

ERECTILE DYSFUNCTION

Preoperative Psychological Evaluation for Patients Referred for Penile Prosthesis Implantation



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ABSTRACT

Background: Patients may remain dissatisfied after penile prosthesis implantation for the treatment of erectile dysfunction. Studies showing the results of standardized protocols for preoperative psychological evaluation are lacking.

Purpose: To estimate the rate of patients considered psychologically unfit for penile prosthesis implantation and to compare their characteristics with those considered fit after the implementation of a standardized psychological profile evaluation protocol for men with erectile dysfunction.

Methods: Cross-sectional evaluation of men referred for penile prosthesis implantation by their urologists, based on organic causes for the erectile dysfunction, including a semi-structured (sexual and relational anamnesis of the patient and their partner, information about expectations about the results of the penile prosthesis implantation and possible complications) and a structured instrument including validated tools for the evaluation of depression and/or anxiety symptoms. These were the Self Reporting Questionnaire (SRQ-20), the 36-Item Short-Form Health Survey for quality of life, and the Five-Factor Model (FFM) for behavioral tendencies. After at least 3 interviews, the psychology team rated the patients as fit or unfit for surgery. Unfit patients were those with any of a set of warning signals indicating risk for dissatisfaction even after penile implantation.

Main outcome measure: The prevalence of patients considered “unfit for surgery.”

Results: The quality of life scores were good, but 27.6% of patients (95% confidence interval, CI: 16.7–40.9%) were unfit for surgery. Being unfit was associated with obesity ($P = .027$), anxiety and/or depression symptoms ($P < .001$) and high levels of neuroticism ($P = .001$).

Conclusion: The preoperative evaluation protocol combining standardized and validated tools shows that more than one-quarter of patients with a medical indication for penile prosthesis implantation were not in good psychological conditions for the surgery. The development of psychological evaluation protocols can help identify patients in need of adequate care before penile implantation. **M de Mello Ferreira dos Reis, EA Corrêa Barros, M Pollone, et al. Preoperative Psychological Evaluation for Patients Referred for Penile Prosthesis Implantation. Sex Med 2021;9:100311.**

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Key Words: Erectile dysfunction; Patient satisfaction; Short-Form Health Survey; Self Reporting Questionnaire; NEO-FFI-R; Penile implantation

INTRODUCTION

The prevalence of erectile dysfunction varies widely in literature due to its various definitions,^{1,2} distinct research tools for evaluation, and the different inclusion criteria in studies. It is

estimated that the erectile dysfunction prevalence in men aged 40 or over varies between 37.2% in Brazil to 48.6% in Italy, according to a cross-sectional study conducted in 8 countries with 97,159 men.³ Erectile dysfunction's prevalence increases

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with age,³ and it may be above 50% in those aged 70 or older.^{4,5}

In men aged under 40 years, 83% of erectile dysfunction cases have a psychogenic origin, while in men aged 40 years or older, 59.3% have an organic etiology.⁶ Organic causes comprehend vascular, neurological (central or peripheral), hormonal or anatomical alterations, and side effects of medication⁷ or psychoactive substances.⁸ Penile curvature, either congenital or caused by Peyronie's disease, can also be associated with erectile dysfunction.⁹

The treatment options for erectile dysfunction depend on the cause and comprehend cognitive behavioral therapy, oral and intracavernous pharmaceuticals, vacuum constrictive devices, and penile prosthesis implants. Less invasive treatments are prioritized at first.¹⁰ Patients with organically caused erectile dysfunction who did not obtain satisfactory results with less invasive treatments are referred to surgical intervention with penile prosthesis implants. Whatever the cause, the partner's involvement in the clinical assessments and discussing the patient's and their partner's expectations are crucial in choosing the best suitable treatment.¹¹

The levels of satisfaction among patients that underwent penile prosthesis implantation can be high,¹² calculated at 69–89% in the 1980s and 1990s, and reaching 100% in some studies published from 2000 onwards.¹³ However, some patients remain dissatisfied with the surgical results due to reduction in penile size, expectations not met, prosthesis not allowing sexual intercourse, artificial or unnatural appearance, retarded ejaculation, prosthesis malfunction, and the difficulty to satisfy one's partner.¹⁴ There are few studies published on the implantation of a penile prosthesis for the treatment of erectile dysfunction in Brazil,^{15,16} and these show high satisfaction indicators and a small incidence of postoperative complications. However, none of these reported a psychological evaluation before surgery.

