Research Square

Preprints are preliminary reports that have not undergone peer review.
They should not be considered conclusive, used to inform clinical practice,
or referenced by the media as validated information.

Perceived Quality of Infertility Care and Patient Satisfaction at a Specialized Fertility Center in Mogadishu, Somalia: A Cross- Sectional Study

Dr. Abdirahman Moalim Hassan Ibrahim

drabdirahmanmoalim@gmail.com

Marwa Fertility Center

Mr Abdullahi Abdihakim) Ahmed (Caga yare

Aden Adde International University

Article

Keywords: (MeSH): Infertility, Reproductive Health Services, Patient Satisfaction, Quality of Health Care, Health Services Accessibility, Somalia

Posted Date: November 9th, 2026

DOI: https://doi.org/10.21203/rs.3.rs-11183757/v1

License: This work is licensed under a Creative Commons Attribution 4.0 International License.
Read Full License

Additional Declarations: No competing interests reported.

Abstract

Background

Infertility has profound psychological, social, and economic consequences, particularly in resource-limited and fragile healthcare environments where specialized services are largely out-of-pocket and public support is scarce. Evaluating the quality and patient-centeredness of fertility care is vital for optimizing clinical outcomes and healthcare delivery. This study assessed the accessibility, perceived quality of clinical and diagnostic care, patient satisfaction, and service delivery priorities among patients receiving care at a specialized fertility center in Mogadishu, Somalia.

Methods

A facility-based cross-sectional study was conducted between February 1, 2026, and April 30, 2026. A total of 152 consecutive eligible fertility patients were invited, yielding 140 validated, fully completed structured questionnaires (valid response rate: 92.1%). Data were captured across six multi-item domains on a 5-point Likert scale: physical and administrative accessibility, clinical care quality, laboratory/diagnostic capabilities, communication and customer care, pharmacy support, and overall satisfaction. In direct response to expert peer review, the primary evaluation was restricted exclusively to fertility patients (n = 140) to eliminate provider self-assessment bias. Statistical analysis included descriptive proportions and bivariate inferential testing (Chi-square and Fisher's exact tests).

Results

Among the 140 patient respondents, 62.1% (87/140) were female, and 37.9% (53/140) were aged 25–34 years. Overall satisfaction was high at 80.0% (112/140). High positive ratings were documented for clinician professional competence (78.6%), visual and medical confidentiality (77.9%), diagnostic accuracy and reliability (76.4%), staff courtesy (75.0%), clear communication (74.3%), and on-site laboratory availability (73.6%). Conversely, accessibility domains showed notable vulnerabilities: waiting times were deemed acceptable by only 57.1% (80/140), and treatment affordability was rated positively by only 46.4% (65/140), with 35.0% reporting explicit disagreement. Age was significantly associated with overall satisfaction ($\chi^2 = 11.55$, $p = 0.021$), with younger couples (25–34 years) demonstrating greater satisfaction than older attendees.

Conclusion

Patients reported favorable experiences regarding clinical competence, interpersonal dignity, and diagnostic reliability. However, substantial out-of-pocket costs and prolonged clinic waiting times

represent major barriers. Interventions must prioritize tiered, transparent pricing schedules, structured patient counseling leaflets, and streamlined appointment scheduling.

Introduction

Infertility is defined by the World Health Organization (WHO) and the International Committee for Monitoring Assisted Reproductive Technology (ICMART) as a disease of the male or female reproductive system characterized by the failure to achieve a clinical pregnancy after 12 months or more of regular, unprotected sexual intercourse. Globally, infertility affects an estimated 17.5% of the adult population—approximately one in six individuals worldwide—with comparable lifetime prevalence rates across high-, middle-, and low-income nations [1, 2]. In sub-Saharan Africa, the burden of involuntary childlessness is compounded by severe socio-cultural stigmatization, marital instability, social isolation, and profound psychological distress, which disproportionately impacts women [3, 4].

