The effects of social distancing and self-isolation on functional outcomes after radical prostatectomy during the coronavirus disease 2019 (COVID-19) pandemic

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Abstract

Background: This study is aimed to analyze the effect of social distancing on functional outcomes (potency, continence recovery, and quality of life) on patients undergoing open radical prostatectomy (ORP) and robot-assisted radical prostatectomy (RARP) during the coronavirus disease 2019 (COVID-19) pandemic.

Materials and methods: We retrospectively assessed functional outcomes of 55 consecutive patients who underwent radical prostatectomy during the COVID-19 pandemic (group A: 12 ORP and 15 RARP) and compared these data with patients from the previous year (group B: 13 ORP and 15 RARP). Propensity-score matching was performed to analyze variables associated with potency, continence recovery and compared between the groups at 1 and 3 months.

Results: Patients from group A were less interested in postsurgical rehabilitation compared to those from group B (95.7% vs. 56.2%, p = 0.042). Continence recovery among group B patients also tended to be higher for RARP (p = 0.06) and ORP (p = 0.08) at 1 month, although statistical significance was not reached. The cumulative continence recovery at 3 months among group B patients was higher and statistically significantly advantageous for RARP (p = 0.00) and ORP (p < 0.01). Potency rates among younger group B patients following bilateral nerve-sparing procedures were statistically significantly advantageous for RARP (p = 0.026) and ORP (p = 0.011).

Conclusions: Our results highlight the large impact of the COVID-19 pandemic on functional outcomes following radical prostatectomy. Future design and planning of home-based models for improved post-operative care should consider this evidence.

Keywords: COVID-19; Open and robot-assisted radical prostatectomy; Potency; Urinary incontinence

1. Introduction

The coronavirus disease 2019 (COVID-19) pandemic caused by SARS-CoV-2 has significantly disrupted global health and social welfare. Most countries have imposed restrictions on population movement, enabling healthcare systems to cope by limiting the spread of SARS-CoV-2. Consequently, the pandemic has led to unique challenges for oncology care, including cancellation or postponement of elective surgical procedures, dramatic changes in the hospital setting, and discontinuation or significant reductions in postsurgical rehabilitation programs. Continued disruptions to health-care, in particular the cancellation of elective surgeries on a large scale, will have a significant impact on individual patients and cumulative, catastrophic consequences for health systems around the world. During this pandemic, postsurgical rehabilitation, physiotherapy, psycho-oncology, and psychosomatic consultation have also been canceled or delayed, leading to negative impacts on patients’ postoperative recovery. After each wave of COVID, hospitals have resumed elective surgeries and cases have been prioritized according to clinical urgency. The effect of early penile rehabilitation and pelvic floor muscle training on potency and continence recovery following radical prostatectomy (RP) has been demonstrated in many studies. Delays in the timing of elective surgeries such as RP have increased barriers to post-surgical rehabilitation access (e.g., fear of contagion, lack of transportation, difficulty scheduling, and unavailability). Additionally, in order to avoid contracting COVID-19, many patients have simply foregone post-surgical rehabilitation following RP. Public reporting of data on resource utilization, such as hospitalization and postoperative care, surgical needs, and patient postoperative outcomes remains limited. The effect of urinary incontinence has had a major impact on personal, psychosocial wellbeing and societal consequences; a decrease in quality of life (QOL) and physical activity and an increase in the use of health-care resources. A pragmatic strategy for
postoperative therapy to improve functional outcomes during the COVID-19 pandemic remains unclear. This study aimed to evaluate the effect of “social distancing and self-isolation” on functional outcomes (potency, continence recovery, and QOL) on patients undergoing open radical prostatectomy (ORP) and robot-assisted radical prostatectomy (RARP) during the COVID-19 pandemic.

2. Patients and materials

2.1. Patient selection
We retrospectively assessed functional outcomes of 55 consecutive patients who underwent RP during the COVID-19 pandemic. Patients who had undergone RARP or ORP between June 1, 2020 and January 29, 2021, and for whom follow-up data were available at 1 and 3 months postoperatively were included in this study. Functional outcomes and complications were evaluated for 27 consecutive patients who underwent RP during the COVID-19 pandemic (group A), consisting of 12 ORP and 15 RARP patients. These data were compared with 28 patients from our institutional database who underwent RP during the previous year, from June 2019 to January 2020 (group B), consisting of 13 ORP and 15 RARP patients, which were matched according to the same surgeon in each center. The primary outcome of our study was urinary continence and erectile dysfunction between the groups. Secondary outcomes of the study were complication rates between the groups.

