

Review article

Postabortion family planning counseling and services for women in low-income countries: a systematic review[☆]

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Abstract

Background: Unsafe abortion imposes heavy burdens on both individuals and society, particularly in low-income countries, many of which have restrictive abortion laws. Providing family planning counseling and services to women following an abortion has emerged as a key strategy to address this issue.

Study Design: This systematic review gathered, appraised and synthesized recent research evidence on the effects of postabortion family planning counseling and services on women in low-income countries.

Results: Of the 2965 potentially relevant records that were identified and screened, 15 studies satisfied the inclusion criteria. None provided evidence on the effectiveness of postabortion family planning counseling and services on maternal morbidity and mortality. One controlled study found that, compared to the group of nonbeneficiaries, women who received postabortion family planning counseling and services had significantly fewer unplanned pregnancies and fewer repeat abortions during the 12-month follow-up period. All 15 studies examined contraception-related outcomes. In the seven studies which used a comparative design, there was greater acceptance and/or use of modern contraceptives in women who had received postabortion family planning counseling and services relative to the no-program group.

Conclusions: The current evidence on the use of postabortion family planning counseling and services in low-income countries to address the problem of unsafe abortion is inconclusive. Nevertheless, the increase in acceptance and/or use of contraceptives is encouraging and has the potential to be further explored. Adequate funding to support robust research in this area of reproductive health is urgently needed.

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Keywords: Postabortion care; Family planning; Contraception; Pregnancy; Abortion; Systematic review

1. Introduction

Unsafe abortion imposes serious health and economic costs on both individuals and society [1,2]. As one of the easiest preventable causes of maternal mortality, it is estimated that 90% of abortion-related morbidity could be prevented by use of effective contraception; where effective contraceptive methods are available and widely used, the total abortion rate declines sharply [3,4]. Globally, millions of women lack access to appropriate contraceptive methods; use in low- and middle-income countries is generally much

lower than that in developed countries [5]. Over 80% of unintended pregnancies in developing countries occur among women who have an unmet need for modern contraception [6]. Whilst greater use of contraception will not produce direct, immediate effects on maternal mortality or morbidity, over time, it should reduce women's recourse to unsafe abortion, thereby putting women at less risk of lifelong injury or death [7,8].

The 1994 Cairo Programme of Action placed a particular emphasis on the importance of postabortion counseling and family planning as part of a comprehensive package of postabortion care (PAC) [9]. Improving access to contraception information, services and supplies is now increasingly advocated by policymakers as the best way to reduce the demand for abortion and thus lower maternal mortality and morbidity overall [10–12]. The production and dissemination of systematic reviews are important steps in

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Table 1
Characteristics of included studies

