Cross-sectional Study

Assessment of the knowledge, attitudes, and perceptions of Filipino obstetrics and gynecology residents on fertility preservation: A cross-sectional study

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ABSTRACT

Background: As primary reproductive healthcare providers, residents-in-training must be equipped with the knowledge of proven and available methods for fertility preservation. The study evaluated Filipino obstetrics and gynecology residents’ current knowledge, attitudes, and perceptions about fertility preservation.

Methods: A cross-sectional survey was conducted among obstetrics and gynecology residents in the Philippines. A 24-item questionnaire was distributed to the different accredited training institutions of the Philippine Obstetrical and Gynecological Society by electronic mail. Univariate descriptive statistics were reported as mean for continuous variables and frequency with percentage for categorical variables. The chi-square test was used to determine differences in responses.

Results: A total of 143 respondents from different year levels of training were enrolled in the study. Most were female trainees (88.11%) from the National Capital Region (44.76%). Most respondents agreed that discussions about childbearing intentions (99.30%) and age-related fertility decline (98.60%) should be initiated during a patient’s gynecological consult. Residents were most familiar with oocyte freezing (84.62%), fertility-sparing surgeries (83.22%), and the use of GnRH agonists (80.42%) as fertility preservation techniques. Despite being most familiar with oocyte freezing, the respondents have mainly referred patients for fertility-sparing surgeries (48.95%) and the use of GnRH agonists (48.25%).

Conclusions: There was an overall reassuring perception and attitude of obstetrics and gynecology residents on fertility preservation. A standardized curriculum with teaching-learning activities on fertility preservation may be used to improve trainees’ knowledge. There was a disparity in the knowledge and actual referral or utilization of the different methods, reflecting the inaccessibility of the procedures specific to their institutions. This highlights the need to improve accessibility and offer fertility preservation as a public health service.

1. Introduction

Fertility preservation provides a means to circumvent reproductive aging and illnesses while allowing women to postpone or achieve pregnancy later. Recommended indications for fertility preservation include a diagnosis of malignancy and non-oncological medical conditions such as autoimmune diseases, hematopoietic stem cell transplantation, medical conditions causing premature ovarian insufficiency, male genetic disorders, testicular damage, and severe body trauma. It is also offered to women who have decided to delay childbearing [1].

Delaying childbearing puts a woman’s reproductive potential susceptible to the natural course of reproductive aging. Women have increasingly delayed childbearing over recent years due to professional or educational goals, financial barriers, and lack of partners [2,3]. A study in 79 countries showed that women who delayed childbearing lacked knowledge of age-related fertility decline. Participants with significant fertility knowledge were educated and living in Very High Human Development Index countries [4].

Age-related decline in fertility begins at approximately age 32 and decreases rapidly after 37. This is due to a quantitative and qualitative decline in a woman’s follicular pool [5]. The decrease in follicles throughout a woman’s life is due to continual oocyte atresia. The
maximum number of oocytes is 6–7 million at 20 weeks of gestation, gradually decreasing to around 1–2 million at birth, 300,000 to 500,000 at puberty, and 25,000 at age 37. At 51, the oocyte count is approximately 1000. This decrease is accompanied by increases in the rate of aneuploidy and spontaneous abortions as a woman ages [6].

Diminished reproductive capacity is also a devastating consequence of different medical conditions and treatments. Cancer and its treatment are known to induce gonadotoxicity and impaired reproductive function [1]. As such, fertility preservation is a fundamental issue and a significant determinant of quality of life after cancer remission for a woman who has not achieved reproductive potential or has not completed her ideal family size [7]. The American Society of Clinical Oncology (ASCO) published recommendations for fertility preservation in patients diagnosed with cancer. Emphasis was placed on early discussion, planning, and intervention for fertility preservation strategies [8].

Obstetrician-gynecologists are the primary reproductive healthcare providers and have the distinct opportunity to discuss age-related fertility decline with patients [9]. The current study aims to assess the knowledge and perceptions of Filipino obstetricians and gynecology residents on fertility preservation.

