

The Postabortion Caseload in Egyptian Hospitals: A Descriptive Study

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Context: Despite international calls to recognize unsafe abortion as a serious health problem in developing countries, very little quantitative information exists on national levels of abortion activity, major health-related sequelae of unsafe abortion or the quality of routine medical care provided to postabortion patients in countries where induced abortion is legally restricted.

Methods: Researchers used random sampling procedures to select 569 public-sector hospitals in Egypt, and asked designated medical staff to complete a medical abstract form for each postabortion patient admission during a continuous 30-day period. Data were analyzed to assess the state of postabortion care in Egypt, and using data from the 1995 Egypt Demographic and Health Survey and other sources, to estimate the rate of induced abortion in Egypt.

Results: Among the 22,656 admissions to the obstetrics and gynecology departments during the 30-day study period, approximately one of every five patients (19%) was a woman admitted for treatment of an induced or spontaneous abortion. Projections yielded an estimated induced abortion rate in Egypt of 14.8 per 100 pregnancies. The mean gestational age of the lost pregnancies was 10.8 weeks, and a large majority (86%) were lost at 12 weeks or less. Fourteen percent of the women arrived at the hospital suffering from excessive blood loss, 1% exhibited one or more signs of trauma and 5% had one or more signs of infection. Dilatation and curettage under general anesthesia was the principal surgical treatment provided.

Conclusions: Treatment for complications from unsafe abortion consumes substantial resources within the Egyptian health care system. Postabortion care could be improved if vacuum aspiration under local anesthesia were used as the primary postabortion treatment, and if adherence to antiseptic measures were increased.

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Unsafe abortion—defined as the termination of an unwanted pregnancy by a person lacking the necessary skills, in an environment lacking the minimal medical standards, or both¹—is an important global health problem, particularly in developing countries. In 1990, approximately 20 million women worldwide underwent unsafe abortions, resulting in an estimated 70,000 deaths—69,000 of them in developing countries.²

The 1994 International Conference on Population and Development addressed this issue in paragraph 8.25 of the Programme of Action, which was signed by every participating government. The statement noted that: "All Governments and relevant intergovernmental and non-governmental organizations are urged to strengthen their commitment to women's health, to deal with the health impact of unsafe abortion as a major public health concern and to reduce the recourse to abortion through expanded and improved family planning services.... In all cases, women should have access to quality services for the management of complications arising from abortion."³

The implementation of this paragraph is a major challenge for reproductive health professionals worldwide. A first step in this

process is simply to define the magnitude of the health care problems associated with abortion. Any analysis of abortion activity is confounded by a host of issues, including societal mores, religious beliefs, the availability of family planning methods and accuracy of abortion reporting. Nevertheless, one point is clear: In settings where access to abortion is restricted, many women resort to an unsafe practice to end an unwanted pregnancy, and in many cases they suffer complications that require emergency medical care.

Within the field of public health, abortion is traditionally investigated through two types of data: hospital-based data obtained from health care information systems, and survey data from population-based studies. Each of these sources suffers from substantial underreporting and errors in measurement, however.⁴ Health information systems in developing countries are often unreliable. Given the neglected state of abortion care, it is not surprising that providers do not complete a form for every incomplete abortion procedure, if they provide any documentation at all.

Using surveys to measure levels of abortion is equally complicated by underreporting, if not more so. A study com-

paring results from surveys conducted in the United States between 1976 and 1988 with abortion registration statistics for this period found that fewer than one-half of abortion procedures had been reported by survey respondents.⁵ Despite the use of indirect questioning techniques⁶ and other attempts to assure confidentiality through self-administered questionnaires,⁷ a degree of ambiguity and underreporting remains. Indirect estimation techniques based on survey data⁸ are commonly used in secondary analyses of national data sets, but they provide little information on the health consequences and mortality associated with abortion.

We report results from a descriptive study of women who presented at public-sector hospitals in Egypt for treatment of complications from incomplete abortion (spontaneous or induced). We undertook this study as part of a larger operations research program to improve postabortion care overseen by the Egyptian Ministry of Health and Population. Prior to this research, very little quantitative information was available that estimated national levels of abortion activity, identified the major

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health-related effects of unsafe abortion and revealed the quality of routine medical care provided to postabortion patients.

Background

Egypt's abortion policy is usually classified as "rather restrictive" on a worldwide scale, as it permits abortion only to preserve the health of the woman. Islamic theologians generally view the termination of a pregnancy to save a woman's life as acceptable, even beyond the 120 days that is frequently cited,⁹ although within the Muslim faith there are varying schools of thought concerning ensoulment of the fetus and abortion.¹⁰ Nevertheless, if an abortion is performed for reasons other than saving the woman's life, then both the woman and the provider are subject to legal and religious prosecution.¹¹ Even when pregnancy is terminated within the prescribed 120-day period and for health reasons, abortion is an extremely delicate and sensitive issue in Egypt.