Author year/country/design	Population	Intervention	Outcomes/results/follow-up	Limitations	Study quality ^a
Alemayehu et al. 2009 [21] Ethiopia Separate pre–post samples design ^b	Sample size: 2231 (pre-INT), 2301 (post-INT) Age: not stated Abortion status: induced abortion	Intervention: family planning counseling and services delivered as part of an improved comprehensive PAC program Content: not stated/unclear Setting: 50 public health facilities Delivered by: not stated/unclear Charge: not stated/unclear	Use/acceptance of contraceptive methods: Pre- vs. postintervention: 30.8% vs. 78.2% Types of contraceptives accepted/used: not stated Follow-up: not stated	<ul style="list-style-type: none"> ●Evaluation design ●Poor reporting (intervention content, study conduct and analysis) ●No follow-up ●Process evaluation: not stated/unclear 	Low
Billings et al. 1999 [22] Ghana Separate pre–post samples design	Sample size: unclear Age: not stated Abortion status: induced and spontaneous abortion	Intervention: family planning offered as part of a package of PAC services incorporating MVA, infection control, pain management, FP counseling and referral Content: not stated/unclear Setting: 3 district hospitals and 12 health centres and maternity homes in four districts Delivered by: trained midwives Charge: not stated/unclear	Use/acceptance of contraceptive methods: Preintervention: 0% Postintervention: 70% (health centres); 55% (maternity homes); 35% (hospitals) Types of contraceptives accepted/used: not stated Follow-up: not stated	<ul style="list-style-type: none"> ●Evaluation design ●Poor reporting (sample, intervention content, study conduct and analysis) ●No follow-up 	Low
Delvaux et al. 2008 [23] Cambodia One group, post-test only design	Sample size: 1970 Age: medium age 27 years Abortion status: induced and spontaneous abortion	Intervention: family planning offered as part of a comprehensive safe PAC program incorporating family planning counseling, STI prevention, pain management and safer MVA techniques Content: not stated/unclear Setting: one urban mother and child clinic Delivered by: not stated/unclear Charge: women charged 50,000 Riels (US\$12.5) for all PAC services; female sex workers charged less than 30,000 Riels (US\$7.5)	Use/acceptance of contraceptive methods: Postintervention: 41.1% (induced); 40.1% (induced and spontaneous) Types of contraceptives accepted/used: OCs, injectables, IUDs and condoms Follow-up: not stated	<ul style="list-style-type: none"> ●Evaluation design ●Poor reporting (intervention content) ●No follow-up ●Process evaluation: not stated/unclear 	Low
Frontiers 2000 [24] Burkina Faso Separate pre–post samples design	Sample size: 456 (pre-INT); 330 (post-INT) Age: not stated Abortion status: induced and spontaneous abortion	Intervention: family planning offered as part of a comprehensive PAC program which included MVA and family planning Content: unclear/unclear Setting: two large hospitals Delivered by: trained nurses, midwives and physicians Charge: not stated/unclear	Use/acceptance of contraceptive methods: Pre- vs. postintervention: 57% vs. 83% Types of contraceptives accepted/used: not stated Follow-up: not stated	<ul style="list-style-type: none"> ●Evaluation design ●Poor reporting (intervention content, study conduct and analysis) ●No follow-up ●Process evaluation: not stated/unclear 	Low
Johnson et al. 2002 [25] Zimbabwe Matched controlled study	Sample size: 276 (INT), 281 (CON) Age: mean age 27 years Abortion status: induced and spontaneous abortion	Intervention: postabortion family planning counseling and services Content: information and counseling on short- and long-term fertility control; option to receive condoms, oral contraceptives or the contraceptive injection prior to leaving the hospital; referral for implants or other methods Setting: two city hospitals Delivered by: trained staff on obstetric/gynecological wards Charge: free service and contraceptives Control: usual discharge practice	Repeat abortion: At 12 months: 2.5% (INT) vs. 5.3% (CON) [p=0.23] Repeat unplanned pregnancy: At 12 months: 15% (INT) vs. 34% (CON) [OR 3.38; 95% CI 2.16–5.29] Use/acceptance of contraceptive methods:	<ul style="list-style-type: none"> ●Process evaluation: not stated/unclear 	Medium

<p>Lema et al. 2000 [26] Malawi One group, post-test only design</p>	<p>Sample size: 464 Age: median age 22 years Abortion status: induced and spontaneous abortion</p>	<p>Intervention: postabortion family planning counseling and services Content: reproductive health information and information on contraceptives available in Malawi; information and advice on how contraceptives work, how to use them, who can use which methods and side effects; provision of contraceptives or referral to FP clinic Setting: one university teaching hospital Delivered by: trained nurses Charge: not stated/unclear</p>	<p>At 3 months: 95.7% (INT) vs. 55.4% CON) At 6 months: 94.6% (INT) vs. 60.4% CON) At 9 months: 93.1% (INT) vs. 63.2% CON) At 12 months: 83.8% (INT) vs. 64% (CON) Types of contraceptives accepted/used: OCs, injectables, condoms, and other modern methods (primarily implants, diaphragms and sterilization) Follow-up: at 3, 6, 9 and 12 months Use/acceptance of contraceptive methods: Postintervention: 77.5% (induced only), 80.4% (both types abortion) Types of contraceptives accepted/used: OCs, injectables, IUDs, condoms, sterilization, implants and spermicides Follow-up: not stated</p>	<ul style="list-style-type: none"> ●Evaluation design ●Poor reporting (study conduct and analysis) ●No follow-up ●Process evaluation: not stated/unclear 	<p>Low</p>
<p>Mahomed et al. 1997 [27] Zimbabwe Separate pre–post samples design</p>	<p>Sample size: 1009 (pre-INT); 903 (post-INT) Age: mean age 26 years Abortion status: induced and spontaneous abortion</p>	<p>Intervention: postabortion family planning counseling and services Content: opportunity provided to initiate discussion regarding need or otherwise to use contraception; advice on the various methods of contraception available and the most suitable method; if a method accepted, supplies were dispensed for the first 3 months; arrangements/referrals made for other reproductive services Setting: two main hospitals Delivered by: trained support staff Charge: not stated/unclear</p>	<p>Use/acceptance of contraceptive methods: Pre- vs. postintervention: 34% vs. 92% Types of contraceptives accepted/used: not stated Follow-up: not stated</p>	<ul style="list-style-type: none"> ●Evaluation design ●No follow-up ●Process evaluation: not stated/unclear 	<p>Low</p>
<p>Malla et al. 1997 [28] Nepal One group, post-test only design</p>	<p>Sample size: unclear Age: not reported Abortion status: induced and spontaneous abortion</p>	<p>Intervention: family planning offered as part of a PAC package linking MVA treatment, FP counseling and contraceptive services Content: discussion of reproductive goals (in general, both husband and wife involved); referrals for those requesting implants, sterilization and/or other reproductive services Setting: one major hospital</p>	<p>Use/acceptance of contraceptive methods: Postintervention: 70% Types of contraceptives accepted/used: OCs, injectables, IUDs and condoms Follow-up: not stated</p>	<ul style="list-style-type: none"> ●Evaluation design ●Poor reporting (sample, study conduct and analysis) ●No follow-up ●Process evaluation: not stated/unclear 	<p>Low</p>

