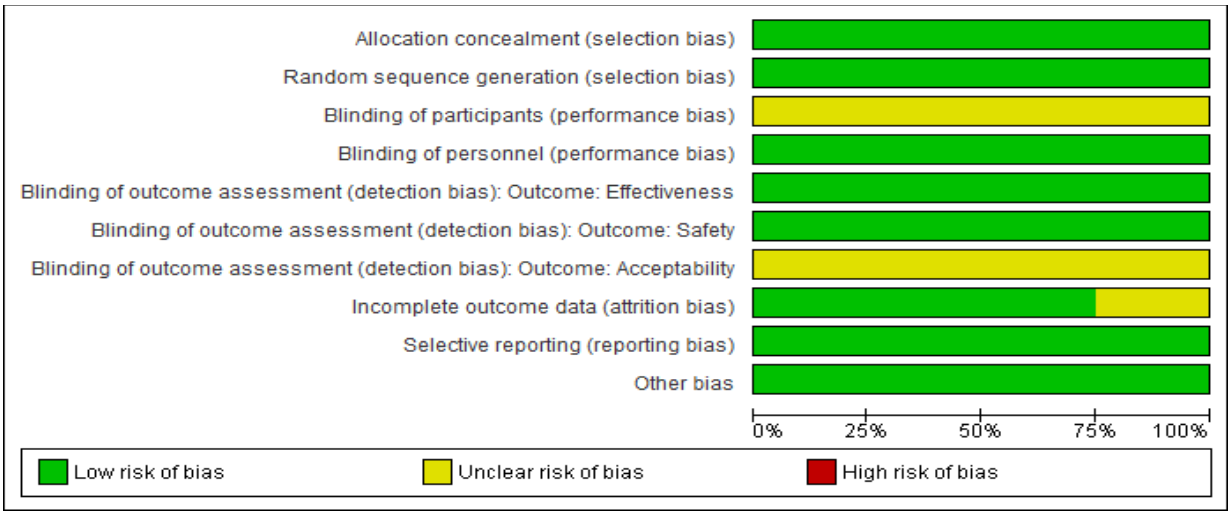

Figure 1: RoB graph: review authors' judgements about each RoB item presented as percentages across all included studies.

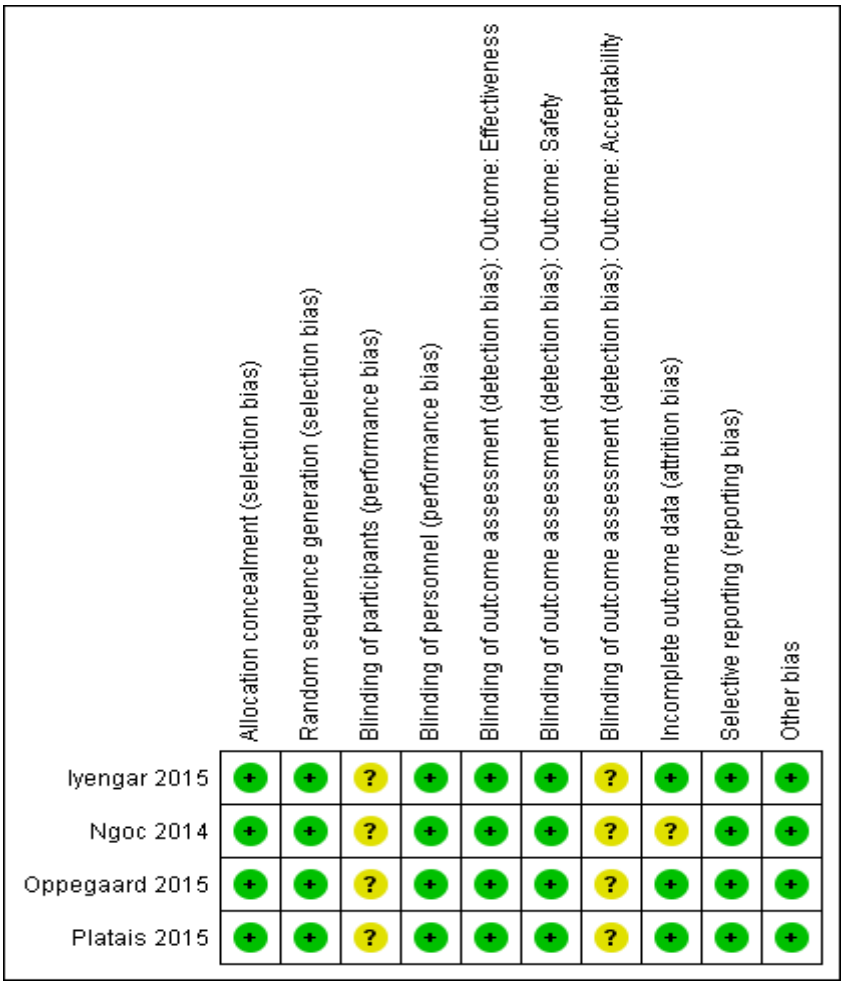

Figure 2: RoB summary: review authors' judgements about each RoB item for each included study

Random sequence generation and allocation concealment (Selection bias)

In all the included studies, randomization was done with a computer generated randomization sequence and sealed opaque envelopes were used to allocate the participants. Therefore, there was low risk of selection bias.

Blinding of participants and personnel (Performance bias)

It was not possible to blind the participants (women) and personnel (clinicians) because the women themselves were involved in giving intervention (self-assessment) and the clinicians were involved in giving counselling to women in the intervention group. The biological outcomes (effectiveness and safety) were not likely to be influenced by lack of blinding of participants and personnel. However, self-reporting (acceptability) might be influenced by lack of blinding of participants but not by personnel. Therefore, there was unclear risk in lack of blinding of participants while there was low risk even if there is lack of blinding of personnel.

Blinding of outcome assessment (Detection bias)

It was not possible to blind the outcome assessors (the women themselves in the self-assessment group and the clinicians in the clinic follow-up group). The biological outcomes (effectiveness and safety) were not likely to be influenced by lack of blinding of outcome assessors (both women and clinicians). However, self-reporting (acceptability) might be influenced by lack of blinding of participants but not by personnel. Thus, there was low risk even if there is lack of blinding of outcome assessment for biological outcomes i.e., effectiveness and safety, while there was unclear risk if there is lack of blinding of participants for self-reporting outcome.

Incomplete outcome data (Attrition bias)

There was a low percentage of loss to follow-up in two of the included studies (14, 49). In one of the studies, the percentage of loss to follow-up was relatively high (23% in routine follow-up group and 20% in self-assessment group) but it was not statistically significant in the intervention and the control group. Additionally, the analysis was done per protocol and by intention-to-treat (ITT) population (13). This means there was low RoB in these studies. However, in one of the studies, the difference between the proportions of women who were lost to follow-up was statistically significant between the intervention and the control groups. However, the percentage of loss to follow-up was low, therefore, there was unclear RoB (47).

Selective reporting (Reporting bias)

The published reports of all included studies had all the expected outcomes, including those that were pre-specified in the protocols. Therefore, there was low risk of reporting bias in all of the four included studies.

Other biases

No other biases were detected. Consequently, there was low risk of any other possible biases.

3.4 Effects of intervention

In this systematic review, the intervention was self-assessment of the outcome of medical abortion at home done by using UPT by women themselves at home with a follow-up by telephone call or telephone call combined with home visit. The primary outcome was the effectiveness of self-assessment technique, while secondary outcomes were mainly divided into two major groups: i) safety ii) acceptability of medical abortion at home.

Primary outcome: Effectiveness of self-assessment of the outcome of medical abortion at home versus routine clinic follow-up. All the four included studies measured complete termination of pregnancy. The meta-analyses result of this outcome is shown in figure 3.

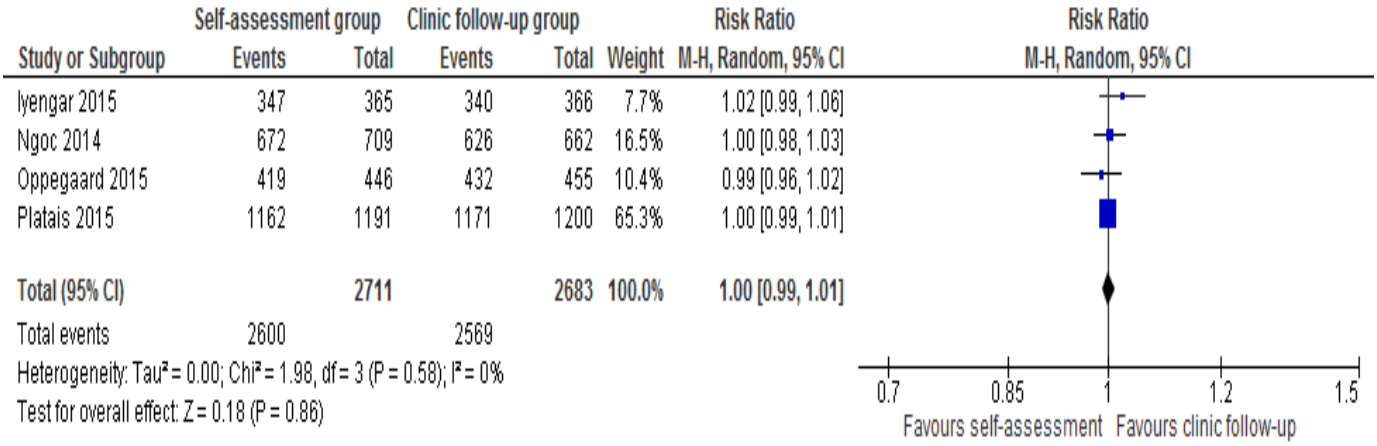

Figure 3: Forest plot comparing rates of complete termination of pregnancy among women who performed self-assessment of outcome at home and routine clinic follow-up

The point estimate (RR= 1.00; 95% CI = 0.99 to 1.01) for the pooled effect shows that the effectiveness of assessing outcome of medical abortion at home was similar in the self-assessment group and the routine follow-up group. In addition, there was no heterogeneity among the included studies in regard to effectiveness of outcome assessment (I^2= 0%). The p-value of test for overall effect was 0.86, which means there was no statistically significant difference between the intervention and control group. Thus, the pooled effect from all the four studies showed there is no difference in assessment of complete termination of pregnancy in medical abortion whether it is done at home by women themselves or in a routine clinic follow-up by clinicians.

In the study done by Iyengar et. al. 2015, the ITT population was used (14). In all the other studies, the evaluable population was used because the ITT population was not given (13, 47-

49). In the study done by Oppegaard et. al. 2015, only the risk difference of the ITT population was given: -0.8 (95% CI -3.8 to 2.3), which was similar to the risk difference of the evaluable population: -1.0 (95% CI -4.0 to 2.0). The data for evaluable population were therefore used in the meta-analyses (13).

Secondary outcome: Safety of assessment of outcome of medical abortion at home versus routine clinic follow-up. All the four included studies measured the need for surgery during medical abortion at home. The meta-analyses result of this outcome is shown in figure 4.

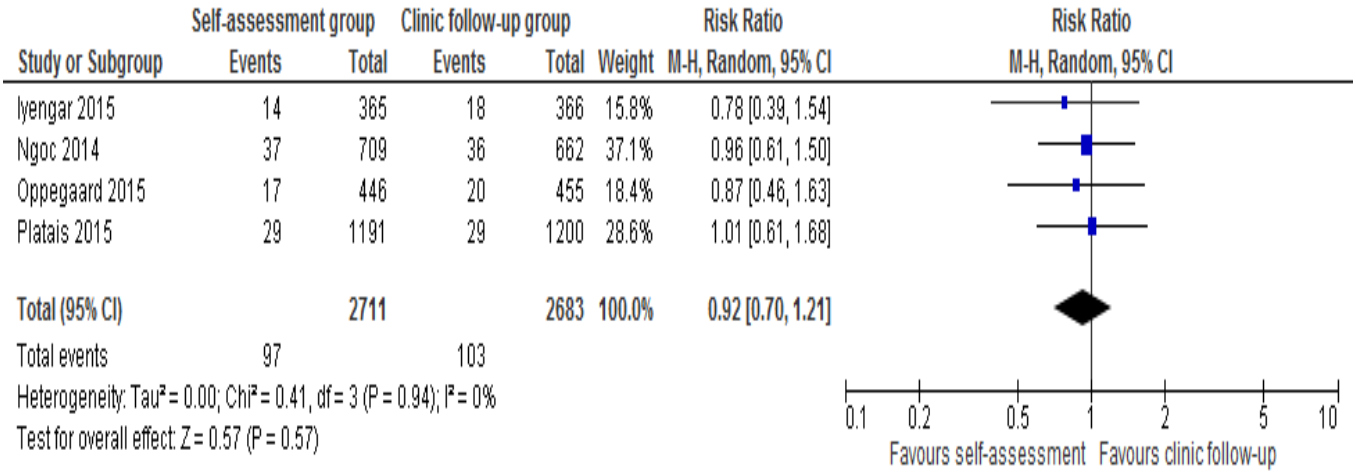

Figure 4: Forest plot comparing rates for need for surgery during medical abortion at home among women who performed self-assessment of outcome at home and routine clinic follow-up

The point estimate (RR= 0.92; 95% CI = 0.70 to 1.21) for the pooled effect shows that there was 8% lower risk for need for surgery during medical abortion at home in the self-assessment group compared to the routine follow-up group. In addition, there was no heterogeneity among the included studies in regard to need for surgery (I^2= 0%). The p-value of test for overall effect was 0.57, which means there was no statistically significant difference between the intervention

and control group. Thus, even though the pooled effect from the four studies showed there is a lower risk in the self-assessment group for need for surgery during medical abortion than in the routine clinic follow-up group, there is no statistically significant difference between the groups.