Ulloa et al (2008), in a literature review, proposed that a preoperative evaluation be composed of: medical history, including organic and psychogenic causes of erectile dysfunction; psychological history; sexual history; records of previous nonsurgical treatments for erectile dysfunction and results; characteristics of their relationship with the partner; knowledge and expectations about the penile prosthesis.¹⁷ The assessment of the expectations of sexual partners of patients who are candidates for penile prosthesis implantation is also recommended by the European Society for Sexual Medicine.¹¹ Still, we could not find studies using preoperative structured psychological evaluation protocols.

On considering the need for identifying patients at a higher risk of dissatisfaction after penile implantation, our urology service introduced an in-depth psychological evaluation as an obligatory step toward surgery in May 2018. The objective of this study is to estimate the rate of patients considered psychologically unfit for surgery and to compare their characteristics with those considered fit after the implementation of a

psychological profile evaluation protocol for patients with erectile dysfunction referred for penile prosthesis implantation. The research question was formulated as: is there any association between sociodemographic and clinical characteristics of patients, their depressive and anxious symptoms and behavior, and being considered unfit for penile implantation surgery?

MATERIAL AND METHODS

Study Design, Setting, and Ethics

This is a cross-sectional study including patients on the waiting list for penile prosthesis implantation and/or penile curvature correction in a university urology department. Patients were referred to surgical procedures for presenting erectile dysfunction originated organically with no response to drug therapy or intracavernous injection treatments or based on their wish to correct a penile curvature associated with the erectile dysfunction.

In May 2018, the directors of our urology service decided to change the clinical route of patients with erectile dysfunction and make all those referred to surgery by urologists receive a clearing from the psychology team before undergoing the operation. This study was conducted based on data from all consecutive patients evaluated in the period between the psychological evaluation inception, in May 2018, and November 2019. Participants considered psychologically fit for surgery were compared with those considered unfit by the psychology team regarding socio-demographic, clinical, and psychological aspects.

This study was approved by the local Institutional Review Board, and participants agreed with the use of de-identified data for research. The authors followed the STROBE reporting guideline to report the study results.

The Protocol for Psychological Evaluation

The evaluation by the psychological team routinely includes an initial interview, where social and demographic characteristics are registered, and quality of life, depression, and anxiety are also assessed using validated tools as described in detail below. In this and other sessions, the expectations from the patient and their partner regarding the surgery are evaluated.

In this study, a partner is any person with whom the patient has an affective stable relationship, where sexual intercourse is attempted. By "stable," we mean a relationship long enough for the partner to have experienced the psychological issues related to erectile dysfunction, to the point of agreeing to attend at least 1 session with the psychology team. This means that casual relationships are not included.

The psychological evaluation protocol objective is to report whether the patients are psychologically "fit" or "unfit" for surgery. According to the protocol, patients considered unfit are treated according to their needs at the time, and surgery is scheduled only if further evaluations consider them fit for the procedure. If the patient refuses psychological/psychiatric

treatment, his surgery is not even scheduled to happen, and he needs to undergo the evaluation and get the psychological team's clearance for the surgery.

The interviews are conducted in a private room over 3 or more 45-minute sessions, with the patient's partner present in at least 1. Each patient is evaluated in this room by 1 psychologist, and the case is then discussed with the whole team. The participation in the 3 sessions is recorded in the medical records, and the unjustified absence or refusal to be evaluated leads to an "unfit" report and surgery cancellation.

The preoperative evaluation protocol is made up of 2 parts. The first is a semi-structured interview by a psychologist, including patients' and their partners' anamneses, clinical history (including consumption of alcohol and drugs) and demographics, and also their perceptions of the history of the erectile dysfunction. Their expectations about the surgery are also explored by the psychologist. In the second part, a set of 3 standardized and validated instruments are applied, as detailed below.