Table 1 (continued)

Author year/country/design	Population	Intervention	Outcomes/results/follow-up	Limitations	Study quality ^a
Nelson et al. 2002 [29] Kenya One group, post-test only design	Sample size: 1600 Age: 50% aged 15–24 years Abortion status: induced and spontaneous abortion	Delivered by: trained nurses and physicians Charge: not stated/unclear Intervention: family planning offered as part of a comprehensive PAC program involving MVA and family planning Content: not stated/unclear Setting: private/NGO nurse-midwife clinics across 2 provinces Delivered by: trained nurse-midwives Charge: unclear	Use/acceptance of contraceptive methods: Postintervention: 69% Types of contraceptives accepted/used: not stated Follow-up: not stated	<ul style="list-style-type: none"> ●Evaluation design ●Poor reporting (intervention content, study conduct and analysis) ●No follow-up ●Process evaluation: not stated/unclear 	Low
Rasch et al. 2004 [30] Tanzania One group, post-test only design	Sample size: 780 Age: 19–30+ years Abortion status: induced abortion	Intervention: postabortion family planning counseling and services, including STIs/HIV prevention Content: counseling on consequences of unsafe abortion, contraception and the risk of contracting STIs/HIV; emphasis on benefits of using condoms to protect against pregnancy and STIs; provided with a method of their choice and asked to return for follow-up Setting: one urban hospital Delivered by: not stated/unclear Charge: free of charge	Use/acceptance of contraceptive methods: At discharge: 90% At 1–6 months: 86% Types of contraceptives accepted/used: OCs, injectables and condoms Follow-up: at 1–6 months	<ul style="list-style-type: none"> ●Evaluation design ●Process evaluation: not stated/unclear 	Low
Rasch et al. 2005 [31] Tanzania One group, post-test only design	Sample size: 766 Age: 19–35+ years Abortion status: induced and spontaneous abortion	Intervention: postabortion family planning counseling and services Content: not stated/unclear Setting: 3 district hospitals and 10 rural hospitals Delivered by: trained nurses Charge: not stated/unclear	Use/acceptance of contraceptive methods: Postintervention: 91% (urban); 62% (rural) Types of contraceptives accepted/used: OCs, injectables, condoms and other modern methods (primarily sterilization) Follow-up: not stated	<ul style="list-style-type: none"> ●Evaluation design ●Poor reporting (intervention content) ●No follow-up ●Process evaluation: not stated/unclear 	Low
Rasch et al. 2007 [32] Tanzania One group, post-test only design	Sample size: 548 Age: 60% under 19–30 years Abortion status: induced and spontaneous abortion	Intervention: postabortion family planning counseling and services Content: contraceptive counseling and counseling on STIs/HIV; advice on the use of the female condom and the benefits of using condoms to protect against pregnancy and STIs; choice of contraceptive methods offered and women provided with 10 female condoms before discharge Setting: one regional hospital Delivered by: not stated/unclear Charge: free	Use/acceptance of contraceptive methods: At discharge: 95% At 3 months: not clear Types of contraceptives accepted/used: female condoms, OCs and injectables Follow-up: at 3 months	<ul style="list-style-type: none"> ●Evaluation design ●Process evaluation: not stated/unclear 	Low
Rogo et al. 1998 [33] Kenya One group, post-test only design	Sample size: 675 Age: mean age 25 years Abortion status: induced and spontaneous abortion	Intervention: family planning offered as part of a PAC package including MVA, FP counseling, contraceptive provision and treatment of STIs Content: emphasis on emergency contraception provision and condom promotion Setting: private physicians' practices across 3 provinces Delivered by: trained physicians	Use/acceptance of contraceptive methods: Postintervention: 12.5–100% Types of contraceptives accepted/used: OCs,	<ul style="list-style-type: none"> ●Evaluation design ●Poor reporting (study methods) ●No follow-up ●Process evaluation: not stated/unclear 	Low