Because of the restrictions placed on abortion, the availability of safe abortion services in Egypt is limited, particularly for poorer women. Many of the traditional means of self-induced abortion (or induced menstruation, for cases of unrecognized pregnancy) that have been reported in other countries also occur in Egypt. These include carrying heavy loads, ingesting medications and introducing foreign objects into the uterus.¹²

The incidence of abortion in Egypt is not well understood. Nearly 3% of women asked directly in the 1995 Egypt Demographic and Health Survey (DHS) whether they had ever had an induced abortion said they had, but an additional 25% of ever-married women reported that they had experienced a miscarriage in the past.¹³ About 16% of currently married women in Egypt have an unmet need for family planning (for spacing or limiting purposes), and 20% of the births during the five years preceding the 1995 Egypt DHS were declared as unwanted; an additional 11% were described as wanted but at a later date.¹⁴

The number of Egyptian women who come to hospitals and health centers with complications from incomplete abortion is not commonly reported in the Ministry of Health and Population's information system. Women treated for abortion (both spontaneous miscarriage and induced abortion) are frequently categorized as an "In-Patient, Obstetrics and Gynecology Admission," which in turn covers several other diagnostic categories. In addition, hospitals differ in the type and quality of

routinely collected statistics. Thus, a simple review of medical records is not always a feasible alternative for a hospital-based study, particularly in Egypt.

Methodology

Sampling

In Egypt, the definition of a hospital ranges from any health care facility that has a bed to tertiary care facilities that provide a range of the customary inpatient curative services.¹⁵ Among the latter are five different categories of hospitals that could have been included in this study. The largest group is the 538 Ministry of Health and Population hospitals (urban and rural) that comprise approximately two-thirds of all hospitals in Egypt, or about 60% of the country's hospital beds.¹⁶

In addition, the government's Health Insurance Organization operates 24 regional hospitals that provide curative services to formal-sector workers. A third group, the Curative Care Organization, is composed of six autonomous organizations—some of which were established in the 1964 nationalization of private hospitals—that provide tertiary care services on a not-for-profit basis. There are also 31 medical university hospitals in Egypt. In addition to these public-sector facilities, there are approximately 453 private hospitals in Egypt.¹⁷

We included a total of 569 hospitals in our sampling frame, including most of those administered by the Ministry of Health and Population and the university medical hospitals. The Curative Care Organization, the Health Insurance Organization and private-sector hospitals were excluded from the study due to administrative difficulties in obtaining authorization for data collection activities in those facilities. Exclusion of the private hospitals results in an underestimate of national postabortion caseload indicators, although the degree of underestimation is unknown.

We also excluded those specialty hospitals operated by the Ministry of Health and Population that do not commonly treat obstetric and gynecologic patients (such as pediatric, ophthalmology and fever hospitals). Because these facilities typically treat so few abortion cases, we did not anticipate any significant effect from their exclusion on our estimates. Counting all types of the country's hospitals, our sampling frame included about one-half—95% of government facilities and about 60% of all hospital beds.

A panel of experts reviewed the sampling frame to confirm its accuracy and completeness. Approximately 15% of the hospitals were randomly selected ($n=86$).

Using standard sampling procedures, the probability of selection was kept proportionate to the average number of beds in each hospital, the best available indicator of obstetric and gynecologic caseload. After reviewing the resulting sample, we replaced one geographically isolated hospital (using the same random sampling procedure), as difficulties posed by its remote location would have increased data collection costs.

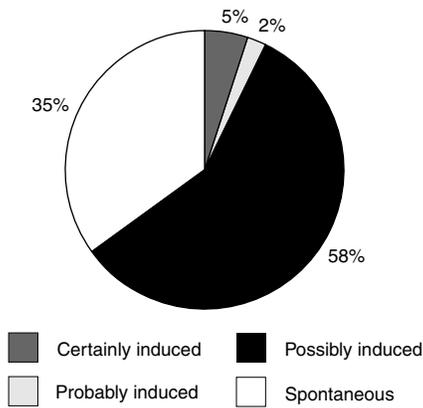
Data Collection Procedures

The study used two data collection forms that were filled out by the attending physicians or designated staff. Each of the obstetrics and gynecology departments recorded on a standardized tally sheet the daily total of all obstetric, gynecologic and postabortion patient admissions. A medical record abstract form was developed to collect information on postabortion patient characteristics, medical findings upon admission, surgical procedures, other treatments used during hospitalization and family planning history. The last indicator included information on the wantedness of the pregnancy that had just been lost and the woman's report of her contraceptive practice at the time of conception.

