

Sexual experiences after non-nerve sparing radical prostatectomy

Experiências sexuais após prostatectomia radical não poupadora de nervos

Experiencias sexuales después de prostatectomía radical sin conservación de bandeletas neurovasculares

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Abstract

Objective: The aim of this study was to explore the experiences and expectations of patients who underwent non-nerve sparing radical prostatectomy.

Methods: A qualitative descriptive, exploratory, study, based on hermeneutic phenomenology. Sixteen in-depth interviews were carried out between February and December 2017. An inductive analysis of data was performed.

Results: Two themes reflecting the patients' experiences emerged from the analysis: (1) Sexual changes as a key factor of the adaptive response, with the subthemes "Sexual difficulties after surgery" and "Issues with intimate relationships and psychosocial wellbeing". (2) Prostatectomy: the need of adaptation to a holistic sexuality, with the subthemes "Questioning the experiences from the current sexual behavior" and "Adapting sexuality and intimacy after surgery".

Conclusion: Patients undergoing prostatectomy face sexual difficulties such as erectile dysfunction. These changes cause problems in sexual and intimate relationships that affect their wellbeing. Given this situation, some participants question their usual sexual practices and try to adapt to a holistic sexuality not centered on coitus by incorporating innovative forms of sexuality.

Knowing the experiences of men who underwent radical prostatectomy might help healthcare workers to provide new strategies for coping with the environmental changes involved in prostate surgery.

Resumo

Objetivo: O objetivo deste estudo foi explorar as experiências e expectativas de pacientes submetidos a prostatectomia radical não poupadora de nervos.

Métodos: Estudo qualitativo, descritivo-exploratório, baseado na fenomenologia hermenêutica. Foram realizadas dezesseis entrevistas em profundidade entre fevereiro e dezembro de 2017 e análise indutiva dos dados.

Resultados: Dois temas que refletem as experiências dos pacientes emergiram da análise: (1) As mudanças sexuais como fator-chave da resposta adaptativa, com os subtemas "Dificuldades sexuais após a cirurgia" e "Questões com relacionamentos íntimos e bem-estar psicossocial"; (2) Prostatectomia: a necessidade de adaptação a uma sexualidade holística, com os subtemas "Questionamento das experiências a partir do comportamento sexual atual" e "Adaptação da sexualidade e a intimidade após a cirurgia".

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Conclusão: Pacientes submetidos à prostatectomia enfrentam dificuldades sexuais como disfunção erétil. Essas mudanças causam problemas nos relacionamentos sexuais e íntimos que afetam seu bem-estar. Diante dessa situação, alguns participantes questionam suas práticas sexuais habituais e tentam se adaptar a uma sexualidade holística não centrada no coito, incorporando formas inovadoras de sexualidade.

Conhecer as experiências de homens submetidos a prostatectomia radical pode ajudar os profissionais de saúde a oferecer novas estratégias para lidar com as mudanças ambientais envolvidas na cirurgia da próstata.

Resumen

Objetivo: El objetivo de este estudio fue analizar las experiencias y expectativas de pacientes sometidos a prostatectomía radical sin conservación de bandeletas neurovasculares.

Métodos: Estudio cualitativo, descriptivo-exploratorio, basado en la fenomenología hermenéutica. Se realizaron 16 entrevistas en profundidad entre febrero y diciembre de 2017 y un análisis inductivo de los datos.

Resultados: A partir del análisis, surgieron dos temas que reflejan las experiencias de los pacientes: (1) Los cambios sexuales como factor clave de la respuesta adaptativa, con dos subtemas "Dificultades sexuales después de la cirugía" y "Cuestiones sobre relaciones íntimas y bienestar psicosocial" y (2) Prostatectomía: necesidad de adaptación a una sexualidad holística, con los subtemas "Cuestionamiento de las experiencias a partir del comportamiento sexual actual" y "Adaptación de la sexualidad e intimidad después de la cirugía".

Conclusión: Los pacientes sometidos a prostatectomía enfrentan dificultades sexuales como disfunção erétil. Estos cambios causan problemas en las relaciones sexuales e íntimas que afectan su bienestar. Ante esta situación, algunos participantes cuestionan sus prácticas sexuales habituales e intentan adaptarse a una sexualidad holística no centrada en el coito, incorporando formas innovadoras de sexualidad.