Solo et al. 1999 [34] Kenya Separate pre–post samples design	Sample size: unclear Age: 84% aged 15–29 years Abortion status: induced and spontaneous abortion	Charge: minimal consultation fee (sliding scale); no charge for contraceptives Intervention: family planning offered as part of a PAC package including MVA services and FP counseling service Content: not stated/unclear Setting: 6 public hospitals Delivered by: trained gynecological nurses; MCH-FP staff Charge: not stated/unclear	injectables, IUDs and condoms Follow-up: not stated Use/acceptance of contraceptive methods: Pre- vs. postintervention: 3% vs. 70% (for all 3 models ^c combined) Postintervention: model 1: 82%; model 2: 63%; model 3: 75% Types of contraceptives accepted/used: OCs, injectables, condoms, implants, IUDs and sterilization Follow-up: not stated Use/acceptance of contraceptive methods: At discharge: 53% (INT) vs. 0% (CON) At 6 weeks: 54% (INT) vs. <1% (CON) Types of contraceptives accepted/used: OCs, injectables and condoms Follow-up: at 6 weeks	<ul style="list-style-type: none"> ●Evaluation design ●Poor reporting (intervention content) ●No follow-up ●Process evaluation: not stated/unclear 	Low
Thapa et al. 2004 [35] Nepal Unmatched controlled study	Sample size: 529 (INT); 236 (CON) Age: mean age 23–26 years Abortion status: induced and spontaneous abortion	Intervention: family planning offered as part of a PAC package linking MVA treatment and family planning counseling and contraceptive services Content: not stated/unclear Setting: one national maternity hospital Delivered by: not stated/unclear Charge: not stated/unclear	injectables, IUDs and condoms Follow-up: not stated Use/acceptance of contraceptive methods: At discharge: 53% (INT) vs. 0% (CON) At 6 weeks: 54% (INT) vs. <1% (CON) Types of contraceptives accepted/used: OCs, injectables and condoms Follow-up: at 6 weeks	<ul style="list-style-type: none"> ●Evaluation design ●Poor reporting (intervention content) ●Process evaluation: not stated/unclear 	Low

MVA: manual vacuum aspiration; FP: family planning; HIV: human immunodeficiency virus; OCs: oral contraceptives; IUDs: intrauterine devices; MCH-FP: maternal and child health-family planning; INT: intervention; CON: control.

^a Overall ‘weight of evidence’ assessment based on the following criteria: quality of the execution of the study, appropriateness of the research design/analysis, relevance of the study topic/foci.

^b Study that compares a group of participants receiving an intervention with a similar group from the past who did not (also known as a historically controlled study).

^c Model 1: FP delivered on gynecological ward by ward staff; model 2: FP delivered on gynecological ward by MCH-FP staff; model 3: FP delivered in MCH-FP clinic by MCH-FP staff.

strengthening the international communities' capacity for evidence-informed decision making [13]. Recent reviews in this area, however, either have been nonsystematic [14] or have included literature conducted in high-income countries only [15]. The objective of this systematic review was to gather and synthesize the available research evidence on the impacts of postabortion family planning counseling and services on women in low-income countries. An extended version of this article is available as a technical report [16].

2. Methods

2.1. Study identification

We searched PubMed, Popline, CINAHL, Cochrane database, Sociological abstracts, Social Services Abstracts, International Bibliography of the Social Sciences, Virtual Health Library and health research databases/specialist registers held at the EPPI-Centre [17]. The following Web sites were hand-searched: Ipas, Jhpiego, Family Health International, Marie Stopes International, Population Council, Postabortion Care Consortium, Gynuity Health Projects EngenderHealth, PRIME II and Eldis. In addition, we conducted a hand-search of the reference lists of all included studies, contacted experts to find other published and unpublished studies and carried out citation checking exercises.

2.2. Inclusion criteria

To be eligible for inclusion, studies had to evaluate family planning counseling and services delivered to women before discharge from clinical care following an abortion. Eligible interventions were those which offered counseling to women (or couples) about the use of contraception to implement plans for birth spacing and limiting the number of births, provided information and advice about different types of methods, and supplied and fitted contraceptives. Studies focused solely on participants who had experienced a spontaneous abortion (miscarriage) were not included. We included studies using any evaluation design as we anticipated that existing evidence would be sparse. The primary outcomes of interest were maternal mortality and morbidity. The secondary outcomes were repeat induced abortions, repeat unplanned/unintended pregnancies, and acceptance and/or use of a modern contraceptive method.¹ The review considered studies published in the English language from 1994 to 2010 and conducted in low-income countries, as defined by the World Bank [18].

¹ For the review, a relatively broad definition of modern contraceptive methods was used, including reversible, long-acting methods (such as IUDs), hormonal contraception, barrier methods (such as condoms), and sterilization (female and male). Non-modern methods of contraception were defined as traditional practices used to avoid pregnancy, such as periodic abstinence and withdrawal.

