Submitted: 24 May, 2025 Accepted: 27 August, 2025 Published: 30 December, 2025 DOI:10.22514/j.androl.2025.044

REV INT ANDROL
Revista Internacional de Andrología

ORIGINAL RESEARCH

Comparison of psychological and sexual disorders between infertile and fertile Senegalese men

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Abstract

Background: This study aimed to assess and compare the prevalence of sexual and psychological disorders among infertile and fertile men at a healthcare center in Dakar. **Methods**: We conducted a descriptive, comparative, and cross-sectional study from April 2023 to August 2023. The study included male patients aged 18 and over being treated for male infertility (group 1) as well as patients or companions of fertile patients of the same age range (group 2). We designed a questionnaire assessing the sociodemographic characteristics of respondents, the psychological impact using the Hospital Anxiety and Depression Scale (HADS), erectile function using the International Index of Erectile Function (IIEF-15), and premature ejaculation using the Premature Ejaculation Profile (PEP). **Results**: Our sample consisted of 86 respondents in each group. The average age of respondents in both groups was 41.02 ± 8.26 years (range: 27 to 60 years). Participants in group 1 had significantly lower average scores for erectile function, orgasmic function, sexual desire, sexual satisfaction, and overall satisfaction compared to participants in group 2 ($p < 0.05$). The average total PEP score in group 1 (12.52 ± 3.27) was significantly lower than that in group 2 (13.99 ± 2.05) ($p = 0.001$). The average total score for anxiety and depressive disorders in group 1 was significantly higher than that in group 2 ($p < 0.001$). The presence of anxiety disorders in group 1 was correlated with a decrease in IIEF-15 subdomain scores and PEP. In addition, reductions in different IIEF-15 subdomains were correlated with a lower PEP score. **Conclusions**: Infertile men have more severely altered IIEF-15, PEP, and HADS scores compared to fertile men. The presence of anxiety disorders in group 1 was correlated with lower IIEF-15 subdomain scores and PEP. The presence of erectile disorders was associated with premature ejaculation in infertile patients.

Keywords

Erectile function; Male infertility; Premature ejaculation; Depression; Anxiety

Comparación de los trastornos psicológicos y sexuales entre hombres Senegaleses infértiles y fértiles

Resumen

Antecedentes: Nuestro estudio tuvo como objetivo comparar los trastornos sexuales y psicológicos entre hombres infértiles y fértiles en un centro en Dakar. **Métodos**: Realizamos un estudio descriptivo, comparativo y transversal desde abril de 2023 hasta agosto de 2023. Se incluyeron en el estudio pacientes masculinos de 18 años o más seguidos por infertilidad masculina (grupo 1), así como pacientes o acompañantes de pacientes fértiles de la misma edad que los del grupo 1 (grupo 2). Diseñamos un cuestionario para evaluar las características sociodemográficas de los participantes, el impacto psicológico (Escala Hospitalaria de Ansiedad y Depresión (HADS), la función eréctil (Índice Internacional de la Función Eréctil (IIEF-15)) y la eyaculación precoz (Perfil de Eyaculación Precoz (PEP)). **Resultados**: Nuestra muestra estuvo compuesta por 86 participantes en cada grupo. La edad promedio de los participantes en ambos grupos fue de 41.02 $\pm$ 8.26 (de 27 a 60 años). Los participantes del grupo 1 tuvieron puntuaciones medias significativamente más bajas en función eréctil, función orgásmica, deseo sexual, satisfacción sexual y satisfacción general que los participantes del grupo 2 ($p < 0.05$). La puntuación total media del PEP de los participantes del grupo 1 (12.52 $\pm$ 3.27) fue significativamente menor que la de los participantes del grupo 2 (13.99 $\pm$ 2.05) ($p = 0.001$). La puntuación total media de trastornos de ansiedad y depresión de los participantes del grupo 1 fue significativamente mayor que la de los participantes del grupo 2 ($p < 0.001$). La presencia de trastornos de ansiedad en los participantes del grupo 1 se correlacionó con una disminución en las puntuaciones de los subdominios del IIEF-15 y del PEP. La disminución en los diferentes subdominios del IIEF-15 se correlacionó con la del puntaje PEP. **Conclusiones**: Los hombres infértiles presentan puntuaciones más alteradas en el IIEF-15, PEP y HADS que los hombres fértiles. La presencia de trastornos de ansiedad en los participantes del grupo 1 se correlaciona con una disminución en las puntuaciones de los subdominios del IIEF-15 y del PEP. La presencia de trastornos eréctiles se asocia con la eyaculación precoz en pacientes infértiles.

Palabras Clave

Función eréctil; Infertilidad masculina; Eyaculación precoz; Depresión; Ansiedad

1. Introduction

Infertility is defined as the inability to conceive a child after 12 months of regular, unprotected sexual intercourse [1]. The World Health Organization (WHO) recognizes infertility as a major health issue. However, it remains largely unaddressed in Africa, with limited reliable data available. Approximately 15% of couples worldwide suffer from infertility, with a male-related cause observed in half of the cases [2].

In many cultures, particularly in Senegal, the inability to conceive is experienced as a devastating event by numerous couples [3]. Stigmatization and feelings of guilt associated with infertility lead to a deterioration in couple cohesion and a significant psychological burden [4, 5].

The literature reports that the psychological impact of infertility is generally more pronounced in females compared to males [6, 7]. Nevertheless, many men perceive infertility as a loss of masculinity and virility, which can lead to low self-esteem, depression, and anxiety [8].