2. Methodology

A cross-sectional survey was conducted among residents in accredited training programs by the Philippine Obstetrical and Gynecological Society (POGS) from July to December 2021. The survey hyperlink was distributed over social media and to the registered electronic mails of accredited training hospitals. The minimum required sample size was 75 of the 1200 residents-in-training in the Philippines. This was derived using the Cochran formula and was based on Harzif et al., which reported that 94.57% of residents believe that age-related fertility decline discussions should be routinely part of the examinations [10]. This was computed with a 5% margin of error and a design effect of 1.0. Purposive sampling was employed to achieve the required sample size.

A self-administered survey modeled on the study of Chung et al. was used [10]. The survey was composed of 24 questions divided into two sections. The first section included questions on the demographic profile of the participants. The second section assessed the knowledge and perception of fertility preservation. Pilot testing of the questionnaire to 15 subjects was performed before the survey proper.

Univariate descriptive statistics were reported as mean for continuous variables and frequency with percentage for categorical variables. Differences in responses were tested using the chi-square test. A \( P \) value of \(< .05\) was considered statistically significant. All analyses used STATA 14 (Stata Corp Inc).

2.1. Ethical approval and registration

Ethics approval was obtained from the University of the Philippines Manila Research Ethics Board prior to the conduct of the study (UPMREB 2020-0560-01). The article has been reported in line with the STROCSS 2021 criteria [11]. The study was registered in the Philippine Health Registry, available at registry.healthresearch.ph (UIN: PHRR210503-003508). All methods were performed following the National Ethical Guidelines for Health and Health-Related Research (NEGHR). Completion of the questionnaire implied informed consent, as stated in the NEGHR.

3. Results

A total of 143 residents participated in the online survey. Majority of the respondents were 26–30 years old (56.65%), female (88.11%), and single (74.83%). Table 1 provides a summary of their sociodemographic characteristics. Nearly half (44.76%) belonged to public university-affiliated teaching hospitals in the National Capital Region. Respondents belonged to different year levels, with fourth-year trainees being the most represented (29.37%). Thirty percent of the respondents planned to pursue further training in Ultrasound (Table 2).

Most respondents agreed that obstetrician-gynecologists should initiate discussions about their patients’ childbearing intentions (99.30%) and age-related fertility decline (98.60%). Awareness of fertility preservation was reported by 96.50% of the respondents. Only 33 of the 142 residents were aware of fertility-sparing surgeries, GnRH agonists, sperm freezing, oocyte freezing, and ovarian or testicular tissue freezing. Respondents were most familiar with oocyte freezing (84.62%), fertility-sparing surgeries (83.22%), and the use of GnRH agonists (80.42%). As the residents advanced in their training, they became more familiar with all techniques mentioned (Table 3). Three residents in the 1st and 2nd years of training reported being familiar

### Table 1

Sociodemographic characteristics of the study population.

| Age (years) | Frequency (n) | % (N = 143) |
|------------|---------------|-------------|
| 20–25      | 2             | 1.40%       |
| 26–30      | 81            | 56.65%      |
| 31–35      | 53            | 37.06%      |
| >35        | 7             | 4.90%       |

| Sex        | Male | Female |
|------------|------|--------|
|            | 17   | 126    | 11.89% | 88.11% |

| Marital status | Single | Married |
|---------------|--------|---------|
|               | 107    | 36      | 74.83% | 25.17% |

| Religion     | Roman Catholic | Iglesia ni Cristo | Christian | Islam | Others |
|--------------|-----------------|-------------------|-----------|-------|--------|
|              | 104             | 1                 | 17        | 12    | 9      | 72.73% | 0.70% | 11.89% | 8.39% | 6.29% |