2.3. Data extraction and study quality assessment

Two reviewers independently extracted data and assessed the quality and relevance of each study using a tool specifically designed for this review. Disagreements were resolved by consensus, with the help of a third reviewer if necessary. Where there were missing data, attempts were made to obtain the data by contacting the study author(s). The tool incorporated the EPPI-Centre's weight of evidence (WoE) framework which has four components: (A) the quality of the execution of the study, (B) the appropriateness of the research design, (C) the relevance of the study topic/foci and (D) an overall weight of evidence [19]. The higher the overall weight of evidence score, the more confident we can be that the result is a valid measure of the impact of family planning counseling and services. In this review, studies were rated into one of three categories (high, medium or low) for WoE A, B and C. As all studies were rated high on WoE C, a composite result based on the assessments made for criteria A and B was used to summarize the weight of evidence each study should contribute to the review's findings (WoE D). On their own, studies with a low quality score could not be used to develop the conclusions of the review or inform recommendations for policy or research.

2.4. Synthesis

Owing to heterogeneity of the studies, it was not possible to quantitatively combine data. A textual narrative synthesis was undertaken, structured according to the outcome measures reported and with consideration given to the study characteristics, context and quality [20].

3. Main results

A total of 2965 potentially relevant records were identified, of which 15 studies satisfied the inclusion criteria [21–35]. A summary of the characteristics and the findings of the included studies is shown in Table 1. Study designs varied: one matched controlled study [25], one unmatched controlled study [35], five separate pre–post samples design studies (i.e., those that compare a group of participants receiving an intervention with a similar group from the past who did not) [21,22,24,27,34] and eight noncomparative studies with only post-test results [23,26,28–33]. One study was rated medium overall quality [25], and the remaining 14 studies rated low overall. The included studies, involving around 15,000 women, were conducted in nine low-income countries between 1997 and 2009: seven in sub-Saharan Africa (Burkina Faso, Ethiopia, Ghana, Kenya, Malawi, Tanzania and Zimbabwe), one in South Asia (Nepal) and one in Southeast Asia (Cambodia). Fifteen evaluations of 14 different interventions were identified: six assessed the impact of initiatives that were implemented at multiple sites over a large geographical area, such as one or more

provinces or regions [21,22,29,31,33,34]; nine focused on interventions that were designed and/or implemented at a local level, typically within one or two hospitals or other health facility [23–28,30,32,35]. In nine studies, family planning counseling and services were delivered as part of a comprehensive PAC package that emphasized the linking of family planning with the emergency treatment of abortion-related complications and other reproductive health services [21–24,28,29,33–35]. In 11 studies, staff members involved in the delivery of the intervention were provided with specific training relating to family planning counseling and services [21,22,24–29,31,33,34]. Although training of personnel was often described by the study authors as being an integral component of the intervention and implemented alongside the services, none of the included studies evaluated the impact of staff training on the intervention.

No studies on the impact of providing postabortion family planning counseling and services on maternal mortality and morbidity were identified. A single study measuring repeat abortions and unplanned pregnancies was found [25]. All 15 included studies presented data on contraception-related outcomes: acceptance and/or use of a modern contraceptive method. For 10 studies, a breakdown of the types of modern contraceptive methods that women accepted and/or used was reported [23,25,26,28,30–35]. A small number of studies examined outcomes according to the type of setting and/or provider [21,22,31,34].

Key partnerships were identified between different stakeholders, at both national and international level, with Ministries of Health, international development agencies (US, Danish, Swedish and Belgian) and nongovernmental organizations (NGOs) playing a substantial role in guiding interventions and/or evaluations in this area.

3.1. Repeat abortions

One study [25] found that the proportion of women who had a repeat abortion during the 12-month follow-up period was lower for the group who had received postabortion family planning counseling and services than for the no-program group (2.5% vs. 5.3%, $p=0.23$).

3.2. Repeat unplanned pregnancies

This same study [25] found that 15% of women who received family planning counseling and services following an abortion had a repeat unplanned pregnancy during the 12-month follow-up period compared to 34% of women who did not receive any counseling or services (odds ratio 3.38, 95% confidence interval 2.16–5.29).

3.3. Acceptance and/or use of contraceptive methods

There was consistency across the seven comparative studies in that acceptance and/or use of contraception was reported to be higher among the group receiving family planning counseling and services than for the group not receiving the intervention, though the size of improvement

varied considerably among studies (range 26%–67% increase). The remaining eight noncomparative, post-test only studies reported a broad range of figures. Acceptance and/or use of contraception was reported to be higher for women attending health centers and/or maternity homes (compared to hospitals) [21,22], for women attending urban hospitals (compared to rural facilities) [31], for women attending Protestant hospitals (compared with Catholic hospitals) [31] and for women who received family planning counseling and services on the gynecological ward by ward staff (compared to other models of provision) [34]. Oral pills and injectable contraceptives were the most commonly chosen methods in the majority of studies reviewed.