2.2. Preoperative evaluation and outcome assessment
Continence function and potency were assessed using the International Consultation on Incontinence Consultation on Incontinence Questionnaire Short Form (ICIQ-SF); overall QOL and Sexual Health Inventory for Men (SHIM) scores. Propensity-score matching was performed to analyze demographic data, body mass index, prostate-specific antigen (PSA), clinical T-category, biopsy Gleason score, prostate volume as measured by transrectal ultrasound, and variables associated with ICIQ-SF urinary incontinence, overall QOL, and SHIM scores and compared between the groups at 1 and 3 months. Intraoperative and early postoperative complications (defined as occurring within 3 months after surgery), time until catheter removal, and length of hospital stay were evaluated. Prostatectomy pathologic cancer stage (pTNM), Gleason score, and positive surgical margin rates were obtained from pathology reports. Postoperative complications were identified by a urologist during an outpatient visit according to the Clavien-Dindo classification. Early urinary continence recovery was defined as a patient who did not use any incontinence pads or only one usually dry pad. Potency, defined as having erections sufficient for intercourse, was evaluated in patients who underwent bilateral nerve-sparing dissection. Potency was assessed preoperatively using SHIM score. Continence recovery was assessed using the validated ICIQ-SF and overall QOL scores.

2.3. Follow-up
All included patients completed a questionnaire before surgery, including the ICIQ-SF and the SHIM questionnaire. During follow-up after surgery, all patients were interviewed by telephone from doctors. Primary and secondary outcomes were assessed at 1 and 3 months after RP. We identified and collected similar data from a comparable period of observation (i.e., same dates) during the preceding year.

2.4. Statistical data evaluation
Median and interquartile ranges were used to describe the nonparametric continuous variables. The Pearson x² test was used to compare categorical variables. Propensity score matching was applied using the preoperative variables of age, total PSA (ng/mL), Gleason score, and pTNM. All statistical analyses were conducted using SPSS v.22 (IBM; Co., Armonk, NY), and the level of significance was defined as a two-tailed p < 0.05.

3. Results
Clinical data for 27 consecutive patients were reviewed; 12 underwent ORP and 15 underwent RARP. After propensity score matching, data for 28 patients from the previous year were evaluated as a second balanced group. Indwelling urinary catheter removal was performed after a median of 6 days (RARP) and 8 days (ORP), respectively. All demographic and clinical characteristics including age, body mass index, PSA, Gleason score, clinical and pathologic stages were compared between ORP and RARP, and balancing data before and after matching are summarized in Table 1. Most patients included in the study, 43 of 55 (78%), had moderate erectile dysfunction before RP based on SHIM score. In both groups, there were no significant differences in unilateral and bilateral nerve sparing procedures. Furthermore, there were no significant differences in length of hospital stay or estimated blood loss between the ORP or RARP groups (Table 2). Postoperative complications as classified according to the Clavien-Dindo classification did not differ between the ORP (p = 0.56) or RARP groups (p = 0.49). Furthermore, there were no significant differences in overall PSM rates, when compared with either the matched or unmatched ORP or RARP groups (Table 2). Only 9 patients (5 ORP, 4 RARP) who underwent RP between June 2020 and January 2021 received rehabilitation during the inpatient social isolation period. In comparison with former years, fewer patients in Group A were interested in postsurgical rehabilitation (95.7% vs. 56.2%, p = 0.042). Continence recovery rates among patients in group B also tended to be higher for ORP (p = 0.08) and RARP (p = 0.06) at 1 month, although this difference did not reach statistical significance (Table 3). The cumulative continence recovery rate at 3 months was higher and statistically significantly advantageous for ORP (p < 0.01) and RARP (p < 0.00) among group B patients from the previous year (Table 3). The return of erectile function in younger patients following bilateral nervesparing procedures was statistically significantly advantageous for RARP (p = 0.026) and ORP (p = 0.011) among group B patients from the previous year.