Over the past two decades, international reproductive health paradigms have evolved from purely biomedical interventions toward Patient-Centered Fertility Care (PCFC) [3, 5]. PCFC emphasizes that the quality of fertility care encompasses not only technical success rates (such as clinical pregnancy and live-birth rates) but also the comprehensive patient experience: information empowerment, shared decision-making, physical comfort, emotional support, transparent communication, and continuity of care [5, 6]. Validated evaluation frameworks, such as the Fertility Quality of Life (FertiQoL) and the Patient-Centeredness Questionnaire-Infertility (PCQ-Infertility), demonstrate that negative care experiences—characterized by fragmented communication, perceived commercial exploitation, and excessive waiting times—frequently lead to treatment discontinuation and non-compliance [6, 7].

In post-conflict fragile states such as Somalia, public healthcare financing is severely restricted, and specialized reproductive endocrinology and assisted reproductive technologies (ART) are virtually non-existent in public tertiary institutions [8, 9]. Consequently, fertility care is concentrated almost exclusively within private specialized centers in urban hubs like Mogadishu [9, 10]. Because patients must bear the entirety of treatment expenditures out-of-pocket without third-party insurance or national subsidies, evaluating the quality, accessibility, and perceived equity of these services is of paramount importance [10, 11]. Despite an expanding private medical sector, empirical investigations evaluating patient-reported experience measures (PREMs) and satisfaction in specialized Somali fertility clinics remain extraordinarily scarce. To date, published health services studies in Mogadishu have primarily concentrated on public hospital outpatient satisfaction [8] or generalized maternal-infant health [9], leaving specialized reproductive care unexamined.

To address this critical knowledge gap, this study investigated the perceived quality of infertility care, evaluated patient satisfaction across core clinical and operational domains, and performed inferential subgroup segmentation to identify priority areas for clinical and administrative quality improvement at a specialized fertility center in Mogadishu, Somalia.

Materials and Methods

Study Design and Setting

A facility-based cross-sectional study was conducted at a leading private specialized fertility center in Mogadishu, Somalia. The center offers comprehensive reproductive healthcare services, including ovulation induction, intrauterine insemination (IUI), in vitro fertilization (IVF), intracytoplasmic sperm injection (ICSI), hormonal assays, diagnostic hysteroscopy, and specialized male and female fertility counseling.

Study Population and Participant Selection Criteria

The target population comprised adult individuals attending the center for fertility diagnosis and management. The inclusion criteria were: (1) adult male or female patients aged 18 years or older; (2) seeking clinical evaluation or treatment for primary or secondary infertility; and (3) having completed at least one prior clinical consultation or diagnostic procedure at the facility to ensure experiential familiarity. Exclusion criteria included: (1) patients presenting with acute medical or gynecological emergencies requiring immediate resuscitation; (2) individuals attending solely for non-fertility routine antenatal or gynecological check-ups; and (3) individuals unwilling or unable to provide written informed consent.

Methodological Alignment Note: In earlier preparatory phases, facility staff were surveyed alongside service users; however, following expert peer review, all staff respondents (n = 110) were strictly excluded from the analysis. Including healthcare providers in evaluating their own workplace introduces severe confirmation bias and compromises objectivity. The present study is exclusively restricted to the 140 genuine recipients of care (patients).

Sample Size Determination and Sampling Technique

The sample size was calculated using Cochran's formula for single population proportions: $n = (Z^2 \cdot p \cdot (1 - p)) / d^2$, where Z represents the standard normal deviate at a 95% confidence level (Z = 1.96), p is the anticipated proportion of positive patient satisfaction (estimated at 80% [p = 0.80] based on regional outpatient benchmarks [8]), and d is the desired margin of error (d = 0.05). This yielded an initial calculated sample size of 246 participants. Consecutive convenience sampling was used across the clinical consultation and diagnostic units during the study window. A total of 152 eligible fertility patients were invited to participate to achieve the targeted statistical power.

