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CLINICAL ARTICLE

The severity of abortion complications in Malawi

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ABSTRACT

Objective: To assess the severity of abortion complications in Malawi and to determine associated risk factors. **Methods:** Between July 20 and September 13, 2009, a cross-sectional survey was conducted at 166 facilities providing postabortion care services. Data were collected for all women with an incomplete, inevitable, missed, complete, or septic abortion. Weighted percentages were calculated to obtain national estimates. **Results:** In total, 2067 women met the inclusion criteria. Estimates suggest that 80.9% of women who presented for postabortion care in Malawi in 2009 were married and 64.8% were from rural areas. One-quarter (27.4%) presented with severe or moderate morbidity. Sepsis (13.7%), retained products of conception (12.7%), and fever (12.3%) were the most common complications. The case fatality rate was 387 deaths per 100 000 postabortion care procedures. Women with severe or moderate complications were significantly more likely to be from rural areas than from urban areas; to have reported interfering with their pregnancy; and to be separated, divorced, or widowed than to be single. **Conclusion:** In 2009, many women seeking postabortion care in Malawi presented with complications. Advocacy is needed to influence policies that will allow expanded access to safe abortion services for women of all ages and in all areas.

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1. Introduction

Unsafe induced abortions are of major public health significance—in 2008, an estimated 21.6 million unsafe abortions took place worldwide [1]. Almost all unsafe abortions occur in low-income countries, where the incidence is 16 per 1000 women of reproductive age, with a ratio of 17 per 100 live births [1]. The global case fatality rate associated with unsafe abortion is high at 220 deaths per 100 000 unsafe abortions [1]. Indeed, unsafe abortions are one of the three major causes of maternal death globally, accounting for 47 000 deaths annually—13% of all maternal deaths [1].

A recent study [2] estimates that approximately 67 300 induced abortions occur annually in Malawi, with an induced abortion rate of 23 per 1000 women of reproductive age. Approximately 29 500 women receive care for induced and spontaneous abortions in health facilities each year [2]. However, in settings where access to safe abortion is restricted or not available, such as in Malawi, clandestine abortions are often stigmatized and women can delay or avoid seeking medical care for resulting complications [3–5]. A review [6] of nine Malawian hospitals found that abortion complications accounted for

7.0% of maternal deaths. Studies [7,8] conducted at the only referral hospital in southern Malawi found that abortion complications accounted for 68.7% of all gynecologic admissions in 1994 and were responsible for 23.5% of maternal deaths occurring during 1999–2000. A strategic assessment [9] of unsafe abortion in Malawi found that the most important factors contributing to unintended pregnancy and induced abortion included inaccessibility of safe abortion services particularly for poor and young women, and lack of adequate family planning, youth-friendly, and postabortion care services.

The present study was conducted to estimate the severity of abortion complications in Malawi and to determine associated risk factors.

2. Materials and methods

A prospective, cross-sectional survey was conducted between July 20 and September 13, 2009, among women seeking postabortion care in Malawi. A single-stage stratified sampling plan was used to select a nationally representative sample of health facilities that provided postabortion care. A list of all licensed, public non-governmental organization (NGO) hospitals, and private hospitals and clinics in Malawi was obtained from the Ministry of Health. Centers that provided postabortion care were identified. Public and NGO hospitals, health centers, and private hospitals were assigned a sample fraction of 1.0, whereas private clinics received a sample fraction of 0.33. Of the 269 selected

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facilities, 166 (61.7%) confirmed they were currently providing post-abortion care services. The main post-abortion care provider at each of the 166 facilities was invited to data collector training. A total of 161 (97.0%) facilities participated in the study, including 91 (56.5%) government facilities, 62 (38.5%) NGO facilities (Christian Health Association of Malawi or Banja la Mtsogolo), and 8 (5.0%) private facilities. Further sample details are available elsewhere [2].

All women presenting to a study facility with a diagnosis of incomplete, inevitable, missed, complete, or septic abortion during the 30-day study period were included in the present study. Women presenting to departments other than those where post-abortion care services were provided (e.g. intensive care units) were captured if they were diagnosed with an abortion-related complication. The study received ethics approval from the Malawi National Health Sciences Research Committee. Informed consent was not obtained because only de-identified clinical care data were collected.

Using a standardized data collection form, the post-abortion care providers gathered information about demographic and reproductive history, presenting symptoms, physical examination findings, and clinical management. Typically, the forms were completed immediately after providing care. The forms were identified by a case number only to maintain confidentiality.