4. Discussion
The care of patients with prostate cancer during the COVID-19 pandemic constitutes a challenge for urologists, medical doctors, and other health professionals. These are extraordinary times for all of us, and there is still much that is unknown. At a basic level, many cancer patients may have an increased risk of SARS-CoV-2 infection and associated serious complications, increasing their morbidity and mortality risks. Health authorities have frequently deemed necessary to postpone elective surgical procedures and cancer screening to conserve medical resources and reduce the risk of SARS-CoV-2 transmission in healthcare settings. Due to the COVID-19 pandemic...
Table 1
Characteristics of 27 patients who underwent RP during social isolation June 2020-January 2021 versus 28 patients from 2019.

| Variable                             | ORP during social isolation (Group A) | RARP during social isolation (Group A) | ORP during previous year (Group B) | RARP during previous year (Group B) | p     |
|--------------------------------------|--------------------------------------|--------------------------------------|-----------------------------------|----------------------------------|-------|
|                                      | n = 12                               | n = 15                               | n = 13                            | n = 15                           |       |
| Age (yr), median (IQR)               | 66.3 ± 5.2                           | 66.9 ± 6.0                           | 65.8 ± 5.8                        | 65.6 ± 4.8                       | 0.823 |
| BMI (kg/m²), median (IQR)            | 32.7 ± 5.2                           | 30.1 ± 8.3                           | 33.8 ± 5.7                        | 31.7 ± 6.3                       | 0.620 |
| Mean SD total PSA (ng/mL)            | 11.3                                 | 12.4                                 | 10.8                              | 11.6                             | 0.461 |
| Median transrectal ultrasound prostate volume (mL), IQR | 38.25                                | 40.35                                | 39.56                             | 39.12                            | 0.591 |
| Biopsy Gleason score, n (%)          |                                     |                                      |                                   |                                  | 0.356 |
| 6                                    | 3 (25)                               | 5 (33.3)                             | 4 (30.7)                          | 4 (26.8)                         |       |
| 7                                    | 8 (66.6)                             | 10 (66.6)                            | 9 (69.2)                          | 11 (73.3)                        |       |
| 8                                    | 1 (8.3)                              |                                      |                                   |                                  |       |
| d’Amico group, n (%)                 |                                     |                                      |                                   |                                  | 0.697 |
| Low                                  | 4 (33.3)                             | 4 (26.6)                             | 3 (23)                            | 5 (33.3)                         |       |
| Intermediate                         | 7 (58.3)                             | 9 (60)                               | 8 (61.5)                          | 10 (66.6)                        |       |
| High                                 | 1 (8.3)                              | 2 (13.3)                             | 2 (15.3)                          |                                  |       |

BMI = body mass index; IQR = interquartile ranges; PSA = prostate-specific antigen; ORP = open radical prostatectomy; RP = radical prostatectomy; RARP = robot-assisted radical prostatectomy.

Table 2
Postoperative characteristics and complications of 27 patients who underwent RP during social isolation June 2020-January 2021 versus 28 patients from 2019.

| Variable                             | ORP during social isolation (Group A) | RARP during social isolation (Group A) | ORP during previous year (Group B) | RARP during previous year (Group B) | p     |
|--------------------------------------|--------------------------------------|--------------------------------------|-----------------------------------|----------------------------------|-------|
|                                      | n = 12                               | n = 15                               | n = 13                            | n = 15                           |       |
| Pathology Gleason score, n (%)       |                                     |                                      |                                   |                                  | 0.365 |
| 6                                    | 1 (8.3)                              | 3 (20)                               | 5 (38.4)                          | 3 (20)                           |       |
| 7                                    | 11 (91.6)                            | 11 (73)                              | 8 (61.5)                          | 10 (66.6)                        |       |
| 8                                    |                                      | 1 (6.6)                              | 2 (13.3)                          |                                  |       |
| Clinical stage, n (%)                |                                     |                                      |                                   |                                  | 0.535 |
| pT2                                  | 7 (58.3)                             | 9 (60)                               | 6 (46.1)                          | 8 (53.3)                         |       |
| pT3                                  | 5 (41.6)                             | 6 (40)                               | 7 (53.8)                          | 7 (46.6)                         |       |
| Clavien complication, n (%)          |                                     |                                      |                                   |                                  | 0.568 |
| 2 (%)                                | 2 (16.6)                             |                                      | 1 (7.6)                           | 2 (13.3)                         |       |
| ≥3 (%)                               |                                      | 3 (20)                               | 1 (7.6)                           | 1 (6.6)                          |       |
| PSM rate, n (%)                      |                                     |                                      |                                   |                                  | 0.169 |
| T2 (%)                               | 1 (8.3)                              |                                      |                                   |                                  |       |
| T3 (%)                               | 2 (16.6)                             | 3 (20)                               | 2 (7.6)                           | 2 (13.3)                         |       |
| Median urinary catheter removal time (d) | 7.6 ± 2.2                           | 6.2 ± 1.9                           | 7.1 ± 2.4                         | 5.9 ± 1.4                        | 0.593 |
| Mean preoperative SHIM score at 3 mos | 14.4 ± 1.3                           | 15.5 ± 1.7                          | 18.2 ± 2.3                        | 19.1 ± 1.6                       | 0.000 |
| Mean preoperative ICIQ-Urinary SF at 3 mos | 7.3 ± 5.1                           | 8.7 ± 4.6                           | 11.6 ± 5.5                        | 12.2 ± 3.6                       | 0.045 |