During the interviews, affective matters of the partnership before and after the onset of erectile dysfunction are discussed (conflicts, demonstration of affection, intimacy, sexual relations), as well as the patient's expectations or fantasies about the results (performance in sexual activity, increase in penile size or volume, resolution of existing conflicts with the partner). This seeks to identify possible unrealistic expectations. The possible complications (such as infection, shortening of the penis, loss of sensibility, esthetically compromising healing, and others) are also pointed out to the participants.

The Medical Outcomes Study Questionnaire 36-Item Short-Form Health Survey (SF-36) created by Ware and Sherbourne,¹⁸ translated and culturally validated to Brazilian Portuguese by Ciconelli et al¹⁹ is used to assess the quality of life and general health. The 36-item survey is divided into 8 domains: physical function, role limitations (physical), bodily pain, general health perceptions, energy/vitality, social functioning, role limitations (emotional), and mental health, and it provides a score between zero and 100 (zero being the unhealthiest and 100 the healthiest). The Medical Outcomes Study Questionnaire 36-Item Short-Form Health Survey also includes a question that allows for health alterations in 1 year, although it does not alter the final score of the survey.

The Self Reporting Questionnaire (SRQ-20), developed by Harding et al²⁰ and validated in Brazil by Mari and Williams,²¹ is used to investigate the presence of depressive and/or anxious disorders. The questionnaire is composed of 20 "yes or no" questions (4 about physical symptoms and 16 about emotional issues) to be answered based on experiences in the previous month. Each time the participant answers "yes," a point is assigned, and "no" answers get zero points; a final score of 6 points or more implies the suspicion of a depressive and/or anxious disorder for males.

Patients are also evaluated according to the 5 categories with the Five-Factor Model (FFM)²² questionnaire, designed to detect

vulnerability to diseases. The scoring of the categories was done using the Revised Five-Factor NEO Inventory (NEO-FFI-R)²³:

- **Openness:** the way the individual reacts to new experiences;
- **Conscientiousness:** organization and perseverance;
- **Extraversion:** one's sociability and where they draw their energy from (low score indicates a more internal energy source; high scores indicate an external energy source);
- **Amiability:** the idea of trust, honesty, and conformation/aggression inhibition;
- **Neuroticism:** emotional stability; the experience with negative emotions (those who have a high score in this factor tend to experience negative emotions very intensively and have a hard time trying to control them when they surface).

The following variables were collected from the patients' medical records for this study:

- (1) sociodemographic characteristics (age, race, income, marital status, sexual orientation);
- (2) clinical characteristics (weight, height, body mass index, the reason for surgery indication);
- (3) quality of life score;
- (4) depression and/or anxiety score and
- (5) basic personality factors.

The psychologists decide together about fitness for surgery based on both the structured and unstructured interviews/sessions altogether. A patient is cleared for surgery if he has low levels of neuroticism, no important symptoms of anxiety or depression, no significant relationship conflicts, and no unrealistic expectations about surgery results. These symptoms can be inter-related. In our service, clearance for surgery is a decision based on the evaluation as a whole, and not on scores only, as shown in [Box 1](#) that presents 10 criteria that must all be checked to allow the referral for the operation.

Efforts to Avoid Bias

To minimize possible detection bias related to the identification of patients who would be unfit for surgery, we took some precautions. First, as this is a new protocol, we included in this study, only patients from the same service, which brought some homogeneity regarding socioeconomic characteristics, and all with the same medical diagnostic. All these men underwent the same protocol of evaluation, comprising the same instruments of evaluation (the 3 questionnaires and the semi-structured interview). To prevent diagnostic suspicion bias, we needed to make sure, first, that all patients underwent all the evaluations (in no case skipping a test would be accepted). We also determined a minimum number of interviews and a minimum time for each session so that no patient would be evaluated too quickly. This created a uniform assessment method. Last, and more important, was training and supervising: 3 evaluators (MP, MBCM, and CPVW) were previously trained for the application of the standardized tools and the semi-structured interview, and their evaluations were discussed with the team and

Box 1. Criteria for clearance for penile implantation surgery in the urology service