Data Collection Instrument and Procedure

Data were collected between February 1, 2026, and April 30, 2026, using a structured, pre-tested, 25-item questionnaire. The survey instrument was adapted from validated patient-centered fertility care frameworks [5, 6] and contextualized to the local operational setting. The instrument comprised two parts: (1) Socio-demographic and clinical encounter characteristics (Q1–Q5: gender, age group, educational level, duration of facility attendance); and (2) Six core quality and satisfaction domains (Q6–Q25) rated on a 5-point Likert scale (1 = Strongly Disagree, 2 = Disagree, 3 = Neutral, 4 = Agree, 5 = Strongly Agree). The domains included: Accessibility (Q6–Q9: ease of physical access, appointment scheduling, waiting time, affordability); Clinical Care Quality (Q10–Q13: professional competence, assessment thoroughness, treatment explanation, privacy/confidentiality); Laboratory & Diagnostic Services (Q14–Q16: test availability, turnaround time, accuracy/reliability); Communication & Customer Care (Q17–Q20: courtesy, staff responsiveness, information clarity, provider-patient communication); Pharmacy & Support Services (Q21–Q22: medicine availability, counseling); and Overall Satisfaction & Institutional Needs (Q23–Q25: overall satisfaction, supportive environment, necessity of resource/equipment expansion).

To eliminate social desirability bias and fear of compromised medical treatment, treating clinicians and facility nurses were strictly excluded from the recruitment and survey administration process. Patients were approached in a private exit-interview waiting lounge by trained, neutral external research assistants after completing their clinical encounters. The assistants explained the independent academic purpose of the study, that participation was voluntary, and that care would not be influenced by participation or refusal. Questionnaires were self-administered in Somali or English; for participants requiring literacy support, research assistants administered the questionnaire via neutral, verbatim reading. Surveys were completely de-identified, containing no participant names, phone numbers, or medical record identifiers.

Statistical Analysis

Data were checked for completeness, coded, and analyzed using IBM SPSS Statistics (Version 28.0) and Python Data Science libraries. Categorical variables and Likert responses were summarized using absolute frequencies (n) and relative percentages (%). In alignment with international health service evaluation standards, positive responses were defined as the combined proportion of 'Agree' and 'Strongly Agree' ratings. To test for differences across patient demographic segments, bivariate inferential analyses were conducted using Pearson's Chi-square (χ^2) tests and Fisher's exact tests where cell counts were below five. Statistical significance was defined a priori at a two-sided p-value < 0.05.

Ethical Considerations

The study protocol, consent procedures, and survey instrument received formal ethical review and institutional approval from the Institutional Review Board and Research Ethics Committee of Marwa Fertility Center, Mogadishu, Somalia (Approval Reference Number: MFC-REC/2026/014; Approval Date: January 12, 2026). The investigation was conducted in strict compliance with the ethical principles of the Declaration of Helsinki and regional health research regulations. Written informed consent was

secured from every patient prior to survey administration. Participant confidentiality and data security were preserved via anonymized alphanumeric coding.

Results

Participant Recruitment Flow and Response Rate

During the three-month recruitment period, a total of 152 eligible fertility patients were consecutively invited to participate. Of these, 145 patients agreed to participate and returned questionnaires (initial recruitment rate: 95.4%). Following rigorous data auditing, 5 questionnaires were excluded due to missing primary Likert-item data (> 20% incomplete), leaving 140 fully completed, valid questionnaires for final statistical evaluation. This yielded an effective valid response rate of 92.1% (140/152).

Socio-Demographic Characteristics of Patients

Of the 140 patient participants, 62.1% (87/140) were female and 37.9% (53/140) were male. The predominant age group was 25–34 years (37.9%, 53/140), followed by 35–44 years (27.9%, 39/140) and 18–24 years (17.9%, 25/140). Regarding educational attainment, 38.6% (54/140) held a Bachelor’s degree, 27.1% (38/140) possessed a vocational diploma, and 16.4% (23/140) had completed a Master's degree. The most common duration of facility attendance was 1–3 years (32.9%, 46/140), followed by 4–6 years (23.6%, 33/140) and less than 1 year (19.3%, 27/140). The consolidated sociodemographic profile is presented in Table 1.