In the study done by Iyengar et. al. 2015, the ITT population was used (14). In all the other studies, the evaluable population was used (13, 47-49).

All the four included studies measured the occurrence of haemorrhage (excessive bleeding) during medical abortion at home. The meta-analyses result of this outcome is shown in figure 5.

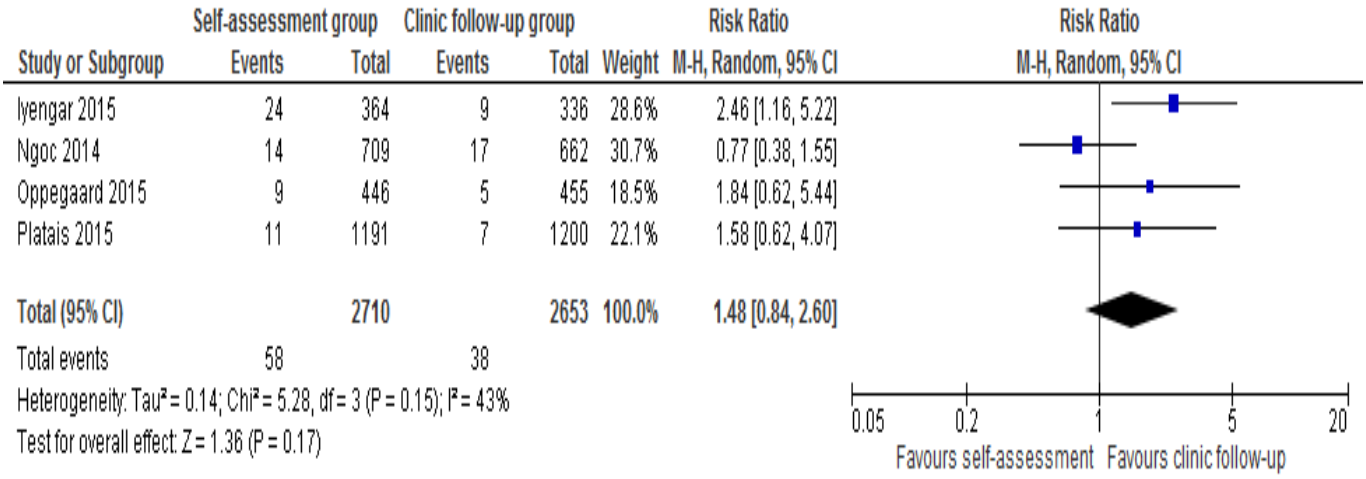

Figure 5: Forest plot comparing rates for occurrence of haemorrhage (excessive bleeding) during medical abortion at home among women who performed self-assessment of outcome at home and routine clinic follow-up

The point estimate (RR= 1.48; 95% CI = 0.84 to 2.60) for the pooled effect shows that there was a higher risk of occurrence of haemorrhage (excessive bleeding) during medical abortion at home in the self-assessment group compared to the clinic follow-up group. The p-value of

test for overall effect was 0.17, which means there was not statistically significant different between the intervention and control groups. However, there was moderate heterogeneity among the included studies concerning occurrence of haemorrhage (I^2= 43%). Hence, even though the pooled effect from all the included studies showed there is a higher risk in the self-assessment group for occurrence of haemorrhage (excessive bleeding) during medical abortion at home compared to routine clinic follow-up group, there is no statistically significant difference between the groups.

Only two of the included studies measured the occurrence of fever and infection during medical abortion at home. The meta-analyses result of this outcome is shown in figure 6.

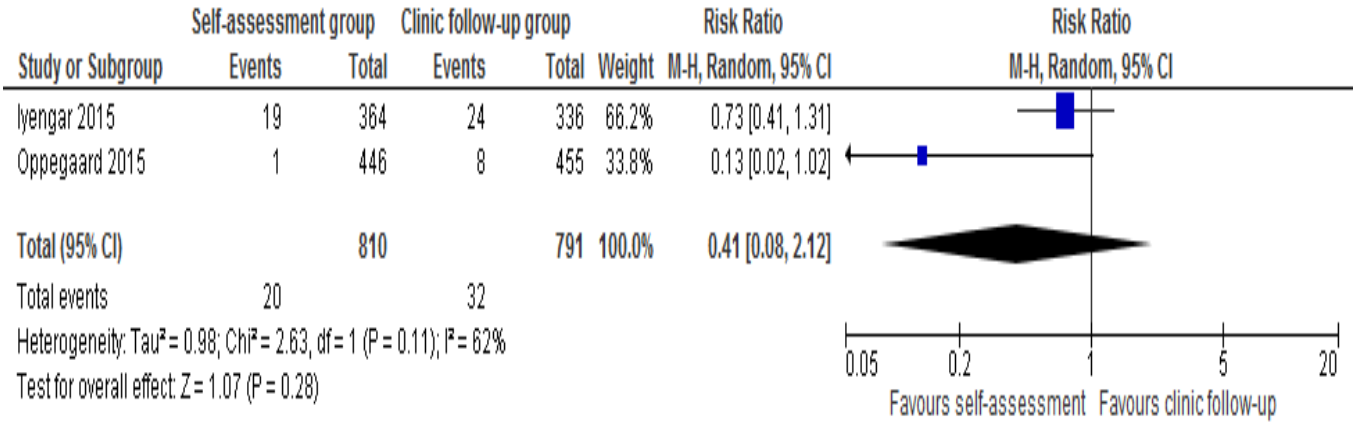

Figure 6: Forest plot comparing rates for occurrence of fever and infection during medical abortion at home among women who performed self-assessment of outcome at home and routine clinic follow-up

The point estimate (RR= 0.41; 95% CI = 0.08 to 2.12) for the pooled effect shows that there was 59% lower risk of occurrence of fever and infection during medical abortion at home in the self-assessment group compared to the clinic follow-up group. The p-value of test for overall effect was 0.28, which means there was no statistically significant difference between

the intervention and control group. However, there was moderate heterogeneity among the included studies in regard to occurrence of fever and infection (I^2= 62%). Thus, the pooled effect from two included studies showed there is a lower risk in the self-assessment group for occurrence of fever and infection during medical abortion than in routine clinic follow-up group, but the difference is not statistically significant.

In the study done by Ngoc et. al. 2014, the values for occurrence of fever and infection could not be used because the values were only given for patient who did interim visit (47).

Only two of the included studies measured the rates for drug administration for haemorrhage during medical abortion at home. The meta-analyses result of this outcome is shown in figure 7.

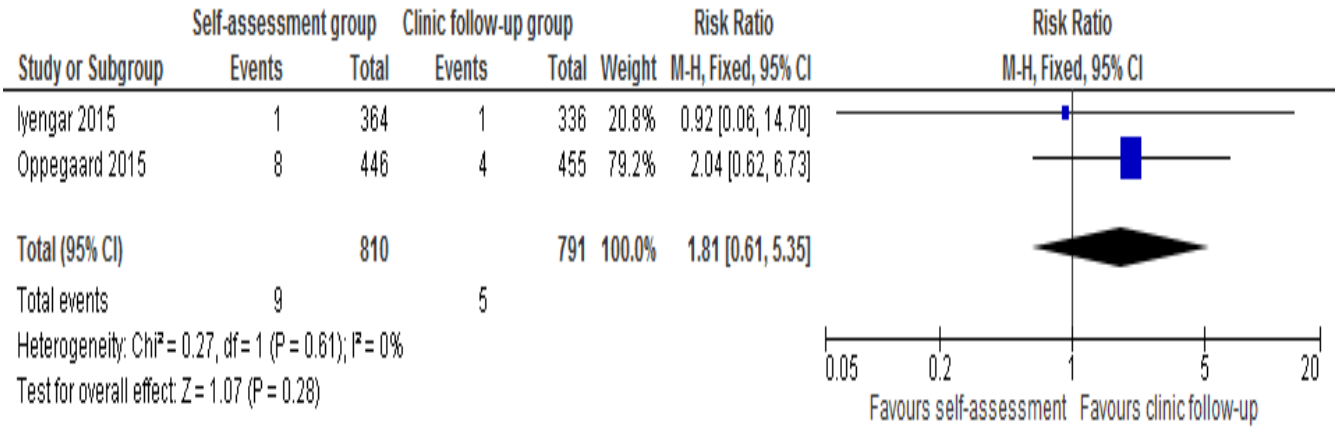

Figure 7: Forest plot comparing rates for drug administration for haemorrhage during medical abortion at home among women who performed self-assessment of outcome at home and routine clinic follow-up

The point estimate (RR= 1.81; 95% CI = 0.61 to 5.35) for the pooled effect shows that there was a higher risk of haemorrhage requiring drug administration during medical abortion at home in the self-assessment group compared to the clinic follow-up group. There was no

heterogeneity among the included studies in regard to drug administration for haemorrhage (I^2= 0%). The p-value of test for overall effect was 0.28, which means there was no statistically significant difference between the intervention and control group. Thus, the pooled effect from two included studies showed there is higher risk in the self-assessment group for need for drug administration for haemorrhage during medical abortion than in routine clinic follow-up group, however, the difference is not statistically significant.

In the study done by Iyengar et. al. 2015, the event for drug administration for haemorrhage was zero in both the self-assessment and the clinic follow-up group. Because zero event is not estimable, 1 event was added in both the control and experimental group (14).

Other outcomes related to safety of medical abortion at home versus clinic follow-up are shown in table 2.

Table 2: Other outcomes related to safety of medical abortion at home versus clinic follow-up

Study	Outcome	RR, Mantel-Haenszel (M-H) Random (95% CI)	Test for overall effect
Iyengar et.al., 2015 (14)	Need for blood transfusion	0.31 (0.01, 7.53)	Z= 0.72 (P=0.47)
Iyengar et.al., 2015 (14)	Admission to hospital	0.31 (0.01, 7.53)	Z= 0.72 (P=0.47)
Iyengar et.al., 2015 (14)	Pain	1.46 (0.72, 2.96)	Z= 1.05 (P=0.29)
Oppegaard et.al., 2015 (13)	Additional phone consultant	1.05 (0.78, 1.43)	Z= 0.33 (P=0.74)
Oppegaard et.al., 2015 (13)	Clinic visit	1.25 (0.75, 2.09)	Z= 0.85 (P=0.40)

There were a few other outcomes of interest, but because they were only reported in one of the papers included, therefore, the results could not be pooled. In the study done by Iyengar et. al.

2015, the researchers reported outcomes such as need for blood transfusion due to haemorrhage, admission to hospital, and pain (defined as severe abdominal pain). In the study done by Ngoc et. al. 2014, the data for admission to hospital could not be used as the data were only given for patients who did interim visit (47). Additionally, in the study done by Oppegaard et. al. 2015, the researchers reported on the additional phone consultation and clinic visit.

The RR was 0.31 (95% CI: 0.01 to 7.53) for both outcomes (need for blood transfusion and admission to hospital). It means there was 69% lower risk for need for blood transfusion in case of haemorrhage and admission to hospital in the self-assessment group compared to the clinic follow-up group. The CI was wide. This may be because the total population and the number of events was somewhat low. The p-value was 0.47, which means there was no statistically significant difference between the intervention and control group.

The RR was 1.46 (95% CI = 0.72 to 2.96) for pain, meaning that there was a higher risk for severe abdominal pain in the self-assessment group compared to the clinic follow-up group. However, the p-value was 0.29, which means there was no statistically significant difference between the intervention and control group.

The RR was 1.05 (95% CI = 0.78 to 1.43) for additional phone consultation. That is, there was a higher risk for additional phone consultation in the self-assessment group compared to the clinic follow-up group. The p-value was 0.74, which means there was no statistically significant difference between the intervention and control group.

The RR was 1.25 (95% CI = 0.75 to 2.09) for clinic visit. This means that there was a higher risk for clinic visit beside scheduled visit in the self-assessment group compared to the clinic follow-up group, but the p-value was 0.40, which means there was no statistically significant difference between the intervention and control group.

In summary, the risk of complications such as need for surgery, fever and infection, and need for blood transfusion was lower in the self-assessment group compared to the routine clinic follow-up group. The risk of other complications, such as haemorrhage, drugs for haemorrhage, and pain was higher in the self-assessment group compared to the clinic follow-up group. However, the results were statistically non-significant for all these outcomes. Therefore, it can be concluded that self-assessment of the outcome of medical abortion at home is as safe as routine clinic visit.