1. Absence of any symptom of anxiety or depression shown by instruments
2. Absence of any symptom of anxiety or depression shown in interviews
3. Absence of any symptom of neuroticism shown by instruments
4. Absence of any symptom of neuroticism shown in interviews
5. Absence of unrealistic expectations regarding the surgery results according to interviews
6. Adequate physical function and performance in daily life activities according to instrument evaluation and interviews
7. Adequate social functioning, according to instrument evaluation
8. Adequate relationship function and absence of hostility from partner according to interviews
9. Support from the partner with respect to surgery shown in an interview with the couple
10. Consonance between findings from the interviews and instruments

a supervisor (MMFR), for all patients, before the final report was written. The supervisor, having more experience in the evaluation and monitoring of patients with sexual dysfunctions, was able to clarify doubts and assist the team in the interpretation of the results of the unstructured psychological anamnesis. Her presence in all assessments ensured the homogeneity of the assessment criteria. The final decision for clearance for surgery was taken by this final evaluator after these discussions and once she considered all the issues raised by the colleagues.

Outcomes and Statistical Evaluation

We conducted a descriptive analysis using measures of central tendency and dispersion for quantitative variables and absolute frequencies and percentages for qualitative variables. As all patients were follow-up in the same service with the same protocol and by the same team, we did not analyze subgroups. We calculated the prevalence of patients considered “unfit for surgery,” which was the primary outcome in this study, with confidence intervals (95% CI).

To examine the association between patient characteristics and the restriction to undergo surgery, as secondary outcomes, we used the chi-square test and the one-way analysis of variance (one-way ANOVA).

Statistical significance was set at $P < .05$. Statistical analysis was performed using the Stata (version 13.1, StataCorp, Texas, USA) software.

RESULTS

The study included 58 men aged between 47 and 78 years (mean 63.7 years; standard deviation, SD, 7.1 years) referred to surgery for penile implantation due to erectile dysfunction. There were no drop-outs during the evaluations and no missing data.

Most participants completed only the basic education (63.8%), had income under 5 minimum wages (under US\$ 1325.00 per month; exchange date: May 18th, 2020; 93.1%), and 56.9% were not professionally active. The majority were married (79.3%) and Catholic (60.3%). No patient abused alcohol or drugs of any kind. Obesity was prevalent in 1 quarter of the patients (25.8%; 95% confidence interval, 95%CI: 15.3–39.0%) (Table 1).

Anxious or depressive symptoms were present in only 13.8% of subjects (95%CI: 6.1–25.4%), according to the evaluation by the SRQ-20 questionnaire. The quality of life scores were good, with the lowest mean scores in the general health (mean 75.1; SD 17.0) and vitality (mean 77.7; SD 15.5) domains (Table 2). This evaluation has shown that most patients considered their health stable (43.1%) or improving (32.8%) over the year (Table 3).

The NEO Inventory has shown that most patients were considered not to be open to new experiences (67.2%) (Table 4).

After the psychological evaluation was concluded, 16 (27.6%; 95%CI: 16.7–40.9%) patients were considered unfit for surgery.

No sociodemographic characteristic was associated with being fit for surgery. More obese patients were considered unfit for surgery than those overweight or with a normal weight for height ($P = .027$) (Table 5).

Peyronie’s disease was present in 11 (19.0%) patients, but this condition was not associated with being unfit for surgery (Table 6). Quality of life scores of patients with Peyronie’s disease were similar to the scores of the other patients in all domains. Patients with Peyronie’s also showed a similar proportion of depressive and anxiety symptoms (18.2%) compared to ones with erectile dysfunction only (12.8%; $P = 0,639$), although those with erectile dysfunction and Peyronie’s seemed to be more open to experiences (63.6%) than participants with erectile dysfunction only (25.5%; $P = .015$). No significant differences were noticed between Peyronie’s disease patients and erectile dysfunction only patients in terms of other behavioral tendencies.

The presence of depressive or anxious symptoms ($P < .001$), low levels of conscientiousness ($P = .020$), and high levels of neuroticism ($P = .001$) were associated with being considered unfit for surgery by the psychology team (Table 6).

The patients considered unfit for surgery scored significantly lower in 6 of 8 domains of quality of life: physical aspects, pain, vitality, social aspects, emotional aspects, and mental health (Figure 1). The only 2 domains that were similar for fit and unfit patients were functional capacity and general health condition.