| Geographic Location (Region) | BARMM | CAR | NCR | Region I | Region III | Region IV-A | Region VI | Region VII | Region IX | Region X | Region XI | Region XII |
|-----------------------------|------|-----|-----|---------|------------|------------|----------|-----------|----------|----------|----------|-----------|
|                             | 3    | 2   | 64  | 21      | 2          | 2          | 9        | 4         | 9        | 16       | 5        | 6         |

| % (N = 143) | 2.10% | 1.40% | 44.76% | 14.69% | 1.40% | 6.29% | 2.80% | 6.29% | 11.19% | 3.50% | 4.20% |

| Religion     | Islam | Christian | Iglesia ni Cristo | Roman Catholic |
|--------------|-------|-----------|-------------------|----------------|
|              | 12    | 17        | 1                 | 104            |

| % (N = 143) | 8.39% | 11.89% | 0.70% | 72.73% |

| Geographical Location (Region) | BARMM | CAR | NCR | Region I | Region III | Region IV-A | Region VI | Region VII | Region IX | Region X | Region XI | Region XII |
|------------------------------|-------|-----|-----|---------|------------|------------|----------|-----------|----------|----------|----------|-----------|
|                             | 3     | 2   | 64  | 21      | 2          | 2          | 9        | 4         | 9        | 16       | 5        | 6         |

| % (N = 143) | 2.10% | 1.40% | 44.76% | 14.69% | 1.40% | 6.29% | 2.80% | 6.29% | 11.19% | 3.50% | 4.20% |

| Occupation | General Obstetrician-Gynecologist | Gynecologic Oncology | Trophoblastic Diseases | Infectious Diseases | Gynecologic Oncology | General Obstetrician-Gynecologist | Minimally Invasive Surgery | Undecided |
|------------|-----------------------------------|----------------------|------------------------|---------------------|----------------------|-----------------------------------|---------------------------|-----------|
|            | 1                                 | 24                   | 6                      | 14                  | 24                   | 1                                 | 6                         | 7         |

| % (N = 143) | 0.70% | 14.78% | 4.20% | 4.20% |

| Residency Training Program | Frequency (n) | % (N = 143) |
|---------------------------|---------------|-------------|
| Public university-affiliated teaching hospital | 65            | 45.45%      |
| Private university-affiliated teaching hospital | 16            | 11.19%      |
| Public non-university affiliated hospital | 52            | 36.36%      |
| Private non-university affiliated hospital | 16            | 11.19%      |

| % (N = 143) | 25.17% | 16.78% | 25.87% | 29.37% | 2.80% |

| Professional Plans | Frequency (n) | % (N = 143) |
|--------------------|---------------|-------------|
| Maternal-Fetal Medicine | 22            | 15.38%      |
| Reproductive Endocrinology | 14            | 9.79%       |
| Urogynecology | 5             | 3.50%       |
| Ultrasound | 44            | 30.77%      |
| Trophoblastic Diseases | 6             | 4.20%       |
| Infectious Diseases | 14            | 9.79%       |
| Gynecologic Oncology | 24            | 17.88%      |
| General Obstetrician-Gynecologist | 1            | 0.70%       |
| Minimally Invasive Surgery | 6             | 4.20%       |
| Undecided | 7             | 4.90%       |
The residents have mainly referred patients for fertility-sparing surgeries (48.95%) and the use of GnRH agonists (48.25%). Meanwhile, 38 residents (26.57%) have never referred patients for fertility preservation. Out of the 143 respondents, 125 (87.41%) were aware of specialists who would be able to accept referrals. More senior residents (second to fourth years) were more likely to have increased awareness of clinicians that can get referrals (Table 4). Nearly all (97.90%) will refer patients to Reproductive Endocrinologists. A patient’s desire to have children is the most critical factor the residents identified when deciding on fertility preservation for medical indications.

Majority believed that there is a need to set up a dedicated center for fertility preservation counseling (98.60%) and that it should be offered as a public health service (97.20%). Educational materials were deemed necessary to improve a patient’s understanding of fertility preservation by 97.90%.