ICIQ-SF = Incontinence Questionnaire Short Form; IQR = interquartile ranges; PSM = positive surgical margin rates; SHIM = Sexual Health Inventory for Men score.

Table 3
Continence after RP during social isolation June 2020-January 2021 versus 28 patients from 2019.

| Variable                             | ORP during social isolation (Group A) | RARP during social isolation (Group A) | ORP during previous year (Group B) | RARP during previous year (Group B) | p     |
|--------------------------------------|--------------------------------------|--------------------------------------|-----------------------------------|----------------------------------|-------|
|                                      | n = 12                               | n = 15                               | n = 13                            | n = 15                           |       |
| RP, n (%)                            |                                     |                                      |                                   |                                  | 2.85  |
| At 1 mo                              | 3 (25)                               | 6 (46)                               | 3.85 (0.97–3.30)                  | 0.082                           |       |
| At 3 mos                             | 4 (33.3)                             | 10 (76.9)                            | 3.54 (1.31–6.34)                  | 0.013                           |       |

| Variable                             | ORP during social isolation (Group A) | RARP during social isolation (Group A) | ORP during previous year (Group B) | RARP during previous year (Group B) | Odds ratio (95% CI) | p     |
|--------------------------------------|--------------------------------------|--------------------------------------|-----------------------------------|----------------------------------|-------------------|-------|
|                                      | n = 12                               | n = 15                               | n = 13                            | n = 15                           |                   |       |
| RP, n (%)                            |                                     |                                      |                                   |                                  |                   | 3.33  |
| At 1 mo                              | 5 (33.3)                             | 7 (46.6)                             | 3.33 (0.99–4.01)                  | 0.064                           |                   |       |
| At 3 mos                             | 6 (40)                               | 12 (80)                              | 3.87 (1.95–5.66)                  | 0.000                           |                   |       |
pandemic, there is uncertainty for both patients and staff in hospitals and rehabilitation centers. Additionally, hospital staff infections necessitate them being unavailable for several days, resulting in staff reductions and additional stress on the medical and urology teams.\(^\text{[13]}\) Herrod et al. presented evidence on the effect of cancellations of elective surgical procedures.\(^\text{[14]}\) Among patients who had their operations cancelled, 30% complained of extraordinary stress and frustration. Among included patients, 59% reported moderate or serious concern about a reduction in their performance.\(^\text{[14]}\) These findings indicate a significant negative impact of the COVID-19 pandemic on postoperative care, functional outcomes, psychological health, and health behaviors. Based on available literature, the effectiveness of physiotherapy and psychological counseling can depend on psychological supports that may have a positive effect on patient functional outcome and motivation.\(^\text{[15]}\)

Functional outcomes such as continence, potency, and QOL are among the most important endpoints after RP, as surgical management of prostate cancer can have variable effects on patient QOL.\(^\text{[16]}\) In order to achieve postoperative continence recovery, a multidisciplinary health-care team approach to care is required. In this study, we describe functional outcomes in patients after RP during the COVID-19 pandemic. Continence recovery during the COVID-19 pandemic tended to be lower at 1 month after surgery in Group A although this difference did not reach statistical significance. More importantly, continence recovery rates were significantly lower at 3 months postoperatively in both groups during the COVID-19 pandemic as compared to retrospective institutional data for patients from the previous year. This outcome emphasizes the negative effect of social isolation and the lack of multidisciplinary cooperation with the rehabilitation facility. A recently published retrospective study showed the negative influence of social distancing during the COVID-19 pandemic on early urinary continence.\(^\text{[17]}\) However, the study authors did not report what definition of continence, nerve sparing, and methods of assessment were used; all of these factors could influence the postoperative continence rate. Furthermore, the authors did not mention at what point in time postoperative continence recovery was evaluated.\(^\text{[18]}\)