Table 7 is a synthesis of the characteristics of the 16 patients who were considered unfit for surgery. It shows the reasons underlying the final decision to recommend further psychological

Table 1. Sociodemographic characteristics and nutritional status of patients referred for penile prosthesis implantation (n = 58)

	n	%
Education		
Incomplete basic education (less than 9 years of study)	23	39.7
Complete basic education (9 years of study)	14	24.1
Incomplete High School (less than 12 years of study)	5	8.6
Complete High School (12 years of study)	14	24.1
Complete higher education (college)	2	3.4
Personal monthly income (in minimum wages)*		
Up to 5	54	93.1
6 to 10	8	13.8
Marital status		
Single	1	1.7
Married/cohabitating	46	79.3
Separated/divorced	5	8.6
Widower	6	10.3
Professional Condition		
Active	13	22.4
Retired but active	12	20.7
Inactive retired	28	48.3
Unemployed	5	8.6
Religion		
Catholic	35	60.3
Evangelic	18	31.0
Spiritualist	1	1.7
No religion	4	6.9
Nutritional status		
Eutrophic	16	27.6
Over weight	27	46.6
Obese	15	25.8

*Minimum wage in Brazil in 2018: R\$ 954,00 (US\$ 254.40 on May 18, 2018) per month.

or psychiatric treatments and revaluations before penile implantation in our service in the period.

DISCUSSION

We evaluated patients with an indication for a penile prosthesis implantation indication regarding their psychological

fitness to undergo surgery to try and prevent dissatisfaction. Among these patients with erectile dysfunction, around 70% were aged 60 or over, 25% were obese, and 13.8% presented anxious and/or depressive symptoms. Over a fourth of the candidates for penile prosthetics implantation surgery were considered unfit according to the preoperative psychological evaluation criteria. The identification of these patients allowed us to promptly offer psychological help, especially to explore their expectations with surgery and its capability to solve the main problem of erectile dysfunction.

The study subjects presented a similar obesity prevalence (25%) to the Brazilian male population aged 50 to 59 years (20.0%; CI95%: 18.2–22.1%) and 60 to 69 years (19.9%; CI95%: 17.3–22.9%) according to data from Pesquisa Nacional de Saúde, a national coverage home survey of from 2013.²⁴ However, we verified that the patients considered unfit for penile prosthesis implantation presented a higher frequency of obesity than the already high obesity prevalence in the whole sample. This highlights a possible underlying problem of both obesity and erectile dysfunction that should be explored as a possible covariate in future studies.

The prevalence of depressive and anxious symptoms in our patients in general (13.8% on average) was similar to what was observed in a populational based study of men aged 60 or more years conducted in the southern region of Brazil (9.9%; CI95%: 7.3–12.5%).²⁵ The prevalence of depressive and anxious symptoms in men with erectile dysfunction might reach 50%,²⁶ and according to data from Massachusetts Male Aging Study (MMAS), the presence of depressive symptoms nearly doubles the chance of moderate or full erectile dysfunction occurrence (odds ratio OR = 1.82; CI95%:1.21 to 2.73).²⁷ The association between the 2 is bidirectional,²⁷ meaning that both are multi-causal, and either one might cause or reinforce the occurrence of the other.²⁸ Another study had shown that amongst patients who underwent penile prosthesis implantation, the prevalence of depression, defined by the use of medication in the last year before surgery was 19.3% for men with Peyronie's disease and approximately 13% for subjects with erectile dysfunction.²⁹ Erectile dysfunction is associated with the worsening of life quality,^{26,30} possibly being either an isolated consequence of erectile dysfunction or a superposition of erectile dysfunction and

Table 2. Quality of life scores and standard deviations (SD) of patients referred for penile prosthesis implantation evaluated by the Medical Outcomes Study Questionnaire 36-Item Short Form Health Survey (SF-36) (n = 58)

SF36 domain	Mean	SD	Minimum	Maximum
Functional capacity	85.3	18.9	5	100
Physical aspects	84.5	29.9	0	100
Pain	81.6	23.0	10	100
General health condition	75.1	17.0	15	100
Vitality	77.7	15.5	40	100
Social aspects	88.8	19.2	25	100
Emotional aspects	82.2	31.4	0	100
Mental health	80.3	18.0	36	100

Table 3. General health condition self-evaluation of patients referred for penile prosthesis implantation (n = 58)

	n	%
How would you evaluate your health now?		
Much better now than a year ago	11	19.0
Slightly better now than a year ago	8	13.8
Nearly the same as a year ago	25	43.1
Slightly worse now than a year ago	13	22.4
Much worse now than a year ago	1	1.7

depression. In our study, the patients considered unfit for surgery also had significantly more anxious and/or depressive symptoms, low levels of conscientiousness, and high levels of neuroticism, besides smaller levels of quality of life according to the validated tools we used. This indicates some of the reasons why they were considered unfit by our psychology team: the surgery cannot solve problems such as neuroticism.

