

## ORIGINAL RESEARCH ARTICLE

# Infertility in Gabon: A Survey to Determine Diagnostic and Medical Support to Patients

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## Abstract

A survey among gynaecologists practising in Libreville was conducted to ascertain the level of infertility assistance available, and the feasibility of establishing an intrauterine insemination programme in Gabon. This descriptive study invited gynaecologists (n=20) in both private and public hospitals, who are members at the Gabonese Society of Obstetricians Gynaecologists and Reproduction, to participate in the survey. Seventeen (85%) surveys were completed. The information obtained indicated that each gynaecologist consulted with more than fifty patients monthly, and nearly half (45%) of these consultations were infertility related. Male patients were referred to four different pathology laboratories in Libreville for basic semen analyses (without microbiology testing). Nearly 65% of the respondents referred female patients for further infertility treatments elsewhere. Approximately one-third of all couples were unable to access additional medical assistance. This survey can be viewed as motivation for health policymakers to initiate discussions to improve medical diagnostics and implement accessible fertility services in Gabon. Gynaecological expertise, together with a developed infrastructure in Libreville, could serve as an appropriate base for the advancement of reproductive treatment facilities. (*Afr J Reprod Health 2019; 23[1]: 111-116*).

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**Keywords:** Infertility, intrauterine insemination, Gabon, affordable reproductive treatment

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## Résumé

Une enquête auprès des gynécologues exerçant à Libreville a été menée pour déterminer le niveau d'assistance disponible en matière de la stérilité et la possibilité de mettre en place un programme d'insémination intra-utérine au Gabon. Cette étude descriptive a invité des gynécologues (n = 20) d'hôpitaux privés et publics qui sont membres de la Société des obstétriciens, gynécologues et de la reproduction, à participer à l'enquête. Dix-sept (85%) sondages ont été complétés. Les informations obtenues indiquent que chaque gynécologue a consulté plus de cinquante patients par mois et que près de la moitié (45%) de ces consultations étaient liées à l'infertilité. Les patients de sexe masculin ont été dirigés vers quatre laboratoires de pathologie différents à Libreville pour des analyses de base du sperme (sans tests microbiologiques). Près de 65% des interviewés ont envoyé des patientes ailleurs pour un traitement supplémentaire contre l'infertilité. Environ le tiers des couples n'ont pas pu avoir accès à une assistance médicale supplémentaire. Cette enquête peut être considérée comme une motivation pour les décideurs en matière de santé d'engager des discussions en vue d'améliorer les diagnostics médicaux et de mettre en place des services de fertilité accessibles au Gabon. L'expertise gynécologique, associée à une infrastructure développée à Libreville, pourrait constituer une base appropriée pour le développement des installations de traitement de la reproduction. (*Afr J Reprod Health 2019; 23[1]: 111-116*).

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**Mots-clés:** Infertilité, insémination intra-utérine, Gabon, traitement de la reproduction abordable

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## Introduction

Gabon, officially called the Gabonese Republic, is located on the west coast of Central Africa.

Situated on the equator, Gabon is bordered by Equatorial Guinea to the northwest, Cameroon to the north, the Republic of the Congo to the east and south, and the Atlantic Ocean's Gulf of Guinea

to the west. The capital and largest city, Libreville, is located in the northwest of the country<sup>1</sup>. Gabon has one of the lowest birth rates in Central Africa, with an approximate birth rate of 31.9 per 1,000 women in 2013<sup>2</sup>. The Department of Health in Gabon simultaneously voiced their concern in 2013 about the increasing rate of infertility over the past 20 years, specifically in the eastern parts of the country<sup>3</sup>.

Africa has been reported to have the highest incidence of infertility globally<sup>4</sup>. The rate of infertility may, however, vary from region to region or even within the same country<sup>5</sup>. The geography of infertility in Africa is demonstrated in different zones, with low infertility rates specifically in West Africa and high rates in Central Africa<sup>5</sup>. With limited access to fertility clinics in Africa, treatment is mostly restricted to private settings<sup>6</sup>. The only reproductive assisted conception units in Central Africa are located in Cameroon<sup>7</sup>, two located in Douala and a third unit in Yaoundé<sup>8</sup>, therefore sub-fertile couples, with the financial means residing within this region, are obliged to travel cross-border to access assisted reproductive technology (ART) treatment (Makoyo O 2016, verbal communication). To overcome this obligatory need for travel and financial burden, countries such as Gabon, which was found to be more politically stable than Congo<sup>9</sup>, has the potential to promote medical treatments that could range from basic to advanced ART procedures.

This study attempts to present gynaecologists' opinions on the reproductive assistance of sub-fertile male and female patients and investigate the feasibility of establishing an intrauterine insemination (IUI) programme in Gabon.