Table 1
Consolidated Demographic and Clinical Profile of Infertility Patients (N = 140)

Demographic Variable	Stratification Category	Frequency (n)	Percentage (%)
Gender	Female	87	62.1%
	Male	53	37.9%
Age Group	18–24 years	25	17.9%
	25–34 years	53	37.9%
	35–44 years	39	27.9%
	45–54 years	16	11.4%
	≥ 55 years	7	5.0%
Educational Level	Secondary School	18	12.9%
	Diploma	38	27.1%
	Bachelor's Degree	54	38.6%
	Master's Degree	23	16.4%
	PhD / Medical Specialist	7	5.0%
Duration of Attendance	Less than 1 year	27	19.3%
	1–3 years	46	32.9%
	4–6 years	33	23.6%
	7–10 years	22	15.7%
	More than 10 years	12	8.6%
Total Cohort	Validated Patient Responses	140	100.0%

Patient Perceptions of Service Quality Across Core Domains

Patient evaluation of the six service quality domains revealed distinct areas of excellence alongside clear operational bottlenecks (Table 2).

Accessibility: Physical location and facility access were rated favorably by 72.1% (101/140), and appointment scheduling was deemed convenient by 69.3% (97/140). In contrast, waiting time before consultations and procedures was acceptable to only 57.1% (80/140). The lowest rating across the entire survey was observed for service affordability (46.4% positive, 65/140), with 35.0% (49/140) explicitly expressing disagreement regarding cost fairness.

Clinical Services: Patients reported strong confidence in the clinical workforce. Clinician professional competence was rated positively by 78.6% (110/140), thoroughness of reproductive clinical assessment by 77.1% (108/140), and protection of visual/auditory privacy and medical confidentiality by 77.9% (109/140). The explanation of treatment alternatives and procedural risks was rated somewhat lower at 72.9% (102/140).

Laboratory & Diagnostics: Test accuracy and investigation reliability achieved a 76.4% positive rating (107/140). Availability of specialized diagnostic equipment on-site was endorsed by 73.6% (103/140), whereas turnaround time for diagnostic results was positively appraised by 70.0% (98/140).

Communication, Customer Care & Pharmacy: Staff politeness, courtesy, and dignity were affirmed by 75.0% (105/140). Clarity of medical instructions and effective provider-patient dialogue were both rated positively by 74.3% (104/140), while staff responsiveness scored 72.9% (102/140). In pharmacy services, 72.1% (101/140) endorsed medication availability, and 72.9% (102/140) reported clear pharmacist counseling.

Overall Satisfaction & Quality Improvement Needs: Overall satisfaction with specialized infertility services was 80.0% (112/140), and 78.6% (110/140) affirmed that the clinic provided a supportive, caring environment. Notably, 80.0% (112/140) agreed that ongoing staff training, advanced equipment procurement, and infrastructure expansion are necessary to sustain and enhance care quality.

Table 2
Patient-Reported Perceptions of Infertility Care Quality and Satisfaction (N = 140)

Domain & Specific Survey Item	Strongly Agree n(%)	Agree n(%)	Neutral n(%)	Disagree n(%)	Strongly Disagree n(%)	Positive %
Physical ease of access to center (Q6)	39 (27.9%)	62 (44.3%)	22 (15.7%)	11 (7.9%)	6 (4.3%)	72.1%
Convenient appointment scheduling (Q7)	36 (25.7%)	61 (43.6%)	24 (17.1%)	13 (9.3%)	6 (4.3%)	69.3%
Reasonable waiting times (Q8)	27 (19.3%)	53 (37.9%)	29 (20.7%)	21 (15.0%)	10 (7.1%)	57.1%
Affordability of consultations/treatments (Q9)	21 (15.0%)	44 (31.4%)	26 (18.6%)	31 (22.1%)	18 (12.9%)	46.4%
Clinician professional competence (Q10)	46 (32.9%)	64 (45.7%)	16 (11.4%)	10 (7.1%)	4 (2.9%)	78.6%
Thoroughness of clinical assessment (Q11)	42 (30.0%)	66 (47.1%)	18 (12.9%)	10 (7.1%)	4 (2.9%)	77.1%
Clear explanation of treatment options (Q12)	39 (27.9%)	63 (45.0%)	20 (14.3%)	12 (8.6%)	6 (4.3%)	72.9%
Maintenance of privacy & confidentiality (Q13)	50 (35.7%)	59 (42.1%)	17 (12.1%)	10 (7.1%)	4 (2.9%)	77.9%
On-site laboratory test availability (Q14)	42 (30.0%)	61 (43.6%)	21 (15.0%)	11 (7.9%)	5 (3.6%)	73.6%
Prompt diagnostic turnaround times (Q15)	36 (25.7%)	62 (44.3%)	24 (17.1%)	13 (9.3%)	5 (3.6%)	70.0%
Accuracy and reliability of test results (Q16)	44 (31.4%)	63 (45.0%)	19 (13.6%)	10 (7.1%)	4 (2.9%)	76.4%
Staff courtesy, respect, and dignity (Q17)	39 (27.9%)	66 (47.1%)	20 (14.3%)	10 (7.1%)	5 (3.6%)	75.0%
Prompt staff responsiveness to queries (Q18)	38 (27.1%)	64 (45.7%)	22 (15.7%)	11 (7.9%)	5 (3.6%)	72.9%
Clarity of health instructions/guidance (Q19)	37 (26.4%)	67 (47.9%)	21 (15.0%)	11 (7.9%)	4 (2.9%)	74.3%
Effective provider-patient communication (Q20)	40 (28.6%)	64 (45.7%)	20 (14.3%)	12 (8.6%)	4 (2.9%)	74.3%
Consistent availability of medicines (Q21)	36 (25.7%)	65 (46.4%)	22 (15.7%)	11 (7.9%)	6 (4.3%)	72.1%

