Original Article

# Patient And Partner Satisfaction Following Penile Prosthesis Implantation

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## Abstract

**Background** Erectile dysfunction (ED) is defined as the inability to achieve or maintain an erection sufficient for satisfactory sexual performance. According to the European Association of Urology Guidelines on male sexual dysfunction, penile prosthesis implantation (PPI) is the third-line option for treatment of ED. **AIM** to assess patient and partner satisfaction after implantation of penile prosthesis and effect of comorbidities on the level of satisfaction. **Patients and Methods** This was a prospective interventional (non-experimental) follow up study of patients who underwent PPI at our unit in the department of Urology, Faculty of Medicine, Beni-Suef University. The study started from March 2020 till March 2022. **Results** The mean ages for the men and their spouses were 45.4±8.4 and 29.2±4.6 years, respectively. Level of satisfaction for men and women after 3 months was 80% and 90% respectively. **Conclusion** PPI produce different levels of satisfaction and is not affected by different comorbidities affecting patients, finally, further studies are necessary to confirm or defy our results. Extended studies are also needed to assess whether longer periods could have different effects on satisfaction in patients and their partners.

**Key Words:** penile prosthesis implantation, satisfaction

## INTRODUCTION

Erectile dysfunction (ED) is a common disorder, which affects more than 50% of males aged 50–70 years **(Levy 2002)**. ED is defined as the inability to achieve or maintain an erection sufficient for satisfactory sexual performance (Anon n.d.). For many years prosthetic devices have been used successfully to restore treatment-refractory erectile dysfunction **(Schulteiss, Gabouev, and Jonas 2005)**.

In the last decades, surgical instrumentation and techniques, antibiotic coverage, and mechanical designs have been refined resulting in improvements in safety and satisfaction with PPI. Despite these advancements, a number of complications still may occur, which include infection, mechanical failure, improper positioning, extrusion of the prosthesis, psychological maladaptation, etc. **(Sadeghi-Nejad 2007).**

The aim of PPI surgery is to achieve highest patient satisfaction combined with the lowest complication rates. Numerous studies have reported high satisfaction rates for patients after PPI surgery for the treatment of ED. The highest patient-reported rates of satisfaction have been associated with the 3-piece IPP **(Vakalopoulos et al. 2013)**. In general, patient satisfaction rates ranges were from 75% to 98% for the general penile implant population **(Levine et al. 2016; Rajpurkar and Dhabuwala 2003).**

Many predictors for patient satisfaction following PPI surgery have been suggested, including loss of sensation with diabetes, presence of Peyronie's disease, obesity, prior radical prostatectomy, type of implant, postoperative complications, and patients age **(Hellstrom et al. 2010; Montorsi et al. 2000; Natali, Olianas, and Fisch 2008a)**. To date, there is no universal tool for accurate measurement of patient satisfaction level after PPI surgery. Some have relied on surgeon self-assessment whereas others have used a variety of questionnaires, including the international index of erectile function questionnaire and the Erectile Dysfunction Inventory of Treatment Satisfaction questionnaire (EDITS) **(Akin-Olugbade et al. 2006a)**.

Several aspects of PPI surgery, including patient and partner expectations, the possible influence of patients' comorbidities and social circumstances on the surgical outcomes, and patient and partner satisfaction following the implantation should be investigated **(Osmonov et al. 2020).**

Considering the invasive nature of penile prosthetic surgery as the last resort for the management for medication-refractory ED, careful assessment of postoperative satisfaction rates and factors affecting it are keys to PPI overall success.

## Patients and Methods

This was a prospective interventional (non-experimental) follow up study of patients who underwent PPI at our unit in the department of Urology, Faculty of Medicine, Beni-Suef University. The study started from March 2020 till March 2022.

**Inclusion Criteria** Patients who: Had ED not responding to oral pharmacological therapy (PDE5Is) or ICI**,** were implanted for the first time, had a life expectancy of more than 5 years, were willing and able to meet the follow up requirements and approval for a telephonic interview.

**Exclusion Criteria** Patients who: Had undergone an accessory procedure e.g. penile curvature correction surgery, had fibrosis of the penis e.g. Peyronie's disease, post-priapism, post radical surgery, had intraoperative complications of the surgery.

**Preoperative assessment** History and physical examination, labs: CBC, INR, HbA1C, Hepatitis markers and imaging: penile duplex ultrasonography.

**Sample size** At an alpha error 0.05, a power level 99% with supposed satisfaction rate 70% and null hypothesis proportion 50%, the minimum required sample size was 50 patients (Med Calc statistical software Version 19.4 for windows 10). Since the beginning of recruitment in August 2020 we encountered 90 patients with ED not responding to oral pharmacological therapy (PDE5Is) or ICI. Hence, they were all eligible for undergoing penile prosthesis implantation surgery. Out of these patients, 50 patients were ultimately included in the study. The excluded 40 patients were as follows: 15 patients did not meet the inclusion criteria, 5 patients were post radical surgery, 5 patients had Peyronie's disease, and 5 patients had ED after priapism and 10 dropped out during the study.

