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## CLINICAL ARTICLE

## Epidemiologic profile of women presenting to the National Hospital of Niamey, Niger for vaginal fistula repair

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## ABSTRACT

**Objective:** To describe the epidemiologic profile of women with vaginal fistulas presenting to the surgical mission trips of the International Organization for Women and Development (IOWD) at the National Hospital of Niamey, Niger. **Methods:** In a cross-sectional retrospective study, data were assessed from a database of women who attended the IOWD at the National Hospital of Niamey, Niger, from October 2003 to April 2009. The database was compiled from the history and physical examination forms for each patient visit. **Results:** During the study period, there were 1323 data entries and 896 initial patient visits. Overall, 580 women presented with obstetric fistulas. The median age was 29 years; the mean age at marriage was 16 years; 73.7% were married. The median age at first delivery was 18 years; the mean number of past full-term pregnancies was 3; the mean parity was 4. Vaginal (66.3%) or cesarean (27.7%) delivery was a common predisposing factor for developing an obstetric fistula. Overall, 97.4% of women labored for 24 hours or more; 75.4% delivered in hospital; 82.9% had a stillbirth. **Conclusion:** Women presenting to the IOWD for fistula repair have specific epidemiologic characteristics. Better understanding of these characteristics might help to formulate future public health programs for fistula prevention.

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## 1. Introduction

Each year in Sub-Saharan Africa, it is estimated that over 33 000 women develop vaginal fistulas and subsequently urinary and/or fecal incontinence [1]. This crippling medical complication is usually the result of soft tissue ischemia of the birth canal secondary to obstructed labor. Obstetric fistulas are particularly prevalent in parts of the world where emergency obstetric care is limited, nutrition is poor, and there is an early age of marriage [2]. The physical trauma is often accompanied by social trauma: many women are divorced or abandoned because of their subsequent incontinence [3,4]. Both pregnancy before full development of the pelvis and lack of obstetric care place a woman at significant risk for developing an obstetric fistula [2,4]. In addition, pervasive poverty and malnourishment compound this risk. Thus, obstetric fistulas are demonstrative of gender inequalities, lack of education and resources, and deficient medical care.

Public health programs have long been focused on lowering maternal mortality rates; however, decreasing the incidence of obstetric

fistulas is crucial to preserving the physical and social well-being of the mother. Examining the epidemiologic profiles of women with obstetric fistulas in specific regions will facilitate improvements in the design of prevention programs.

Several studies have described the demographic and clinical characteristics of women with obstetric fistulas throughout Sub-Saharan Africa. In particular, Nafiou et al. [5] previously described the epidemiologic profile of a few women with obstetric fistulas who presented to the National Hospital of Niamey, Niger, for surgical repair by the International Organization for Women and Development (IOWD) between 2003 and 2005 [5]. The IOWD is a nonprofit organization whose primary goal in Niger was to develop a sustainable fistula repair program at the National Hospital of Niamey.

The aim of the present study was to update the original study of Nafiou et al. [5] with an additional 4 years of data from women presenting with obstetric fistulas to the IOWD at the National Hospital of Niamey, Niger, in order to generate a more robust understanding of the demographic and clinical characteristics of these women.

## 2. Materials and methods

In a descriptive cross-sectional retrospective study, data from women presenting with obstetric fistulas were retrieved from the IOWD database, which contains the demographic, medical, and surgical

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history of all women evaluated by the IOWD at the National Hospital of Niamey, Niger, between October 1, 2003, and April 30, 2009. Study approval was obtained from the Institutional Review Board of the Women & Infants Hospital of Rhode Island, Providence, RI, USA. Authorization to use the database was provided by the IOWD and the Nigerian Ministry of Health. Informed consent was not needed for the study.

The IOWD brought volunteer surgeons to do fistula repairs and to teach Nigerian healthcare workers preoperative evaluation, surgical technique, and postoperative care of fistula patients. In the weeks before each trip, radio announcements were made to inform the population of the impending visit of physicians to provide free healthcare to “women leaking urine or feces.” The IOWD discontinued their program in Niger in 2009 due to political unrest in the country.

The database was compiled from standardized, coded, history and physical examination forms completed for each patient on presentation. Patient information was gathered and recorded in English from patient self-report via interpreters (Nigerian healthcare providers and American Peace Corps volunteers). Physical examinations were performed by IOWD surgeons and were recorded in English. Data were entered into the database by a research assistant without using a system to stage the fistulas.

For the present study the database was analyzed for initial patient presentations only. If multiple entries were completed for the same patient during a 2-week mission, these data were combined into one entry. Children aged 12 years or younger (the average age of menses) were analyzed separately. Adult female patients were subdivided according to whether they had 1 or more fistulas, had no fistulas, or had an unidentifiable cause for presentation. Data entries from the following fields were also used to subdivide the adult female patients: history, physical examination, medical history, number of fistulas, and plan. If a patient's data did not definitively indicate the presence or absence of fistulas, the patient was sorted into “unidentifiable cause for presentation.” Lastly, those patients who presented with “0” fistulas were categorized on the basis of their final diagnoses, as extrapolated from the “medical history” and “plan” data fields.