## Methods

All registered gynaecologists (n=20) of the Gabonese Society of Obstetricians Gynaecologists and Reproduction (SGGOR) were invited to participate in the survey (July 2013-December 2014). The questionnaire included 10 multiple-

choice questions that were dichotomous and rating-related. The questionnaire focused on assessing the level of infertility assistance available, the feasibility of establishing an IUI programme in Gabon, and compiling patient-related statistics.

The first section of the survey focused on the number of patients consulted monthly by each gynaecologist and the percentage of infertility-related consultations. Response options were: fewer than 5; between 5 and 25; between 26 and 50 and more than 50 patients. The treatment for male-factor infertility was assessed with the question, "Are you able to: diagnose, or treat and/or refer male patients for infertility treatment". Commissioning of laboratory investigations to aid male infertility-related diagnoses (macroscopic and/or microscopic) was also explored. Information on the diagnosis of female associated pathologies such as anovulation, endometriosis, tubal occlusion, endocrine factors, and other related conditions was requested. Subsequently, the respondents were asked to indicate whether they had access to ultrasound equipment and the type of probe available. It was also enquired if couples were referred for further infertility investigations and treatments; and if so, to indicate the preferred destination. The survey included respondents' opinions on the feasibility of establishing an IUI/ART unit in Libreville with an estimate of the number of patients to be assisted every month. The need for specialized training in ART procedures and basic infertility diagnosis/treatment was addressed.

Data was computerized after the questionnaires had been hand-collected from gynaecologists in Libreville (January 2015). Responses to the questions were categorical in nature and analyzed according to the type of answers provided. The Stata Release 13 program (STATA Corp 2013, www.stat.com) was used for descriptive statistics. Responses to the questions on the survey were entered as frequencies and expressed as percentages. The questionnaire used for the study was approved by the University of Pretoria Ethics Committee (Proposal no: 54/2014).

## Results

Seventeen (85%) of the 20 registered gynaecologists practising in Libreville were available to participate in the survey during the study period. All respondents were employed in public hospitals, with 5 gynaecologists involved in both public and private practice.

The gynaecologists indicated that they have access to both abdominal and vaginal ultrasounds in the clinics and consulted with more than 50 female patients every month. Infertility-related consultations represented 45% of all gynaecology appointments during which male-factor infertility featured prominently. Basic semen analyses were performed at four different pathology laboratories in Libreville and enabled the gynaecologists to explain the results and identify possible causes of infertility during consultations. Seventy-five percent of respondents made use of these services. Due to a lack of ART facilities in the country, 65% (13 of 17) of the gynaecologists advised couples to seek fertility care abroad. Cameroon was the destination of choice; with 50% of all Gabonese nationals referred to an ART unit in Douala (Cameroon), followed by a referral of 25% of patients to an ART unit in Accra (Ghana). The remaining 25% were referrals to other countries such as France, South Africa, Egypt and Tunisia.

All participants agreed that ART services would be beneficial to both diagnostic and therapeutic patient services in Gabon, and more specifically in Libreville where most gynaecologists are based. These services should include the screening for sexually transmitted diseases; semen diagnostic evaluation; hysteroscopy and endoscopy; IUI in conjunction with *in vitro* fertilization and the possibility of intracytoplasmic sperm injection procedures. The provision of validated and standardized spermograms was highlighted, with respondents estimating that more than 50 patients would be referred to a pathology/andrology laboratory for semen evaluations and approximately 25 couples could benefit from ART treatment monthly in Libreville. Finally, all participants showed a keen

interest in participating in a basic infertility diagnosis/treatment and training programme, and in the establishment of an ART unit in Libreville.

## Discussion

In 2013, the population growth rate in Gabon (at 2.4%) was slightly lower than those in central African countries such as Cameroon (2.5%), Equatorial Guinea (2.8%) and the Democratic Republic of the Congo (2.7%), as tabled in the World Bank statistics<sup>10</sup>. A total of 545 health professionals practicing in Gabon were members of the Society of Medical Health Care Providers in 2011<sup>11</sup>. In the same year, a national census estimated the total Gabonese population to be 1,594,000<sup>1</sup>, whereby a ratio of 1:2,924 i.e. 1 medical practitioner per 2,924 citizens (or 0.34:1,000) was noted for the country. In comparison, the ratio for South Africa is twice as favorable, with 0.77 doctors per 1,000 people<sup>12</sup>. The recommendation by the World Health Organization (2008) stipulated a minimum of 1 doctor per 1,000 people<sup>13</sup>. Gynaecologists represent 3% of all the health professionals in Gabon<sup>11</sup>, with most obstetrics and gynaecology practices based in Libreville (Meye JF 2015, verbal communication). Similarly, only 2% of medical practitioners in Cameroon are gynaecologists, 20% (n=30) of which are trained in the management of infertility<sup>8</sup>. The current survey indicated that 45% of consultations are infertility related, which is supported by a previous study by Meye *et al.*<sup>14</sup> conducted at four different public/private hospitals in Libreville who revealed that childlessness represented 40% of all gynaecological consultations during 2004-2005. The latter mentioned study also showed that 75.6% of women (32±6 years of age) and 88.6% of men (38.6±6 years of age) consulted with during 2004-2005 presented with secondary infertility<sup>14</sup>. Only 15% of couples attended infertility-related consultations together, while 85% of females sought assistance alone<sup>14</sup>.