In each hospital, members of the obstetrics and gynecology department staff (three or more, depending on the size of the department) were requested to complete one form for each postabortion case admission during a continuous 30-day period. Each group was instructed to exclude women with threatened abortion who were later discharged or who delivered. For cases that were not personally treated by the staff responsible for the data collection, the medical record form was completed in consultation with the attending physician.

Information from the patient was taken after treatment and when the patient was capable of giving informed consent. The brief interview was conducted in private. The data collectors in each hospital took part in a one-day training program, conducted on-site in their hospital by one of the study's field supervisors, who had themselves been trained previously by the Egyptian Fertility Care Society and the Population Council staff. Data collection was closely monitored through frequent site visits by trained field supervisors, in an approximate ratio of one supervisor per every six hospitals. During each visit, the supervisor reviewed all forms for data quality and completeness, made cross-checks with hospital records to assess if all patients had medical record forms filled out and reviewed data collection

Figure 1. Percentage distribution of postabortion patients admitted to public-sector hospitals, by type of abortion, Egypt, 1996 (N=4,153)



Note: Abortion type was determined according to World Health Organization classification criteria.

procedures with all relevant hospital staff.

To classify abortion-related morbidity, we applied the protocol recommended by the World Health Organization (WHO).^{18*} Based on information from the patient and the physician's examination, abortions are classified into the following four categories:

- *Certainly induced*, when the woman herself reports inducing the abortion, or when there is evidence of trauma or of a foreign body in the genital tract;
- *Probably induced*, when sepsis or peritonitis is present and the woman indicates that the pregnancy was unplanned (i.e., she says she was using a contraceptive method or, if not, for reasons other than a desired pregnancy);
- *Possibly induced*, when only one of the two conditions for classifying a case as probably induced is present; and
- *Spontaneous*, when none of the conditions necessary for the three previously cited categories are present, or when the woman states that the pregnancy was planned and desired.

Results

Caseload Estimates

Among the 22,656 obstetric and gynecologic admissions during a continuous 30-day period, 60% were for obstetrics, 21% were for gynecology and 19% were for treatment of an abortion (miscarriage and induced abortions combined, including inevitable, incomplete, missed and complete abortions). These findings indicate a ratio of approximately 31 postabortion patients to every 100 obstetric patients in public-sector hospitals during a 30-day period.

Only 5% of the postabortion cases could be classified as certainly induced, and more

than one-third (35%) were classified as spontaneous abortions (Figure 1). The majority, however, were labeled either as possibly induced (58%) or as probably induced (2%).

There was a significant difference ($p < .001$) in the mean age of patients across the four categories. The mean age was 30.4 years among patients whose abortions were classified as certainly induced, 29.3 among those classified as probably induced, 28.2 among those classified as possibly induced and 25.7 among those classified as spontaneous. Patients whose abortions were classified as certainly induced were older than patients in other categories, while patients whose abortions were classified as spontaneous were younger—even though the biological risk of miscarriage is known to increase with age.

The postabortion patients in this study reported a total of 31,375 previous pregnancies and 2,492 previous abortions (both spontaneous and induced). Hence, we derived an abortion ratio of 7.95 abortions of all types per 100 pregnancies for this hospitalized population. In order to generalize this ratio to the entire population, we multiplied the number of abortions by a factor of 6.6667, in order to increase the 15% sample up to the level of all public-sector hospitals included in the sampling frame.

In this way, we produced monthly and annual estimates of the total number of abortions treated in all Egyptian public-sector hospitals. We assumed that for every two postabortion cases, there is one woman who has a complete abortion without seeking hospital care; thus, we used a multiplier of 0.5 to represent the number of abortions that do not lead to medical treatment in hospitals.[†] We reduced the resulting amount by 35% to remove the proportion of cases estimated to be spontaneous abortions in our earlier application of the WHO classification scheme. We then divided this figure by the total number of births (1.74 million),¹⁹ estimated abortions and miscarriages in Egypt in 1994. This procedure yielded an estimated ratio of 14.8 induced abortions (including abortions classified as probably or possibly induced) per 100 pregnancies, a rate comparable to that in North Africa and Southern Africa (Table 1).

Patient Characteristics

We examined whether postabortion patients differed from women of reproductive age in general. The medical record form included a limited range of social and demographic indicators, which we compared to the characteristics of women from the 1995 Egypt DHS (Table 2, page 28).