Procreation is one of the primary purposes of sexual intercourse in humans, and infertility can contribute to sexual disorders in men due to the depression and anxiety it often causes [9]. In such cases, sexual activity usually becomes less spontaneous, as it is frequently timed around the woman's fertile period. Consequently, sexuality is stripped of its recreational and erotic aspects, and sex becomes solely associated with procreation. It may become obligatory, repetitive, and mechanical, offering minimal pleasure [10, 11].

Erectile dysfunction (ED) and premature ejaculation (PE) are the most common forms of male sexual dysfunction. However, few studies have evaluated these conditions in infertile men using validated assessment tools. Existing literature reports a higher prevalence of ED and PE in infertile men compared to fertile men of the same age [12, 13]. To our knowledge, our study is the first in West Africa to assess the sexual and psychological complications of male infertility using validated instruments.

Given the greater psychological impact of infertility in Africa and the lack of regional data on the sexual health of infertile men in sub-Saharan Africa, it is essential to evaluate the sexual well-being of infertile patients in our setting. Therefore, the objective of our study was to compare the psychological and sexual disorders between infertile and fertile Senegalese men using validated questionnaires.

2. Materials and methods

2.1 Study design and period

This was a descriptive, comparative, and cross-sectional study conducted from April 2023 to August 2023. It aimed to compare depression, anxiety, erectile dysfunction, and premature ejaculation between infertile and fertile men.

2.2 Study population

We included male patients aged 18 years and older, followed for infertility at the urology department of a university hospital in Dakar between January 2019 to December 2022 (Group 1). Infertility was defined as the inability to conceive a child after 12 months of regular, unprotected sexual intercourse [1].

The control group (Group 2) consisted of fertile patients or companions of fertile patients of the same age and socioeconomic level, who were consulting on an outpatient basis and had no identified chronic illness. Fertility in the control group was confirmed by recent paternity within the past 12 months.

We excluded patients who were unable to understand or respond to the questionnaire, those with chronic alcohol or tobacco use, and patients with metabolic diseases such as diabetes, hypertension, obesity, or hypercholesterolemia. We also excluded those who had not engaged in sexual intercourse in the past four weeks.

Among the 180 patients followed for male infertility, 148 were contacted. Of these, 139 agreed to participate, and the first 20 responses were used to evaluate their clarity and comprehension of the questionnaire.

Thus, 119 infertile patients were retained. Among them, 33 were excluded, comprising 23 active smokers and 10 chronic alcohol users. Finally, 86 infertile patients were included in the study (Group 1), and compared to 86 fertile controls of the same age (Group 2) (Fig. 1).

2.3 Questionnaire

A structured questionnaire was developed to evaluate sexual and psychological parameters in both fertile and infertile men. The questionnaire was administered in French and consisted of four main parts:

Part 1: Questions covering the sociodemographic characteristics of the participants.

Part 2: The International Index of Erectile Function (IIEF-15), a reliable, reproducible, and internationally validated questionnaire that assesses: erectile function (questions 1 to 5 and 15), orgasmic function (questions 9 and 10), sexual desire (questions 11 and 12), satisfaction with sexual intercourse (questions 6 to 8), and overall satisfaction (questions 13 and 14) [14].

Part 3: The Premature Ejaculation Profile (PEP), comprising four questions rated from 0 to 4. It assesses satisfaction with sexual intercourse (question 1), perceived control over ejaculation (question 2), personal distress related to premature ejaculation (question 3), and possible relationship difficulties caused by premature ejaculation (question 4) [15]. The total PEP score was calculated by summing the scores of the four questions.

Part 4: The Hospital Anxiety and Depression Scale (HADS), which includes 14 items, *i.e.*, 7 questions assessing anxiety and 7 questions assessing depression. Each item is scored from 0 to 3, yielding a maximum score of 21 for each domain [16].