The current survey demonstrated that spermograms are interpreted by respondents and results provided to patients. However, not all

functional and pathological semen analyses are included in the basic spermogram offered by these laboratories. Some microscopic evaluations (e.g. round cell concentration), microbiological tests and viral load assessments are not performed at these laboratories. In most cases, gynaecologists indicated that male patients are given broad spectrum antibiotics as prophylactic treatment and when more advanced semen evaluations are needed, patients are referred to clinics/laboratories abroad for treatment (Makoyo O 2016, verbal communication). The assistance of female patients was also investigated in this survey. A study by Sima *et al.*<sup>15</sup> on the causes of female infertility in Gabon revealed a secondary infertility rate of 82.28%, with a predominant tubal-factor infertility of 66.4%. *Chlamydia trachomatis* infection was the most prevalent (74.65%) sexually transmitted infection in Gabon<sup>15</sup>. The present survey highlights the absence of primary and secondary health facilities to diagnose and treat couples desiring to have their own biological children. It is important to note that most gynaecologists are obliged to refer female patients for infertility treatment to centres beyond the borders of the country. Since the average per capita income per month in Gabon amounts to \$839 (in 2012), funds to cover transport; accommodation; diagnostic and therapeutic infertility treatment are seldom available, therefore only those couples with the financial means can afford to solicit the required treatment<sup>16</sup>. Patients are most frequently referred to Cameroon, a neighbouring country, where infertility treatment is available. Although the assisted reproduction facilities in Cameroon are limited and insufficient to support the country's population of 25 million<sup>8</sup>. Ghana is another choice destination to which 25% of participant gynaecologists refer patients for ART therapy.

Politically stable in comparison to other neighbouring countries (particularly Congo)<sup>9</sup> and with the existence of four large public hospitals (General Hospital of Libreville; Agondje Hospital; Military Hospital and Josephine Bongo Hospital) in Libreville, Gabon can provide standardized and

technologically advanced medical procedures, which should include from basic to advanced ART procedures. The IUI procedure that is considered as a first-line treatment for male-factor subfertility, is the most cost effective, patient-friendly and least invasive ART method available<sup>17,18</sup>. All the participants were in favour of access to basic IUI services as an affordable first-line ART treatment.

With strategies to provide affordable and accessible diagnostic and therapeutic infertility treatments being debated in literature, technological developments i.e. alternative sperm preparation methods; low-cost laboratory supplies; and a simplified embryo culture system have emerged<sup>18-20</sup>. Validation of these techniques through pilot studies and clinical trials in more developed countries can follow, where after these low-cost techniques and procedures can be adopted and integrated into the healthcare system of developing countries<sup>21</sup>. Although infertility is generally not regarded as a mainstream health issue, initiatives for accessible reproductive care in developed and developing countries (with limited resources) are becoming evident through efforts of the European Society of Human Reproduction and Embryology (Task Force Developing Countries and Infertility)<sup>18,22</sup> and The Walking Egg Project<sup>23,24</sup>. These initiatives promote research and innovation, service delivery, advocacy and networking towards global access to infertility care<sup>23</sup>.

The Republic of Gabon currently offers a favourable environment to promote basic ART services, however the significance and consequences of infertility should be recognized, as well as training in diagnostic and therapeutic ART procedures to be advanced and supported by the relevant health policymakers and non-profit organizations<sup>25</sup>. Capacity development through basic infertility diagnostic training courses, combined with standardization of spermatological evaluations in private and public health sectors, should be the focal points in the rollout of fertility treatment.

## Conclusion

The findings from the survey highlight the need of couples to seek explanations and solutions for their childlessness from the medical professionals in Gabon. Gynaecologists within the country need support and facilities to engage with these couples. The governments of the central African region, relative non-government organizations and the health profession should collaborate and act to establish processes to meet the high demand for reproductive health care, including much needed assisted reproductive services. Clinical and scientific reproductive knowledge transfer, specialization and standardization can be attained through regional and/or intercontinental linkage with non-profit organizations or affiliations with teaching hospitals that do provide extensive ART services. Results from this study can be the beginning of dialogue that seeks to provide an understanding of the difficulty in obtaining infertility diagnoses and treatments that are otherwise readily available in industrialized countries.

## Contribution of Authors

LM collected and analysed the data, as well as drafted the manuscript. LB assisted with the design and preparation of the manuscript. CH designed the study, assisted with the data analysis and drafting of the manuscript. All authors have read and approved the final manuscript.

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