Overall, the mean age of abortion patients

Table 1. Estimated number of induced abortions and estimated rate of induced abortions per 100 recognized pregnancies, by country or region

Country or region	No.	Rate
Egypt*	323,950	14.8
Turkey	531,400	26.0
Tunisia	23,300	9.8
North Africa	550,000	11.4
Southern Africa	240,000	16.3
Middle Africa	190,000	5.1
Africa overall	3,820,000	12.9

*Induced abortion estimates and rates include abortions classified as certainly induced, as well as those deemed probably or possibly induced. Note: Recognized pregnancies were defined as legal abortions and live births. Sources: **Turkey and Tunisia**—World Health Organization (WHO), *Spontaneous and Induced Abortion, Report of a WHO Scientific Group*, Geneva: WHO, 1970, pp. 6–7. **North Africa, Southern Africa, Middle Africa and Africa overall**—Singh S and Henshaw S, 1996 (see reference 4); and Coeytaux FM, 1989 (see reference 4).

(27.4 years) was younger than that of the general population of women of reproductive age. According to the 1995 Egypt DHS, slightly more than one-third of the general population was younger than 30, compared with almost two-thirds of the postabortion patients. The abortion patients' education level was also lower than that of women of reproductive age in the larger population: Approximately 61% of postabortion patients had had no formal schooling, compared with 43% of the 1995 DHS sample. Corresponding to their younger mean age, the postabortion patients also were of lower parity than the general population of reproductive-age Egyptian women. For example, 16% of the postabortion patients had never had children, in contrast to 9% of women in the DHS sample.

Other data for the postabortion patients indicate that for some of these women, it was not their first treatment for an in-

*Although this classification has been used repeatedly since its promulgation, some researchers have expressed dissatisfaction with its ambiguity and weak validity. Recently, promising alternative systems have begun to emerge—Source: Jewkes RK et al., *Methodological issues in the South African incomplete abortion study, Studies in Family Planning*, 1997, 28(3): 228–234. Nevertheless, because the WHO classification scheme is the currently accepted standard, we used it despite its limitations.

†The multiplier selected here is admittedly low, and arbitrarily so. (In Latin America, for example, a multiplier of 3–7 has been recommended—Source: Singh S and Henshaw S, 1996, reference 4.) Because of very strong religious and cultural traditions against abortion in Egypt, the incidence of willfully inducing abortion of a recognized pregnancy is judged to be relatively low. In addition, the few anthropological studies of abortion practices in Egypt that have been published indicate that among women seeking to avoid carrying an unwanted pregnancy to term, menstrual regulation (medical interventions to induce bleeding, including the insertion of an IUD) is the method most frequently used. A critically important distinction is made between deliberately inducing an abortion of a recognized pregnancy and inducing an abortion of an unrecognized pregnancy through an act akin to menstrual regulation.

Table 2. Percentage distribution of women of reproductive age surveyed in the 1995 Egypt DHS and of postabortion patients in 1996, by selected characteristics

Characteristic	DHS respondents (1995)	Postabortion patients (1996)
Age		
15–19	4.8	8.5
20–24	15.2	26.3
25–29	19.5	26.9
30–34	18.0	18.8
35–39	17.4	13.7
40–44	13.2	4.7
≥45	11.9	1.1
Formal education		
None	42.6	61.3
Primary	19.6	23.9
Secondary	13.2	12.8
>secondary	24.7	2.0
Parity*		
0	9.4	16.1
1–2	28.5	37.9
3–5	39.3	36.1
≥6	22.8	9.9

*Estimates from 1995 Egypt DHS were based on currently married women only.

complete abortion. Approximately 37% of the 4,151 postabortion patients reported a previous miscarriage (a mean of 1.6 previous miscarriages, ranging from one to 11, $N=1,523$). Very few patients reported having previously induced an abortion: About 2% said they had an induced abortion prior to the pregnancy they had just lost. The 70 women who reported a previous induced abortion gave a mean of 1.07 previous induced abortions (with a range of range 1–3), indicating that some women had had repeat abortions. Overall, only 4% of patients stated that the abortion for which they had just received treatment had been induced intentionally.

Accessibility of Medical Treatment

Approximately 56% of the women reported having traveled more than 5 km to the hospital where they received medical treat-

*The duration of women's hospital stays is affected by hospital policy regarding discharge, as well as by factors associated with medical treatment and the patient's condition. Therefore, caution should be exercised in interpreting this portion of our findings.