Conocer las experiencias de hombres sometidos a prostatectomía radical puede ayudar a los profesionales de la salud a ofrecer nuevas estrategias para lidiar con los cambios ambientales relacionados con la cirugía de próstata.

Introduction

Prostate cancer is the second most prevalent cancer in the world⁽¹⁾ and the most common type of cancer among men in Europe.⁽²⁾ In Spain, it accounts for 12.9% of all diagnosed cancers, which corresponded to about 33,370 new cases in year 2015.⁽³⁾ The mortality rate is 9.2% in Spain (age-standardized rate).⁽²⁾ When the disease is localized, the aim of treatment is to remove the tumor through radiation⁽⁴⁾ or surgical excision.⁽⁵⁾ Cases of metastasis demand systemic treatment such as chemotherapy, immunotherapy or hormonal therapy for improved survival.⁽⁶⁾ Radical prostatectomy is among surgical treatment options,^(7,8) and patients undergoing this procedure experienced an increase of 2.9 years in their life expectancy.⁽⁷⁾ In the Nerve Sparing Radical Prostatectomy, periprostatic nerves are preserved,⁽⁹⁾ although this is not always possible. As it depends on the tumor extension, sometimes is performed a Non-Nerve Sparing Radical Prostatectomy.⁽¹⁰⁾

Non-Nerve Sparing Radical Prostatectomy has been linked to erectile dysfunction,⁽¹¹⁾ ejaculatory problems and orgasmic dysfunctions.⁽¹²⁾ Loss of libido has been described as well.⁽¹³⁾ After a Non-Nerve Sparing Radical Prostatectomy, patients need attention in relation to physical, psychological and informational aspects.⁽¹⁴⁾ Forgetting about individuals' sexual needs can affect their development and

self-concept.⁽¹⁵⁾ For example, the erectile dysfunction associated to radical prostatectomy has been linked to diminished manhood.⁽¹⁶⁾ Since this has been reported as one of the most distressing experiences in the postoperative period,⁽¹⁷⁾ healthcare professionals must regularly assess these individuals' sexuality-related needs.⁽¹⁸⁾ Professionals perceive the integral care of prostatectomized patients as a challenge,⁽¹⁹⁾ which demonstrates the importance of health caregivers' training on the management of sexual problems.⁽²⁰⁾ In recent years, has emerged the need for qualitative studies on the sexual and psychosocial dimensions of this problem.⁽²¹⁾ The research questions that guided this study were: what are the sexual experiences of patients undergoing a Non-Nerve Sparing Radical Prostatectomy? What are the expectations of patients who underwent a Non-Nerve Sparing Radical Prostatectomy in relation to their sexuality?

The aim of this study was to analyze the experiences and expectations of patients who underwent Non-Nerve Sparing Radical Prostatectomy.

Methods

Study design

A qualitative descriptive, exploratory study based on Gadamer's hermeneutic phenomenology.⁽²²⁾

This design is used in research on human sexuality.^(2,3) Understanding the narrative of participants requires preparation for a dialogue from which different meanings will emerge.⁽²²⁾

Place and population

This study was carried out at the local headquarters of *Asociación Española contra el Cáncer* (AECC - Spanish Association Against Cancer). Participants were recruited through a convenience sampling technique. The inclusion criteria were: 1) to have undergone a Non-Nerve Sparing Radical Prostatectomy as treatment for prostate cancer before 2016, verified from the participants hospital discharge report; 2) to sign the informed consent for participation in the study; 3) to have cognitive capacity and 4) to have a proper perception of the sexual function before the procedure. The exclusion criteria were: 1) to suffer any cognitive impairment that could interfere with understanding and answering questions; and 2) to receive treatment that could interfere with the sexual function, such as hormonal therapy. The final sample comprised 16 participants out of a total of 24 contacted subjects. Eight people were excluded from the sample because they did not meet the inclusion/exclusion criteria: two men kept their sexual integrity after surgery, one was under hormonal therapy at the time of data collection, and five men referred inadequate sexual function pre-operatively. After participants started repeating the

same concepts and no additional data was revealed for the development of new categories, researchers considered that data saturation was achieved and finished the data collection process.