Two-thirds of the respondents (67.83%) are unaware of fertility preservation regulations. Belonging to a private non-university affiliated hospital was associated with a fivefold increased awareness of regulations about fertility preservation. Majority (95.80%) agreed with the need for practice guidelines. Nearly all respondents wished to know more about fertility preservation.

| Table 3 Knowledge and awareness of Filipino Obstetrics and Gynecology residents on fertility preservation. |
|---------------------------------------------------------------|
| Item                                                          |
|                                                               |
| Are you familiar with the following fertility preservation procedures? Respondents were allowed to choose more than one. |
|                                                               |
| Fertility-sparing surgeries                                    |
| 119 (83.22%)                                                   |
| 27 (75.00%)                                                   |
| 19 (79.17%)                                                   |
| 33 (89.19%)                                                   |
| 37 (88.10%)                                                   |
| GnRH agonists                                                  |
| 115 (80.42%)                                                   |
| 30 (83.33%)                                                   |
| 16 (66.67%)                                                   |
| 31 (83.78%)                                                   |
| 35 (83.33%)                                                   |
| Sperm freezing                                                 |
| 74 (51.75%)                                                   |
| 18 (50.00%)                                                   |
| 14 (58.33%)                                                   |
| 20 (54.05%)                                                   |
| 22 (52.38%)                                                   |
| Oocyte freezing                                                |
| 121 (84.62%)                                                   |
| 29 (80.56%)                                                   |
| 20 (83.33%)                                                   |
| 32 (86.49%)                                                   |
| 36 (85.71%)                                                   |
| Embryo freezing                                                |
| 72 (50.52%)                                                   |
| 18 (50.00%)                                                   |
| 15 (62.50%)                                                   |
| 22 (59.46%)                                                   |
| 16 (38.10%)                                                   |
| Ovarian or testicular tissue freezing                         |
| 41 (28.67%)                                                   |
| 4 (11.11%)                                                    |
| 5 (20.83%)                                                    |
| 15 (40.54%)                                                   |
| 16 (38.10%)                                                   |
| All of the above                                               |
| 33 (23.08%)                                                   |
| 3 (8.33%)                                                     |
| 3 (12.50%)                                                    |
| 13 (35.14%)                                                   |
| 13 (30.95%)                                                   |
| Have you referred patient(s) for the following fertility preservation procedures over 12 months? Respondents were allowed to choose more than one. |
| Fertility-sparing surgeries                                    |
| 70 (48.95%)                                                   |
| 33 (23.08%)                                                   |
| 13 (36.11%)                                                   |
| 11 (45.83%)                                                   |
| 17 (45.95%)                                                   |
| 27 (64.29%)                                                   |
| GnRH agonists                                                  |
| 69 (48.25%)                                                   |
| 16 (44.44%)                                                   |
| 8 (33.33%)                                                    |
| 22 (59.46%)                                                   |
| 22 (53.82%)                                                   |
| Sperm freezing                                                 |
| 4 (2.80%)                                                     |
| 1 (0.70%)                                                     |
| 0                                                             |
| 1 (0.70%)                                                     |
| Oocyte freezing                                                |
| 12 (8.39%)                                                    |
| 2 (5.56%)                                                     |
| 3 (12.50%)                                                    |
| 4 (10.81%)                                                    |
| 3 (7.14%)                                                     |
| Embryo freezing                                                |
| 8 (5.59%)                                                     |
| 2 (5.56%)                                                     |
| 1 (4.17%)                                                     |
| 2 (5.41%)                                                     |
| 3 (7.14%)                                                     |
| Ovarian or testicular tissue freezing                         |
| 4 (2.80%)                                                     |
| 0                                                             |
| 1 (0.70%)                                                     |
| Ovarian or testicular tissue freezing                         |
| 1 (0.70%)                                                     |
| 0                                                             |
| 1 (0.70%)                                                     |
| 0                                                             |
| No                                                            |
| 38 (26.57)                                                     |
| 9 (25.00%)                                                    |
| 9 (37.50%)                                                    |
| 10 (27.03%)                                                   |
| 8 (19.05)                                                     |
| Have you referred a particular clinic or specialist who would be able to accept your referrals for fertility preservation? |
| Yes                                                           |
| 125 (87.41%)                                                   |
| 24 (66.67%)                                                   |
| 22 (91.67%)                                                   |
| 36 (97.30%)                                                   |
| 40 (95.24%)                                                   |
| No                                                            |
| 18 (12.59%)                                                   |
| 12 (33.33%)                                                   |
| 2 (8.33%)                                                     |
| 2 (7.07%)                                                     |
| 2 (4.76%)                                                     |
| If yes, to whom do you refer? Respondents were allowed to choose more than one. |
| Reproductive Endocrinologist                                  |
| 140 (97.90%)                                                   |
| 34 (94.44%)                                                   |
| 24 (100%)                                                     |
| 37 (100%)                                                     |
| 41 (97.62%)                                                   |
| Medical Oncologist                                            |
| 6 (4.20%)                                                     |
| 2 (5.56%)                                                     |
| 1 (4.17%)                                                     |
| 0                                                             |
| 2 (4.76%)                                                     |
| Urologist                                                     |
| 12 (8.39%)                                                    |
| 1 (2.78%)                                                     |
| 3 (12.50%)                                                    |
| 3 (8.11%)                                                     |
| 5 (11.90%)                                                    |
| Pediatric Gynecologist                                        |
| 5 (3.50%)                                                     |
| 1 (2.78%)                                                     |
| 1 (4.17%)                                                     |
| 0                                                             |
| 3 (7.14%)                                                     |
| Gynecologic Oncologist                                        |
| 1 (0.70%)                                                     |
| 0                                                             |
| 0                                                             |