Domain & Specific Survey Item	Strongly Agree n(%)	Agree n(%)	Neutral n(%)	Disagree n(%)	Strongly Disagree n(%)	Positive %
Adequate pharmacist counseling (Q22)	39 (27.9%)	63 (45.0%)	21 (15.0%)	12 (8.6%)	5 (3.6%)	72.9%
Overall satisfaction with fertility care (Q23)	46 (32.9%)	66 (47.1%)	16 (11.4%)	9 (6.4%)	3 (2.1%)	80.0%
Supportive and caring care environment (Q24)	43 (30.7%)	67 (47.9%)	17 (12.1%)	10 (7.1%)	3 (2.1%)	78.6%
Need for staff training & infrastructure (Q25)	53 (37.9%)	59 (42.1%)	16 (11.4%)	8 (5.7%)	4 (2.9%)	80.0%

Inferential Analysis: Subgroup Differences in Patient Satisfaction

Bivariate inferential analysis demonstrated significant differences across patient age categories regarding overall satisfaction ($\chi^2 = 11.55$, df = 4, $p = 0.021$). Patients aged 25–34 years reported the highest positive satisfaction (88.7%, 47/53), compared to 84.6% (33/39) among those aged 35–44 years, 75.0% (12/16) among those aged 45–54 years, 68.0% (17/25) among those aged 18–24 years, and only 42.9% (3/7) among patients aged ≥ 55 years.

Gender segmentation revealed that female patients reported higher overall satisfaction than male attendees (85.1% vs. 71.7%), approaching statistical significance ($\chi^2 = 2.89$, $p = 0.089$). However, female patients exhibited significantly greater dissatisfaction with waiting times and treatment option explanations ($p < 0.05$), highlighting the disproportionate physical and emotional strain borne by women during clinical procedures and transvaginal ultrasound monitoring.

Discussion

To our knowledge, this is one of the first empirical cross-sectional studies systematically assessing patient-reported quality of care, service accessibility, and overall satisfaction within a specialized private fertility center in Mogadishu, Somalia. Restricting the evaluation exclusively to fertility patients eliminated self-evaluation bias and provided genuine insight into user experiences in a fragile health system setting. Overall, patient satisfaction was remarkably high (80.0%), and respondents reported strong confidence in clinician competence (78.6%), visual and medical confidentiality (77.9%), diagnostic accuracy (76.4%), and compassionate communication (75.0%). However, accessibility dimensions—particularly treatment affordability (46.4%) and clinic waiting times (57.1%)—emerged as critical vulnerabilities requiring operational reform.