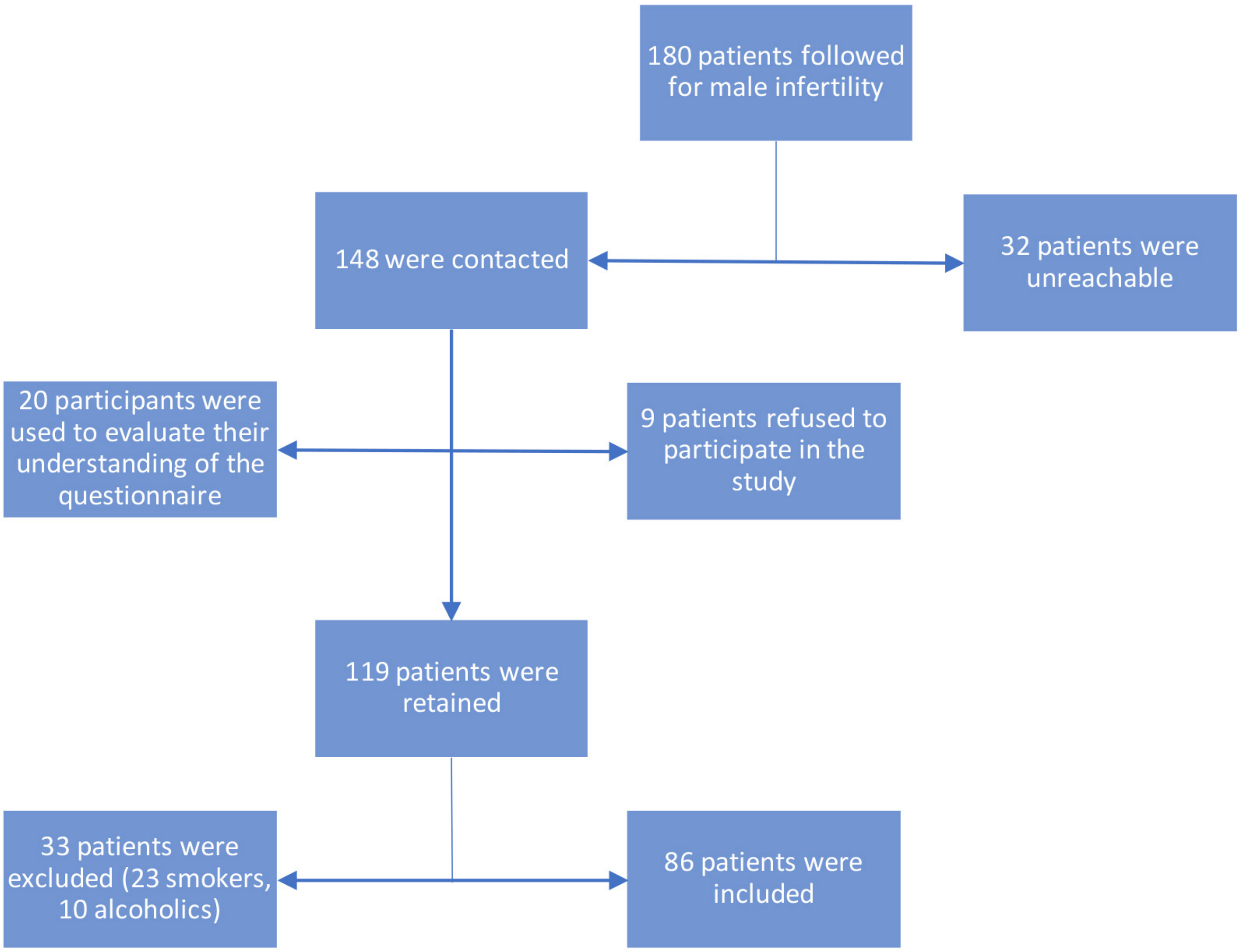

FIGURE 1. Flow diagram of participant selection and inclusion in the infertile and fertile groups.

2.4 Data collection

Two trained investigators (Mrs. K Ba and Mr. AC Laye) conducted the interview to minimize comprehension bias among participants. The questionnaire was administered either by phone or in person, with each session lasting approximately 20 minutes. Participant responses were recorded using the secure online data collection platform KoboToolbox.

2.5 Statistical analysis

The collected data were exported to SPSS version 25.0, IBM Corporation (2017), Armonk, NY, USA for statistical analysis. Microsoft Excel 2013, Microsoft Corporation, Redmond, WA, USA was used to create graphical representations. Qualitative variables were expressed as frequencies and percentages. The Shapiro-Wilk and Kolmogorov-Smirnov tests were used to assess the distribution of continuous variables. Continuous data were presented as means, standard deviations, minimum values, and maximum values. The Student's *t*-test was applied to evaluate statistical differences in continuous variables between the two groups. Pearson's correlation test was used to assess relationships between continuous variables. A *p*-value < 0.05 was considered statistically significant.

3. Results

3.1 Sociodemographic characteristics

As shown in Table 1, the average age of participants in both groups was 41.02 ± 8.26 years (range: 27 to 60 years). The average age of the spouses of participants in Group 1 was 32.2 ± 7.6 years (range: 18 to 55 years), while in Group 2 it was 32.5 ± 7.5 years (range: 20 to 53 years). Most participants in Group 1 (46.5%) had been married for between 5 and 10 years. Additionally, 85% of participants in Group 1 and 89.5% in Group 2 were married under the monogamous marital regime. Primary infertility was observed in 80.2% of participants in Group 1.

3.2 Evaluation of anxiety and depressive disorders

The average total anxiety scores for Groups 1 and 2 were 7.91 ± 3.95 (range: 0–17) and 3.58 ± 1.59 (range: 0–17), respectively, showing a significant difference between the two groups ($p < 0.0001$). Fifty participants in Group 1 (58.1%) and three participants (3.49%) in Group 2 exhibited borderline abnormal or abnormal anxiety symptoms (HADS >8) (Fig. 2). The average total depression scores for Groups 1 and 2 were 8.95 ± 3.57 (range: 0–17) and 4.79 ± 4.67 (range: 0–15), respectively. This also indicates a significant difference between the groups ($p < 0.0001$). Moreover, sixty-three participants in Group 1 (73.3%) and twenty-two participants in Group 2 (25.58%) showed borderline abnormal or abnormal depressive symptoms (HADS >8) (Fig. 3).

3.3 Evaluation of erectile function

In Group 1, only 32 participants (37.2%) exhibited normal erectile function, compared to 60 participants (69.7%) in Group 2 (Fig. 4). Moreover, participants in Group 1 had significantly lower scores for erectile function, orgasmic function, sexual desire, satisfaction with sexual intercourse, and overall satisfaction compared to those in Group 2 ($p < 0.05$) (Table 2).

3.4 Evaluation of premature ejaculation

Participants in Group 1 had significantly lower scores on all four questions of the PEP compared to those in Group 2 ($p < 0.05$) (Table 3). The average total PEP score in Group 1 (12.52 ± 3.27) was significantly lower than that of Group 2 (13.99 ± 2.05) ($p = 0.001$) (Table 3).

TABLE 1. Sociodemographic characteristics of participants in group 1 (infertile) and group 2 (fertile).