with all methods compared to 13 in the 3rd and 4th years.

The residents have mainly referred patients for fertility-sparing surgeries (48.95%) and the use of GnRH agonists (48.25%). Meanwhile, 38 residents (26.57%) have never referred patients for fertility preservation. Out of the 143 respondents, 125 (87.41%) were aware of specialists who would be able to accept referrals. More senior residents (second to fourth years) were more likely to have increased awareness of clinics that can get referrals (Table 4). Nearly all (97.90%) will refer patients to Reproductive Endocrinologists. A patient’s desire to have children is the most critical factor the residents identified when deciding on fertility preservation for medical indications.

Majority believed that there is a need to set up a dedicated center for fertility preservation counseling (98.60%) and that it should be offered as a public health service (97.20%). Educational materials were deemed necessary to improve a patient’s understanding of fertility preservation by 97.90%.

Two-thirds of the respondents (67.83%) are unaware of fertility preservation regulations. Belonging to a private non-university affiliated hospital was associated with a fivefold increased awareness of regulations about fertility preservation. Majority (95.80%) agreed with the need for practice guidelines. Nearly all respondents wished to know more about fertility preservation.

4. Discussion

As fertility preservation is gradually incorporated into standard fertility care, it is imperative to examine physicians’ knowledge, attitudes, and perceptions of fertility preservation. The study included 143 obstetrics and gynecology residents, 11.92% of the total number of trainees in the Philippines. Respondents were primarily female and trained in hospitals in the National Capital Region, representing most of the target population.

The study population had an overall positive attitude toward fertility preservation. Most residents believe that discussions about reproductive aging and fertility preservation should be initiated during gynecologic consults. This is similar to a cross-sectional online survey conducted among obstetrics and gynecology residents in the United States. Majority believed that a discussion on age-related fertility decline should be initiated with patients, with 73% agreeing that it should be part of an annual examination. In this study by Yu et al., about half of the respondents overestimated the age at which female fertility declines. The residents were likely to initiate conversations on fertility preservation for cancer patients but were less likely to support elective oocyte cryopreservation. This highlights the need to improve education on fertility decline in obstetrics and gynecology training programs [9].