Secondary outcome: Acceptability of assessment of outcome of medical abortion at home versus clinic follow-up. All the four included studies measured acceptability of the follow-up technique in terms of preference in the event of future medical abortion. Preferences of follow-up technique in the event of future medical abortion are shown in table 3

Table 3: Preferences of follow-up technique in the event of future medical abortion

Preference for future medical abortion follow up technique	Author	Total women in home assessment group (n)	Acceptability (n)	Percentage (%)	Total women in clinic follow-up	Acceptability (n)	Percentage (%)
By Phone (Self-assessment)	Paul et.al., 2015	349	286	81.95	274	82	29.93
	Oppegaard et.al., 2015	458	400	87.34	466	333	71.46
	Ngoc et.al., 2014	686	606	88.34	642	256	39.88
	Platais et.al., 2015	1199	913	76.15	1199	577	48.12
	Total	**2692**	**2205**	**81.91 %**	**2581**	**1248**	**48.35%**
	Test for overall effect Z=3.78 (p=0.0002)						
At the clinic (Routine clinic follow-up)	Paul et.al., 2015	349	63	18.05	274	192	70.07
	Oppegaard et.al., 2015	458	58	12.66	466	133	28.54
	Ngoc et.al., 2014	686	72	10.50	642	385	59.97
	Platais et.al., 2015	1199	115	9.59	1199	349	29.11
	Total	**2692**	**308**	**11.44%**	**2581**	**1059**	**41.03%**
	Test for overall effect Z=6.73 (p<0.00001)						
No preferences	Paul et.al., 2015	N/S	N/S	N/S	N/S	N/S	N/S
	Oppegaard et.al., 2015	N/S	N/S	N/S	N/S	N/S	N/S
	Ngoc et.al., 2014	686	8	1.17	642	1	0.16
	Platais et.al., 2015	1199	171	14.26	1199	273	22.77
	Total	**1885**	**179**	**9.50%**	**1841**	**274**	**14.88%**
	Test for overall effect Z=0.45 (p=0.65)						

The above table shows the percentage of women in the self-assessment group and the clinic follow-up group across different studies preferring different follow-up techniques in the event of a future medical abortion. A higher percentage of women (81.91%) preferred phone follow-up in the event of future medical abortion in the self-assessment group compared to the routine clinic follow-up group (48.35%). The p-value in the 'test of overall effect' was p=0.0002, which means there was a statistically significant difference between the intervention and control group regarding preference of phone follow-up if they performed future medical abortion. Additionally, a lower percentage of women (11.44%) preferred clinic follow-up in the event of future medical abortion in the self-assessment group compared to women in the routine clinic follow-up group (41.03%). The p-value in the 'test of overall effect' was p<0.00001, which means there was a statistically significant difference between the intervention and control groups regarding preference of clinic follow-up if they performed future medical abortion. Further, fewer women (9.50%) in the self-assessment group compared to the routine clinic follow-up group (14.88%) had no preference for a follow-up technique in the event of a future medical abortion, but the difference was not statistically significant (p=0.65). Hence, the acceptability of follow-up technique is significantly greater for self-assessment compared to routine clinic follow-up.

Other outcome of interest: Loss to follow up is also measured in this systematic review. The loss to follow-up in the self-assessment group versus the clinic follow-up group is shown in table 4

Table 4: Loss to follow up in the self-assessment group and the clinic follow-up group

Author	Total women in self-assessment group (n)	Loss to follow-up (n)	Percentage (%)	Total women in clinic follow-up group (n)	Loss to follow-up (n)	Percentage (%)
Iyengar et.al., 2015	365	7	1.92	366	11	3.01
Oppegaard et.al., 2015	458	90	19.65	466	108	23.18
Ngoc et.al., 2014	697	4	0.57	710	58	8.17
Platais et.al., 2015	1200	1	0.08	1200	0	0
Total	2720	102	3.75 %	2742	177	6.46 %

The above table shows the percentage of loss to follow-up in the self-assessment group and in the clinic follow-up group across the four studies. In all the studies, the percentage of loss to follow-up in the self-assessment group was lower compared to the clinic follow-up group. In all the included studies, an average of 6.46% women were lost to follow-up in the clinic follow-up group, whereas, an average of only 3.75% women were lost to follow-up in self-assessment group.

3.5 Summary of findings (SoF)

To measure the certainty of evidence, a GRADE assessment was performed. The GRADE assessment for the primary outcome (complete abortion) is shown in table 5.

Table 5: SoF table for primary outcome

Effectiveness of self-assessment of outcome compared to routine clinic follow-up for medical abortion at home

Population: Women who had requested a medical abortion at home up to 9 weeks of gestational age
Setting: Low to high-resource setting countries
Intervention: Self-assessment of outcome
Comparison: Routine clinic follow-up

Outcomes	Anticipated absolute effects* (95% CI)		Relative effect (95% CI)	№ of participants (studies)	Quality of the evidence (GRADE)	Comments
	Risk with routine clinic follow-up	Risk with Self-assessment of outcome				
Complete abortion	**Low**		**RR 1.00** (0.99 to 1.01)	5394 (4 RCTs)	⊕⊕⊕⊕ HIGH	We are very confident that the true effect lies close to that of the estimate of the effect
	0 per 100	**0 per 100** (0 to 0)				

***The risk in the intervention group** (and its 95% CI) is based on the assumed risk in the comparison group and the **relative effect** of the intervention (and its 95% CI).
CI: Confidence interval; **RR:** Risk ratio

The GRADE assessment for the primary outcome defined as effectiveness of self-assessment of outcome of medical abortion was 'high quality'. It means that one can be very confident that the estimate of the effect (RR=1.00; 95% CI= 0.99 to 1.01) lies close to the true effect. The absolute effect illustrates that fewer than zero per 100 women who perform medical abortion at home are unlikely to assess complete termination of pregnancy effectively compared to the routine clinic follow-up group. Thus, further research is very unlikely to change our confidence in the estimate of effect. The GRADE evidence table is found in Appendix 5.

The GRADE assessment for the secondary outcomes (safety measures) are shown in table 6.

Table 6: SoF table for secondary outcomes

Safety of self-assessment of outcome compared to routine clinic follow-up for medical abortion at home

Population: Women who had requested a medical abortion at home up to 9 weeks of gestational age
Setting: Low to high-resource setting countries
Intervention: Self-assessment of outcome
Comparison: Routine clinic follow-up

Outcomes	Anticipated absolute effects* (95% CI)		Relative effect (95% CI)	№ of participants (studies)	Quality of the evidence (GRADE)	Comments
	Risk with routine follow-up	Risk with Self-assessment group				
Need for surgery	4 per 100	**4 per 100** (3 to 5)	**RR 0.92** (0.70 to 1.21)	5394 (4 RCTs)	⊕⊕⊕◯ MODERATE [a]	We are moderately confident in the effect estimate: The true effect is likely to be close to the estimate of the effect, but there is a possibility that it is substantially different
Excessive bleeding	1 per 100	**2 per 100** (1 to 4)	**RR 1.48** (0.84 to 2.60)	5363 (4 RCTs)	⊕⊕◯◯ LOW [a,b]	Our confidence in the effect estimate is limited: The true effect may be substantially different from the estimate of the effect
Fever and Infection	4 per 100	**2 per 100** (0 to 9)	**RR 0.41** (0.08 to 2.12)	1601 (2 RCTs)	⊕⊕◯◯ LOW [a,b]	Our confidence in the effect estimate is limited: The true effect may be substantially different from the estimate of the effect
Drugs for haemorrhage	1 per 100	**1 per 100** (0 to 3)	**RR 1.81** (0.61 to 5.35)	1601 (2 RCTs)	⊕⊕⊕◯ MODERATE [c]	We are moderately confident in the effect estimate: The true effect is likely to be close to the estimate of the effect, but there is a possibility that it is substantially different

***The risk in the intervention group** (and its 95% CI) is based on the assumed risk in the comparison group and the **relative effect** of the intervention (and its 95% CI).
CI: Confidence interval; **RR:** Risk ratio

Explanations

a. Somewhat wide CI, the total sample size and the number of events are low.

b. Heterogeneity is moderate

c. CI is wide. Additionally, the total sample size and number of events are low.

The GRADE assessments for secondary outcomes defined as need for surgery, occurrence of haemorrhage (excessive bleeding), occurrence of fever and infection, and need for drugs administration for haemorrhage show that the certainty in the estimates ranges from moderate to low.

For the outcome need of surgery, one can be moderately confident in the estimate of the effect. Although the true effect is likely to be close to the effect estimate (RR=0.92; 95% CI= 0.70 to 1.21), there is a possibility that it is substantially different. The absolute effect illustrates that four per 100 women who perform medical abortion at home have need for surgery compared to the women in routine clinic follow-up. Thus, further research is likely to have an important impact on our confidence in the estimate and may change the estimate.

For the outcome haemorrhage (excessive bleeding), there is limited confidence in the estimate of the effect. The true effect may be substantially different from the effect estimate (RR=1.48; 95% CI= 0.84 to 2.60). The absolute effect illustrates that two per 100 women who perform medical abortion at home have haemorrhage compared to the women in routine clinic follow-up. Thus, further research is very likely to have an important impact on our confidence in the estimate of effect and is likely to change the estimate.

For the outcome fever and infection, there is limited confidence in the estimate of the effect. The true effect may be substantially different from the effect estimate (RR=0.41; 95% CI= 0.08 to 2.12). The absolute effect illustrates that two per 100 women who perform medical abortion at home have fever and infection compared to the women in routine clinic follow-up. Thus, further research is very likely to have an important impact on our confidence in the estimate of effect and is likely to change the estimate.

For the outcome drug for haemorrhage, one can be moderately confident in the estimate of the effect. Although the true effect is likely to be close to the effect estimate (RR=1.81; 95% CI= 0.61 to 5.35), there might be a possibility that it is substantially different. The absolute effect illustrates that one women per 100 women who perform medical abortion at home have need for drugs during haemorrhage compared to the women in routine clinic follow-up. Thus, further research is likely to have an important impact on our confidence in the estimate of effect and may change the estimate. The GRADE evidence table is found in Appendix 5.

CHAPTER 4: DISCUSSION

4.1 Summary of main results

This systematic review identified four randomized controlled studies that met all the pre-specified inclusion criteria. Evidence from these well-conduced RCTs showed there is no difference in complete abortion rates between self-assessment of outcome of medical abortion at home and routine clinic follow-up. It also showed that there are no serious complications related to self-assessment at home and that self-assessment is as safe as routine clinic follow-up. In addition, the results showed that women who performed self-assessment are likely to prefer the same follow-up method in the event of future medical abortion.

4.2 Agreement with other reviews

To the best of our knowledge, this review is the first to systematically evaluate effectiveness, safety, and acceptability of self-assessment of the outcome of medical abortion at home compared to routine clinic follow-up. Prior to this review, one review had compared effectiveness, safety, and acceptability of home-based to clinic-based medical abortion (15). Another review had provided evidence on alternative techniques to routine in-person follow-up visits after medical abortion (41).

Grossman et.al. 2010 concluded that alternatives to routine in-person follow-up visits after medical abortion – such as women's self-assessment, clinical assessment, serum hCG measurement, and UPTs – are accurate at diagnosing ongoing pregnancy. Further, UPT combined with self-assessment or clinicians' assessment is considered one of the promising follow-up modalities with relatively high sensitivities. However, these UPTs were not designed for home use and the reviewers suggested that further research should be done on home-based

UPTs (41). In this review, the self-assessment of outcome was performed by UPTs (LSUPT and SQUPT), which were easy to use, commercially available, and had high sensitivities and specificities (13, 14, 47-49). Ngo et.al. 2011 concluded that there was no difference in effectiveness or acceptability between medical abortion performed at home and clinic across countries (15). Similarly, in this systematic review, the meta-analyses showed that assessment of the complete termination of pregnancy of medical abortion is equally effective whether it is done at home by women themselves or in a routine clinic follow-up by clinicians.

Regarding safety analysis, Ngo et.al. 2011 concluded that complications arising in women who performed medical abortion at home are rare, therefore, it can be considered a safe method (15). The findings from the current review are similar. Some of the complications, such as need for surgery, fever and infection, need for blood transfusion, were associated with lower risks, and while other complications, such as haemorrhage (excessive bleeding), drugs for haemorrhage, and pain were associated with higher risk in the self-assessment group compared to the clinic follow-up group. However, because there were no statistically significant differences between the groups regarding any of these outcomes, it can be concluded that self-assessment of the outcome of medical abortion at home is as safe as routine clinic follow-up.

Ngo et.al. 2011 also concluded that women who performed home-based medical abortion appeared satisfied and likely to choose the method again. The current review also sheds some light on the issue of acceptability of medical abortion. It showed that self-assessment by women combined with phone follow-up technique was preferred by more women in the self-assessment group and considerably more women in the clinic follow-up group in the event of future medical abortion. Hence, more women were likely to choose this technique again in the future. However, the reasons behind the preference were not assessed. Acceptability is likely to be influenced by costs, convenience and effectiveness of the technique. Therefore, the anticipated

reasons for acceptability might be ease of use, effectiveness of the technique, and lower cost. Besides, the studies included in the current systematic review had not measured the tolerance rate for pain or bleeding; this might change the preference of women in the event of future medical abortion.

Further, in all the included studies, fewer women were lost to follow-up in the self-assessment group compared to the clinic follow-up group, which was similar in the study conducted by Ngo et.al. 2011. This might be because of the ease to follow-up by a telephone call.

It must be mentioned that there are a few studies listed in clinicaltrials.gov. Among these studies, three studies were completed but their results were not yet published, two studies are in progress, and one study has not yet started. Therefore, these studies could not be screened for inclusion. It is possible, but unlikely, that the inclusion of these studies would change the main result of this review.