**Outcomes measures** Assessment of the patient satisfaction and its relation with different comorbidities of the husband.

**Statistical analysis** Analysis of data was performed using SPSS v. 25 (Statistical Package for Social science) for Windows.

## Results

**Table (1)** Demographic characteristics of the studied participants

| Characteristics (Mean± SD) | Values (No=50) |
|---|---|
| Age of husband | 45.4±8.4 |
| Age of wife | 29.2±4.6 |
| Smoking (males) | 30(60%) |
| Co-morbidities (among husbands)<br>Cardiac<br>DM<br>HTN<br>No | <br>5(10%)<br>25(50%)<br>10(20%)<br>10(20%) |

*DM: type 2 diabetes mellitus

*HTN: hypertension

**Table (1)** showed that The Age of husband mean±SD was **45.4±8.4** while Age of wife mean±SD was **29.2±4.6**, Smoking (males) was **30(60%)** and the Co-morbidities (among husbands) were Cardiac was 5(10%), DM Was **25(50%),** HTN was **10(20%)** and No was 10**(20%)**.

**Table (2)** Relation between the patient comorbidities and satisfaction

| Items | | N | Mean | Std. Deviation | P-value |
|---|---|---|---|---|---|
| Mean. Male satisfaction | Cardiac | 5 | 3.4275 | .12536 | 0.442 |
| | DM | 25 | 3.2834 | .64648 | |
| | HTN | 10 | 3.2514 | .74465 | |
| | NO | 10 | 3.2151 | .56571 | |
| | Total | 50 | 3.3447 | .61614 | |

*P<0.05 Statistically Significant

*DM: type 2 diabetes mellitus

*HTN: hypertension

| Item | | N | Mean | Std. Deviation | P-value |
|---|---|---|---|---|---|
| Mean. male satisfaction | N | 20 | 3.2488 | .58742 | 0.750 |
| | Smoking | 30 | 3.2700 | .67755 | |
| | Total | 50 | 3.2558 | .61614 | |

*P<0.05 Statistically Significant

**Table (2)** showed that there was no statistically significant difference in Relation between the patient comorbidities and satisfaction as P-value was 0.442. Similarly, there we found no statistically significant correlation between patient comorbidities and satisfaction scores as P-value was 0.750.

**Table (3)** Relation between the penile duplex finding and satisfaction of the husband

| Items | | N | Mean | Std. Deviation | P-value |
|---|---|---|---|---|---|
| Husband satisfaction | arterial insufficiency | 10 | 3.2111 | .73240 | 0.852 |
| | venous leakage | 40 | 3.5180 | .68980 | |

*P<0.05 Statistically Significant

**Table (3)** showed that there was no statistically significant difference in Relation between the penile duplex finding (arterial insufficiency and venous leakage) and satisfaction of the husband as P-value was 0.852.

**Table (4)** Overall satisfaction at 3 months among husbands and wives

| Time | Husbands (N=50) | Females (N=50) |
|---|---|---|
| At 3 months | | |
| dissatisfied | 10(20%) | 5 (10%) |
| Satisfied | 40 (80%) | 45 (90%) |

**Table (4)** showed that Husbands dissatisfied at 3 months in (N=50) was 10(20%) and in Females (N=50) was 5 (10%), and Husbands Satisfied at 3 months in (N=50) was 40 (80%) and in Females (N=50) was 45 (90%).

## Discussion

ED is a common disorder, which affects more than 50% of males aged 50–70 years **(Levy 2002)**. ED disturbs the sexual quality of sufferers and of their partners by damaging their self-esteem, mood, and relationship. Among the treatment options, PPI is considered the last resort to be employed, only when all non-invasive options to achieve natural erection have been exhausted. Patients having undergone PPI generally express higher satisfaction levels **(Akin-Olugbade et al. 2006b; Hassan et al. 2008).**

The satisfaction of the patient and his partner is the most important end point of PPI **(Akakpo, Pineda, and Burnett 2017)**. Men's satisfaction with PPI was related to psychological factors including positive emotions, self-esteem, and confidence, the promotion of male identity, and self-image. Satisfaction was related also to improved sexual function in the form of successful vaginal penetration which resulted into improved relationships **(Capogrosso et al. 2019; Carvalheira, Santana, and Pereira 2015).**

Our study included 50 patients and showed that The Age of husband mean±SD was **45.4±8.4** while Age of wife mean±SD was **29.2±4.6**, Smoking (males) was **30(60%)** and the Co-morbidities (among husbands) were Cardiac was 5(10%), DM Was **25(50%),** HTN was **10(20%)** and No risk factors were **10 (20%)**.