Characteristic	Group 1	Group 2	*p*-value
Average age of participants (range), yr	41.02 ± 8.26 (27–60)	41.02 ± 8.26 (27–60)	1.00
Average age of spouses (range), yr	32.2 ± 7.6 (18–55)	32.5 ± 7.5 (20–53)	0.82
Type of marriage (%)			
Monogamous	73 (84.9)	77 (89.5)	0.61
Polygamous	13 (15.1)	9 (10.5)	
Education level (%)			
Primary	12 (14.0)	12 (14.0)	0.244
Secondary	59 (68.6)	50 (58.1)	
Tertiary	15 (17.4)	24 (27.9)	
Religion (%)			
Muslim	81 (94.2)	84 (97.7)	0.247
Christian	5 (5.8)	2 (2.3)	

TABLE 1. Continued.

Characteristic	Group 1	Group 2	*p*-value
Ethnicity (%)			
Wolof	37 (43.0)	27 (31.4)	0.12
Peul	18 (20.9)	16 (18.6)	
Sérère	9 (10.5)	9 (10.5)	
Diolas	2 (2.3)	0 (0.0)	
Autres	20 (23.3)	34 (39.5)	
Type of infertility (%)			
Primary infertility	69 (80.2)	N/A	N/A
Secondary infertility	17 (19.8)	N/A	
Occupation (%)			
Unemployed	5 (5.8)	12 (14.0)	0.07
Employed	81 (94.2)	74 (86.0)	
Monthly income (%)			
<100,000	2 (2.3)	13 (15.1)	**0.017**
100,000–300,000	8 (9.3)	10 (11.6)	
300,000–500,000	33 (38.4)	33 (38.4)	
>500,000	43 (50.0)	30 (34.9)	

p-value < 0.05. The values in bold indicate significant p-values. N/A: Not applicable.

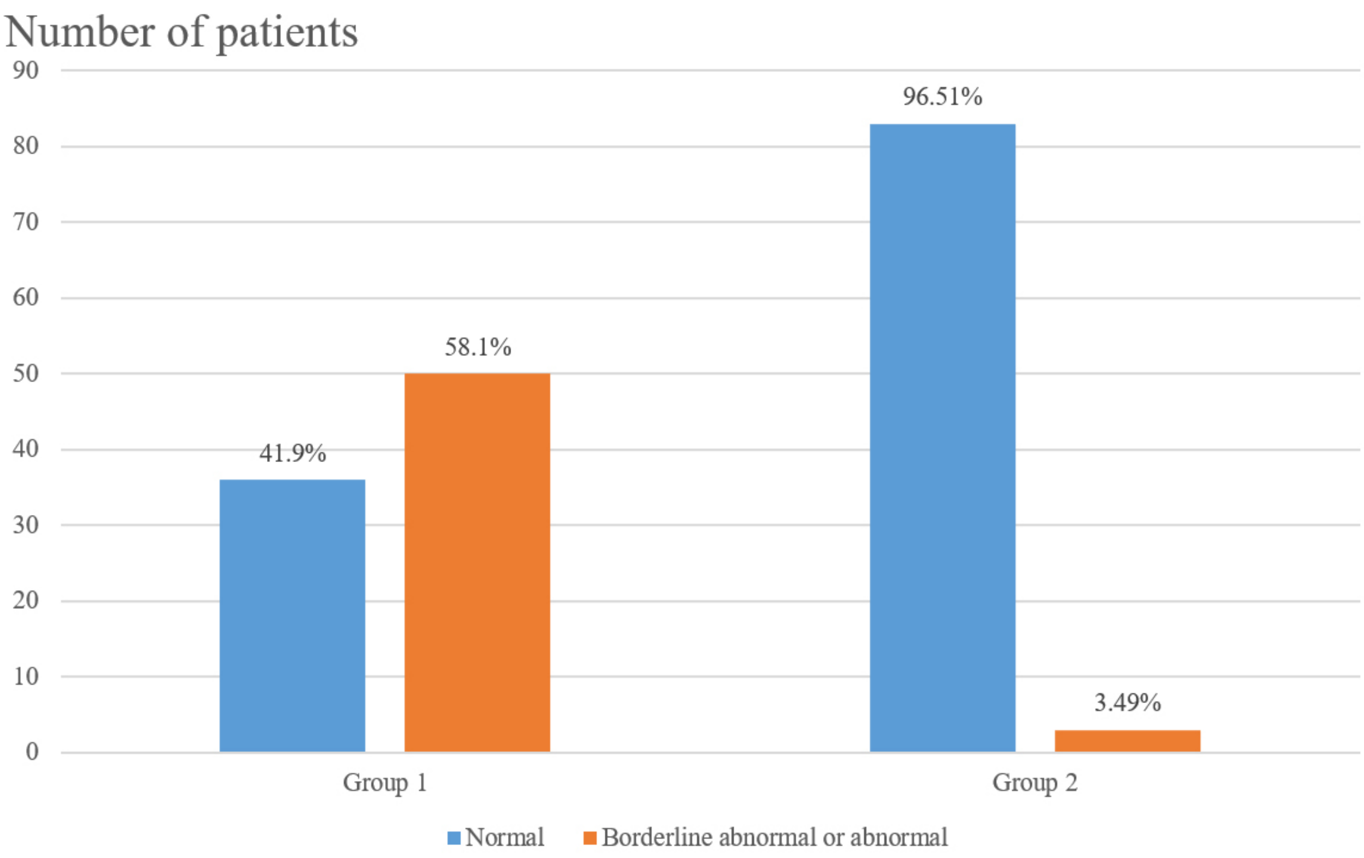

FIGURE 2. Distribution of participants in Group 1 (infertile) and Group 2 (fertile) according to their anxiety levels.