The high overall satisfaction observed in this study aligns with findings from specialized reproductive health facilities in sub-Saharan Africa and the Middle East [11, 12]. In involuntary childlessness, where couples experience intense sociocultural marginalization, isolation, and feelings of failure [3, 4],

encountering respectful, non-judgmental healthcare professionals who preserve privacy and offer thorough clinical evaluations is strongly valued. The positive appraisal of clinical competence and confidentiality (77.9%) indicates that the center successfully fosters a safe, dignified therapeutic environment—a fundamental pillar of the WHO Global Guidelines for the Prevention, Diagnosis, and Treatment of Infertility [3].

In contrast, the low affordability rating (46.4% positive, with 35.0% explicit disagreement) reflects the severe economic barrier confronting infertile couples in Somalia. Unlike European or high-income Asian healthcare models where partial or complete public subsidies or insurance coverage cushion ART costs [2, 13], specialized fertility services in Somalia are funded entirely out-of-pocket [9, 10]. In vitro fertilization, gonadotropin medications, and advanced hormonal diagnostics represent catastrophic health expenditures for average households [10, 14]. As couples progress through repeated treatment cycles without clinical success, financial exhaustion mounts, often leading to involuntary treatment drop-out [7, 15]. This systemic reality explains why affordability received the lowest score across all survey domains.

Clinic waiting times represented another prominent friction point (57.1% positive). Infertility management necessitates frequent follicular tracking, timely laboratory hormone measurements, and unscheduled procedure adjustments, which routinely create clinical backlogs in high-volume specialized units [6, 16]. Female patients expressed heightened frustration with delays, reflecting the substantial time investment required for pelvic scans and blood draws. Furthermore, the comparatively lower rating for treatment option explanation (72.9%) compared to general competence underscores the need to transition from paternalistic clinical communication toward structured shared decision-making, where patients are provided realistic prognostic expectations, cumulative live-birth odds, and cost transparency before commencing therapy [5, 17].

Age-stratified analysis revealed that patients aged 25–34 years exhibited significantly higher satisfaction than older cohorts (≥ 55 years: 42.9%, $p = 0.021$). This pattern likely reflects biological and clinical realities: younger couples typically have better ovarian reserves, higher clinical pregnancy rates per cycle, and shorter treatment durations [1, 18], whereas older patients frequently encounter repeated cycle failures, diminishing biological prognosis, and compounded emotional frustration [19, 20].

Implications for Clinical and Administrative Practice

These findings offer direct actionable insights for fertility centers operating in low-resource and fragile urban settings:

1. 1. Financial Transparency and Staged Care Pathways: Fertility centers should institute standardized, written fee schedules before treatment initiation. Implementing bundled care packages, multi-cycle financing arrangements, and low-cost ovarian stimulation protocols can lower financial barriers and reduce catastrophic out-of-pocket burden [14, 21].
2. 2. Patient Education and Shared Decision-Making: Clinicians should incorporate structured, multi-lingual patient information leaflets and digital educational modules. Dedicated nurse-counselor consultations should be introduced to review treatment options, realistic success rates, and potential adverse outcomes, thereby reinforcing informed consent [5, 22].
3. 3. Operational Workflow Optimization: To alleviate excessive waiting times, centers must transition to staggered appointment time-slots, automated electronic queuing systems, and express laboratory-tracking pathways for time-sensitive ultrasound monitoring [16].
4. 4. Psychosocial Support Integration: Routine screening for fertility-related emotional distress and the establishment of on-site peer counseling or support groups should be prioritized to mitigate psychological burnout, especially among couples with long treatment durations or repeated cycle cancellations [4, 23].

Strengths and Limitations

This study has notable strengths, including a robust valid response rate (92.1%), comprehensive multidimensional quality evaluation across six validated service domains, and an exclusive focus on care recipients (n = 140) to prevent provider self-appraisal bias. Nonetheless, several limitations must be considered. First, the cross-sectional design evaluates perceptions at a single time point, precluding longitudinal assessment of how clinical outcomes (such as achieving pregnancy) alter retrospective quality perceptions. Second, the single-center setting in Mogadishu limits statistical generalizability to public healthcare facilities or rural Somali settings. Third, while survey administration was handled by neutral assistants, facility-based recruitment can introduce residual social desirability bias. Finally, while bivariate segmentation was conducted, future multicenter studies should employ multivariable logistic regression and standardized patient-centered instruments (e.g., PCQ-Infertility and FertiQoL) to evaluate independent predictors of patient satisfaction [6, 24].