Table 4. Behavioral tendencies of patients referred for penile prosthesis implantation assessed by Revised 5 Factor NEO Inventory NEO-FFI-R. (n = 58)

	n	%
Openness to experiences		
Very low	13	22.4
Low	26	44.8
Medium	12	20.7
High	6	10.3
Very high	1	1.7
Conscientiousness		
Very low	—	—
Low	2	3.4
Medium	26	44.8
High	23	39.7
Very high	7	12.1
Extraversion		
Very low	6	10.3
Low	15	25.9
Medium	29	50.0
High	7	12.1
Very high	1	1.7
Amiability		
Very low	2	3.4
Low	9	15.5
Medium	28	48.3
High	15	25.9
Very High	4	6.9
Neuroticism		
Very low	11	19.0
Low	23	39.7
Medium	19	32.8
High	4	6.9
Very high	1	1.7

While the literature shows that patients seem to be satisfied over 90% of the time with the implantation of penile prosthesis,³¹ a minority is still unsatisfied due to clinical complications, surgical team's and device's characteristics, and their psychological condition before and after surgery. According to this study's results, over 25% of candidates for surgery were not fit and needed psychological counseling and/or psychiatric treatment before further evaluations.

Trost et al (2013)¹³ points to anxious or depressive symptoms as a patient's characteristic associated with higher risks of dissatisfaction with the procedure's results. The authors, revising studies about urological and esthetical surgeries, identified some characteristics of unsatisfied patients and grouped them under the CURSED (Compulsive, Unrealistic, Revision, Surgeon Shopping, Entitled, Denial and Psychiatric) acronym. These comprehend obsessive worries with penile shape and perfectionism or unrealistic expectations (exaggerated optimism over results, overestimation of the prosthesis' effects over various life aspects). They also include situations where the patient is seeking revision surgery or consulting with multiple surgeons showing lists or requests or results to be obtained; the presence of narcissistic traits and denial of penile characteristics before surgical intervention, as well as mood disorders, body image alterations, and other psychiatric disorders.

Quinta Gomes and Nobre (2011)³² observed that high levels of neuroticism were associated with low sexual function levels evaluated with the International Index of Erectile Function (IIFE) in Portuguese men. A systematic review of 137 articles on traces of FFM and sexuality showed that neuroticism was associated with sexual dissatisfaction, negative emotions, and sexual dysfunction symptoms,³³ and other authors found the same association between neuroticism and sexual problems among men, regardless of sexual orientation.³⁴ Impulsivity, emotional instability, anger and fear, characteristics of neuroticism, predispose individuals for negative affection and dissatisfaction upon life events,³⁵ that may also be associated with higher risks of sexual dysfunctions and dissatisfaction with their treatments, including penile prosthesis implantation.

Peyronie's disease mainly affects men between 45 and 60 years of age, and erectile dysfunction is present in 40–50% of its cases, most likely due to accumulation of connective tissue and fibrous nodules caused by trauma or repetitive microvascular injuries during sexual intercourse.⁹ In the present study, Peyronie's disease diagnosis was not associated with being unfit for surgery. The association between Peyronie's and higher dissatisfaction with the penile prosthesis is not a consensus in the literature. Patients with Peyronie's disease are often worried about their physical appearance, sexual image, loss of sexual confidence, the feeling of not satisfying their partner, stigmatization, and self-isolation, regardless of the degree of penile curvature. They can require more intense care during preparation for penile prosthesis implantation.^{34,36} When investigating sociodemographic and

Table 5. Sociodemographic characteristics versus being fit for penile prosthesis implantation surgery (n = 58)