Furthermore, it was identified that there were only two research groups — Karolinska Institutet, Stockholm (13, 14) and Gynuity Health Projects, New York (47, 49) — that performed all the four included studies. This may raise the risk of bias, if the researchers were directly benefiting, in particular financially, from the finding of specific results. It is believed that this is unlikely, because funders had no role in the conduct of the study (design, collection, analysis, interpretation of data, writing of report) and no medical industries were involved in these studies. However, different study groups are encouraged to contribute to the knowledge base reviewed here, so that a more diverse picture may be obtained.

4.3 Certainty of the evidence

The RoB assessment showed that none of the included studies had high RoB, but there were some forms of plausible bias in each of the studies because none of them had low RoB for all the domains assessed.

In order to provide a judgement about the certainty of the evidence (quality of evidence), a GRADE assessment was conducted. One of the major factors that must be considered when providing a judgement about the quality of evidence is study design. In general, RCTs provide stronger evidence than observational studies. Henceforth, if the randomized trials are without important limitations, they are considered to provide high quality evidence (45). All of the four included studies in this review were RCTs. However, there are other factors for which the quality of evidence for each outcome can be rated down. Here, evidence was downgraded for a few secondary outcomes. In the current systematic review, publication bias could not be statistically assessed because the number of included studies was less than ten (45). However, it is unlikely that studies have been missed because there was a thorough search in different databases.

It was judged that the quality of evidence for the primary outcome was high quality. This was because there was no serious issues regarding RoB, inconsistency of results, indirectness of evidence, and imprecision. Thus, further research is very unlikely to change our confidence in the estimate of effect about effectiveness of self-assessment. This gives firm ability to make conclusion about effectiveness of the technique.

However, the quality of evidence for the secondary outcomes showed that the quality ranged from moderate to low quality. The outcomes need for surgery and need for drug administration for haemorrhage were rated as moderate quality evidence because they had some limitations

concerning imprecision. This was because the total sample size and the number of events were low. Thus, further research is likely to have an important impact on our confidence in the estimate of effect and may change the estimate. Likewise, the outcomes, occurrence of haemorrhage (excessive bleeding) and occurrence of fever and infection, were rated as low quality evidence because they had some limitations with respect to imprecision and inconsistency. This was because the total sample size and the number of events were low and there was moderate heterogeneity in the events among the various included studies. Hence, further research is very likely to have an important impact on our confidence in the estimate of effect and is likely to change the estimate.

4.4 Transferability

The findings from this review are generalizable to different resource (income and education) setting countries because the included studies were carried out from low to high resource settings countries. However, the findings from this review only apply to medical abortion with mifepristone, which is taken orally at clinic, combined with misoprostol, administered with different routes at home 24-48 hours later. In addition, the findings only apply to self-assessment done by using UPTs by women themselves. Hence, the findings cannot be generalized to settings where different regimens for medical abortion are used or different self-assessment techniques are used.

4.5 Ethics

The ethical aspects of abortion, whether it is surgical or medical abortion, are highly controversial and debated. The controversy of abortion surrounds the moral, religious, and legal status of induced abortion (50). In ancient times, abortion was mainly considered in the context of family planning, selection of gender, population control, or the patriarch's property rights (51), while considerations were rare in terms of rights of the prospective mother and even rare

in terms of the prospective child's right (52). However, these days, the debate is mainly focused on the rights of the prospective mother and child. Many people believe in the 'pro-choice' movement, which focuses on the rights of women to take a decision on whether or not to terminate a pregnancy. Still many other people believe in the 'pro-life' movement, which focuses on the right of the embryo or fetus to gestate to term and be born (53). In addition, different religions have varying views on the moral implications of abortion (54). Further, a country's legislative power to make abortion laws plays the most significant role. Abortion is now legal in almost all of the countries in the world; however, there are still a few exceptional cases. Six countries do not allow abortion under any circumstances, while a few other nations have very strict laws and tight controls, such that to have an abortion legally is almost close to impossible. Keeping these into consideration, when it is broadly viewed, abortion laws are towards liberalism, however it is still a major ethical concern (55).

If rights of women are not taken into considerations and if women are not allowed to make decisions of their choice about their own body, the incidence of unsafe abortion increases due to illegalization of abortion, which will then increase maternal mortality. A global study conducted by the WHO and the Guttmacher Institute, stated that most unsafe abortions occur where abortion is not legalized (56). Legalization of abortion is able to prevent the unnecessary suffering and deaths of women and protect their lives (57). Thus, one can argue that although the fetus has a right to life, abortion is morally permissible because women should have the right to control and make decisions for their own body and their life-support functions (58), The present world's maternal health community has also shifted its thinking by viewing women as highly valuable contributors to society. Women are now recognized as more than mothers. Investing in women and their health not only pays off for governments but also to their families

and societies. Women's lives can and must be saved and women's rights are worth fighting for, highlight authors of a Lancet article (59).

The medications or the assessment techniques used for performing abortions also should not affect the women negatively and they should be ethically acceptable. Studies have shown that the medications used in medical abortion are safe and effective. There are no reports of any long-term risks or major side-effects (60). Further, the assessment and follow-up techniques, whether it is routine clinic follow-up or self-assessment at home, is unlikely to have any major harm to the health of women (61). Therefore, it can be said that there are no ethical issues regarding the medications or the assessment technique used.

Moreover, all the included studies in this systematic review were approved by ethical committee boards of the respective countries. All eligible women consented to participate and gave written informed consent before participating in the trials. The publications clearly stated that there was no role of funders in the study design, collection, analysis or interpretation of data and writing of the report. In addition, it was mentioned that there was no interest of any medical industries in these studies.

4.6 Strengths and weaknesses

This systematic review is conducted in accordance with the criteria in the Cochrane Handbook for Systematic Reviews of Interventions, which has increased its validity. Two reviewers were involved at its various steps of this review to reduce the risk of bias. The search strategy was tested, revised, and then finalized by search librarians. The searches were carefully executed in a range of different databases. Publication bias could not be statistically assessed because of the low number of studies that was included. However, it is unlikely that studies have been missed because there was a thorough search in different databases. Another possible limitation

is that studies conducted in different languages could not be included due to lack of resources to translate different languages. However, no studies in languages other than English, which seemed eligible for inclusion, were identified.

Whenever possible, meta-analyses were conducted. This is a major strength of this systematic review. However, not all of the four included studies reported the same secondary outcomes, particularly with regard to safety. Thus, the number of events for secondary outcomes was somewhat low. The tool for assessing the main outcome was different across studies: Iyengar et.al. 2015 used LSUPT (14), while the others used SQUPT (13, 47, 49). Likewise, the measurement techniques at clinics varied from study to study: Iyengar et.al. 2015 used LSUPT (14), Oppegaard et.al. 2015 used low sensitivity urine hCG test, measurement of hCG serum, or ultrasonography (13), Ngoc et.al. 2014 used bimanual examination and transvaginal ultrasonography (47), while Platais et.al. 2015 used clinical examination, women's report of symptoms and ultrasound (49). Because of these variations, random effect models were used. The variation in assessments and associated choice of analysis might explain some of the heterogeneity and wider confidence interval. Heterogeneity can be assessed by sensitivity analyses or sub-group analyses. However, neither of these techniques were possible in the current systematic review because of the lower number of studies included. Despite these limitations, the systematic review is able to draw some conclusions about the safety of medical abortion at home.

Sub-group analyses in regard to education and income could not be performed. Only one study was done in a low-resource settings country where the literacy rate among study participants was 45% only; the other three studies were carried out in high-resource setting countries, where the education level of the female study participants was high.

4.7 Implications of research findings

The findings of this systematic review may have implications for practice/policy and further researches, which are presented below:

4.7.1 Implication for practice/policy

This systematic review offers encouraging evidence about the value of self-assessment of the outcome of medical abortion at home combined with telephone follow-up or home visit. Thus, the findings of this review have several potential implications for practice and policy.

In poor-resource settings or in sparsely populated areas, where access to health facilities are limited, ultrasound examination is limited, or abortion services are socially undesirable or not acceptable, the self-assessment of the outcome of medical abortion with UPTs and a simple follow-up technique like telephone call or home visit gives a viable option. This is because UPTs are not only easy to use and also easily available in such resource settings, but also effective and safe. Additionally, this method is equally relevant in high resource settings. It helps to shorten the waiting times for patients and reduce the need for medical resources in high resource settings. It also saves time and energy for women who travel long distances to clinics, who have to arrange childcare, or take time off from household or work duties. Moreover, this technique provides women with a confidential and friendly environment to confirm abortion success at home. This method can encourage women to access abortion at an early gestational age, which helps to reduce risks and complications related to abortion at later gestational ages. Further, this method can reduce the clinic visits giving the health care providers more time for other services. Hence, it also reduces the burden of clinicians.

4.7.2 Implication for further research

Implications for further research is recommended using the EPICOT (Evidence, Population, Intervention, Comparison, Outcome, Time-frame) format.

Even though high quality evidence is drawn from this review, researchers are encouraged to conduct further research on different aspects of this topic in various study areas. This will provide a broader and more diverse picture of the current abortion issue, in addition to strengthen the evidence. Studies should also be conducted to investigate the effectiveness of self-assessment of outcome of medical abortion at home and its safety in vulnerable groups, such as HIV-positive women. Further research is needed on medical abortion carried out by different regimens and doses other than mifepristone and misoprostol. In addition, studies should be conducted with various kinds of self-assessment techniques combined with simpler follow-up techniques, other than UPT kits with telephone follow-up. Studies should be conducted to measure long-term outcomes such as fertility, to know whether it is better or worse in those who had self-assessment compared to clinical assessment. Moreover, studies should also analyse the reasons for preferences of follow-up technique. Further, the preference of the technique by the patients' partner or family members should be analysed, as this would give a broader and stronger evidence base about the attitude and acceptability of community towards this technique. The search for this review is dated until the mid of February 2017. Further reviews should include today's ongoing studies. Furthermore, researchers should include studies published in other languages besides English.

There is a rapid rise in health care costs in the present world. Therefore, it is essential that health care policy makers focus on developing interventions that are not only effective but also cost-effective and affordable. Self-assessment of medical abortion can be one of the intervention that is both effective and affordable. However, due to complete lack of economic evaluation in

the included studies, it is impossible to draw any conclusions on the cost-effectiveness of self-assessment. Thus, there is a clear need for further research on economic evaluation to determine cost-effectiveness of self-assessment.

4.8 Author's conclusion

This systematic review summarizes and presents that there is high quality evidence that the effectiveness of self-assessment of the outcome of medical abortion at home is not inferior to routine clinic follow-up. Although there was moderate to low quality evidence for the safety of this assessment technique, there were no statistically significant differences between the groups. Thus, self-assessment at home appears to be as safe as routine clinic follow-up. Furthermore, the systematic review also sheds some light on the acceptability of follow-up method. It shows that the preference of follow-up technique is significantly greater for self-assessment compared to routine clinic follow-up.

Self-assessment of the outcome of medical abortion at home is a simple follow-up technique that has implications for policy makers and key stakeholders. Because it is comparable in effectiveness and safety to routine clinic follow-up, and feasible to implement, it can be incorporated as an alternative to abortion services in both low and high resource settings, giving women a choice whether to do the assessment by themselves or in clinics. This does not prevent women from choosing routine clinic follow-up. Rather, it gives women greater choice in abortion care, facilitating access to safe and acceptable abortion options.

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165. Use of Low Sensitivity Pregnancy Test for Self-assessment of Medical Abortion. https://ClinicalTrials.gov/show/NCT02231619.
166. Effectiveness of Pregnancy Tests as an Assessment Tool to Identify Continuing Pregnancy. https://ClinicalTrials.gov/show/NCT01856777.
167. Simplified Medical Abortion Follow-Up. https://ClinicalTrials.gov/show/NCT02524990.
168. Exploring the Role of At-home Semi-Quantitative Pregnancy Tests for Medical Abortion Follow-up. https://ClinicalTrials.gov/show/NCT01150279.
169. Effectiveness of Two Regimens of Misoprostol Alone for Early Pregnancy Termination and Use of SQPT for At-Home Follow-Up. https://ClinicalTrials.gov/show/NCT02299401.
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APPENDICES

Appendix 1: Search strategy in electronic databases

1.1 Medline (Date: 30th January, 2017)

Database(s): Ovid MEDLINE(R) In-Process & Other Non-Indexed Citations, Ovid MEDLINE(R) Daily and Ovid MEDLINE(R) 1946 to Present

Search Strategy:

#	Searches	Results
1	exp Abortion, Induced/	41176
2	"abort*".ab,kf,ti.	77889
3	(fertilit* adj3 control* adj3 postconcept*).ab,kf,ti.	5597
4	(term* adj3 preg*).ab,kf,ti.	24419
5	1 or 2 or 3 or 4	109443
6	exp Pregnancy Tests/	4186
7	(preg* adj3 test*).ab,kf,ti.	9002
8	6 or 7	10819
9	exp Diagnostic Self Evaluation/	2114
10	exp "Outcome Assessment (Health Care)"/	960894
11	exp Self Administration/	12370
12	exp Self Care/	53961
13	"home*".ab,kf,ti.	444771
14	(self* adj3 (assess* or administrat* or evaluat* or apprais* or use* or car* or perform*)).ab,kf,ti.	87244
15	or/9-14	1493334
16	5 and 8 and 15	86
17	limit 16 to (english language and yr="1991 -Current")	72