Several studies addressing satisfaction following PPI were done showing it's important role after the surgery regarding both husband and their wives**:**
**Natali et al** assessed patient and partner satisfaction with AMS penile implants in 253 consecutive patients from three European centers, with a mean follow-up of 60 months. Patient satisfaction with the AMS 700CX, AMS Ambicor, and AMS 600-650 was 97%, 81%, and 75%, respectively while dissatisfaction was 0%, 5%, and 6%, respectively. Partner satisfaction with the AMS 700CX, AMS Ambicor, and AMS 600-650 was 91%, 91%, and 75%, respectively while dissatisfaction was 0%, 5%, and 6%, respectively **(Natali, Olianas, and Fisch 2008)**. These results are comparable to our study regarding patient and their partners with higher levels of satisfaction in IPP group.

**Bettochi and his group** collected information from 79 patients and their partners after implantation of the AMS CX 700 prosthesis performed from 2004 to 2008. Among the 79 patients, 97% noted frequent use of the prosthesis. Those who did not use it frequently were no longer sexually active. At the time of interview, 85% of patients and 98% of partners reported no problems with the prosthesis. Moreover, 79% of patients and 82% of their partners indicated that PPI led to satisfying improvements in their sexual life, with an additional 13% of patients reporting slight improvements. Of the 8% who were unsatisfied, reported reasons included insufficient rigidity and penile length for normal intercourse. Despite dissatisfaction with the device, four of these six patients said they would still recommend surgery because they observed an improvement in couple relationship satisfaction. Overall, 97% of patients would suggest this treatment to a friend or relative with erectile dysfunction **(Bettocchi, Palumbo, Spilotros, Lucarelli, et al. 2010)**. These results are similar to our study but we did not assess the frequency of intercourse.

**Casabé and his group** compared the degree of satisfaction with malleable prosthetic implant in 60 patients; 36 with Spectra (AMS) and 24 with Genesis (Coloplast). For assessment purposes, they used the EDITS questionnaire adapted for penile prosthetic implants. The mean age and follow-up were 61.7 years and 19.9 months, respectively. Mean EDITS scores did not indicate superiority of one implant over the other with overall satisfaction indices being 77.1% and 75.6% for the Genesis and Spectra prosthesis, respectively (P = 0.4970). These results revealed that these two models of malleable prostheses were associated with high levels of satisfaction **(Casabé et al. 2016).** In our study we have superior level of satisfaction regarding patients and we use only one type of prosthesis (Coloplast).

Previous studies already showed high satisfaction rates for PP, which was confirmed by our data. We noted an overall satisfaction rate of our population was as follow, dissatisfied at 3 months in Husbands (N=50) was 10(20%) and in Females (N=50) was 5 (10%), and Satisfied at 3 months in Husbands (N=50) was 40 (80%) and in Females (N=50) was 45 (90%). Preoperative counseling is a dynamic process that begins at the first visit and continues until the patient enters the operating room. Patient counseling before PP implantation has a pivotal role because it allows managing unrealistic expectations. Over 80% of the patients in our study showed a decreased level of anxiety after consulting with the doctor before the operation. More than 95% of the patients reported a positive experience regarding their first postoperative days with over half of them exceeding their expectations. This results are also present in several studies explaining the role of counseling affecting patient satisfaction after PPI **(Manfredi et al. 2021; Narang et al. 2017).**

After 3 months postoperative, 80% of the men were satisfied with their implants which met their expectations. A similar number was likely to continue using their devices easily. The majority of patients were confident about their implants describing their erections to be 80% close to natural 3 months after surgery. Interestingly wives were reported to show higher levels of satisfaction above 90% after 3 months of surgery as those found in a studies reported by **Falcone et al** ,**Akdemir et al** and **Mulhall et al** in their follow up of satisfaction of patients after PPI **(Akdemir et al. 2017; Falcone et al. 2013; Mulhall et al. 2003).**

Sexual satisfaction of the patient is largely influenced by their partner's satisfaction, which makes partner's satisfaction rates an important parameter. In our study questioning the wives after three months, over 90% were satisfied with 80.5% being highly satisfied. 93.4% of wives felt sexually desirable by their partners with the implant. They believed that there was an 78.3% chance for their husbands to continue utilizing their implant confidently opposed to what Özbay et al and Vakalopoulos et al reported **(Özbay et al. 2020; Vakalopoulos et al. 2013)**. Nevertheless, our results were matched by the Patil and his group **(Patil et al. 2018)** but with longer follow up.

Satisfaction can be affected by many variables. Patient age could be a crucial factor, there was no statistically significant difference in Relation between the patient comorbidities and satisfaction as P-value was 0.442. Similarly, there we found no statistically significant correlation between patient comorbidities and satisfaction scores as P-value was 0.750. This finding is comparable to those was present in **Abd et al** study **(Abd et al. 2019).** Hence, PPI could be performed in all types of patients regardless of their comorbidities without fear of decreasing satisfaction in special groups.

## Conclusion

PPI produce different levels of satisfaction and is not affected by different comorbidities affecting patients, finally, further studies are necessary to confirm or defy our results. Extended studies are also needed to assess whether longer periods could have different effects on satisfaction in patients and their partners.

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