	Fit for surgery				p
	Yes		No		
	n	%	n	%	
Age (years)					0.841
Up to 59	12	70.6	5	29.4	
60 or over	30	73.2	11	26.8	
Marital status					0.617
Married/cohabiting	34	73.9	12	26.1	
Single/divorced/widower	8	66.7	4	33.3	
Education					0.084
Up to 7 years	16	69.6	7	30.4	
8 to 11 years	17	89.5	2	10.5	
12 years or more	9	56.3	7	43.7	
Race/color					>0.999
White	21	72.4	8	27.6	
Not white	21	72.4	8	27.6	
Income*					0.905
Up to 5 minimum wages	39	72.2	15	27.8	
6 to 10 minimum wages	3	75.0	1	25.0	
Professional activity					0.595
No	23	69.7	10	30.3	
Yes	19	76.0	6	24.0	
Religion					0.112
Catholic	22	62.9	13	37.1	
Others	17	89.5	2	10.5	
No Religion	3	75.0	1	25.0	
Nutritional status					0.027
Eutrophic	12	75.0	4	25.0	
Over weight	23	85.2	4	14.8	
Obese	7	46.7	8	53.3	

*Minimum wage in Brazil in 2018: R\$ 954,00 (US\$ 254.4 on May 18, 2018) per month.

clinical data associated with dissatisfaction with penile prosthesis implantation, Akin-Olugbade et al (2006)³⁷ observed that Peyronie's obesity and radical prostatectomy correlated with dissatisfaction. However, a prospective cohort study that included 142 Italian subjects has not found a significant association between Peyronie's disease and dissatisfaction (in such study, the only variable associated with satisfaction was the surgeon's experience).³⁸

Although a variety of studies show the subject's psychological characteristics associated with dissatisfaction with the penile prosthesis implantation,^{13,39} the literature on how the preoperative psychological evaluation should be performed is scarce. The present evaluation protocol uses standardized tools and open interviews with an in-depth investigation of multiple realms of the patient's life. As recommended by Ulloa et al (2008),¹⁷ in all 3 interviews, the patient's sexual history before and after the erectile dysfunction onset, the history of intimate relations (previous and current), and the patient's knowledge and expectations regarding the prosthetics are brought up, in addition to the use of the standardized instruments.

The unfit patients are referred to individual cognitive, behavioral therapy in the service, and if necessary, to psychiatric treatment before further preoperative evaluation. The objectives of these follow-up consultations are the treatment of subjects' depressive symptoms and the approach to relational and sexual issues. Although all patients had organically caused erectile dysfunction, belief and behavioral patterns may even be further compromisers of patient's sexual health and lead to unrealistic expectations concerning the results of the penile prosthesis implantation on erection, the quality of sexual partnership, and other aspects of life. As recommended by Trost (2020),⁴⁰ obtaining informed consent for penile prosthesis implantation begins with the selection of patients and their counseling, to be done individually, with adequate language and taking into consideration the patients clinical and psychological characteristics.

An important limitation of this study is the lack of information about the length of time of the erectile dysfunction and also the period of the relationship with the partner. We are introducing these variables into our evaluation forms for further study, although. The fact that this was conducted in a single center might

Table 6. Presence of depression and/or anxious symptoms and behavioral tendencies of patients referred for penile prosthesis implantation (n = 58)

	Fit for surgery				p
	Yes		No		
	n	%	n	%	
Peyronie's disease					0.979
No	34	72.3	13	27.7	
Yes	8	72.7	3	27.3	
Depressive or anxious symptoms					<0.001
No	41	82.0	9	18.0	
Yes	1	12.5	7	87.5	
Openness to the experience					0.437
Very low/low	27	69.2	12	30.8	
Medium/high/very high	15	78.9	4	21.1	
Conscientiousness					0.020
Very low/low	—	—	2	100.0	
Medium/high/very high	42	75.0	14	25.0	
Extraversion					0.461
Very low/low	14	66.7	7	33.3	
Medium/high/very high	28	75.7	9	24.3	
Amiability					0.141
Very low/low	6	54.5	5	45.5	
Medium/high/very high	36	76.6	11	23.4	
Neuroticism					0.001
Very low/low	30	88.2	4	11.8	
Medium/high/very high	12	50.0	12	50.0	

be considered a limitation, but in reality, it brought homogeneity to the sample and the protocol. This now allows the study to be replicated in other centers. The presentation of a structured pre-operative psychological evaluation, reproducible for other studies, in fact, is a strength of this study. The protocol allows the comparison with the results and profiles of candidates for penile

prosthesis implantation before surgery—while most studies published so far evaluated only already operated patients, and they do not discuss the preoperative evaluations nor the options of care for patients at first considered unfit for the procedure.