Sample definition

Participants' average age was 64.2 years old (standard deviation=4.16). On average, they had surgery 4.9 years before the study. Participants' sociodemographic data are shown in table 1.

Data collection and analysis

The data collection period was between February and December 2017. Sixteen in-depth interviews were carried out. The main researcher contacted the sample via telephone and explained the aim of the study. Patients who met the criteria and accepted to participate were selected, and a meeting was arranged for the performance of individual interviews by the main researcher. The researcher had prior training in qualitative research methodology (a Research Master's course). An interview protocol with the objectives, ethical factors and a question guide/script was followed. The interview protocol was rehearsed previously, and the interviewer was instructed to make interviews resemble an in-depth conversation. In order to build up trust, initially, participants were asked about the impact of the radical prostatectomy on their quality of life. When the researcher perceived an atmosphere of trust, ques-

Table 1. Participants' sociodemographic data

Interview	Age	Educational level	Marital status	Date of the prostatectomy	Sexual orientation	Type of surgery
P-01	74	Basic	Married	February, 2014	Heterosexual	Radical perineal prostatectomy
P-02	65	No studies	Married	March, 2006	Heterosexual	Radical retropubic prostatectomy
P-03	60	Medium	Married	September, 2008	Heterosexual	Radical perineal prostatectomy
P-04	62	No studies	In a relationship	February, 2010	Heterosexual	Radical retropubic prostatectomy
P-05	68	Medium	Married	August, 2012	Heterosexual	Radical retropubic prostatectomy
P-06	60	Basic	Married	January, 2015	Heterosexual	Radical retropubic prostatectomy
P-07	62	University graduate	Married	April, 2015	Heterosexual	Radical retropubic prostatectomy
P-08	64	University graduate	In a relationship	November, 2009	Heterosexual	Radical retropubic prostatectomy
P-09	59	University graduate	Married	April, 2014	Heterosexual	Radical retropubic prostatectomy
P-10	65	Medium	In a relationship	December, 2011	Heterosexual	Radical perineal prostatectomy
P-11	69	Basic	Married	January, 2008	Heterosexual	Radical perineal prostatectomy
P-12	63	University graduate	In a relationship	September, 2010	Heterosexual	Radical retropubic prostatectomy
P-13	60	Basic	Married	June, 2011	Heterosexual	Radical retropubic prostatectomy
P-14	71	Medium	Married	January, 2012	Heterosexual	Radical perineal prostatectomy
P-15	66	Basic	In a relationship	February, 2009	Heterosexual	Radical retropubic prostatectomy
P-16	63	University graduate	Married	November, 2013	Heterosexual	Radical perineal prostatectomy

tions related to sexual activity were introduced, e.g., “Could you tell me how your sexual experiences changed after the operation?”

Interviews lasted 48 minutes, on average. They were digitally recorded and manually transcribed. Then, they were reviewed, and together with field notes and the interviewer’s comments, constituted the hermeneutic unit for analysis.

The analysis of interviews was based on the following steps:⁽²³⁾ (1) To decide if the study question was pertinent in relation to the methodological assumptions. (2) To identify researchers’ pre-understanding of the object under study. In the present study, researchers’ pre-understanding stemmed from the main researcher’s clinical experience with prostatectomized patients in surgery and urology emergency units. (3) To gain understanding through dialogue with patients: during conversations, was achieved a spontaneous understanding of what patients were expressing and this understanding was expanded upon by asking further questions for clarification. For example, “What exactly do you mean when you say you were scared of not feeling like a man anymore?” (4) To gain understanding of the phenomenon through dialogue with the text. Interviews were immediately transcribed by the researcher to avoid losing or forgetting any details. Transcriptions were read in full for extraction of the general idea. Then, they were re-read line by line, the meaning of each sentence was studied, and the themes, subthemes and units of meaning were searched. Three researchers triangulated the analysis and any interpretations (codes, subthemes and themes) in which there was no agreement upon were excluded. Only the most representative quotes for each subtheme were selected (by consensus) for inclusion in the report. This step was carried out with the ATLAS.ti 8 software. To this end was developed a project to which all transcripts were added. The coding process was performed with the software coding tools (open coding and coding by list) and networks were built to facilitate the establishment of relationships between codes, themes and subthemes (Figure 1).