To obtain an estimate for the total number of post-abortion care cases in 2009, the 30-day caseload data from each facility were multiplied by 12.2 and the resulting numbers were added together. The case fatality rate was calculated per 100 000 post-abortion care procedures.

The categories for the severity of abortion complications (Box 1) were adapted from previous studies [10–12]. The definition of sepsis was expanded, with sepsis defined either by a diagnosis of sepsis made by the post-abortion care provider or by the presence of abdominal or uterine tenderness, a pelvic abscess, pelvic or generalized peritonitis, uterine perforation, or gangrenous uterus or bowel. Women were categorized into the most severe category of abortion complications for which they displayed a sign or symptom, and required only one sign or symptom to be counted in that category. For example, a case with sepsis and localized peritonitis was categorized as severe.

The analyses were weighted to obtain national estimates for women treated at all health facilities that provide post-abortion care in Malawi. The χ^2 test was used to assess differences in the distribution of outcome variables between health facility types. Normally distributed continuous

variables were analyzed using the *t* test. Frequencies are reported as un-weighted counts and weighted proportions.

Bivariate associations were calculated, using an outcome of severe or moderate complications compared with no complications. $P < 0.05$ was considered statistically significant. Variables significantly associated with the outcome were further analyzed using multivariate logistic regression, and removed on the basis of backward elimination. The final model included variables determined to affect the outcome on the basis of a priori knowledge and variables that remained significantly associated with the outcome. The data were analyzed using Stata version 11 (StataCorp, College Station, TX, USA) and Excel version 7 (Microsoft, Redmond, WA, USA).

3. Results

Of the 2546 women presenting during the 30-day data collection period, 2067 (81.2%) met the inclusion criteria. Overall, 1811 (87.6%) had an incomplete abortion, 145 (7.0%) had an inevitable abortion, 89 (4.3%) had a complete abortion, 19 (0.9%) had a missed abortion, and 3 (0.1%) had a septic abortion. The number of women seeking post-abortion care at health facilities in Malawi annually was estimated at 26 634 (95% confidence interval [CI] 22 596–30 674).

Most of the women sought care in public facilities, with approximately half treated in public hospitals and one-tenth treated in public health centers; the other women were treated in hospitals and health centers run by NGOs or in private facilities (Table 1). Overall, the

Table 1
Sociodemographic and reproductive characteristics of women seeking post-abortion care (n = 2067).^{a,b}

Characteristic	No. (%) ^a
Age, y	
<18	251 (12.3)
18–24	871 (41.7)
25–29	478 (23.4)
30–34	270 (13.0)
35–51	149 (7.2)
Marital status	
Single	280 (13.8)
Married	1679 (80.9)
Cohabiting	38 (2.0)
Separated/widowed/divorced	60 (2.8)
Education	
None	256 (12.0)
Junior primary	1139 (54.1)
Secondary and higher	644 (32.5)
Place of residence	
Urban/semi-urban	673 (34.0)
Rural	1375 (64.8)
Number of previous pregnancies	
1	509 (24.6)
2	371 (18.1)
3	357 (17.8)
≥4	817 (38.8)
Reported previous spontaneous abortion	
Yes	416 (20.3)
No	1611 (77.8)
Estimated pregnancy duration, wk	
≤12	1339 (65.1)
>12	722 (34.7)
Reported they tried to end the index pregnancy	
Yes	171 (8.4)
No	1883 (91.6)
Type of health facility	
Government facility (primary)	248 (12.0)
Government facility (secondary and tertiary)	1119 (51.5)
NGO facility	667 (32.4)
Private for-profit facility	33 (4.1)

Abbreviation: NGO, non-governmental organization.

^a Absolute numbers are unweighted, whereas percentages are weighted to indicate care at all facilities providing post-abortion care in Malawi.

^b Some data are missing for most characteristics.

Box 1

Severity classification of abortion complications

Severe

- Body temperature >37.9 °C
- Organ or system failure
- Generalized peritonitis (inflammation throughout the entire peritoneum)
- Pulse > 119 beats/minute
- Evidence of foreign body or mechanical injury
- Sepsis
- Shock
- Tetanus
- Death

Moderate

- Body temperature 37.3 °C–37.9 °C
- Localized peritonitis (inflammation in a localized area of the peritoneum [e.g. through abscesses])
- Retained products of conception

Mild/no morbidity

- All other cases

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