Potency outcomes after RP are variable and multifactorial (nerve sparing, surgical approach, surgeon’s experience, different influencing factors). Furthermore, potency presents difficulty as an outcome measure after surgery, in part because the assessment of postoperative potency is not standardized. In our retrospective study, potency recovery after RP in patients who underwent bilateral nerve-sparing procedures during the year prior to the COVID-19 pandemic were statistically significantly advantageous at 3 months after surgery for RARP and ORP. This result emphasizes the impact of sexual rehabilitation following RP. Several studies have suggested that 52%–57% of patients who receive penile rehabilitation after RP recover early potency compared to 20% of men who do not receive penile rehabilitation.\(^\text{[18,19]}\) To improve our understanding on how the pandemic should be managed at clinical and social levels, examination of critical questions is required so that lessons can be learned.\(^\text{[13]}\) Worry and fear seem to be central to the emotional responses of cancer patients during a pandemic. Social networking and family support, which can improve emotional lability and anxiety, are useful during postoperative recovery for cancer patients. Our findings highlight the urgent need for novel patient-centered postoperative sexual rehabilitation strategies during the COVID-19 pandemic which could have an influence on future sexual function. Further studies of home-based models for sexual rehabilitation need to evaluate the impact of social distancing on patients after RP, as this is a crucial influencing factor for an accurate evaluation of sexual function.

PSM is a major surrogate measure of oncologic efficacy following RP; a PSM indicates an unfavorable pathologic outcome and is associated with biochemical recurrence and initiation of adjuvant treatment. Our study revealed no significant differences in PSM rates when compared with either matched or unmatched ORP or RARP groups. In terms of intraoperative complications, there were no significant differences in estimated blood loss between ORP or RARP groups. Our present study evaluated the effects of social distancing and self-isolation on functional outcomes after RP. Receiving post-surgical rehabilitation is associated with better functional outcomes.

Findings from our results should be interpreted in light of several limitations. First, our study design did not allow for interpretation of associations between different post-surgical rehabilitation pathways. Secondly, a major limitation of this study was the small sample size. However, patient data included from the previous year had similar characteristics. It is possible that treating a greater number of prostate cancer patients at a high volume center could lead to improvements in functional outcomes beyond that attributed to surgical skill. Additionally, a longer 12-month follow-up period would have been more appropriate to evaluate outcomes, but we chose a shorter follow-up time because it was important for us to investigate early functional outcomes following RP and to compare this with patient data from the previous year.

To the best of our knowledge, our study is the first evaluation of functional outcomes of patients undergoing RP during the COVID-19 pandemic, and presents the impact of social distancing and self-isolation on functional outcomes as they relate to various surgical techniques. Further studies evaluating home-based models for pelvic floor muscle training, penile rehabilitation, psycho-oncology and psychosomatic support are necessary.

5. Conclusions

Continence recovery and potency rates at 3 months were higher and statistically significantly advantageous for RARP and ORP patients from the year prior to the pandemic. Our results highlight the large impact of the COVID-19 pandemic on functional outcomes following RP. Future design and planning of home-based models for improved post-operative rehabilitation should consider this evidence.

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None.

Statement of ethics

This is a pure retrospective analysis with anonymized data. According to the responsible ethics committee of the North Rhine Medical Association, this study with retrospective data does not require ethics approval. Since this is anonymized data, written consent from participants is not required. All procedures performed in studies involving human participants were in accordance with the ethical standards of the institutional and/or national research committee and with the 1964 Helsinki declaration and its later amendments or comparable ethical standards.
Conflict of interest statement
The authors report no conflicts of interest.

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Author contributions
BB, SS, and TAV had full access to all the data in the study and take responsibility for the integrity of the data and accuracy of the data analysis.
BB: manuscript writing/editing, protocol/project development, data collection or management, drafting of the manuscript, administrative, technical, and material support;
SS: Data collection or management, administrative, technical, and material support, supervision;
TAV: Drafting of the manuscript, supervision.