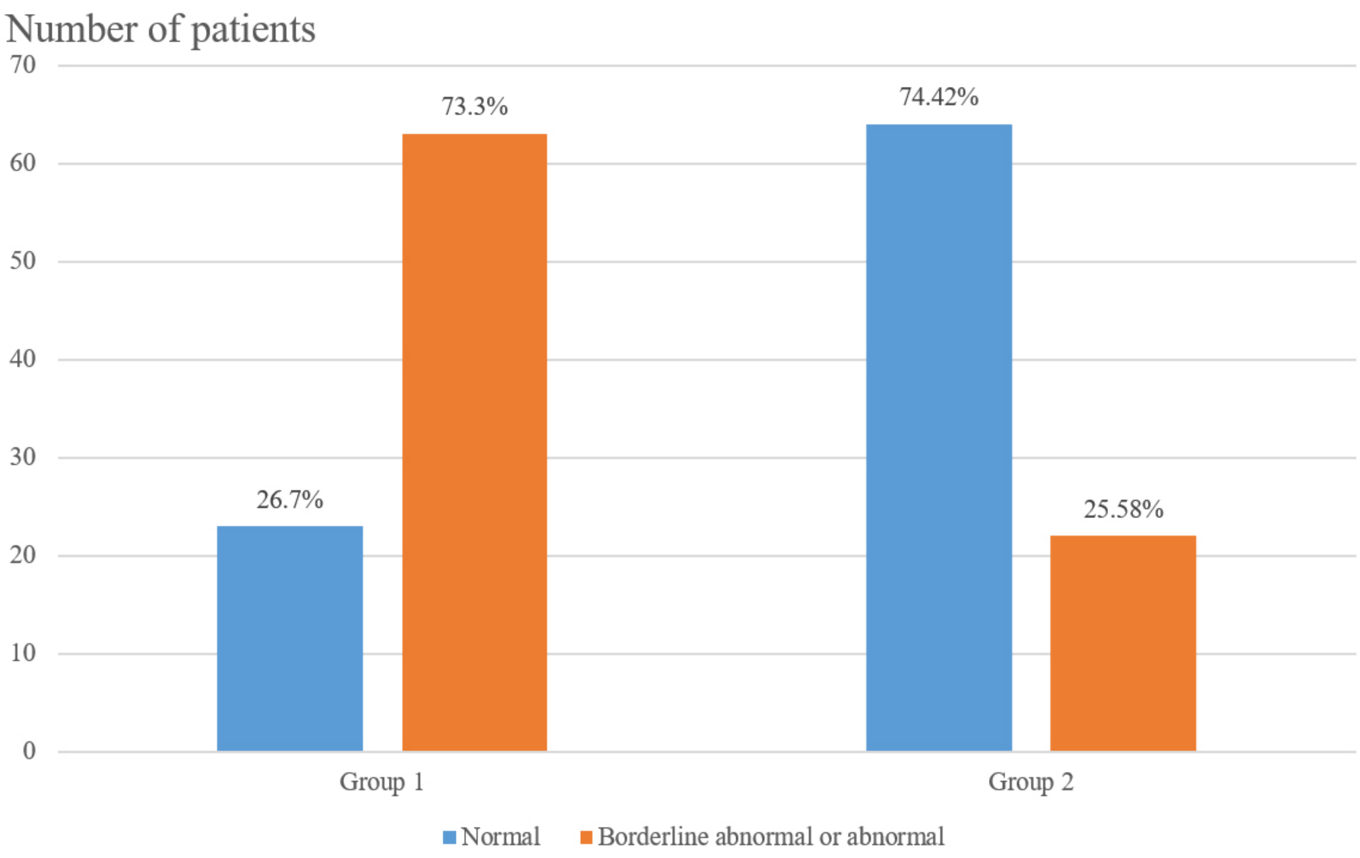

FIGURE 3. Distribution of participants in Group 1 (infertile) and Group 2 (fertile) according to their depression levels.