4. Discussion

Overall, there is a lack of good quality research in this area, and evidence regarding the impact of providing family planning services and contraception to postabortion women in low-income countries is sparse. This systematic review identified no evidence on the impact of such programs on maternal mortality and morbidity: a not altogether unexpected result since these outcomes are widely recognized as difficult and expensive to measure [36]. We found insufficient evidence regarding the impact of postabortion family planning interventions on repeat pregnancies and repeat induced abortions, as only one study measured these outcomes. For acceptance/use of modern contraception, the evidence relating to the provision of family planning counseling and services to women following an abortion was judged to be insufficient, yet promising (on the basis that there was one medium-quality controlled study measuring this outcome, and a further six comparative studies which, although rated low, all showed a positive effect).

To our knowledge, this is the first systematic review to evaluate the effectiveness of postabortion family planning counseling and services in low-income countries where abortion-related maternal morbidity and mortality are high (on the basis that there was one medium-quality controlled study measuring this outcome, and a further six comparative studies which, although rated low, all showed a positive effect). The review's methodology was rigorous and robust, including an extensive search across multiple search sources for relevant academic and grey literature. Due to resource constraints inherent in conducting rapid systematic reviews, the search was not exhaustive, although authors and experts in the field were contacted for additional information on new and unpublished studies. Resource limitations also meant that inclusion was restricted to studies published in the English language. It is therefore possible that a small number of relevant studies may have been missed. Whilst rapid reviews serve a useful purpose in providing policy-makers with new knowledge in a shortened time frame, it is important not to overlook the potential implications of placing limits on the review methodology [37,38].

The main weakness of the review's findings, however, stems from the lack of rigorous evaluations in this area, as found by others [15]. The methodological limitations of the design and execution of the majority of included studies, compounded by ill-defined populations and other poor reporting practices, undermine the reliability, validity and generalizability of the findings. Few details were provided about the context surrounding the intervention, such as its content/components, the training of staff, duration of the intervention, follow-up evaluation, and the potential barriers and facilitators which could influence the success of the intervention. These limitations, together with significant heterogeneity between studies, prevented meta-analysis.

Very few of the included studies provided sufficient information on issues relating to the outcomes of acceptance and/or use of contraceptives. These outcomes were poorly defined. It was not clear if the contraceptives provided were indeed used, used regularly and used effectively. Methods such as oral contraceptives and condoms are user dependent and require the possession of some basic knowledge and skills and consideration of other factors influencing their use, such as the woman's motivation and her religious beliefs, partner cooperation and support [39]. Unlike the receipt of long-acting methods, such as the contraceptive injection, intrauterine devices or implants, which require administration by trained professionals in a health delivery system, the likelihood of bias in self-reported contraceptive use cannot be underestimated. Ineffective contraceptive use has been found to be a major contributor to unintended pregnancy and subsequent abortions [40]. Yet, only one study included in this review investigated whether the method of contraception provided (the female condom) was used reliably by the women [32]. Four studies followed up women to determine the use of contraceptives in the medium and long term [25,30,32,35], with 12 months the longest follow-up period [25]. Contraceptive effectiveness based on use measured on one occasion postintervention is problematic, and the cumulative risk of unintended pregnancy cannot be satisfactorily addressed without a measure of the pattern of contraceptive use over time.

The studies in this review were conducted in countries with varying laws governing the practice of induced abortion, many of them highly restrictive. The abortion status (induced or spontaneous) of the women was often unclear as many study authors noted the difficulty in getting women to admit to having had an unsafe abortion. It is a limitation of the review that we had to include several studies that did not differentiate between women according to abortion status in their analyses. Since contraceptive use patterns will differ by pregnancy intentions (with implications for the form that counseling takes), there is a clear need to focus more specifically on women who have undergone an unsafe abortion. In this regard, the empathetic interviewing approach developed by one of the included studies to identify such women warrants further investigation [30].

The dearth of evidence could also be related to the geopolitical status of the countries concerned, many of which

are politically fragile states, and the context of research funding, highlighted by the intermittent US government policy of banning all NGOs receiving federal funding from involvement with abortion, which in turn greatly limited their ability to fund family planning programs overseas.

Studies without experimental or strong quasi-experimental designs cannot provide evidence of causation. However, despite this and other limitations of the studies included in the review, there was some consistency in study findings that the acceptance and/or use of modern contraceptives was increased in women who had received postabortion family planning and counseling. On the whole, the low-quality studies support the findings from the one medium-quality study identified by the review, increasing our confidence that there is an empirical basis for predicting that further research could demonstrate an intervention-related effect for these outcomes.