Rigour: To ensure study rigor, internal validity was obtained by ensuring that all opinions of par-

ticipants were represented. The final list of themes, subthemes and units of meaning was handed to participants for their corroboration and confirmation that they felt identified with the interpretation. Reliability was strengthened by the triangulation of data performed by researchers in the analysis process. The Consolidated criteria for reporting qualitative research (COREQ) checklist, widely accepted in the scientific literature, was used to ensure scientific validity.⁽²⁴⁾

Ethical aspects

Participants were informed of the aim of the study, that their participation was voluntary, and they could leave the interview at any point without need for explanation. The study was approved by the Department of Nursing, Physiotherapy and Medicine, by the Research Ethics Committee at the University of Almeria (ENFISMED-09/16 code) and was authorized by the AECC.

Results

Two main themes that help to understand the phenomenon of sexual experiences after radical prostatectomy emerged from data analysis (Chart 1).

Chart 1. Themes, subthemes and units of meaning that emerged from data analysis

Theme	Subtheme	Units of meaning
Sexual changes as a key factor of the adaptive response.	Sexual difficulties after surgery	Erectile dysfunction, Inhibited sexual desire, Anejaculation, Hematospermia, Retrograde ejaculation, Sexual potency, Loss of sensitivity, Blocking, Gynecomastia
	Issues with intimate relationships and psychosocial wellbeing	Importance of sexuality, Resignation, Spirit of improvement, Desire, Frustration, Sexuality as a thing of the past, Masculinity, New priorities, Arousal, Avoiding sexual encounters, Interest in sexuality
Prostatectomy: the need of adaptation to a holistic sexuality	Questioning the experiences from the current sexual behavior	Coitus, Erection, Rejection, Satisfaction, Avoiding thinking about it, Sex, Relationship between prostate and sexuality, Decrease in sexual practice, Sexual dissatisfaction
	Adapting sexuality and intimacy after surgery	Adaptation of practices, After the operation, Caressing, Playing, Kisses, Hugs, Sexuality in the couple, Changes to the sexual environment.

Theme 1. Sexual changes as a key factor of the adaptive response.

This theme represents alterations in sexuality, intimate relationships and the wellbeing of participants

after prostate surgery. Problems in sexual function (desire, erection ...) clash with the fact that sexual practice remains a priority for patients. This led them to situations of crisis and psychological distress. Some participants confirmed the importance of sexuality after the prostatectomy:

The only thing that worries me about the whole prostate thing is that - sex! (P.01)

Subtheme 1. Sexual difficulties after surgery.

After undergoing a radical prostatectomy, the decrease in sexual function tends to be significant. The main difficulty reported by participants was erectile dysfunction. Some participants affirmed this was something unexpected that they hoped to recover with some type of therapy:

Look how I'm doing now. I used to laugh at people who couldn't get it up but now I'm one of them. I just hope I can overcome this and have normal relations again. (P.11)

Participants reported alterations that ended up affecting sexual desire. Either the desire is maintained, but repressed by erection problems, or the sexual desire is directly diminished. In any case, participants avoid sexual relations with the partner or even discussions about it:

I don't feel anything, my desire is completely low, it was not because I don't feel like it, but because I don't have erections, so why am I going to try? (P.10)

When I'm asked about sexual encounters with my partner (...) I just dodge the questions. In the end, she thinks I have a problem with her, and we finish it ... We don't know how to solve the matter. (P.13)

A key factor in maintaining good self-concept is body image. Therefore, body changes secondary to adjuvant therapies have an important role in sexual experiences. The deterioration of sexual functions along with changes in body image generates feelings of shame in some participants. Sometimes, humor

is used as a positive way of integrating the dysfunction into existence:

The fact that your chest became almost the same as a woman's (...) Of course all of that [along with erectile dysfunction] makes you embarrassed - seeing that you have bigger breasts than your wife, well it's not exactly pleasant. (P.03)

Subtheme 2. Issues with intimate relationships and psychosocial wellbeing

A radical prostatectomy is often performed at an age when a man's sexual habits are already deeply rooted. This means that after the surgical intervention, patients would like to perform the same sexual practices to which they were accustomed. Sometimes, they can get frustrated with the physical consequences of prostatectomy, and this occurs especially in participants who keep their sexual desire intact.