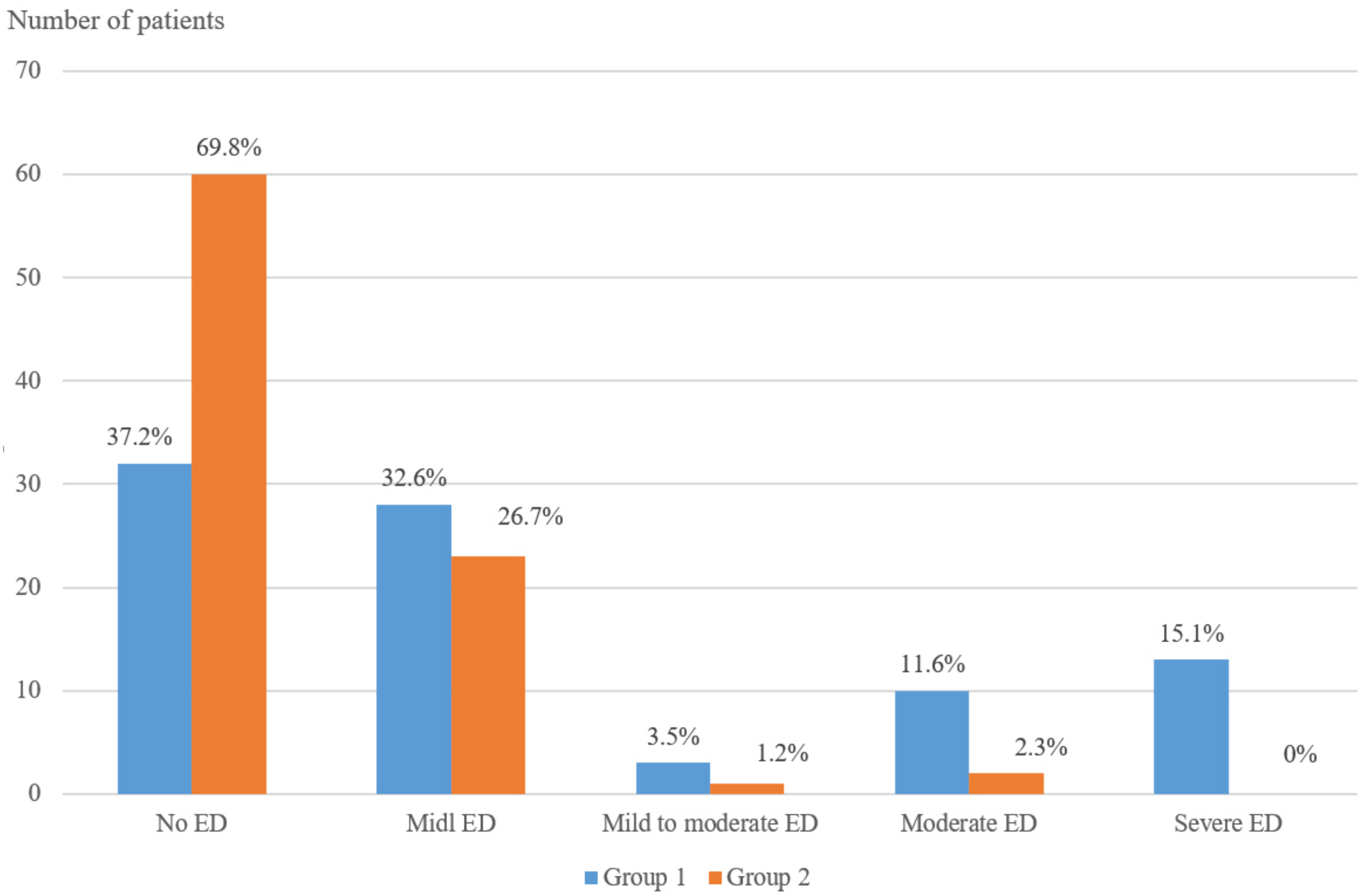

FIGURE 4. Distribution of participants in Group 1 (infertile) and Group 2 (fertile) according to their erectile function status. ED: Erectile dysfunction; Midl: Midline.

TABLE 2. Comparison IIEF-15 questionnaire between the two groups.

International Index of Erectile Function.	Group 1 Average score ± (range)	Group 2 Average score ± (range)	*p*-value
Erectile function	21.88 ± 8.745 (4–30)	27.84 ± 2.97 (15–30)	<**0.001**
Orgasm	6.84 ± 3.22 (0–10)	8.8 ± 1.08 (5–10)	<**0.001**
Desire	7.74 ± 1.80 (0–10)	8.69 ± 1.11 (6–10)	<**0.001**
Satisfaction sexual	9.8 ± 4.73 (0–15)	12.97 ± 1.96 (7–15)	<**0.001**
Overall satisfaction	7.81 ± 1.90 (2–10)	8.64 ± 1.25 (6–10)	**0.001**

p-value < 0.05. The values in bold indicate significant p-values.

TABLE 3. Distribution of participants from groups 1 and 2 according to their PEP score.

Item	Group 1		Group 2		*p*-value
	Average score (range)	Standard deviation	Average score (range)	Standard deviation	
Question 1	2.78 (1–4)	0.94	3.20 (1–4)	0.73	**0.001**
Question 2	2.80 (1–4)	0.93	3.17 (0–4)	0.79	**0.005**
Question 3	3.51 (1–4)	0.89	3.80 (1–4)	0.70	**0.018**
Question 4	3.43 (1–4)	0.99	3.81 (1–4)	0.62	**0.003**
PEP total score	12.52 (4–16)	3.27	13.99 (8–16)	2.05	**0.001**

p-value < 0.05. The values in bold indicate significant p-values. PEP: Premature Ejaculation Profile.

3.5 Factors influencing sexual disorders among participants

The presence of anxiety disorders and premature ejaculation in participants from Group 1 was correlated with a decrease in the sub-scores of the IIEF-15 (Table 4). The presence of depressive disorders in participants from Group 1 was also correlated with premature ejaculation (Table 4).

The presence of anxiety and depressive disorders in participants from Group 2 was correlated with a decrease in the sub-scores of both the IIEF-15 and the PEP. However, the presence of ejaculatory disorders in participants from Group 2 was not correlated with impaired erectile function (Table 5).

4. Discussion

We interviewed 86 infertile men and 86 fertile men of the same age to compare their sexual function, anxiety levels, and depression symptoms. We found that infertile participants experienced significantly higher rates of erectile dysfunction, premature ejaculation, depression, and anxiety than fertile participants. The inability to conceive is often experienced as a profound emotional burden for millions of couples worldwide [3], leading to serious psychological consequences, including anxiety, depression, and diminished self-esteem [4, 5].