1.2 Embase (Date: 30th January, 2017)

Database(s): Embase Classic+Embase 1947 to 2017 January 26

Search Strategy:

#	Searches	Results
1	exp induced abortion/	35295
2	"abort*".ab,kw,ti.	91552
3	(fertilit* adj3 control* adj3 postconcept*).ab,kw,ti.	6
4	(term* adj3 preg*).ab,kw,ti.	32092
5	or/1-4	129016
6	exp pregnancy test/	5749
7	(preg* adj3 test*).ab,kw,ti.	11004
8	or/6-7	13507
9	exp self evaluation/	28395
10	exp outcome assessment/	376263
11	exp drug self administration/	11655
12	exp self care/	68201
13	"home*".ab,kw,ti.	517492
14	(self* adj3 (assess* or administrat* or evaluat* or apprais* or use* or car* or perform*)).ab,kw,ti.	103581
15	or/9-14	1033234
16	5 and 8 and 15	112
17	limit 16 to (english language and yr="1991 -Current")	108

1.3 CENTRAL (Date: 30th January, 2017)

Search Name: **Cochrane _New search 30th Jan**

Last Saved: 30/01/2017 12:14:27.581

Description: 30th Jan, 2017

ID Search

#1 MeSH descriptor: [Abortion, Induced] explode all trees

#2 abort* (Word variations have been searched)

#3 fertilit* near/3 control* near/3 postconcept* (Word variations have been searched)

#4 term* near/3 preg* (Word variations have been searched)

#5 #1 or #2 or #3 or #4

#6 MeSH descriptor: [Pregnancy Tests] explode all trees

#7 preg* near/3 test* (Word variations have been searched)

#8 #6 or #7

#9 MeSH descriptor: [Diagnostic Self Evaluation] explode all trees

#10 MeSH descriptor: [Outcome Assessment (Health Care)] explode all trees

#11 MeSH descriptor: [Self Administration] explode all trees

#12 MeSH descriptor: [Self Care] explode all trees

#13 home* (Word variations have been searched)

#14 self* near/3 (assess* or administrat* or evaluat* or apprais* or use* or car* or perform*) (Word variations have been searched)

#15 #9 or #10 or #11 or #12 or #13 or #14

#16 #5 and #8 and #15 Publication Year from 1991 to 2017

Total Hits: 123

Cochrane Review: 88

Other Review: 3

Economic Evaluation: 3

Trials: 29

1.4 Web of Science (Date: 30th January, 2017)

Set	Results	Save History / Create Alert | Open Saved History
# 12	**42**	#11 AND #6 AND #5 Indexes=SCI-EXPANDED, SSCI, A&HCI, CPCI-S, CPCI-SSH, ESCI Timespan=All years
# 11	**716,443**	#10 OR #9 OR #8 OR #7 Indexes=SCI-EXPANDED, SSCI, A&HCI, CPCI-S, CPCI-SSH, ESCI Timespan=All years
# 10	**53,263**	TS=(outcom* near/3 assess*) Indexes=SCI-EXPANDED, SSCI, A&HCI, CPCI-S, CPCI-SSH, ESCI Timespan=All years
# 9	**47**	TS=(diagnost* near/3 self* near/3 evaluat*) Indexes=SCI-EXPANDED, SSCI, A&HCI, CPCI-S, CPCI-SSH, ESCI Timespan=All years
# 8	**542,778**	TS=home* Indexes=SCI-EXPANDED, SSCI, A&HCI, CPCI-S, CPCI-SSH, ESCI Timespan=All years
# 7	**130,258**	TS=(self* near/3 (assess* or administrat* or evaluat* or apprais* or use* or car* or perform*)) Indexes=SCI-EXPANDED, SSCI, A&HCI, CPCI-S, CPCI-SSH, ESCI Timespan=All years
# 6	**7,009**	TS=(preg* near/3 test*) Indexes=SCI-EXPANDED, SSCI, A&HCI, CPCI-S, CPCI-SSH, ESCI Timespan=All years
# 5	**80,590**	#4 OR #3 OR #2 OR #1 Indexes=SCI-EXPANDED, SSCI, A&HCI, CPCI-S, CPCI-SSH, ESCI Timespan=All years
# 4	**17,549**	TS=(term* near/3 preg*) Indexes=SCI-EXPANDED, SSCI, A&HCI, CPCI-S, CPCI-SSH, ESCI Timespan=All years
# 3	**0**	TS=(fertilit* near/3 control* near/3 postconcept*) Indexes=SCI-EXPANDED, SSCI, A&HCI, CPCI-S, CPCI-SSH, ESCI Timespan=All years
# 2	**4,991**	TS=(induc* near/3 abort*) Indexes=SCI-EXPANDED, SSCI, A&HCI, CPCI-S, CPCI-SSH, ESCI Timespan=All years
# 1	**66,268**	TS=(abort*) Indexes=SCI-EXPANDED, SSCI, A&HCI, CPCI-S, CPCI-SSH, ESCI Timespan=All years

1.5 CINAHL (Date: 1st February 2017)

Search ID#	Search Terms	Search Options	Actions
S15	S5 AND S8 AND S14	Limiters - Published Date: 19910101-20171231; English Language; Exclude MEDLINE records Search modes - Boolean/Phrase	**View Results** (260)
S14	S9 OR S10 OR S11 OR S12 OR S13	Search modes - Boolean/Phrase	**View Results** (536,900)
S13	TX self* N3 (assess* or administrat* or evaluat* or apprais* or use* or car* or perform*)	Search modes - Boolean/Phrase	**View Results** (134,730)
S12	TX home*	Search modes - Boolean/Phrase	**View Results** (423,073)
S11	(MH "Outcome Assessment")	Search modes - Boolean/Phrase	**View Results** (28,392)
S10	(MH "Self Care+")	Search modes - Boolean/Phrase	**View Results** (35,399)
S9	(MH "Self Administration+")	Search modes - Boolean/Phrase	**View Results** (4,589)
S8	S6 OR S7	Search modes - Boolean/Phrase	**View Results** (5,919)
S7	TX preg* N3 test*	Search modes - Boolean/Phrase	**View Results** (5,917)
S6	(MH "Pregnancy Tests+")	Search modes - Boolean/Phrase	**View Results** (383)

S5	S1 OR S2 OR S3 OR S4	Search modes - Boolean/Phrase	**View Results** (30,280)
S4	TX term* N3 preg*	Search modes - Boolean/Phrase	**View Results** (8,257)
S3	TX fertilit* N3 control* N3 postconcept*	Search modes - Boolean/Phrase	**View Results** (1)
S2	TX abort*	Search modes - Boolean/Phrase	**View Results** (25,338)
S1	(MH "Abortion, Induced+")	Search modes - Boolean/Phrase	**View Results** (7,457)

1.6 ClinicalTrials.gov (Date: 1st February, 2017)

Search Terms: abortion AND "pregnancy test"

No. of hits=29

1.7 SCOPUS (Date: 8th February, 2017)

History Count	Search Terms	Results
18	((TITLE-ABS-KEY (abort*)) OR (TITLE-ABS-KEY (fertilit* W/3 control* W/3 postconcept*)) OR (TITLE-ABS-KEY (term* W/3 preg*))) AND (TITLE-ABS-KEY (preg* W/3 test*)) AND ((TITLE-ABS-KEY (outcome* W/3 assess*)) OR ((TITLE-ABS-KEY (self* W/3 assess*)) OR (TITLE-ABS-KEY (self* W/3 administrat*)) OR (TITLE-ABS-KEY (self* W/3 evaluat*)) OR (TITLE-ABS-KEY (self* W/3 apprais*)) OR (TITLE-ABS-KEY (self* W/3 perform*)) OR (TITLE-ABS-KEY (self* W/3 use*)) OR (TITLE-ABS-KEY (self* W/3 car*)) OR (TITLE-ABS-KEY (home*))))	148

17	(TITLE-ABS-KEY (outcome* W/3 assess*)) OR ((TITLE-ABS-KEY (self* W/3 assess*)) OR (TITLE-ABS-KEY (self* W/3 administrat*)) OR (TITLE-ABS-KEY (self* W/3 evaluat*)) OR (TITLE-ABS-KEY (self* W/3 apprais*)) OR (TITLE-ABS-KEY (self* W/3 perform*)) OR (TITLE-ABS-KEY (self* W/3 use*)) OR (TITLE-ABS-KEY (self* W/3 car*)) OR (TITLE-ABS-KEY (home*)))	1,413,325
16	(TITLE-ABS-KEY (self* W/3 assess*)) OR (TITLE-ABS-KEY (self* W/3 administrat*)) OR (TITLE-ABS-KEY (self* W/3 evaluat*)) OR (TITLE-ABS-KEY (self* W/3 apprais*)) OR (TITLE-ABS-KEY (self* W/3 perform*)) OR (TITLE-ABS-KEY (self* W/3 use*)) OR (TITLE-ABS-KEY (self* W/3 car*)) OR (TITLE-ABS-KEY (home*))	1,024,569
15	(TITLE-ABS-KEY (abort*)) OR (TITLE-ABS-KEY (fertilit* W/3 control* W/3 postconcept*)) OR (TITLE-ABS-KEY (term* W/3 preg*))	164,848
14	TITLE-ABS-KEY (outcome* W/3 assess*)	412,469
13	TITLE-ABS-KEY (home*)	809,548
12	TITLE-ABS-KEY (self* W/3 car*)	68,897
11	TITLE-ABS-KEY (self* W/3 use*)	53,356
10	TITLE-ABS-KEY (self* W/3 perform*)	21,578
9	TITLE-ABS-KEY (self* W/3 apprais*)	1,963
8	TITLE-ABS-KEY (self* W/3 evaluat*)	42,648
7	TITLE-ABS-KEY (self* W/3 administrat*)	18,166
6	TITLE-ABS-KEY (self* W/3 assess*)	52,941
5	TITLE-ABS-KEY (preg* W/3 test*)	15,099
4	TITLE-ABS-KEY (#1 OR #2 OR #3)	18,301,284
3	TITLE-ABS-KEY (term* W/3 preg*)	33,665
2	TITLE-ABS-KEY (fertilit* W/3 control* W/3 postconcept*)	5,159
1	TITLE-ABS-KEY (abort*)	142,563

1.8 British Nursing Index (Date: 8th February, 2017)

Search Strategy from ProQuest

08 February 2017 11:41

Set#	Searched for	Databases	Results
S1	SU.EXACT.EXPLODE("Abortion")	British Nursing Index	459°
S2	abort*	British Nursing Index	864°
S3	fertilit* NEAR/3 control* NEAR/3 postconcept*	British Nursing Index	0°
S4	term* NEAR/3 preg*	British Nursing Index	107°
S5	SU.EXACT.EXPLODE("Abortion") OR abort* OR (fertilit* NEAR/3 control*	British Nursing Index	957°
S6	preg* NEAR/3 test*	British Nursing Index	155°
S7	home*	British Nursing Index	16837°
S8	outcome* NEAR/3 assess*	British Nursing Index	820°
S9	SU.EXACT.EXPLODE("Self Care")	British Nursing Index	4117°
S10	self* NEAR/3 assess*	British Nursing Index	1103°
S14	self* NEAR/3 administrat*	British Nursing Index	101°
S15	self* NEAR/3 evaluat*	British Nursing Index	412°
S16	self* NEAR/3 apprais*	British Nursing Index	44°
S17	self* NEAR/3 use*	British Nursing Index	909°
S18	self* NEAR/3 car*	British Nursing Index	5409°
S19	self* NEAR/3 perform*	British Nursing Index	236°
S20	home* OR (outcome* NEAR/3 assess*) OR SU.EXACT.EXPLODE("Self Care")	British Nursing Index	22013°

S21	(self* NEAR/3 administrat*) OR (self* NEAR/3 evaluat*) OR (self* NEAR/3	British Nursing Index	553°
S22	(self* NEAR/3 use*) OR (self* NEAR/3 car*) OR (self* NEAR/3 perform*)	British Nursing Index	6193°
S23	(home* OR (outcome* NEAR/3 assess*) OR SU.EXACT.EXPLODE("Self Care")	British Nursing Index	22369°
S24	(SU.EXACT.EXPLODE("Abortion") OR abort* OR (fertilit* NEAR/3	British Nursing Index	1°
S25	(SU.EXACT.EXPLODE("Abortion") OR abort* OR (fertilit* NEAR/3	British Nursing Index	1°

1.9 WHO (ICTRP) (Date: 7th February, 2017)

Search Terms: abortion “pregnancy test”