Descriptive statistics were used to examine information such as age, gravidity, parity, and marital status. Details of the fistula (symptoms, type, and history) were also analyzed. Where appropriate, the number of positive responses was presented as a percentage of the total number of responses for that particular data field; note that responses were not recorded from every patient for every data field.

### 3. Results

Between 2003 and 2009, the IOWD completed 22 surgical missions, all approximately 2 weeks in duration. During this time, 1323 patient visits were recorded in the IOWD database, and 896 entries were initial patient presentations.

Eleven children (aged 1–12 years) presented to the IOWD surgeons. Seven of these children complained of urine and/or fecal leakage. Other presenting complaints were a malformed vagina, painful menstruations, both male and female genitalia at birth, no anus, anal tear, abdominal pain, and an abdominal mass. Plans were recorded for six of these patients, four of which necessitated surgical procedures.

Overall, 238 women presented to the IOWD without a fistula. The causes for presentation are listed in Table 1. Among those without a fistula, 47.5% (48/101) reported speaking Zarma and 32.7% (33/101) spoke Hausa. The median age at presentation was 28 years, and the age range spanned 65 years. Overall, 79.3% (149/188) were identified as “married;” 9.0% (12/134) were nulliparous, 27.6% (37/134) were primiparous, and 63.4% (85/134) were multiparous. The presenting complaint began after vaginal delivery for 61.2% (60/98) women, and after cesarean delivery for 19.4% (19/98) women. In total, 64.0% (80/125) of the women labored for 48 hours or more, and 70.1% (94/134) had their most recent delivery in a hospital. Only 11 women reported prior fistula repair.

**Table 1**

Leading diagnoses of women presenting to IOWD surgeons without a fistula.

| Diagnosis                                     | Number of patients (n = 238) |
|-----------------------------------------------|------------------------------|
| Stress urinary incontinence                   | 75                           |
| Urge incontinence                             | 57                           |
| Undetermined/unspecified urinary incontinence | 24                           |
| Prolapse                                      | 20                           |
| Infection                                     | 9                            |
| Overflow incontinence                         | 7                            |
| Rectal incontinence                           | 5                            |
| Gastrointestinal complaint/pain               | 4                            |
| Pain                                          | 4                            |
| Other <sup>a</sup>                            | 33                           |

Abbreviation: IOWD, International Organization for Women and Development.

<sup>a</sup> Included abdominal hernia, amenorrhea, bladder stone, burning with urination, cancer, constipation, female genital mutilation, fibroids, functional stool loss, hematuria, neurologic problem, no vagina, polycystic ovary syndrome, pelvic inflammatory disease, rectal mass, rectocele, remaining suture, urinary retention, small vagina, vaginal dilation, vaginal tear, or unspecified.

Over the study period, 580 women were identified with 1 or more fistulas. Of these, 40.9% (101/247) reported speaking Zarma, and 33.2% (82/247) spoke Hausa; 1.8% (6/331) were nulliparous, 37.8% (125/331) were primiparous, and 60.4% (200/331) were multiparous with 40.2% (133/331) having a parity of 4 or higher; 38.8% (107/276) had at least one prior cesarean delivery, and the mean number of vaginal deliveries was 3 (range, 0–15). Other demographic characteristics are listed in Table 2.

The characteristics of the labor during which the fistula developed are listed in Table 3. The mean length of labor was 59 hours. In terms of presenting complaints, 70.0% (247/353) of these women reported continuous urine leakage, 6.4% (20/313) reported leakage of solid feces, and 7.4% (23/311) reported leakage of liquid feces. Other presenting complaints were intermittent urine or gas leakage. In total, 34.2% (69/202) reported having prior fistula surgery. On physical examination, all of these women had at least 1 fistula; and 5.9% (16/271) had a rectovaginal fistula. Thirty-one women presented with a distal fistula of the urethrovaginal continence mechanism requiring advanced surgical repair.

For 67 women, it was not possible to identify whether they had, or did not have, a fistula.

### 4. Discussion

The present assessment of a robust dataset of women who presented to the National Hospital of Niamey, Niger, for vaginal fistula repair over several years has generated a more complete profile of women

**Table 2**

Demographic characteristics of patients with 1 or more fistulas presenting to the National Hospital of Niamey, Niger in 2003–2009.

| Characteristic                                   | Value <sup>a</sup> |
|--------------------------------------------------|--------------------|
| Age at presentation, y                           | 29 (13–70)         |
| Age at marriage, y                               | 16 (6–35)          |
| Age at first delivery, y                         | 18 (10–32)         |
| Number of full-term pregnancies                  | 3 (0–16)           |
| Parity                                           | 4 (0–16)           |
| Living children                                  | 2 (0–8)            |
| Marital status (n = 505)                         |                    |
| Married                                          | 372 (73.7)         |
| Divorced                                         | 75 (14.9)          |
| Menstruating (n = 303)                           | 147 (48.5)         |
| Sexually active (288)                            | 80 (27.8)          |
| Female genital mutilation (n = 634) <sup>b</sup> | 22 (3.5)           |

<sup>a</sup> Values are given mean (range) or number (percentage).

<sup>b</sup> Combined fields of “clitoris absent” (211 responses), “labia absent” (212 responses), “clitoris and labia absent” (211 responses).

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