5. Conclusion

This review, initiated and funded by the UK Department for International Development, provides an important and timely contribution to efforts to address the gap in the provision of a systematic and unbiased assessment of evidence specific to developing countries. Given the high number of unsafe abortions in low-income countries and their wide-ranging impact on maternal health, the lack of conclusive evidence on the efficacy of family planning interventions provided to women following an abortion, as identified by this systematic review, is of serious concern. There is now an urgent need to improve reproductive health in achieving Millennium Development Goal 5 by 2015 [41]. A well-developed research plan employing rigorous evaluation designs to measure the impact of improving women's access to family planning counseling and services following an abortion should be an integral part of any long-term effort to break the cycle of unintended pregnancy resulting in repeat unsafe abortions in low-income countries.

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References

- [1] World Health Organization (WHO). *Unsafe abortion: global and regional estimates of the incidence of unsafe abortion and associated mortality in 2008*, sixth edition. Geneva: World Health Organization; 2011.
- [2] Vlassoff M, Shearer J, Walker D, Lucas H. *Economic impact of unsafe abortion related morbidity and mortality: evidence and estimation challenges*. Research report no. 59. Brighton: Institute of Development Studies; 2008.

- [3] Cleland J, Bernstein S, Ezeh A, Faundes A, Glasier A, Innis J. Family planning: the unfinished agenda. *Lancet* 2006;368:1810–27.
- [4] Bongaarts J, Westoff CF. The potential role of contraception in reducing abortion. *Stud Fam Plann* 2000;31:193–202.
- [5] [5] United Nations. World contraceptive use 2010. Department of Economic and Social Affairs, Population Division, United Nations; 2011. Available at http://www.un.org/esa/population/publications/wcu2010/WCP_2010/Data.html.
- [6] Singh S, Darroch JE, Ashford LS, Vlassoff M. Adding it up: the costs and benefits of investing in family planning and maternal and newborn health. New York: Guttmacher Institute and UNFPA; 2009.
- [7] Benson J. Evaluating abortion-care programs: old challenges, new directions. *Stud Fam Plann* 2005;36:189–202.
- [8] Marston C, Cleland J. Relationships between contraception and abortion: a review of the evidence. *Internat Fam Plann Perspect* 2003;29:6–3.
- [9] United Nations Population Information Network (POPIN). Report of the International Conference on Population and Development. Cairo, 5–13 September 1994. A/CONF.171/13. 18 October 1994. Available at: <http://www.un.org/popin/icpd/conference/offeng/poa.html>. See also www.postabortioncare.org.
- [10] Department for International Development (DFID). Choices for women: planned pregnancies, safe births and healthy newborns. London: Department for International Development; 2010.
- [11] Department for International Development (DFID). Safe and unsafe abortion. Practice paper. London: Department for International Development; 2011.
- [12] International Federation of Gynecology and Obstetrics (FIGO). Family planning: a key component of post abortion care. Consensus Statement: International Federation of Gynecology and Obstetrics (FIGO), International Confederation of Midwives (ICM), International Council of Nurses (ICN), and the United States Agency for International Development (USAID), 25 September 2009. Available at [http://www.who.org/files/figo-corp/Joint%20Statement%20FPPAC%20No%20Disclmr%2010Oct09%20\[1\].pdf](http://www.who.org/files/figo-corp/Joint%20Statement%20FPPAC%20No%20Disclmr%2010Oct09%20[1].pdf).
- [13] Department for International Development (DFID). Systematic reviews in international development: an initiative to strengthen evidence-informed policy making. Available at <http://www.dfid.gov.uk/r4d/SystematicReviewFeature.asp>.
- [14] United States Agency for International Development (USAID). What works? A policy and program guide to the evidence on postabortion care. Washington, DC: USAID; 2007.
- [15] Ferreira AL, Lemos A, Figueiroa JN, de Souza AI. Effectiveness of contraceptive counselling of women following an abortion: a systematic review and meta-analysis. *Eur J Contracept Reprod Health Care* 2009;14:1–9.
- [16] Tripney J, Schucan Bird K, Kwan I, Kavanagh J. The impact of post-abortion care family planning counselling and services in low-income countries: a systematic review of the evidence (technical report). London: EPPI-Centre, Social Science Research Unit, Institute of Education, University of London; 2011.