Additional evidence on improving the curriculum was provided by a cross-sectional survey among 92 residents in training in obstetrics and gynecology in Indonesia. Participants were misinformed about the success rate of assisted reproductive technology based on age-related infertility. Half believed that the success rate of in vitro fertilization was high and that this was not related to age. The residents were also more likely to discuss fertility preservation options with a cancer patient than women who wanted to prioritize their careers [12]. Further local studies using questionnaires on reproductive aging may be used to assess the current knowledge of trainees and identify areas for improvement.

Nearly all of the study respondents reported awareness of fertility preservation. They reported the most familiarity with oocyte freezing, fertility-sparing surgeries, and the use of GnRH agonists. Although the study did not assess their exposure to various techniques, these promising results reflect their awareness of the availability of fertility preservation methods. The residents obtain awareness from their clinical rotation in Reproductive Medicine. Participation in various learning activities such as webinars and lectures should be encouraged to improve this awareness. The respondents likewise support the
establishment of practice guidelines and standard education materials.

Residents rotate in Reproductive Medicine clinics for a month each during their third and fourth years of training. As reflected in the study, more senior residents were more aware of the different techniques. In our center, patients who consult for reproductive counseling are first seen by residents before being referred to the subspecialty clinics. Residents should be knowledgeable and comfortable with counseling patients on this topic. The exposure they receive from their Reproductive Medicine rotation should equip them with basic reproductive aging and fertility preservation concepts. Despite being a core rotation of senior residents, the exposure to Reproductive Medicine varies among training programs. Some hospitals conduct external preceptorships to gain clinical exposure. Training programs should standardize the instructional design for this rotation. A study by Anspach-Will et al. showed that a 1-hour presentation on embryo freezing significantly improved the knowledge-based score of medical students and house staff [13]. Most participants indicated that they might recommend oocyte cryopreservation to others. The authors suggested that a brief but focused curriculum may help improve residents’ knowledge and confidence on this topic. The optimal timing and duration of exposure of trainees remain to be determined and discussed by key stakeholders.

The majority of the respondents were aware of centers and specialists who can provide fertility preservation services. Most would refer to reproductive endocrinologists. Despite being aware of centers and specialists, 26.57% of the residents have never referred patients for fertility preservation. This may reflect the perceived inaccessibility of fertility preservation services. Of the 143 responders, 117 (81.82%) belonged to public hospitals that do not have cryopreservation facilities and whose patients belong to lower socioeconomic status. As such, majority (97.20%) support the need to offer fertility preservation as a public health service. Government funding and assistance should be enlisted to promote fertility preservation use and improve access among patients. Only 18 (12.59%) of the respondents were unaware of any center or specialist able to accept referrals for fertility preservation. A database of centers accepting referrals for fertility preservation should be accessible to all practitioners.

Two-thirds of the respondents were unaware of regulations on fertility preservation. Residents belonging to private non-university affiliated hospitals were significantly more aware of fertility preservation regulations than the other respondents. This may reflect better exposure to these services because most assisted reproductive technology centers belong to private hospitals. As earlier suggested, the disparity in clinical rotation may be improved by using a standardized curriculum.

Table 4
Attitude of Filipino Obstetrics and Gynecology residents on fertility preservation.