†Two difficulties are associated with calculating gestational age of incomplete abortions. The first is that in such cases some of the products of conception have been lost, resulting in a smaller uterine size and therefore increasing the likelihood that the gestational age will be underestimated. The second difficulty concerns the definition of abortion in use by the country's governmental authority: While the WHO recommends 28 weeks as the upper gestational limit in defining abortion (Source: WHO, *Spontaneous and Induced Abortion, Report of a WHO Scientific Group*, Geneva: WHO, 1970, pp. 6–7), Egypt has no officially endorsed definition of abortion. This point is relatively unimportant in the classification of postabortion patients, however, as only about 3% of pregnancies lost had a gestational age of 20–27 weeks.

ment for the incomplete abortion. Overall, more than two-thirds of the patients (69%) indicated that they had referred themselves to the hospital, 19% had been referred by a private health care provider, 9% by a public health care facility and 3% by a *daya* (a traditional midwife).

Family Planning History

Approximately 47% of the patients reported having used a contraceptive method in the past, lower than the 68% of ever-married women and 70% of currently married women in the 1995 Egypt DHS who had ever done so.²⁰ Slightly less than one-fifth (17%) of the patients reported practicing contraception at the time they became pregnant. This elevated contraceptive failure rate could be an indication of using a contraceptive when a pregnancy was feared but unconfirmed. In addition, there was an obvious bias in some of the responses of postabortion patients against making statements that could indicate that the abortion was induced, due to the legal and social restrictions on abortion in Egypt. Thus, while only 38% of the patients stated that the pregnancy they had just lost was planned, about 56% reported that although the pregnancy had not been planned, it was wanted, apparently to emphasize that no actions had been taken to terminate it.

Forty-two percent of the women said they planned to begin using a contraceptive method soon after their discharge from the hospital (i.e., the near future). This proportion was slightly lower than that indicated by the 1995 Egypt DHS, in which 58% of currently married nonusers said they intended to use a family planning method sometime in the future.²¹ Among those who indicated that they intended to use a contraceptive method, almost one-half (48%) were provided with a method prior to their discharge. Overall, slightly less than one-quarter (23%) of the women were provided with a method before they left the hospital.

Medical Findings upon Admission

Overall, the mean duration of the women's hospital stay was 16.7 hours, ranging from one hour to 248 hours (about 10 days). This was substantially shorter than the nationwide mean of 4.8 days for all hospitalizations, as reported by the Ministry of Health and Population.²² Despite the considerable range, there was little variation around the mean: The 95% confidence interval bracketing the mean ranged from 15.9 hours to 16.8 hours.*

The mean gestational age of the preg-

nancies lost by the patients in the study was 10.8 weeks, ranging from two weeks to 28 weeks. (However, the assessment of gestational age among patients with an incomplete abortion is known to be problematic.[†]) The 95% confidence interval revealed little variation around the mean, as it ranged from 10.7 to 10.9 weeks, and a large majority of the lost pregnancies (86%) had a gestational age of 12 weeks or less.

More than three-quarters of the women were diagnosed as having an inevitable or an incomplete abortion: 44% an inevitable abortion (bleeding and a dilated cervix) and 37% an incomplete abortion (bleeding, dilated cervix and a partial expulsion of the products of conception). Approximately 14% had a missed abortion (fetal demise with delayed expulsion in addition to other signs), and 5% had a complete abortion (total expulsion of the products of conception before the 20th completed week of gestation). Complete abortions were at an average gestational age of 9.9 weeks, missed abortions were at 13.9 weeks, incomplete abortions at 10.4 weeks and inevitable abortions at about 10.9 weeks ($p<.001$).

Although 86% of the patients exhibited mild to moderate bleeding upon admission, the remaining 14% presented with excessive blood loss. Patients with severe hemorrhaging were about 1.3 times as likely to have traveled more than 5 km to the hospital as were patients who were admitted with mild to moderate hemorrhaging (odds ratio confidence interval, 1.0–1.5). As a consequence of their deteriorated condition, patients with extreme blood loss upon admission had a significantly ($p<.005$) longer hospital stay (16.6 hours) than did patients with mild to moderate hemorrhaging (14.7 hours).

The medical record form included indicators of three signs of trauma: vaginal tears, cervical tears and uterine perforation. About 1% of patients were diagnosed with one or more of these signs. In addition, 5% of postabortion patients had one or more signs of infection: fever, foul discharge, salpingitis or peritonitis.

Among patients who presented with severe complications such as excessive blood loss (14%), trauma (1%) and infection (5%), the seriousness of their condition was aggravated by the increased likelihood that they experienced more than one complication. Patients with severe hemorrhaging were also more likely to be in shock (35%) or to show one or more signs of trauma (less than 3%) than were patients with mild or moderate hemorrhaging (each less than 1%).