References
[1] Guan W-J, Ni Z-Y, Hu Y, et al. Clinical characteristics of coronavirus disease 2019 in China. N Engl J Med 2020;382(18):1708–1720.
[2] Wu Z, McGoogan JM. Characteristics of and important lessons from the coronavirus disease 2019 (COVID-19) outbreak in China: Summary of a report of 72 314 cases from the Chinese Center for Disease Control and Prevention. JAMA 2020;323(13):1219–1222.
[3] COVIDSurg Collaborative. Global guidance for surgical care during the COVID-19 pandemic. Br J Surg 2020;107(9):1097–1103.
[4] Søreide K, Hallet J, Matthews JB, et al. Immediate and long-term impact of the COVID-19 pandemic on delivery of surgical services. Br J Surg 2020;107(10):1250–1261.
[5] Nathan A, Shukla S, Sinha A, et al. Immediate post-operative PDE5 therapy improves early erectile function outcomes after robot assisted radical prostatectomy (RARP). J Robot Surg 2021;5(s1):1-7.
[6] Wu ML, Wang CS, Xiao Q, Peng CH, Zeng TY. The therapeutic effect of pelvic floor muscle exercise on urinary incontinence after radical prostatectomy: A meta-analysis. Asian J Androl 2019;21(2):170–176.
[7] Grasselli G, Pesenti A, Cecconi M. Critical care utilization for the COVID-19 outbreak in Lombardy, Italy: Early experience and forecast during an emergency response. JAMA 2020;323(16):1545–1546.
[8] Liang W, Liang H, Ou L, et al. Development and validation of a clinical risk score to predict the occurrence of critical illness in hospitalized patients with COVID-19. JAMA Intern Med 2020;180(8):1081–1089.
[9] Sanda MG, Dunn RL, Michalski J, et al. Quality of life and satisfaction with outcome among prostate-cancer survivors. N Engl J Med 2008;358(12):1250–1261.
[10] Dinino D, Demartines N, Clavien PA. Classification of surgical complications: A new proposal with evaluation in a cohort of 6336 patients and results of a survey. Ann Surg 2004;240(2):205–213.
[11] Cappellari JC, Rosen RC. The Sexual Health Inventory for Men (SHIM): A 5-year review of research and clinical experience. Int J Impot Res 2005;17(4):307–319.
[12] Avery K, Donovan J, Peters TJ, Shaw C, Gotob M, Abrams P. ICQ: A brief and robust measure for evaluating the symptoms and impact of urinary incontinence. Neurourol Urodyn 2004;23(4):322–330.
[13] Naspro R, Da Pozzo LF. Urology in the time of corona. Nat Rev Urol 2020;17(5):251–253.
[14] Herrood PJJ, Ajimah A, Boyd-Carson H, et al. Winter cancellations of elective surgical procedures in the UK: A questionnaire survey of patients on the economic and psychological impact. BMJ Open 2019;9(6):e028753.
[15] Peyromaure M, Ravery V, Boccon-Gibod L. The management of stress urinary incontinence after radical prostatectomy. BJU Int 2002;90(2):155–161.
[16] Talcott JA, Rieker P, Probert KJ, et al. Patient-reported impotence and incontinence after nerve-sparing radical prostatectomy. J Natl Cancer Inst 1997;89(15):1117–1123.
[17] Chiancone E, Fabiano M, Fedelini M, Carrino M, Meccariello C, Fedelini P. Preliminary evidence of the impact of social distancing on psychological status and functional outcomes of patients who underwent robot-assisted radical prostatectomy. Cent European J Urol 2020;73(3):265–268.
[18] Mulhall J, Land S, Parker M, Waters WB, Flanigan RC. The use of an erectogenic pharmacotherapy regimen following radical prostatectomy improves recovery of spontaneous erectile function. J Sex Med 2003;2(4):532–540. discussion 540–542.
[19] Montorsi F, Guazzoni G, Strambi LF, et al. Recovery of spontaneous erectile function after nerve-sparing radical retropubic prostatectomy with and without early intracavernous injections of alprostadil: Results of a prospective, randomized trial. J Urol 1997;158(4):1408–1410.
[20] Zhu X, Wu S, Miao D, Li Y. Changes in emotion of the Chinese public in regard to the SARS period. Soc Behav Pers 2008;36(4):447–454.

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