| Item                                                                 | All residents | 1st year | 2nd year | 3rd year | 4th year |
|---------------------------------------------------------------------|---------------|----------|----------|----------|----------|
| If there are no problems with resources, funding, and technical expertise, which of the following is the most important factor you think you will consider when deciding on fertility preservation in medical indications? |               |          |          |          |          |
| Age of the patient                                                   | 44 (30.77%)   | 9 (25.00%)| 4 (16.67%)| 17 (45.95%)| 14 (33.33%)|
| Marital status of patient                                            | 1 (0.70%)     | 1 (2.78%)| 0        | 0        | 0        |
| Patient’s desire to have children                                    | 76 (53.15%)   | 23 (63.89%)| 16 (66.67%)| 17 (45.95%)| 18 (42.86%)|
| Prognosis of patient                                                 | 15 (10.49%)   | 3 (8.23%) | 3 (12.50%)| 2 (5.41%) | 6 (14.29%)|
| Time available before gonadotoxic treatment                         |               | 0        | 0        | 0        | 0        |
| Type of cancer                                                       | 3 (2.10%)     | 0        | 0        | 0        | 0        |
| Religion of patient                                                  | 4 (2.80%)     | 0        | 0        | 1 (4.17%)| 2 (4.76%) |
| Do you think setting up a dedicated clinic/center for fertility preservation counseling is necessary? |               |          |          |          |          |
| Yes                                                                 | 141 (98.60%)  | 36 (100%)| 24 (100%)| 36 (97.30%)| 41 (97.62%)|
| No                                                                  | 2 (1.40%)     | 0        | 0        | 1 (2.70%)| 1 (2.38%) |
| Do you think fertility preservation should be available as a public service? |               |          |          |          |          |
| Yes                                                                 | 139 (97.20%)  | 35 (97.22%)| 24 (100%)| 34 (91.18%)| 42 (100%) |
| No                                                                  | 4 (2.80%)     | 1 (2.78%)| 0        | 3 (8.11%)| 0        |
| Do you think that standard educational materials provided by the professional bodies are important to you for counseling patients to enhance their understanding of fertility preservation? |               |          |          |          |          |
| Yes                                                                 | 140 (97.90%)  | 35 (97.22%)| 23 (95.83%)| 37 (100%)| 41 (97.62%)|
| No                                                                  | 3 (2.10%)     | 1 (2.78%)| 1 (4.17%)| 0        | 1 (2.38%) |
| Have you heard of regulations relating to fertility preservation?     |               |          |          |          |          |
| Yes                                                                 | 46 (32.17%)   | 8 (22.22%)| 9 (37.50%)| 13 (35.14%)| 15 (35.71%)|
| No                                                                  | 97 (67.83%)   | 28 (77.78%)| 15 (62.50%)| 24 (64.86%)| 27 (64.29%)|
| Do you think practice guidelines are required for fertility preservation? |               |          |          |          |          |
| Yes                                                                 | 137 (95.80%)  | 35 (97.22%)| 23 (95.83%)| 35 (94.59%)| 40 (95.24%)|
| No                                                                  | 6 (4.20%)     | 1 (2.78%)| 1 (4.17%)| 2 (5.41%) | 4 (7.66%) |
| Do you want to know more about fertility preservation?               |               |          |          |          |          |
| Yes                                                                 | 141 (98.60%)  | 36 (100%)| 24 (100%)| 37 (100%)| 40 (95.24%)|
| No                                                                  | 2 (1.40%)     | 0        | 0        | 0        | 2 (4.76%) |

Limitations

The sampling method used cannot calculate the actual number of residents who received the survey. The study was unable to characterize nonrespondents. The survey did not look into the existing practices of trainees and the individual curriculum and exposure of the participants to fertility preservation.

Ethical approval

Ethics approval was obtained from the University of the Philippines Manila Research Ethics Board prior to conduct of the study (UPMREB 2020-0560-01).

Sources of funding

No funding was obtained for the study.
Author contributions

All authors were responsible for the conception and design of the study, revisions, and final approval of the paper.

Registration of research studies

Name of the registry: Philippine Health Research Registry.
Unique Identifying number or registration ID: PHRR210503-003508.
Hyperlink to your specific registration (must be publicly accessible and will be checked): registry.healthresearch.ph.

Guarantor

Glaiza S. de Guzman, MD.
Eileen M. Manalo, MD, MSc.

Consent

Waiver of informed consent documentation was approved by UPMREB. Completion of the questionnaire implies a participant’s consent as stated in the National Ethical Guidelines for Health and Health-Related.

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Provenance and peer review

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Declaration of competing interest

All authors declared no conflicts of interest.

Appendix A. Supplementary data

Supplementary data to this article can be found online at https://doi.org/10.1016/j.amsu.2022.104934.

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