I still want to have a good time, but I can't manage to have relations! [...] I want to make love, but it's just that it's not how I like it, (as it was before the operation) I fall apart and I can't even concentrate. (P.02)

The fact of not being able to resume their usual sexual relations deteriorates different areas of life. Even satisfaction with the good evolution of the disease can be overshadowed by the detriment in sexual function. Thus, a participant saw the good news stained with bitterness.

Everything is tinged with bitterness, even if you get good news. Now, I have to face another challenge. I have to worry because I cannot get it up (have erections). (P.08)

When sexual activity is affected by organic causes that impact the intercourse performance, individuals' frustration becomes evident. Sexuality becomes interpreted as something of the past. For them, sexuality ends when the coitus stops being feasible. Some participants avoid incorporating new sexual practices. Thus, consequences from a non-adaptive response arise during intercourse:

I can't have an erection now, so I can't imagine sex without it. So, it's been a while since I even want to think about having sex with my partner. (P.01)

Socially, a man's role in heterosexual relationships is identified with sexual intercourse and penetration. The Non-Nerve Sparing Radical Prostatectomy involves a series of changes in sexuality as we know it, and study participants feel unable to fulfill such role. This leads them to question their own masculinity.

Not being able to have normal sex (intercourse with penetration) completely changes your life. It's like...how can I say? You stop being a man. (P.09)

A participant has recognized questioning his own masculinity because he is no longer able to offer what is traditionally expected from a man (sustained erection). This generates anxiety and a conflict between desire and the perceived ability:

[...] the anxiety and fear of failing at masculinity is always surrounding the situation. And I fight not to avoid sexual intercourse because desire does persist, you know? (P.10)

Theme 2. Prostatectomy: the need of adaptation to a holistic sexuality.

The theme represents participants' needs and efforts towards adaptation of their sexual practices to their new clinical situation. Participants tried to adjust to their new situation by adopting new sexual practices and changing the conceptions that link masculinity with the capacity of erection and penetration.

Subtheme 1. Questioning the experiences from the current sexual behavior.

Some participants recognize the need to change the traditional perception in which sexuality is identified with intercourse. They question themselves if the only way of maintaining sexual intercourse is through coitus and open their minds to new practices. Nonetheless, despite the desire, it is difficult to achieve satisfaction both physically and psychologically:

I know I should innovate and try new practices and leave penetration out of my mind. However, it's still hard for me to stay focused on enjoying sex. (P.05)

The attempt to overcome sexual difficulties entails working towards finding sexual wellbeing through a wider notion of sexuality. Participants who did not adapt to the new challenges, saw their sexual experience modified.

Before the surgery, I always wanted to "party" (have sex) [...] But now.... My wife is almost fed up with it now. We almost don't look for each other in days and I think I've always overrated this sex thing. (P.02)

Subtheme 2. Adjusting sexuality and intimacy after surgery.