According to the present findings of this study, around 25% of candidates for penile prosthesis implantation were unfit for

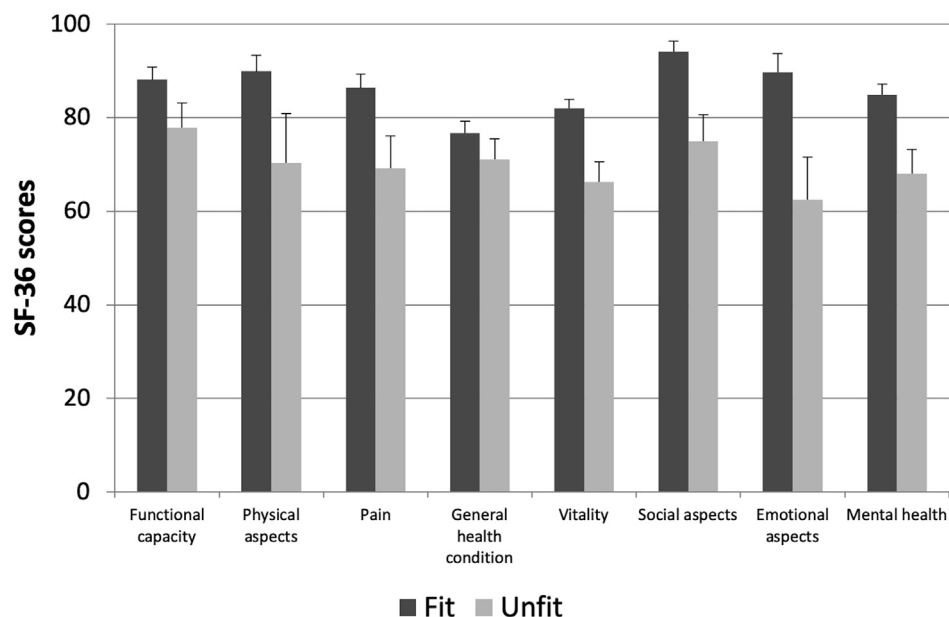
**Figure 1.** Quality of life domains and fitness for surgery of patients referred for penile prosthesis implantation (n = 58).

Table 7. Reasons underlying the evaluation as “not psychologically fit for surgery” among patients referred to penile implantation

Patient	Depression and/or anxiety	Neuroticism	Unrealistic expectations	Inadequate physical function and performance in daily life activities	Inadequate social functioning	Inadequate relationship function	Absence of support from partner with respect to surgery
1				X		X	
2		X	X	X			
3		X	X				
4			X	X	X	X	
5			X	X	X		
6		X		X	X	X	X
7	X	X	X				
8	X	X	X				
9	X	X	X	X		X	X
10		X	X	X	X	X	
11		X	X				
12		X	X		X	X	
13		X	X	X	X		
14	X	X	X	X	X	X	
15	X	X	X				
16	X	X	X	X		X	X

surgery and needed psychotherapy or psychiatric treatment before surgery. We plan to improve the preoperative evaluation, with the proposition of structured or semi-structured instruments for a more detailed investigation of the patient’s and their partner’s beliefs and expectations, and to include the postoperative psychological reevaluation process. This will allow more patients to be submitted to the procedure under better psychological conditions, and therefore have a higher probability of achieving satisfactory results.

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STATEMENT OF AUTHORSHIP

MMFR designed the protocol of care and the study, collected and interpreted data, wrote the manuscript, and revised the final version to be published. EACB helped with study design, collected and interpreted data, wrote the manuscript, and revised the final version to be published. MP, MBGM, and CPVW contributed with data collection and interpretation, and revised the manuscript critically, approving the final version. SG provided general supervision of the protocol and the study project, revised the article critically, and approved the final version. All authors consider themselves accountable for all study aspects.

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