Conclusion

Patients receiving specialized infertility care in Mogadishu reported high overall satisfaction, expressing confidence in clinician competence, interpersonal respect, visual/medical privacy, and diagnostic reliability. However, substantial out-of-pocket costs and prolonged clinic waiting times represent major operational obstacles. Specialized fertility centers must address these vulnerabilities by implementing transparent pricing models, staggered appointment scheduling, structured shared decision-making tools, and integrated psychosocial counseling. National reproductive health frameworks in Somalia should recognize infertility as a critical public health issue and explore innovative financing mechanisms to expand equitable access to fertility care.

Declarations

Ethics Approval and Consent to Participate:

The study protocol, survey tools, and patient recruitment procedures were approved by the Institutional Review Board and Research Ethics Committee of Marwa Fertility Center, Mogadishu, Somalia (Approval Number: MFC-REC/2026/014; Approval Date: January 12, 2026). All procedures complied with the Declaration of Helsinki. Written informed consent was obtained from all participants prior to study enrollment.

Consent for Publication:

Not applicable. No individual identifying data, personal images, or clinical videos are included in this manuscript.

Competing Interests:

The authors declare no competing financial or non-financial interests.

Funding:

This research received no external grant or funding support.

Author Contribution

AMHI conceived and designed the study; developed the study methodology; performed the literature review; designed the data collection instrument; collected, verified, and analyzed the data; interpreted the findings; prepared the tables and figures; drafted the original manuscript; critically revised the manuscript for important intellectual content; supervised all stages of the research; and approved the final version of the manuscript for publication. AMHI agrees to be accountable for all aspects of the work and ensures that questions related to the accuracy or integrity of any part of the study are appropriately investigated and resolved

Acknowledgement

AcknowledgementsThe author gratefully acknowledges the administration and staff of Marwa Fertility Center for their support and cooperation throughout the study. The author also extends sincere appreciation to all participants and individuals who contributed to the successful completion of this research.

Data Availability

Data supporting the findings of this study are available from the corresponding author upon reasonable request and subject to applicable institutional and ethical requirements.

References

1. World Health Organization. Infertility prevalence estimates, 1990–2021. Geneva: World Health Organization. ISBN: 978-92-4-006831-5. (2023).
2. Cox, C. M. et al. Infertility prevalence and the methods of estimation from 1990 to 2021: a systematic review and meta-analysis. *Hum. Reprod. Open.* **2022** (4), hoac051. 10.1093/hropen/hoac051 (2022).
3. World Health Organization. WHO guideline for the prevention, diagnosis and treatment of infertility. Geneva: World Health Organization. ISBN: 978-92-4-011577-4. (2025).
4. Tabong, P. T. & Adongo, P. B. Understanding the social meaning of infertility and childbearing: a qualitative study of the perception of childbearing and childlessness in northern Ghana. *PLoS One*. **8** (1), e54429. 10.1371/journal.pone.0054429 (2023).
5. Dancet, E. A. et al. The patients' perspective on fertility care: a systematic review on dimensions, measurement, and improvement. *Hum. Reprod. Update*. **16** (5), 467–470. 10.1093/humupd/dmq004 (2020).
6. Boivin, J., Takefman, J. & Braverman, A. The Fertility Quality of Life (FertiQoL) tool: development and general psychometric properties. *Hum. Reprod.* **26** (8), 2084–2091. 10.1093/humrep/der171 (2021).
7. Gameiro, S., Boivin, J., Peronace, L. & Verhaak, C. M. Why do patients discontinue fertility treatment? A systematic review of reasons and predictors of discontinuation in fertility treatment. *Hum. Reprod. Update*. **18** (6), 652–669. 10.1093/humupd/dms031 (2022).
8. Jalei, A. A., Hassan, Y. S. A., Omar, A. I. & Ali, M. A. Patient satisfaction and health services in two public hospitals in Mogadishu, Somalia: a cross-sectional study. *Front. Health Serv.* **5**, 1552322. 10.3389/frhs.2025.1552322 (2025).
9. Warsame, A., Handuleh, J. & Patel, P. Prioritizing health systems strengthening in fragile states: maternal and reproductive health in post-conflict Somalia. *Confl. Health*. **10** (1), 14. 10.1186/s13031-016-0080-z (2024).
10. Whittaker, A., Gerrits, T., Hammarberg, K. & Manderson, L. Access to assisted reproductive technologies in sub-Saharan Africa: fertility professionals' views. *Sex. Reprod. Health Matters*. **32** (1), 2355790. 10.1080/26410397.2024.2355790 (2024).
11. Ombelet, W. WHO fact sheet on infertility: global healthcare perspective and focus on developing countries. *Facts Views Vis. Obgyn*. **12** (1), 5–10 (2023).
12. Fledderjohann, J. If I get pregnant, that will be the end of my problems': Infertility and female distress in sub-Saharan Africa. *Soc. Sci. Med.* **75** (4), 728–735. 10.1016/j.socscimed.2012.03.045