Word Search: Anywhere in the article

Total Hits: 47

1.10 Google Scholar (Date: 10th February 2017)

Search terms: abortion "pregnancy test" home

Year: 1991 to 2017

Words Search: Anywhere in the article

Total Hits: 8,380

Records imported: only first 200 hits

Appendix 2: Flow diagram for studies selection

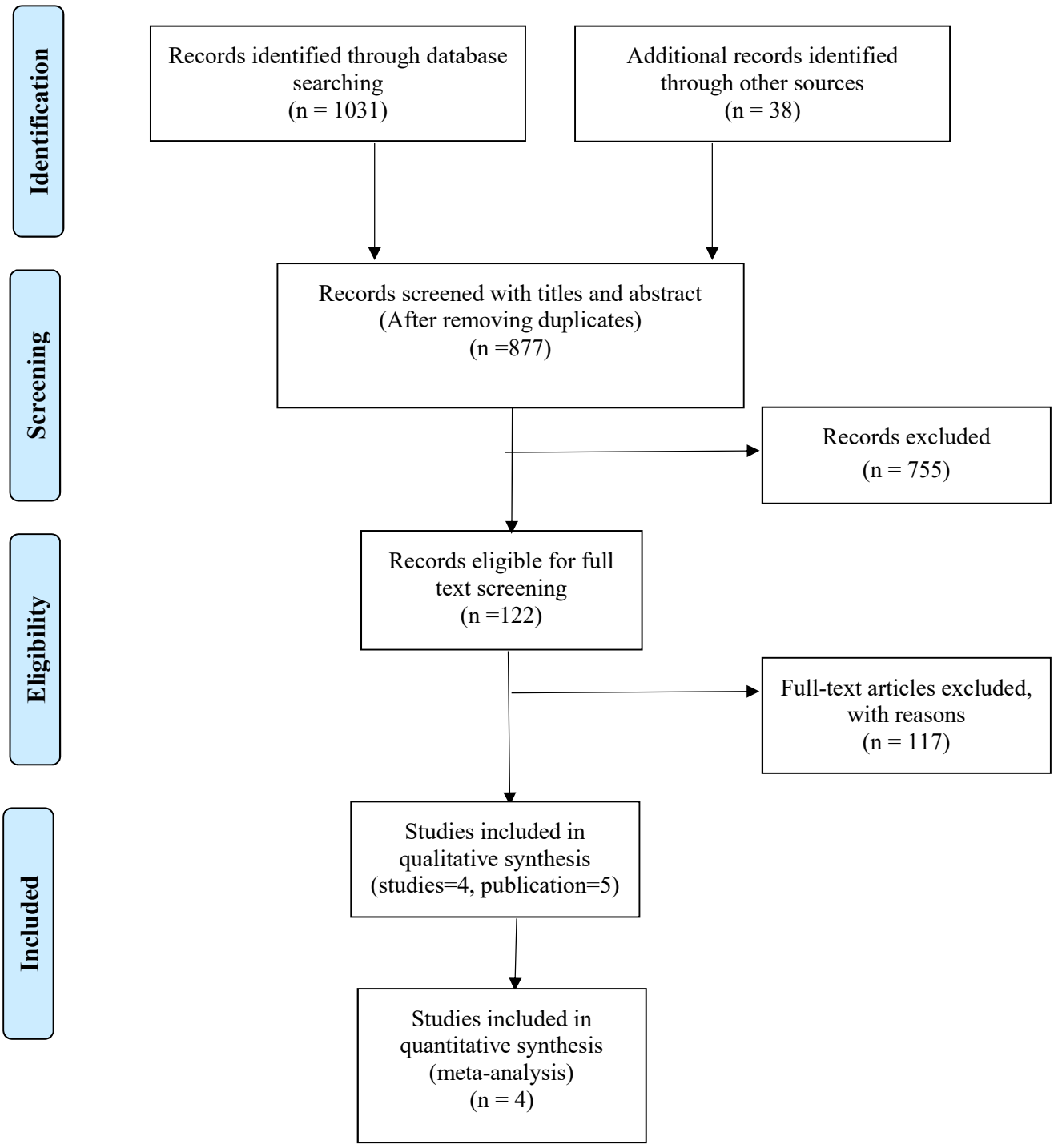

Figure: Flow diagram for selection of studies for systematic review

Appendix 3: Excluded studies read in full text

3.1 Studies and publications from different databases

Author	Year	Title	Reasons for exclusion
Beckman, Linda J (62)	1997	Experience and acceptability of medical abortion with mifepristone and misoprostol among US women	Not relevant intervention and study design
Bennett, Linda Rae (63)	2001	Single women's experiences of premarital pregnancy and induced abortion in Lombok, Eastern Indonesia	Not relevant data
Bjørge, Line (64)	2001	Early pregnancy termination with mifepristone and misoprostol in Norway	Not relevant intervention
Blum, J. (65)	2012	Using a semi-quantitative pregnancy test to determine the outcome of medical abortion in international settings	Conference paper
Blum, J. (66)	2012	Can at-home semi-quantitative pregnancy tests serve as a replacement for clinical follow-up of medical abortion? A US study	Not relevant intervention
Blum, J. (67)	2016	Randomized trial assessing home use of two pregnancy tests for determining early medical abortion outcomes at 3, 7 and 14days after mifepristone	Not relevant data
Blumenthal, P. (68)	2009	Preliminary results of the semi-quantitative pregnancy test and its impact on reproductive health service provision	Conference paper
Borgatta, Lynn (69)	2001	Early Medical Abortion with Methotrexate and Misoprostol: Outcomes and Satisfaction Among Women Aged 15–21 Years	Not relevant intervention and outcome
Bracken, H. (70)	2014	RU OK? The acceptability and feasibility of remote technologies for follow-up after early medical abortion	Not relevant outcome
Bracken, Hillary (71)	2010	Home administration of misoprostol for early medical abortion in India	Not relevant intervention
Braunstein, Glenn D (72)	2014	The long gestation of the modern home pregnancy test	Historical article
Bygdeman, M. (73)	1981	Self-administration of prostaglandin for termination of early pregnancy	Not relevant intervention
Cameron, S. (74)	2012	Self-assessment of success of early medical termination of pregnancy: A service evaluation	Conference paper
Cameron, S. T. (17)	2012	Telephone follow-up and self-performed urine pregnancy testing after early medical abortion: a service evaluation	Not relevant intervention

Cameron, S. T. (75)	2015	Can women determine the success of early medical termination of pregnancy themselves?	Not relevant study design
Chen, M. J. (76)	2016	Comparing office and telephone follow-up after medical abortion	Chart review
Childerhose, Janet E (77)	2013	Health consumption as work: The home pregnancy test as a domesticated health tool	Not relevant data
Christopher, E. (78)	1992	Welcome visitors	Not relevant data; No full text available
Clark, W. (79)	2010	Alternatives to a Routine Follow-Up Visit for Early Medical Abortion	Not relevant intervention
Clark, Wesley (80)	2007	Medication abortion employing routine sequential measurements of serum hCG and sonography only when indicated	Not relevant intervention and study design
Clark, Wesley H (81)	2007	Can mifepristone medical abortion be simplified?: A review of the evidence and questions for future research	Not relevant data
Coelho, H. L. (82)	1994	Misoprostol: The experience of women in Fortaleza, Brazil	Not relevant data
Collins, D. (83)	2011	Alleged misdiagnosis of missed abortion	Not relevant data; No full text available
Constant, D. (84)	2015	Self-assessment of medical abortion using a low-sensitivity pregnancy test, checklist and text messages in the South African public sector: A randomized controlled trial	Conference paper
Constant, D. (85)	2016	Instruction-only versus demonstration of a low sensitivity pregnancy test for self-assessment of medical abortion in South Africa; a multicentre non-inferiority randomised controlled trial	Conference paper poster
Constant, D. (86)	2015	Assessment of completion of early medical abortion using a text questionnaire on mobile phones compared to a self-administered paper questionnaire among women attending four clinics, Cape Town, South Africa	Not relevant intervention and comparison group
Constant, Deborah (87)	2014	Mobile phone messages to provide support to women during the home phase of medical abortion in South Africa: a randomised controlled trial	Not relevant intervention and outcome
Creinin, Mitchell D (88)	1995	A randomized trial comparing misoprostol three and seven days after methotrexate for early abortion	Not relevant intervention and comparison group

Creinin, Mitchell D (89)	1996	Methotrexate and misoprostol for early abortion: a multicenter trial I. Safety and efficacy	Not relevant intervention
Dabash, R. (90)	2014	Simplifying medical abortion provision: The role of at-home semi-quantitative pregnancy tests in follow-up	Conference paper
Dabash, R. (91)	2016	Self-administered multi-level pregnancy tests in simplified follow-up of medical abortion in Tunisia	Not relevant population
Dao, Blami (92)	2007	Is misoprostol a safe, effective and acceptable alternative to manual vacuum aspiration for postabortion care? Results from a randomised trial in Burkina Faso, West Africa	Not relevant data
Dunn, Sheila (93)	2015	Comparison of remote and in-clinic follow-up after methotrexate/misoprostol abortion	Not relevant intervention
Ellertson, Charlotte (94)	1997	Can women use medical abortion without medical supervision?	Not relevant study design
Fiala, Christian (95)	2003	Verifying the effectiveness of medical abortion; ultrasound versus hCG testing	Not relevant intervention and outcome
Fiala, Christian (96)	2004	Acceptability of home-use of misoprostol in medical abortion	Not relevant intervention
Fielding, Stephen L (97)	2002	Having an abortion using mifepristone and home misoprostol: A qualitative analysis of women's experiences	Not relevant intervention
Gemzell-Danielsson, K. (98)	2015	Home tests after medical abortion can simplify the treatment	Newspaper commentary
Godfrey, E. M. (99)	2007	Clinical utility of urine pregnancy assays to determine medical abortion outcome is limited	Not relevant intervention
Goldstone, Philip (100)	2012	Early medical abortion using low-dose mifepristone followed by buccal misoprostol: a large Australian observational study	Not relevant intervention and study design
Gomperts, R. (101)	2014	Provision of medical abortion using telemedicine in Brazil	Not relevant study design
Gomperts, Rebecca J (102)	2008	Using telemedicine for termination of pregnancy with mifepristone and misoprostol in settings where there is no access to safe services	Not relevant study design
Grimes, David A (103)	1997	Medical abortion in early pregnancy: a review of the evidence	Not relevant intervention and study design

Grossman, D. (41)	2011	Alternatives to ultrasound for follow-up after medication abortion: a systematic review	Not relevant study design (Systematic Review)
Grossman, D. (104)	2007	Accuracy of a semi-quantitative urine pregnancy test compared to serum beta-hCG measurement: a possible screening tool for ongoing pregnancy after medication abortion	Not relevant intervention and comparison group
Grossman, Daniel (105)	2004	Routine follow-up visits after first-trimester induced abortion	Not relevant outcome
Grossman, Daniel (106)	2011	Effectiveness and acceptability of medical abortion provided through telemedicine	Not relevant intervention
Guest, J (107)	2007	Randomised controlled trial comparing the efficacy of same-day administration of mifepristone and misoprostol for termination of pregnancy with the standard 36 to 48 hour protocol	Not relevant comparison group
Harper, C. (108)	2002	Could American women use mifepristone-misoprostol pills safely with less medical supervision?	Not relevant intervention
Hassoun, D. (109)	2016	Feasibility of self-performed urine pregnancy testing for follow-up after medical abortion	Not relevant study design
Hedqvist, M. (110)	2016	Women's experiences of having an early medical abortion at home	Not relevant study design
Heller, R. (111)	2012	Outcomes of very early medical termination of pregnancy at <6 weeks of gestation	Conference paper
Hertzen, Helena (112)	2003	WHO multinational study of three misoprostol regimens after mifepristone for early medical abortion. I: Efficacy	Not relevant data
Hickey, M. (16)	2015	Follow-up after medical abortion: Does simple equal safe?	Commentary
Hingorani, V. (113)	1989	AN ANTIPROGESTIN STEROID AND PGE2 FOR AN EARLY PREGNANCY TERMINATION	Not relevant intervention
Hollander, D. (114)	1995	Mifepristone and vaginal misoprostol are effective, acceptable and inexpensive medical abortion regimen	Conference paper
Holmgren, Kristina (115)	1992	Women's evaluation of three early abortion methods	Not relevant data
Isley, M. M. (116)	2008	Medical abortion: what's old, what's new?	Not relevant data

Jackson, A. V. (117)	2012	Can women accurately assess the outcome of medical abortion based on symptoms alone?	Not relevant study design
Kaneshiro, Bliss (118)	2011	Expanding medical abortion: can medical abortion be effectively provided without the routine use of ultrasound?	Not relevant intervention and comparison group
Karki, Chanda (119)	2009	Acceptability and feasibility of medical abortion in Nepal	Not relevant intervention
Kulier, R (120)	2007	Medical methods for first trimester abortion (Review)	Not relevant data; No full text available
Kulier, Regina (4)	2011	Medical methods for first trimester abortion	Not relevant data
Kunwar, S. (121)	2014	Self prescription with medical termination of pregnancy: A preventable tragedy	Conference paper
Lang, K. (122)	2012	Trends in self-reported spontaneous abortions: 1970-2000	Not relevant data
Leeman, Lawrence (123)	2007	Can mifepristone medication abortion be successfully integrated into medical practices that do not offer surgical abortion?	Not relevant outcomes
Lesko, J (124)	2013	The role of a semi-quantitative urine pregnancy test after uterine evacuation for very early, undesired pregnancy: A pilot randomized controlled trial	Conference paper
Lohr, P. A. (125)	2012	Use of MVA in abortion before 7 weeks	Conference paper
London, S. (126)	2014	In Vietnam, Telephone Follow-up for Medication Abortion Is Feasible	Review paper
Lynd, K. (127)	2011	Role of semi-quantitative urine pregnancy tests in medical abortion provision	Conference paper
Lynd, K. (128)	2013	Simplified medical abortion using a semi-quantitative pregnancy test for home-based follow-up	Not relevant intervention
Lynd, K. (129)	2010	Preliminary results of the role of semiquantitative pregnancy tests in medical abortion provision	Conference paper
Mary, F. (130)	2013	Evidence-based changes in medical abortion practice	Conference paper