Surgical Procedures

Almost all of the postabortion patients (98%) underwent a surgical procedure, nearly always dilation and curettage. Compared with the traditional sharp curettage, vacuum aspiration carries less risk of pelvic infection, cervical injury, uterine perforation and blood loss.²³ Although the use of dilation and curettage for first-trimester abortions has been replaced by vacuum aspiration in most industrialized countries, the method is still relatively unknown in developing countries, as this finding indicates. Only 3% of the surgical procedures were performed using vacuum aspiration. Of these, almost three-quarters (72%) were at Menia University Hospital, one site of the pilot project that introduced the technique in Egypt in 1994.²⁴

Pain control is another important dimension of quality postabortion health care services.²⁵ Although the type of medication and its timing are critical aspects of effective case management, very little variation in anesthetics was observed in postabortion care: Eighty-nine percent of the patients received general anesthesia, 3% a local anesthetic and 8% no anesthetics. The prevailing surgical practice for treating incomplete abortions in Egypt therefore appears to be dilation and curettage under general anesthesia. Compared with vacuum aspiration with a local anesthetic, this practice carries a 2–4-fold increased risk of mortality²⁶ and is associated with higher costs.²⁷

Of the cases in which the women received a local anesthetic, approximately 92% were in university hospitals—90% of which were at Menia University Hospital, with the remaining 2% at other hospitals (all types combined). Patients who received no anesthesia (8%), on the other hand, were more likely to have been treated in district (54%) or general hospitals (29%), settings in which medication is frequently in short supply and where anesthesiologists are often unavailable.

Medications

Preoperative and postoperative sedation or analgesics are customary elements in clinical protocols²⁸ and have been shown in previous research in Egypt to have a positive effect on the reduction of patient pain.²⁹ Yet we found that less than one-half of the patients (44%) had received these medications, either alone (33%) or in combination (11%). Among the relatively few patients who received a local anesthesia, almost all (96%) also received a preoperative or postoperative sedative or analgesic, or both. Antibiotics are widely used

in the treatment of incomplete abortions in Egypt: Only 10% of patients received no antibiotics prior to discharge.

We also collected information on three other types of medications administered to patients: oxytocin, intravenous fluids and blood transfusions. Approximately one-half of patients received oxytocin (56%). These patients' pregnancies had a significantly ($p < .001$) higher mean gestational age (11.8 weeks) than those of patients who did not (10.3 weeks). The frequent use of oxytocin may not be a well-reasoned clinical decision: Since the large majority of the abortions occurred in the early stages of pregnancy, when receptors to oxytocin are not usually developed, the use of oxytocin to control bleeding after treatment is not indicated for most cases.

More than one-half of patients received intravenous fluids (58%), and these were more likely to have been treated at either a university (39%) or a district hospital (38%). Of the 216 patients who were admitted with signs of shock, almost all (92%) were appropriately treated with intravenous fluids. The average duration of stay was significantly ($p < .001$) less for patients who received intravenous fluids (15.7 hours) than for patients who did not receive any fluids (17.3 hours), suggesting the beneficial effect of providing fluids on patient recovery.

Patients received blood transfusions infrequently (7%); about half of these were in university hospitals. Patients who received transfusions were significantly more likely ($p < .001$) to have had severe hemorrhaging, and approximately 30% had extreme blood loss.

Patient Outcome

The medical record form included a single measure of patient status upon discharge: alive or dead. A total of 18 out of the 4,153 patients in this study died during hospitalization for postabortion treatment (Table 3). We therefore observed a case fatality rate of 0.43 deaths per 100 abortion-related admissions during the one-month study period, a figure comparable to the expected case fatality rate of 0.4 per 100 unsafe abortions cited by the WHO for settings in which abortion is legally restricted.³⁰

While these fatalities occurred in a total of 11 hospitals, approximately 56% of them occurred in three hospitals. In one of these three hospitals, the case fatality rate during the 30 days was approximately 23 deaths per 100 admissions, a rate so elevated that it drew government attention for follow-up investigations. Our

Table 3. In hospitals where postabortion deaths occurred, number of women admitted for postabortion care and of postabortion deaths during a 30-day period, and percent-age of postabortion admissions ending in death, by region and type of hospital

Region and hospital type	No. admitted	No. of deaths	Deaths per 100 admissions
Total	477	18	na
Frontier			
General hospital	22	5	22.7
Upper Egypt			
District hospital	26	1	3.8
General hospital	34	2	5.8
General hospital	54	1	1.8
Lower Egypt			
District hospital	9	1	11.1
District hospital	14	1	7.4
District hospital	34	1	2.9
District hospital	42	1	2.3
General hospital	115	3	2.6
Teaching hospital	51	1	1.9
University hospital	76	1	1.3

Note: na=not applicable.

study did not collect information on the cause of death, but we observed that complications had been more severe among the deceased: Almost one-third (33%) of the fatalities were admitted with severe hemorrhaging, 17% with signs of trauma and 17% with signs of shock. The gestational age of the lost pregnancy was 9.5 weeks among the women who died, compared with a marginally significant greater gestational age of 10.8 weeks among surviving patients ($p < .09$).