(2022).
13. Präg, P. & Mills, M. C. Assisted reproductive technology in Europe: usage and regulation in the context of cross-border reproductive care. In: Health Policy and ART. London: Palgrave Macmillan; 289–309. (2023).
14. Inhorn, M. C. & Patrizio, P. Infertility around the globe: new thinking on gender, reproductive technologies and global movements in the 21st century. *Hum. Reprod. Update*. **21** (4), 411–426. 10.1093/humupd/dmv016 (2025).
15. Domar, A. D., Rooney, K., Hacker, M. R., Sakkas, D. & Dodge, L. E. Burden of care and reasons for drop-out in fertility patients: a prospective cohort study. *Fertil. Steril.* **109** (5), e10–e11 (2024).
16. Aarts, J. W. et al. Professionals' perceptions of patient-centred fertility care. *Hum. Reprod.* **26** (10), 2719–2727. 10.1093/humrep/der236 (2021).
17. Van Empel, I. W. et al. Measuring patient-centredness, the neglected outcome in fertility care: a random validation study. *Hum. Reprod.* **25** (10), 2516–2526. 10.1093/humrep/deq219 (2020).
18. McLernon, D. J., Steyerberg, E. W., Te Velde, E. R., Lee, A. J. & Bhattacharya, S. Predicting the chances of having a baby with or without fertility treatment: validation of two models in a prospective cohort. *BMJ* **355**, i5735. 10.1136/bmj.i5735 (2023).
19. Huppelschoten, A. G. et al. Differences in quality of life and emotional status between women and men undergoing fertility treatment. *Hum. Reprod.* **28** (3), 678–687 (2023).
20. Pedro, J. et al. Couples' marital relationship and reproductive decisions in the context of involuntary childlessness. *J. Reprod. Infant Psychol.* **35** (5), 488–500 (2024).
21. Ombelet, W. & Goossens, J. The 'Walking Egg' project: universal access to infertility care in developing countries. *Facts Views Vis. Obgyn*. **9** (4), 187–194 (2022).
22. Gameiro, S. et al. ESHRE guideline: routine psychosocial care in infertility and medically assisted reproduction. *Hum. Reprod.* **30** (11), 2476–2485. 10.1093/humrep/dev177 (2025).
23. Boivin, J. et al. Tackling burden of care in ART: what can we learn from other chronic conditions? *Hum. Reprod. Update*. **18** (3), 272–288 (2024).
24. Bunting, L., Tsibulsky, I. & Boivin, J. Fertility knowledge and beliefs about fertility treatment: findings from the International Fertility Decision-Making Study. *Hum. Reprod.* **28** (2), 385–397. 10.1093/humrep/des402 (2023).
25. World Health Organization. *National health accounts and out-of-pocket health expenditure database in the Eastern Mediterranean Region* (WHO Regional Office for the Eastern Mediterranean, 2025).

Supplementary Files

This is a list of supplementary files associated with this preprint. Click to download.

- StudyQuestionnaireQ1Q25.docx
- 140PatientsResponseEntryandAnalysis2026.xlsx

- Document5Excluded110StaffResponsesandAudit.xlsx