McKay, R. J. (131)	2013	Women's satisfaction with early home medical abortion with telephone follow-up: a questionnaire-based study in the U.K	Not relevant outcome and study design
Meckstroth, K. R. (132)	2003	Prostaglandins for first-trimester termination	Not relevant data
Michie, L. (133)	2014	Simplified follow-up after early medical abortion: 12-month experience of a telephone call and self-performed low-sensitivity urine pregnancy test	Not relevant study design
Middleton, Tamer (134)	2005	Randomized trial of mifepristone and buccal or vaginal misoprostol for abortion through 56 days of last menstrual period	Not relevant intervention
Morroni, Chelsea (135)	2006	The role of urine pregnancy testing in facilitating access to antenatal care and abortion services in South Africa: a cross-sectional study	Not relevant outcome and study design
Mundle, Shuchita (136)	2007	Increasing access to safe abortion services in rural India: experiences with medical abortion in a primary health center	Not relevant intervention
Ngo, Thoai D (15)	2011	Comparative effectiveness, safety and acceptability of medical abortion at home and in a clinic: a systematic review	Not relevant study design (Systematic Review)
Ngoc, N. T. N. (137)	2012	Alternative follow-up with a semi-quantitative pregnancy test in international settings	Conference paper
Ngoc, Nguyen Thi Nhu (138)	2004	Is home-based administration of prostaglandin safe and feasible for medical abortion? Results from a multisite study in Vietnam	Not relevant intervention and outcome
Norton, J. (139)	2010	Teenage pregnancy and abortion	Not relevant data; No full text available
Okonofua, Friday (140)	2014	Acceptability and feasibility of medical abortion with mifepristone and misoprostol in Nigeria	Not relevant intervention
Olavarrieta, Claudia Diaz (141)	2015	Nurse versus physician-provision of early medical abortion in Mexico: a randomized controlled non-inferiority trial	Not relevant population and intervention
Park, Min Hae (142)	2013	Medical abortion practices among private providers in Vietnam	Not relevant intervention and study design
Paul, M (143)	2014	The feasibility of simplified follow-up after medical abortion using a low sensitivity pregnancy test and a	Conference paper

		checklist in Rajasthan, India: A study protocol for a randomized control trial	
Paul, M (144)	2014	Simplified follow-up after medical abortion using a low-sensitivity urinary pregnancy test and a pictorial instruction sheet in Rajasthan, India - study protocol and intervention adaptation of a randomised control trial	Study protocol
Paul, M. (145)	2013	Feasibility and acceptability of using the DUO-test after medical abortion in rural India- Findings from a pilot study and qualitative interviews	Study review paper
Paul, M. (146)	1999	Office management of early induced abortion	Not relevant data
Perriera, L. K. (147)	2010	Feasibility of telephone follow-up after medical abortion	Not relevant study design
Puri, M. (148)	2015	The role of auxiliary nurse-midwives and community health volunteers in expanding access to medical abortion in rural Nepal	Not relevant intervention and outcome
Pymar, Helen C (34)	2001	Mifepristone followed on the same day by vaginal misoprostol for early abortion	Not relevant intervention and outcome
Rossi, Brooke (149)	2004	Ability of the clinician and patient to predict the outcome of mifepristone and misoprostol medical abortion	Not relevant intervention
Rowlands, S. (150)	2012	Abortion pills: Under whose control?	Not relevant data
Schaff, Ea (151)	1996	Methotrexate and misoprostol for early abortion	Not relevant data
Schaff, Eric A (36)	1997	Vaginal misoprostol administered at home after mifepristone (RU486) for abortion	Not relevant intervention
Schaff, Eric A (37)	2000	Low-dose mifepristone followed by vaginal misoprostol at 48 hours for abortion up to 63 days	Not relevant intervention
Schaff, Eric A (35)	2000	Vaginal misoprostol administered 1, 2, or 3 days after mifepristone for early medical abortion: a randomized trial	Not relevant intervention
Schaff, Eric A (152)	2001	Randomized trial of oral versus vaginal misoprostol at one day after mifepristone for early medical abortion	Not relevant data
Shannon, Caitlin S (153)	2005	Multicenter trial of a simplified mifepristone medical abortion regimen	Not relevant intervention
Sheldon, W. (154)	2015	Can semi-quantitative pregnancy tests assist women undergoing IVF to monitor HCG levels outside of a clinic setting?	Conference paper

Sheldon, W. R. (155)	2015	Home use of urine pregnancy tests for medical abortion follow-up	Study review paper
Shochet, T. (156)	2015	Use of a semiquantitative pregnancy test (SQPT) for medical abortion follow-up	Conference paper
Spitz, Irving M (157)	1998	Early pregnancy termination with mifepristone and misoprostol in the United States	Study review paper
Sunde, Oppegaard K (158)	2015	Is routine follow-up needed after an induced abortion?	Conference paper
Thomas, J. (159)	2015	Self-Assessment at Home Is Feasible for Follow-up Of Medical Abortion	Study review paper
Tone, Andrea (160)	2012	Medicalizing reproduction: The pill and home pregnancy tests	Not relevant intervention
Tran, Nguyen Toan (161)	2010	Feasibility, efficacy, safety, and acceptability of mifepristone–misoprostol for medical abortion in the Democratic People's Republic of Korea	Not relevant intervention
Winikoff, Beverly (162)	1995	Acceptability of medical abortion in early pregnancy	Not relevant study design
Winikoff, Beverly (163)	2012	Use of Medicines Changing the Face of Abortion	Study review paper

3.2 Studies and publications from ClinicalTrials.Gov (Including ongoing studies)

Title	Status	Publications	Reasons for exclusion
Self-Assessment of Medical Abortion Outcome Using Serial Multi-level Pregnancy Tests **(164)**	Recruiting: Study in progress	Not applicable	Cannot screen for inclusion
Use of Low Sensitivity Pregnancy Test for Self-assessment of Medical Abortion **(165)**	Completed	Cannot find a publication	Cannot screen for inclusion
Effectiveness of Pregnancy Tests as an Assessment Tool	Completed	Cannot find a publication	Cannot screen for inclusion

to Identify Continuing Pregnancy **(166)**			
Simplified Medical Abortion Follow-Up **(167)**	Terminated (Reason: integrated into another study)	Not applicable	Cannot screen for inclusion
Exploring the Role of At-home Semi-Quantitative Pregnancy Tests for Medical Abortion Follow-up **(168)**	Completed: Cannot find a publication	i) Dabash, R, 2016 (91) ii) Lynd, K., 2013 (128)	i) Not relevant population ii) Not relevant intervention
Effectiveness of Two Regimens of Misoprostol Alone for Early Pregnancy Termination and Use of SQPT for At-Home Follow-Up **(169)**	Completed:	Cannot find a publication	Cannot screen for inclusion
Simplifying First Trimester Medical Abortion Follow-up **(170)**	Not Yet Recruiting: Study not yet started	Not applicable	Cannot screen for inclusion
Comparison of Telephone Follow-up With In-person Follow-up After Medical Abortion **(171)**	Completed: Cannot find a publication	i) Perriera, Lisa, K, 2010 (147) ii) Clark, Wesley, 2007 (80) iii) Clark, Wesley, 2010 (172) iv) Kaneshiro, Bliss, 2011 (118) v) Fiala, Christian, 2003 (95) vi) Creinin, Mitchell D, 1996 (89) vii) Hertzen, Helena, 2003(112) viii) Schaff, Eric A, 2001 (152)	i) Not relevant study design ii) Not relevant intervention and study design iii) Not relevant intervention iv) Not relevant intervention and comparison group v) Not relevant intervention and outcome vi) Not relevant intervention vii) Not relevant data viii) Not relevant data

		ix) Rossi, Brooke, 2004 (149)	ix) Not relevant intervention
Simplified Medical Abortion in Rural India **(173)**	Completed	i) Paul, Mandira, 2016 (174) ii) Paul, M, 2014 (144)	i) Not relevant data ii) Study protocol
Urine Pregnancy Test Compared to Transvaginal Ultrasound (CHECK-TOP) **(175)**	Recruiting: Study in progress	Not applicable	Cannot screen for inclusion
De-Medicalizing Mifepristone Medical Abortion **(176)**	Completed	i) Clark, Wesley, 2010(172) ii) Taipale, Pekka, 2001 (177) iii) Savitz, David A, 2002 (178) iv) Mongelli, Max, 1996 (179) v) Fielding, Stephen L, 2002 (180) vi) Barnhart, Kurt T, 1999 (181) vii) Fiala, Christian, 2003 (95)	i) Not relevant intervention ii) Not relevant data iii) Not relevant data iv) Not relevant data v) Not relevant data vi) Not relevant data vii) Not relevant intervention and comparison group
Study of the Sensitivity of Manual vs Electric Aspiration to Detect Completed Early Abortion **(182)**	Completed Has Results	Dean, G., 2015, (183)	Not relevant data

Appendix 4: Characteristics of the included studies

4.1 Iyengar et.al. 2015 (14)

Characteristics of included study [Iyengar et. al., 2015] (14)		
Methods	Study Design: Randomized, controlled, non-inferiority, trial Study Period: April 23, 2013 to May 15, 2014 Study Area: Three rural and three urban health centres in two districts of Rajasthan state in India	
Participants	Women above 18 years with unwanted pregnancies opting for medical abortion with gestational age 9 weeks or less	
Interventions	-Instruction to women about how to perform test and method of follow-up given by clinicians -Self-assessment of outcome at home with a low sensitivity urine pregnancy test and pictorial instruction sheet -Follow-up after 2 weeks by home visit or telephone call	
Comparison	-Assessment of outcome by doctors or nurses with a low sensitivity urine pregnancy test -Routine clinic follow up	
Outcomes	Primary Outcome: Complete abortion without continuing pregnancy or need for surgical evacuation or additional mifepristone and misoprostol Secondary Outcomes: Safety (no adverse events and side effects) and feasibility of home assessment	
Others	-N=731 (randomly assigned) -Mean Age: 27.1 years -Level of Education: ▪ No formal Education: 55% ▪ Primary or lower than primary: 33% ▪ Secondary or above: 12% -Gestational age at termination: Less than 6 weeks to 9 weeks -ToP Protocol: 200 mg mifepristone (taken orally at clinic) + 800 mcg misoprostol (taken at home 2 days later; routes differed across clinics-sublingual, vaginal, or oral)	
Notes	Study was conducted in a low-resource setting where half of the participants were illiterate and did not own a telephone.	
Risk of Bias (RoB) Assessment		
Item	**Author's Judgement**	**Support for Judgement**
Random Sequence Generation (Selection Bias)	Low Risk	Quote: "Randomisation was done with a computer-generated randomisation sequence, with a block size of six."

		Quote: "…we detected that 15 women in the clinic follow-up as per randomization list were allocated to the home assessment group…" Comment: It was because of an error in randomization by research assistants. However, it did not show any significant differences in characteristics or outcomes.
Allocation Concealment (Selection Bias)	Low Risk	Quote: "Sealed opaque envelopes..."
Blinding of Participants (Performance Bias)	Unclear Risk	It was not possible to blind the participants. The biological outcomes (effectiveness and safety) were not likely to be influenced by lack of blinding of participants. However, self-reporting (acceptability) might be influenced by lack of blinding.
Blinding Personnel (Performance Bias)	Low Risk	Quote: "Blinding …was not possible" Comment: It was not possible to blind the personnel because they were involved in giving the instruction to women about the follow-up method. However, none of the outcomes- biological (effectiveness and safety) and self-reporting (acceptability) were likely to be influenced by lack of blinding.
Blinding of Outcome Assessment (Detection Bias) **Outcome: Effectiveness**	Low Risk	It was not possible to blind the outcome assessors (women themselves in the self-assessment group and clinicians in the clinic follow-up group). However, the measurement of effectiveness of the follow-up methods was not likely to be influenced by lack of blinding. Furthermore, clinicians counsel the women in home assessment group about how to interpret the test, advised to use a pictorial instruction sheet and seek care for complications. The test used was easy to interpret. Also, the interpretations of the results by women were cross-checked by research assistants by telephone follow-up or home visit.
Blinding of Outcome Assessment (Detection Bias) **Outcome: Safety**	Low Risk	It was not possible to blind the outcome assessors. However, the measurement of safety of the follow-up methods was not likely to be influenced by lack of blinding.
Blinding of Outcome Assessment (Detection Bias) **Outcome: Acceptability**	Unclear Risk	It was not possible to blind the outcome assessors, especially in the case of self-reporting of outcome. The measurement of

		acceptability of the follow-up methods might be influenced by lack of blinding.
Incomplete Outcome Data (Attrition Bias)	Low Risk	Loss to follow-up was very low, only around 2.5% in the whole study. Also, there was not much difference in numbers across intervention groups (11 in clinic follow-up and 7 in home assessment).
Selective Reporting (Reporting Bias)	Low Risk	Quote: "The study protocol and trial is reported according to CONSORT guidelines…" Comment: The published reports included all the expected outcomes, including those that were pre-specified in the protocol (184) [Outcomes published in two different reports: ▪ Effectiveness and Safety Outcomes-Iyengar 2015 (14) ▪ Acceptability Outcomes-Paul 2015 (48)]
Other Bias	Low Risk	No other bias detected