- [17] EPPI-Centre. Trials Register of Promoting Health Interventions (TRoPHI); Database of Promoting Health Effectiveness Reviews (DoPHER); Bibliomap. Available at <http://eppi.ioe.ac.uk/cms/Default.aspx?tabid=185&language=en-US>.
- [18] World Bank country classifications. are available at http://data.worldbank.org/about/country-classifications/country-and-lending-groups#Low_income.
- [19] Gough D. Weight of evidence: a framework for the appraisal of the quality and relevance of evidence. *Res Pap Educ* 2007;22:213–28.
- [20] Barnett-Page E, Thomas J. Methods for the synthesis of qualitative research: a critical review. *BMC Med Res Methodol* 2009;9:59. <http://dx.doi.org/10.1186/1471-2288-9-59>.
- [21] Alemayehu T, Otsea K, GebreMikael A, Dagne S, Healy J, Benson J. Abortion care improvements in Tigray, Ethiopia: Using the Safe Abortion Care (SAC) approach to monitor the availability, utilization and quality of services. Final report of a two-year project in 50 public sector facilities. Chapel Hill, NC: Ipas; 2009.
- [22] Billings D, Victor A, Baird T, Taylor J, Ababio K, Ntow S. Midwives and comprehensive postabortion care in Ghana. In: Huntington D, Piet-Pelon N, editors. Postabortion care: lessons from operations research. Nairobi: Population Council; 1999, pp. 141–58.
- [23] Delvaux T, Soeur S, Rathavy T, Crabbe F, Buve A. Integration of comprehensive abortion-care services in a maternal and child health clinic in Cambodia. *Trop Med Internat Health* 2008;13:962–9.
- [24] Frontiers in Reproductive Health. Burkina Faso postabortion care: upgrading postabortion care benefits patients and providers. OR summary no. 3. Washington, DC: Population Council; 2000.
- [25] Johnson BR, Ndhlovu S, Farr SL, Chipato T. Reducing unplanned pregnancy and abortion in Zimbabwe through postabortion contraception. *Stud Fam Plann* 2002;33:195–202.
- [26] Lema VM, Mpanga V. Post-abortion contraceptive acceptability in Blantyre, Malawi. *East Afr Med J* 2000;77:488–93.
- [27] Mahomed K, Healy J, Tandom S. Family planning counselling — a priority for post abortion care. *Central Afr J Med* 1997;43:205–7.
- [28] Malla K, Kishore S, Padhye S, Hughes R, McIntosh N, Tietjen L. Establishing postabortion care services in Nepal. *J Nep Med Assoc* 1997;35:104–10.
- [29] Nelson D. Linking PAC with FP. Successful scale-up at the primary level. Results review. PRIME PAGES RR-13. Chapel Hill, NC: University of North Carolina at Chapel Hill, Program for International Training in Health; 2002.
- [30] Rasch V, Massawe S, Yambesi F, Bergstrom S. Acceptance of contraceptives among women who had an unsafe abortion in Dar es Salaam. *Trop Med Internat Health* 2004;9:399–405.
- [31] Rasch V, Yambesi F, Kipingili R. Scaling up postabortion contraceptive service — results from a study conducted among women having unwanted pregnancies in urban and rural Tanzania. *Contraception* 2005;72:377–82.
- [32] Rasch V, Yambesi F, Kipingili R. Acceptance and use of the female condom among women with incomplete abortion in rural Tanzania. *Contraception* 2007;75:66–70.
- [33] Rogo K, Orero S, Oguttu M. Preventing unsafe abortion in Western Kenya: an innovative approach through private physicians. *Reprod Health Matt* 1998;6:77–83.
- [34] Solo J, Billings DL, Aloo-Obunga C, Ominde A, Makumi M. Creating linkages between incomplete abortion treatment and family planning services in Kenya. *Stud Fam Plann* 1999;30:17–27.
- [35] Thapa S, Poudel J, Padhye S. Triaging patients with post-abortion complications: a prospective study in Nepal. *J Health Popul Nutr* 2004;22:383–98.
- [36] Grimes DA, Benson J, Singh S, et al. Unsafe abortion: the preventable pandemic. *Lancet* 2006;368:1908–19.
- [37] Ganann R, Ciliska D, Thomas H. Expediting systematic reviews: methods and implications of rapid reviews. *Implement Sci* 2010;5. <http://dx.doi.org/10.1186/1748-5908-5-56>.
- [38] Abrami PC, Borokhovski E, Bernard RM, et al. Issues in conducting and disseminating brief reviews of evidence. *Evidence and Policy* 2010;6:371–89.
- [39] Williamson LM, Parkes A, Wight D, Petticrew M, Hart GJ. Limits to modern contraceptive use among young women in developing countries: a systematic review of qualitative research. *Reprod Health* 2009;6. <http://dx.doi.org/10.1186/1742-4755-6-3>.
- [40] Westoff C. Recent trends in abortion and contraception in 12 countries. Calverton, MD: Macro International Inc; 2005.
- [41] The International Bank for Reconstruction and Development. The World Bank Global Monitoring Report 2010: The MDGs after the crisis. Washington: The World Bank; 2010. See also http://www.un.org/millenniumgoals/pdf/MDG_FS_5_EN_new.pdf.