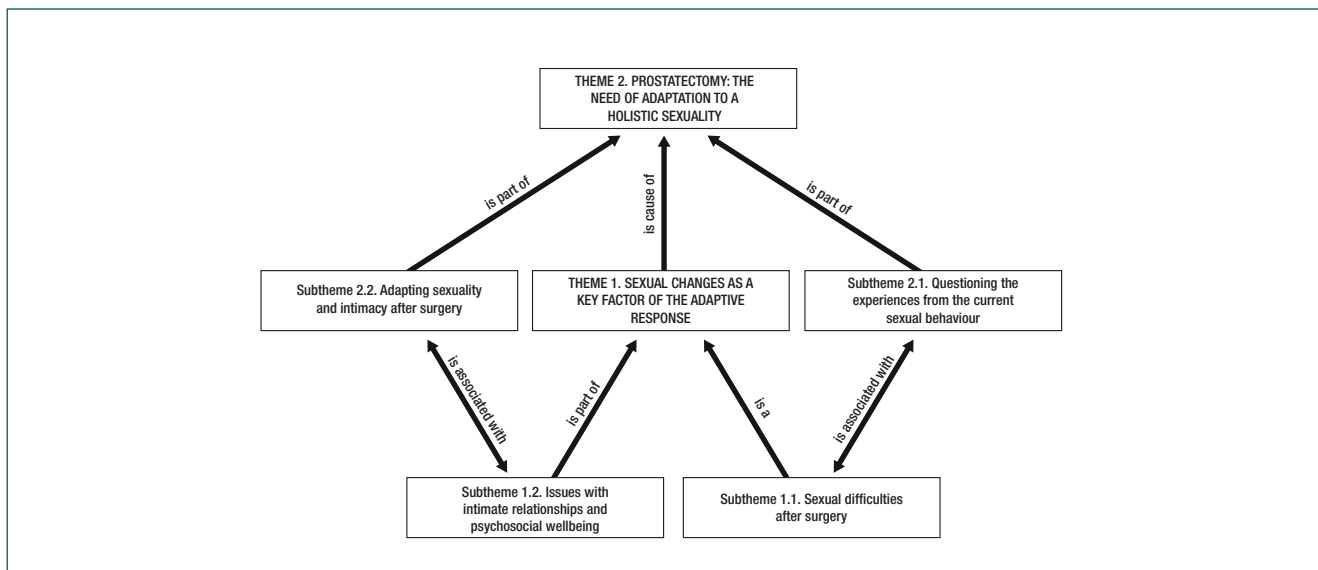
Participants reported implementing strategies for adjusting their sexual practice. Apart from the different individual attitudes they adopted, the partner's support was highlighted. According to them, the partner's help is indispensable for prostatectomized patients, since they are the person with whom they share their intimacy:

I like intercourse, no doubt. [...] Now, I've adapted the practice. That was much easier thanks to my partner - now we do it in a different way and we both can enjoy. Opening my mind was a good option for me. (P.07)

Caressing and embracing are ways of maintaining body contact between couples. These actions come to play an important role in sexual practice until achieving a proper range of stimulation that will lead to a positive response:

Before, there was no problem with sex, but now... You can caress, you can play, you can do other things that are still amazing for feeling active (P.07)

Despite their ability to adapt to the new situation and feel sexually satisfied, some interviewees reported feelings of guilt or doubt about their



Source: Developed by the authors with the ATLAS.Ti8 software.

Figure 1. Concept map showing the relationships between themes and subthemes developed in the analysis.

partner’s satisfaction in relation to their incapacity for coitus. The fact of adopting new practices and expanding their sexual habits does not imply the modification of internalized conceptions and behaviors for years, and can be a source of conflict in the future:

If there is no penetration, something else is done, (...) or we rub ourselves, period. And we both enjoy it, although she does a bit more than me because I am the one who is not fulfilling it all... (P:01)

In a pragmatic analysis, were established relations between themes and subthemes and a conceptual map was developed (Figure 1). Sexual difficulties and problems in intimate relationships and psychological wellbeing constitute sexual changes of patients undergoing. Non-Nerve Sparing Radical Prostatectomy that originate or induce an adaptive response. This adaptive response implies questioning traditional sexual behaviors and seeking new sexual and intimate relationships after surgery.

Discussion

Limitations in this study may arise from the dialogue about sexuality and recognition of one’s

own sexual difficulties. This can cause a feeling of shame and lead to the emergence of biased information during interviews. To avoid this fact, sexuality was addressed in conversations only after establishing and perceiving an environment of trust. Furthermore, the sample comprised heterosexual men. These could be limitations when extrapolating the results to men who have sex with men, since this population has specific issues that were not addressed in the study.⁽²⁵⁾ Including men with different sexual orientation could have enriched the results.