Although the average age of our study population was relatively high (41 years), it did not significantly affect our results, as we compared two age-matched groups. Nevertheless, the relatively advanced age of patients followed for infertility at our center may be explained by the tendency of many Senegalese men to seek medical care late. This delay is often due to the belief that infertility is primarily a female issue. In some cases, men even take a second wife before consulting a specialist [17].

Comparing our results with existing literature on the prevalence of anxiety and depression in infertile men is somewhat challenging due to the use of different assessment tools. In

TABLE 4. Factors influencing the sexual disorders of participants in group 1.

Characteristic	Erection (*p*-value)	Orgasm (*p*-value)	Desire (*p*-value)	Sexual satisfaction (*p*-value)	Overall satisfaction (*p*-value)	PEP (*p*-value)
Age of participants	0.703	0.803	0.786	0.986	0.250	0.055
Age of spouses	0.376	0.482	0.671	0.658	0.346	**0.036**
Duration of marriage	0.679	0.496	0.471	0.347	0.828	0.194
Type of marriage	0.251	0.110	0.119	0.104	0.099	0.571
Type of infertility	0.601	0.492	0.923	0.509	0.494	0.190
Anxiety disorders	**0.012**	**0.030**	**0.006**	**0.021**	**<0.001**	**<0.001**
Depressive disorders	0.914	0.713	0.853	0.774	**0.021**	**0.020**
PEP	**0.003**	**0.017**	**<0.001**	**0.025**	**<0.001**	N/A

p-value < 0.05. The values in bold indicate significant p-values. PEP: Premature Ejaculation Profile; N/A: Not applicable.

TABLE 5. Factors influencing the sexual disorders of participants in group 2.

Characteristic	Erection (*p*-value)	Orgasm (*p*-value)	Desire (*p*-value)	Sexual satisfaction (*p*-value)	Overall satisfaction (*p*-value)	PEP (*p*-value)
Age of participants	**0.042**	**0.008**	**0.012**	**0.042**	**0.007**	**0.024**
Age of spouses	**0.021**	**0.038**	**0.047**	0.057	**0.015**	**0.010**
Duration du marriage	0.224	0.267	0.530	0.272	0.393	0.202
Type of marriage	0.594	0.694	0.493	0.230	0.294	0.851
Anxiety disorders	**0.001**	**0.031**	0.120	**0.045**	0.057	**0.001**
Depressive disorders	**0.004**	**<0.001**	**<0.001**	**<0.001**	**<0.001**	**<0.001**
PEP	**<0.001**	**<0.001**	**<0.001**	**<0.001**	**<0.001**	N/A

p-value < 0.05. The values in bold indicate significant p-values. PEP: Premature Ejaculation Profile; N/A: Not applicable.

this study, we observed that infertile participants had definite anxious symptomatology in 20.9% and depressive symptomatology in 31.4%. Gamel *et al.* [3] observed a prevalence of 42% for severe depression and 36% for moderate anxiety among infertile participants. Nonetheless, a consistent finding across comparative studies is that the prevalence of anxiety and depressive symptoms is higher in infertile men than in fertile men [4]. Studies have also shown that men facing infertility due to male-related factors often engage in social withdrawal and tend to avoid interaction with their partners [11, 18].

Depressed and anxious men are more likely to consume cigarettes, drugs, and alcohol, which further exacerbates the decline in sperm quality and contributes to sexual disorders [18]. Numerous studies have demonstrated the deleterious effect of stress on sperm parameters [19, 20]. The psychological distress correlated with infertility can therefore worsen sperm quality, creating a vicious cycle that perpetuates infertility [21, 22]. It is crucial to provide psychological, emotional, and sexological support to couples affected by infertility to improve their chances of conceiving [4].

Several studies have shown that infertility can negatively impact male sexual function [23–25]. Consistent with our findings, Lotti *et al.* [12] also reported a higher prevalence of erectile dysfunction (ED) in infertile men compared to fertile men. However, the prevalence of ED in our study (62.8%) was notably higher than those reported by Lotti (17.8%) and Yikilmaz (34.7%) [12, 26]. This variability in prevalence may be attributed to methodological differences. In our study, we used the IIEF-15 questionnaire to assess erectile function, and the 62.8% prevalence corresponds to the compiled prevalence of all severity degrees of ED. This approach aligns our findings more closely with those of Song *et al.* [27], who also used the IIEF-15 and reported a 51.8% prevalence of ED in their infertile cohort. The significant difference in the prevalence of ED may also be due to the greater psychological impact of infertility in Africa, where infertile couples are more stigmatized [28].

As in the study by Ozkan *et al.* [13], the sub-scores for orgasmic function, sexual desire, sexual satisfaction, and overall satisfaction were significantly lower in infertile participants compared to fertile participants. These findings reflect a decline in the overall sexual well-being of infertile men, which may further contribute to the persistence or worsening of infertility [29, 30].

The association between ED and reduced sexual desire, particularly in the context of infertility, may suggest a possible testosterone deficiency. Although we did not assess testosterone levels in our participants, Satkunasivam *et al.* [31] demonstrated that ED correlated with low libido disorders in infertile men is not typically linked to testosterone deficiency, but rather to the psychological impact often observed in infertile patients.

Several authors have described depression, anxiety, and stress as contributing factors to sexual dysfunction in infertile men [13, 32, 33]. However, in our study, like the findings of Corona *et al.* [34], only anxiety was identified as a factor associated with decreased IIEF-15 sub-scores, while depression did not show a significant impact.