4.2 Oppegaard et.al., 2015 (13)

Characteristics of included study [Oppegaard et. al., 2015] (13)	
Methods	Study Design: Randomized, controlled, non-inferiority, trial Study Period: August 16, 2011 to Jan 31, 2013 Study Area: Four clinics in Austria, Finland, Norway and Sweden
Participants	Women aged 18 years and above who requested medical termination of pregnancy up to 63 days of gestational age
Interventions	- Instruction to women about how to perform test and method of follow-up given by clinicians -Self-assessment of outcome at home with a semi-quantitative urine human chorionic gonadotropin (hCG) test (Two step urine hCG DUO test with two detection thresholds of 5 and 1000 IU/L) -Follow-up after 1-3 weeks by telephone consultation
Comparison	- Assessment of outcome by clinicians with a low sensitivity urine hCG test, measurement of hCG in serum, or ultrasonography -Routine clinic follow up

Outcomes	Primary Outcome: Complete abortion not requiring further medical or surgical intervention within 3 months to complete abortion Secondary Outcomes: Clinical efficacy (adverse events and complications, loss to follow-up, additional visits, additional telephone consultations, acceptability, and initiation of agreed contraception	
Others	-N=929 (randomly assigned) -Mean Age: 25.97 years -Level of Education: Not stated -Mean Parity: 0.8 -ToP Protocol: 200 mg mifepristone (taken immediately at clinic) + 800 µg misoprostol (taken by vaginal self-administration at home 24-48 hours later)	
Notes	-	
Risk of Bias (RoB)Assessment		
Item	**Author's Judgement**	**Support for Judgement**
Random Sequence Generation (Selection Bias)	Low Risk	Quote: "…randomisation numbers, generated by computer in blocks of ten."
Allocation Concealment (Selection Bias)	Low Risk	Quote: "….opening sealed, opaque, sequentially numbered envelopes..."
Blinding of Participants (Performance Bias)	Unclear Risk	It was not stated in the article. However, it was also difficult to blind the participants in the given context. The biological outcomes (effectiveness and safety) were not likely to be influenced by lack of blinding of participants. However, self-reporting (acceptability) might be influenced by lack of blinding.
Blinding of Personnel (Performance Bias)	Low Risk	It was not stated in the article. However, it was not possible to blind the personnel as they were involved in giving the instruction to women about the follow-up method. Nevertheless, none of the outcomes-biological (effectiveness and safety) and self-reporting (acceptability) were likely to be influenced by lack of blinding.

Blinding of Outcome Assessment (Detection Bias) **Outcome: Effectiveness**	Low Risk	It was not stated in the article. However, it was not possible to blind the outcome assessors (women themselves in the self-assessment group and clinicians in the clinic follow-up group). Nevertheless, the measurement of effectiveness of the follow-up methods was not likely to be influenced by lack of blinding.
Blinding of Outcome Assessment (Detection Bias) **Outcome: Safety**	Low Risk	It was not stated in the article. However, it was not possible to blind the outcome assessors. Nevertheless, the measurement of safety of the follow-up methods was not likely to be influenced by lack of blinding.
Blinding of Outcome Assessment (Detection Bias) **Outcome: Acceptability**	Unclear Risk	It was not stated in the article. However, it was not possible to blind the outcome assessors, especially in the case of self-reporting of outcome. The measurement of acceptability of the follow-up methods might be influenced by lack of blinding.
Incomplete Outcome Data (Attrition Bias)	Low Risk	108 (23%) women in the routine follow-up group and 90 (20%) in the self-assessment group were lost to follow-up. This means loss to follow-up was quite high in number; however, it was not significantly (p= 0.199) different between the two groups and also around the assumed loss to follow-up rate. Further, loss to follow-up for primary outcome was reduced to 0.4%. Additionally, the analysis was per protocol and by intention to treat, which is the recommended approach for non-inferiority trials.
Selective Reporting (Reporting Bias)	Low Risk	Comment: The published report included all the expected outcomes, including those that were pre-specified in the protocol (185).
Other Bias	Low Risk	No other bias detected

4.3 Ngoc et.al., 2014 (47)

Characteristics of included study [Ngoc et. al., 2014] (47)		
Methods	Study Design: Randomized controlled trial Study Period: May 26, 2010 to April 14, 2011 Study Area: Four hospitals in Vietnam	
Participants	Women opting for early medical abortion with gestational age 63 days or less	
Interventions	- Instruction to women about how to perform test and method of follow-up given by nurses -Self-assessment of outcome at home with a semi-quantitative urine pregnancy test in combination with self-administered checklist -Follow-up after 2 weeks by telephone call	
Comparison	-Assessment of outcome by clinicians by bimanual examination and transvaginal ultrasonography -Routine clinic follow up	
Outcomes	Primary Outcome: Complete abortion without surgical evacuation. Secondary Outcomes: Acceptability of phone follow-up	
Others	-N=1433 (randomly assigned) -Mean Age: 27 years -Level of Education: ▪ No formal Education: 0.05% ▪ Primary or lower than primary: 2.15% ▪ Secondary or above: 97.8% -ToP Protocol: 200 mg mifepristone (taken orally at clinic) + 800 micrograms misoprostol (buccal administration at home 24-48 hours later)	
Notes	-	
Risk of Bias (RoB) Assessment		
Item	**Author's Judgement**	**Support for Judgement**
Random Sequence Generation (Selection Bias)	Low Risk	Quote: "Randomisation stratified by study site using random blocks of eight…"
Allocation Concealment (Selection Bias)	Low Risk	Quote: "…..sequentially numbered sealed opaque envelope."

Blinding of Participants (Performance Bias)	Unclear Risk	It was not stated in the article. However, it was also difficult to blind the participants in the given context. The biological outcomes (effectiveness and safety) were not likely to be influenced by lack of blinding of participants. However, self-reporting (acceptability) might be influenced by lack of blinding.
Blinding of Personnel (Performance Bias)	Low Risk	It was not stated in the article. However, it was not possible to blind the personnel as they were involved in giving the instruction to women about the follow-up method. Nevertheless, none of the outcomes-biological (effectiveness and safety) and self-reporting (acceptability) were likely to be influenced by lack of blinding.
Blinding of Outcome Assessment (Detection Bias) **Outcome: Efficacy**	Low Risk	It was not stated in the article. However, it was not possible to blind the outcome assessors (women themselves in the self-assessment group and clinicians in the clinic follow-up group). Nevertheless, the measurement of effectiveness of the follow-up methods was not likely to be influenced by lack of blinding.
Blinding of Outcome Assessment (Detection Bias) **Outcome: Safety**	Low Risk	It was not stated in the article. However, it was not possible to blind the outcome assessors. Nevertheless, the measurement of safety of the follow-up methods was not likely to be influenced by lack of blinding.
Blinding of Outcome Assessment (Detection Bias) **Outcome: Acceptability**	Unclear Risk	It was not stated in the article. However, it was not possible to blind the outcome assessors, especially in the case of self-reporting of outcome. The measurement of acceptability of the follow-up methods might be influenced by lack of blinding.
Incomplete Outcome Data (Attrition Bias)	Unclear Risk	4 women (0.6%) in phone follow-up group and 58 (8.1%) women in clinic follow-up group were lost to follow-up.

		The difference between the proportions of women who were loss to follow up was statistically significant in the two groups. However, the percentage of loss to follow-up was not high
Selective Reporting (Reporting Bias)	Low Risk	The published report included all the expected outcomes, including those that were pre-specified in the protocol.
Other Bias	Low Risk	No other bias detected

4.4 Platais et.al., 2015 (49)

Characteristics of included study [Platais et. al., 2015] (49)	
Methods	Study Design: Randomized controlled trial (Prospective, non-blinded) Study Period: July, 2010 to November, 2012 Study Area: Four clinics in Moldova and three clinics in Uzbekistan
Participants	Women with pregnancies less than or equal to 63 days of gestational age who wanted a medical abortion
Interventions	- Instruction to women about how to use the test kit and method of follow-up given by clinicians -Self-assessment of outcome at home with a semi-quantitative pregnancy test in combination with symptom checklist -Follow-up after 2 weeks by telephone call
Comparison	- Assessment of outcome by clinicians by clinical examination, women's report of symptoms and ultrasound -Routine clinic follow up
Outcomes	Primary Outcome: Complete abortion without surgical evacuation Secondary Outcomes: Acceptability of phone follow-up
Others	-N=2400 (randomly assigned) -Median Age: 27 years -Level of Education: ▪ No formal Education: 0% ▪ Primary or lower than primary: 2.5% ▪ Secondary or above: 97.5% -Median gestational age at termination: 6 weeks

	-Median parity: 1.0 -ToP Protocol: 200 mg mifepristone (taken orally at clinic) + 400 micrograms misoprostol (sublingual administration at home 24-48 hours later)	
Notes	-	
Risk of Bias (RoB) Assessment		
Item	**Author's Judgement**	**Support for Judgement**
Random Sequence Generation (Selection Bias)	Low Risk	Quote: "Randomisation was stratified by study site, using blocks of eight…"
Allocation Concealment (Selection Bias)	Low Risk	Quote: "…opening sealed opaque envelopes."
Blinding of Participants (Performance Bias)	Unclear Risk	Quote: "…non-blinded…." Comment: It was a non-blinded trial. However, the biological outcomes (effectiveness and safety) were not likely to be influenced by lack of blinding of participants. Nevertheless, self-reporting (acceptability) might be influenced by lack of blinding.
Blinding of Personnel (Performance Bias)	Low Risk	It was not possible to blind the personnel as they were involved in giving the instruction to women about the follow-up method. However, none of the outcomes- biological (effectiveness and safety) and self-reporting (acceptability) were likely to be influenced by lack of blinding.
Blinding of Outcome Assessment (Detection Bias) **Outcome: Efficacy**	Low Risk	It was not possible to blind the outcome assessors (women themselves in the self-assessment group and clinicians in the clinic follow-up group). However, the measurement of effectiveness of the follow-up methods was not likely to be influenced by lack of blinding.
Blinding of Outcome Assessment (Detection Bias) **Outcome: Safety**	Low Risk	It was not possible to blind the outcome assessors. However, the measurement of safety of the follow-up methods was not likely to be influenced by lack of blinding.

Blinding of Outcome Assessment (Detection Bias) **Outcome: Acceptability**	Unclear Risk	It was not possible to blind the outcome assessors, especially in the case of self-reporting of outcome. The measurement of acceptability of the follow-up methods might be influenced by lack of blinding.
Incomplete Outcome Data (Attrition Bias)	Low Risk	Loss to follow-up was very low (only one in phone follow-up group)
Selective Reporting (Reporting Bias)	Low Risk	The published report included all the expected outcomes, including those that were pre-specified in the protocol
Other Bias	Low Risk	No other bias detected

Appendix 5: GRADE evidence profile

5.1 GRADE summary for primary outcome

Quality assessment							№ of patients		Effect		Quality
№ of studies	**Study design**	**Risk of bias**	**Inconsistency**	**Indirectness**	**Imprecision**	**Other considerations**	**Self-assessment of outcome**	**Routine clinic follow-up**	**Relative (95% CI)**	**Absolute (95% CI)**	
Complete Abortion											
4	Randomised trials	Not serious	Not serious	Not serious	Not serious	None	2600/2711 (95.9%)	2569/2683 (95.8%)	**RR 1.00** (0.99 to 1.01)	**0 fewer per 100** (from 1 fewer to 1 more)	⊕⊕⊕⊕ HIGH

CI: Confidence interval; **RR:** Risk ratio

5.1 GRADE summary for secondary outcomes

Quality assessment							№ of patients		Effect		Quality
№ of studies	Study design	Risk of bias	Inconsistency	Indirectness	Imprecision	Other considerations	Self-assessment group	routine follow-up	Relative (95% CI)	Absolute (95% CI)	
Need for Surgery											
4	Randomised trials	Not serious	Not serious	Not serious	Serious [a]	None	97/2711 (3.6%)	103/2683 (3.8%)	**RR 0.92** (0.70 to 1.21)	**0 fewer per 100** (from 1 fewer to 1 more)	⊕⊕⊕◯ MODERATE
Haemorrhage (Excessive Bleeding)											
4	Randomised trials	Not serious	Serious [b]	Not serious	Serious [a]	None	58/2710 (2.1%)	38/2653 (1.4%)	**RR 1.48** (0.84 to 2.60)	**1 more per 100** (from 0 fewer to 2 more)	⊕⊕◯◯ LOW
Fever and Infection											
2	Randomised trials	Not serious	Serious [b]	Not serious	Serious [a]	None	20/810 (2.5%)	32/791 (4.0%)	**RR 0.41** (0.08 to 2.12)	**2 fewer per 100** (from 4 fewer to 5 more)	⊕⊕◯◯ LOW
Drugs for haemorrhage											
2	Randomised trials	Not serious	Not serious	Not serious	Serious [c]	None	9/810 (1.1%)	5/791 (0.6%)	**RR 1.81** (0.61 to 5.35)	**1 more per 100** (from 0 fewer to 3 more)	⊕⊕⊕◯ MODERATE

CI: Confidence interval; **RR:** Risk ratio

a. Somewhat wide CI, the total sample size and the no. of events are low.

b. Heterogeneity is moderate

c. CI is wide. Additionally, the total sample size and no. of events are low.