Discussion

Including both induced abortions and spontaneous miscarriages, we found a ratio of 31 abortion-related admissions per 100 obstetric cases. Our estimate of 14.8 induced abortions per 100 pregnancies suggests a level of abortion activity that is comparable to other estimates from the North African region. These ratios indicate that Egypt is expending substantial resources for the emergency medical treatment of postabortion injury—injuries that could be prevented through the provision of family planning to avoid unwanted and unplanned pregnancies. They also illustrate the negative effects that Egyptian legal restrictions on abortion have on women's reproductive health.

Since the abortion-related admissions include cases of incomplete miscarriage, we also provide information on the care of women who have difficulties in achieving successful delivery of wanted births. The incidence of miscarriage, as classified by the WHO protocol, is higher among

younger women, a finding that runs counter to the previously established positive association between age and miscarriage. Although this finding may result in part from imperfections in the WHO classification scheme, it nevertheless suggests the need to investigate further what may be an elevated miscarriage rate among younger Egyptian women.

In addition, the special needs of these women should be considered in the discussion of improvements in the treatment of hospitalized abortion cases. Referral services are available in Egypt for the diagnosis and treatment of repeated miscarriages, and efforts should be made to upgrade the technical skills of obstetrician-gynecologists in this area. One possible focus of such efforts could be on the development and promotion of screening and referral guidelines for cases of repeat miscarriage.

Our findings on the low rate at which postabortion patients adopt a family planning method prior to discharge are particularly important, as they reveal that a sizable segment of the population remains underserved by Egypt's well-developed family planning program. Linkages between hospitals' inpatient obstetrics and gynecology departments and the outpatient family planning services were not strong enough to permit routine referrals for most patients, although a sizable proportion of patients reported a desire to use a contraceptive method.

These administrative barriers, as well as the lack of interest among some members of the obstetrics and gynecology profession in ensuring that women are advised of their contraceptive options, are a legacy of the categorical funding for population programs, which have historically developed family planning services in a nonintegrated, vertical manner. While creating linkages through in-house referral and provision of contraceptives within the obstetrics and gynecology wards requires dynamic leadership, it is an attainable aspect of quality reproductive health care services.³¹

It is remarkable that the type and severity of the patients' symptoms in this study were largely benign. To date, there have been no large-scale population-based studies of abortion practices in Egypt to which we could compare our results. However, these findings do corroborate anecdotal evidence and anthropological studies that found that acts of self-induced abortion in Egypt do not commonly involve dangerous mechanical instruments, and that most appear to be closer to menstrual regulation practices. More research

is needed on the types of abortion practiced in Egypt, however.

Women appear to seek health care promptly after attempting such acts, as the majority of patients presented with only mild to moderate hemorrhaging. We also found that more than two-thirds of the women had referred themselves to the hospital at which they were being treated, and that more than half had traveled over 5 km for treatment. The magnitude of the proportion who were self-referred strongly suggests that women with abortion complications do not go through the primary health care system for a preliminary diagnosis. In addition, some women may travel a greater distance than necessary in order to obtain better quality of care.

The widespread use of sharp curettage and general anesthesia in the treatment of incomplete abortion in Egypt suggests that improvements in the quality of care are needed. The sustained use of vacuum aspiration and local anesthetics at the site of a 1994 pilot program indicate that changes in case management procedures are feasible.

We observed widespread use of antibiotics in the treatment of incomplete abortions in Egypt. The substandard aseptic procedures in most public-sector hospitals contribute to this overreliance on antibiotics. While clinical protocols to safeguard against hospital-acquired infections exist in Egypt, they are not rigorously observed. The lack of basic supplies, such as disinfectant solutions, is often cited as a reason for lax aseptic procedures, yet the supply systems for the governmental hospitals work mostly on a "pull" system: If enough disinfectants are not ordered by a facility, then supplies will run out (i.e., quotas are not commonly given, and only ordered supplies are distributed, in order to avoid oversupply and wastage of materials and medications). Enforcement of aseptic procedures deserves increased effort, particularly as worldwide attention is drawn to the emergence of resistant strains of bacterial infections.

The study described here was undertaken as part of a larger program to address the policy and health care issues that affect medical services for postabortion patients in Egypt. In keeping with our focus on abortion within the public health domain (as opposed to addressing its legal, religious or human rights dimensions), we studied postabortion patients within the medical system.