Other factors not addressed in our study, such as the sexual function of the partner and the severity of alterations in sperm parameters, have also been identified as influencing factors for ED. Indeed, studies by Yikilmaz *el al.* [26] and Shindel *et al.* [32] have demonstrated that sexual dysfunctions in the partner are a contributing factor to ED in infertile men. Furthermore, studies by Lotti *et al.* [35] and Kızılay *et al.* [36] have shown that ED worsens with the increasing severity of the impairment of spermatogenic parameters, and patients with azoospermia exhibit worse erectile function.

Contrary to Elliot *et al.*'s [37] study, factors such as the man's age, the duration of the relationship, and the duration of infertility did not influence the development of ED in our infertile participants. A study conducted by Lauterbach *et al.* [38] compared the erectile function of infertile patients undergoing *in vitro* fertilization (IVF) before, during, and after their partner's pregnancy. This study showed a slight improvement in the mean IIEF-15 score during and one year postpartum compared to the period before IVF. However, when infertile men undergoing IVF were compared to fertile men during the same period, fertile participants consistently exhibited better erectile function. This finding suggests that ED may persist in infertile men, even after achieving procreation [38].

We did not observe a significant difference between the type of infertility and ED among infertile participants. However, two previous studies compared the sexual function of patients with primary infertility to those with secondary infertility and found a predominant ED among patients with secondary infertility [39, 40].

Premature ejaculation (PE) is one of the most common sexual disorders among men [41]. In the general population, its prevalence ranges from 14% to 43% [42]. This variability in prevalence is partly due to ongoing controversies regarding the definition and diagnosis criteria for PE [43]. In our study, we chose to use the PEP to compare the ejaculatory profile of fertile and infertile men. Other studies, such as the one conducted by Lotti *et al*. [12], used the Premature Ejaculation Diagnostic Tool (PDET). Most studies comparing the prevalence of PE in infertile versus fertile men, including our study, have observed a higher prevalence of PE among infertile subjects [12, 44]. However, a few authors, such as McCabe *et al*. [45], did not observe a significantly higher prevalence of PE among infertile patients.

As reported in previous studies, we also found that depression and anxiety contribute to the occurrence of PE in infertile patients [12, 44, 46]. Additionally, studies have shown that, like ED, PE is correlated with the severity of abnormalities in sperm parameters [12, 35, 47]. Correlations between psychological complications, such as depression and anxiety, and sperm quality have also been observed in the literature. For example, Zhang *et al*. [48] found that depression, rather than anxiety, was associated with reduced sperm quality in patients. On the other hand, Pan *et al*. [49] found that anxiety was associated with impaired sperm quality.

Like all studies, our study has certain limitations that should be acknowledged. The participants were not representative of the entire Senegalese population, and therefore, the results cannot be generalized to the national level. Another limitation is the lack of testosterone level measurement in participants, which may introduce bias. Testosterone deficiency can be a potential cause of infertility and may also independently contribute to ED, depression, or anxiety. Although interviewer bias was minimized through investigator training, it may still be present. We also acknowledge that having had at least one child may introduce bias, as it could mitigate the sexual and psychological complications associated with infertility by reducing stress and social pressure experienced by patients. The same applies to marital satisfaction, which was not assessed in this study. These factors, though not adjusted for in our analysis, represent potential confounding variables that should be explored in future studies. Despite these limitations, our findings provide valuable insights into a topic that remains understudied in sub-Saharan Africa.

Based on our findings, we propose that systematic screening for anxiety and depression be incorporated into infertility assessments. Early identification of psychological disorders is essential, as they may worsen patient distress and negatively impact both sexual function and treatment outcomes. We also recommend that sexual dysfunction be systematically assessed in infertile patients to ensure early and appropriate management. Addressing these disorders is critical, as they can further reduce the chances of natural conception.

5. Conclusions

Infertile men show significantly lower scores on the International Index of Erectile Function (IIEF-15), the Premature Ejaculation Profile (PEP), and the Hospital Anxiety and Depression Scale (HADS) compared to fertile men. The presence of anxiety disorders in infertile respondents is correlated with reduced scores across the subdomains of the IIEF-15 and PEP. Additionally, erectile dysfunction is associated with premature ejaculation in infertile patients. The sexual consequences of male infertility must be systematically identified and addressed to improve the quality of life for couples and enhance the chances of spontaneous conception.

AVAILABILITY OF DATA AND MATERIALS

The datasets generated and/or analysed during the current study are available from the corresponding author on reasonable request.

AUTHOR CONTRIBUTIONS

OG and ALC—designed the research study. OG, ALC and KB—performed the research. MN and AG—analyzed the data. OG, ALC, MD, MG and PAF—wrote the manuscript. All authors contributed to editorial changes in the manuscript. All authors read and approved the final manuscript.

ETHICS APPROVAL AND CONSENT TO PARTICIPATE

Informed consent was obtained from all participants before the interview. Participants had the right to withdraw from the study at any time without providing an explanation to the research team. The confidentiality of the obtained data was guaranteed. The institutional review board of Dalal Jamm Hospital approved this study.

ACKNOWLEDGMENT

Special thanks to Urology Department of Dalal Jamm Hospital, Dakar (Senegal).

FUNDING

This research received no external funding.

CONFLICT OF INTEREST

The authors declare no conflict of interest.

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How to cite this article: Oumar Gaye, Amdy Laye Counta, Mohamed Diallo, Modou Ndiaye, Khadidiatou Ba, Moustapha Gning, *et al*. Comparison of psychological and sexual disorders between infertile and fertile Senegalese men. Revista Internacional de Andrología. 2025; 23(4): 36-46. doi: 10.22514/j.androl.2025.044.