Non-Nerve Sparing Radical Prostatectomy has an important impact on people’s sexuality. Increasing health professionals’ training on sexology could translate into better communication and information skills in this field. This could have a positive impact on the quality of life of both prostatectomized patients and their partners.

Various authors have highlighted the repercussions of prostate surgery in relation to different aspects of sexuality.^(25,26) Erectile dysfunction is the problem that most worries respondents. This reinforces the findings published by other authors.^(18,27) The loss of libido or inhibited sexual desire was also present in prostatectomized patients,⁽²⁸⁾ but participants related the decrease

in desire or interest to the appearance of organic sexual dysfunctions such as erectile dysfunction. Echoing findings from other authors,⁽²⁹⁾ our participants reported the appearance of ejaculatory dysfunctions. While all these sexual dysfunctions have been widely discussed in the literature,⁽²⁸⁻³¹⁾ our study emphasizes their impact on personal relationships and psychosocial wellbeing. Issues related to sexual and reproductive health have an important role in shaping personal and gender identity.^(32,33) This study suggests that male sexual dysfunction of patients undergoing Non-Nerve Sparing Radical Prostatectomy can also undermine their masculinity and identity as a men.

Some patients believe sexual activity is a thing of the past, while others try to keep working on re-establishing and recovering their sexual functions. In this regard, some authors have suggested an adaptation of objectives related to quality of life according to the age and priorities of individuals.⁽³⁰⁾ Nerve-sparing techniques for radical prostatectomy together with adjuvant pharmacological therapy have reached hopeful sexual rehabilitation.⁽²⁶⁾ However, we still have no clear evidence to recommend an irrefutable algorithm for penile rehabilitation after prostatectomy.⁽²⁷⁾ In addition, contrary to most interviewees' expectations, sexual function restoration has not always been related to intercourse satisfaction.⁽³¹⁾ This study suggests the importance of pre-prostatectomy advice to help patients manage their expectations. Furthermore, interventions aimed at achieving adaptation and sexual practices not focused on erection and penetration can be useful.

Participants showed frustration or resignation when trying to adapt to a new sexual practice, whilst some authors have stated the possibility of an acceptable level of satisfaction and an even better level of satisfaction than before surgery.⁽²⁹⁾ Other authors have highlighted the importance of partners for overcoming sexual problems after the prostatectomy⁽²⁰⁾ and consequently, improving patients' adaptation level.⁽³³⁾

The advances brought to nursing and other health professionals by this study lie in the im-

portance of paying attention to the sexual wellbeing of patients undergoing prostatectomy. Sexual dysfunctions derived from Non-Nerve Sparing Radical Prostatectomy can affect interpersonal relationships and psychosocial wellbeing. The training in aspects of human sexual response can help professionals to offer a comprehensive approach to prostate patients. Although interdisciplinary care is mentioned in other studies, it is limited to psychology and medicine.^(4,31) The present study suggests that, as in other syndromes affecting sexuality,⁽³²⁾ nurses can help with a successful adaptation to sexual problems related to Non-Nerve Sparing Radical Prostatectomy.

Conclusion

Patients undergoing Non-Nerve Sparing Radical Prostatectomy suffer sexual difficulties such as erectile dysfunction or hypoactive sexual desire. These changes cause problems in sexual and intimate relationships that affect the psychosocial wellbeing and lead to feelings of resignation or frustration. Since this situation affects patients and the couple, some participants question themselves about their usual sexual practices. They feel the need to adapt to a holistic sexuality that is not centered on coitus and incorporates innovative forms of sexuality for the couple.

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Collaborations

Fernández-Sola C, Martínez-Bordajandi A and Hernández-Padilla JM where responsible for the study design. Puga-Mendoza AP, López-

Entrambasaguas OM, Lucas-Matheu M performed the data collection. Granero-Molina J, López-Entrambasaguas OM, and Fernández-Molina IM planned and carried out the analysis and interpretation of the data. Fernández-Sola C, Granero-Molina J, Hernández-Padilla JM and Martínez-Bordajandi A drafted the manuscript, and Lucas-Matheu OM, Puga-Mendoza AP, Fernández-Molina IM and López-Entrambasaguas OM revised it critically. All authors checked the manuscript for accuracy and completeness.

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