Defining the magnitude of a health care problem is a first step in determining how resources should be allocated to combat the

problem. This research demonstrates that hospital-based studies can provide a practical alternative to community-based research. We hope that this article will stimulate research on this topic in other settings, to nurture the development of comprehensive reproductive health care services identified in the Cairo Programme of Action.

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Resumen

Contexto: A pesar de los llamados de la comunidad internacional para reconocer que el aborto no seguro es un serio problema que afecta los países en desarrollo, existe muy poca información cuantitativa, a nivel nacional, sobre

las actividades del aborto clandestino y de sus secuelas de la salud o sobre la calidad de la atención médica regular postaborto en los países donde la actividad está legalmente prohibida.

Métodos: Se utilizaron procedimientos de muestras aleatorias para seleccionar 569 hospitales del sector público en Egipto, y solicitaron al personal médico designado que llenaran un formulario médico correspondiente a cada paciente de aborto que fuera admitida al hospital durante un período continuo de 30 días. Se analizaron los datos para evaluar la calidad de la atención postaborto en Egipto y mediante el uso de datos de la Encuesta Demográfica y de Salud de Egipto de 1995 y otras fuentes, se estimó la tasa de aborto inducido para el país.

Resultados: Entre las 22.656 pacientes admitidas a los departamentos de obstetricia y ginecología durante los 30 días que duró el estudio, aproximadamente una de cada cinco (19%) recibió tratamiento por un aborto inducido o espontáneo. Las proyecciones indicaron una tasa de aborto inducido en Egipto de 14,8 por cada 100 embarazos. La edad de gestación media de los embarazos perdidos fue de 10,8 semanas y una gran mayoría (86%) se perdieron a las 12 semanas o antes. El 14% de las mujeres llegaron al hospital con casos de hemorragias excesivas, el 1% presentó uno o más signos de trauma y el 5% presentaba uno o más síntomas de infección. El principal tratamiento suministrado consistió en dilatación y legrado bajo anestesia general.

Conclusiones: La atención médica para casos de abortos inducidos no seguros consume importantes recursos del sector de salud de Egipto. Se podría mejorar la atención postaborto si se utiliza como tratamiento principal el sistema de succión con anestesia local y si se mejoran el control del dolor y el uso de medidas antisépticas adecuadas.

Résumé

Contexte: En dépit des appels internationaux lancés pour faire reconnaître l'avortement à risques parmi les problèmes de santé graves des pays en voie de développement, il existe peu d'informations quantitatives faisant état des niveaux nationaux de la pratique de l'avorte-

ment, des séquelles principales de l'avortement à risques sur la santé ou de la qualité des soins médicaux ordinairement assurés aux patientes ayant subi un avortement dans les pays où l'interruption volontaire de grossesse fait l'objet de restrictions légales.

Méthodes: Les chercheurs ont procédé, par échantillonnage aléatoire, à la sélection de 569 hôpitaux égyptiens du secteur public et invité un personnel médical désigné à compléter un formulaire d'analyse médicale pour chaque admission de patiente post-abortum pendant une période continue de 30 jours. Les données ont été analysées à des fins d'évaluation de l'état des soins du post-abortum en Egypte et, avec l'aide des données de l'Enquête démographique et de santé égyptienne de 1995, entre autres sources, pour estimer le taux de l'avortement provoqué en Egypte.

Résultats: Des 22.656 admissions enregistrées aux services d'obstétrique et de gynécologie durant les 30 jours de l'étude, près de une patiente sur cinq (19%) était une femme admise pour le traitement d'un avortement provoqué ou spontané. Selon les projections, l'avortement provoqué représenterait, en Egypte, un taux estimé de 14,8 I.V.G. par centaine de grossesses. L'âge gestationnel moyen au moment de l'interruption de la grossesse était de 10,8 semaines, avec une grande majorité (86%) des interruptions survenant avant la fin de la douzième semaine. Des femmes admises, 14% étaient arrivées à l'hôpital pour cause de pertes de sang excessives, 1% présentait au moins un signe de trauma, et 5%, au moins un signe d'infection. Le traitement chirurgical fourni avait été, principalement, le curetage de l'utérus après dilatation du col utérin sous anesthésie totale.

Conclusion: Le traitement des complications résultant de la pratique d'avortements à risques consomme une partie importante des ressources du système de soins de santé de l'Egypte. Les soins du post-abortum pourraient être améliorés si l'aspiration par ventouse obstétricale sous anesthésie locale était pratiquée comme traitement principal du post-abortum et si la pratique de mesures antiséptiques étaient améliorées.