

Prevalence and influencing factors of social alienation among elderly patients undergoing radical prostatectomy for prostate cancer

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Abstract

Objectives: This study aims to not only investigate the prevalence of social alienation among elderly patients undergoing radical prostatectomy for prostate cancer but also identify the contributing factors.

Materials and methods: A total of 245 elderly patients diagnosed with prostate cancer and undergoing radical prostatectomy at a tertiary care general hospital in Jinan were included in this study. To assess the patients, several questionnaires were used. These included the General Situation Questionnaire, General Alienation Scale, Social Impact Scale, Modified Memorial Anxiety Scale for Prostate Cancer, and Perceived Social Support Scale. Pearson correlation analysis was conducted to examine the relationships between variables, whereas multiple linear regression was used to identify the factors influencing social alienation among patients who underwent radical prostatectomy.

Results: Patients who underwent radical prostatectomy had a mean total score of 44.13 ± 7.24 on the Social Alienation Scale. The results of the Pearson correlation analysis indicated that social alienation showed an inverse association with social support ($r = -0.627, p < 0.05$) and positive associations with age, disease stigma, and anxiety ($r = 0.325, 0.575, 0.421$, all p 's < 0.01) among patients who underwent radical prostatectomy. The findings from multiple linear regression analysis demonstrated that educational level, age, urinary incontinence, disease stigma, anxiety, and social support significantly influenced social alienation among elderly patients who underwent radical prostatectomy ($p < 0.05$).

Conclusions: Elderly patients who undergo radical prostatectomy often experience social alienation. This study found that social alienation was associated with factors such as educational level, age, urinary incontinence, social support, anxiety, and disease stigma. Consequently, healthcare providers should actively monitor the degree of social alienation in elderly patients after radical prostatectomy and provide suitable psychological care to facilitate positive social reintegration and alleviate their feelings of social alienation.

Keywords: Prostate cancer; Social alienation; Disease stigma; Social support; Nursing

1. Introduction

Prostate cancer is a prevalent malignancy that poses a significant threat to men's health globally.^[1] The incidence of prostate cancer tends to increase with advancing age among patients.^[1] Radical prostatectomy, an effective treatment approach for this type of cancer, holds promise in terms of outcomes.^[2] However, it is important to recognize that patients may face postoperative complications, such as urinary incontinence, erectile dysfunction, anastomotic stricture, and others, which significantly affect their quality of life

and subject them to substantial physical and psychological stress, particularly urinary incontinence.^[3,4] In addition, individuals who undergo radical prostatectomy commonly encounter psycho-emotional challenges, including anxiety and depression.^[5,6] These conditions automatically lead to a sense of alienation from others and society, resulting in negative emotions such as loneliness and helplessness.^[7] Consequently, patients may exhibit various adverse states during social interactions, including social avoidance, withdrawal, and anxiety, collectively known as social alienation.^[8,9]

Considering the significance of addressing these intricate matters, healthcare providers are presently focused on mitigating the social alienation encountered by patients with prostate cancer.^[10] The primary objective is to aid patients in attaining a successful reintegration into society while improving their postoperative quality of life. However, it is important to note that only a few studies have investigated the social alienation status of patients after radical prostatectomy and the determining factors linked thereto.^[11]

This study aims to not only investigate the prevalence of social alienation among patients after radical prostatectomy but also identify the contributing factors. Through this research, our goal is to gain comprehensive insights into the experiences of these individuals, develop strategies to mitigate social alienation, foster their

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reintegration into society, and ultimately enhance their overall well-being and postoperative quality of life.

To accomplish our research objectives, we use a comprehensive methodology to assess social alienation in patients undergoing radical prostatectomy. In addition, we investigate the potential correlations between social alienation and factors such as age, postoperative complications, disease stigma, and psychological distress. The findings of this study will enable healthcare providers to develop tailored interventions and psychological support strategies to alleviate social alienation and improve the postoperative experiences and overall quality of life for these patients.

2. Materials and methods

2.1. Patients

This study included patients who underwent radical prostatectomy at Shandong Provincial Hospital, affiliated to Shandong First Medical University (Jinan, China), between August 2021 and September 2022, and received regular follow-up in the outpatient clinic. Participants were selected using a convenience sampling method. The inclusion criteria were as follows: (1) patients diagnosed with prostate cancer according to the diagnostic criteria specified in the prostate cancer guidelines^[12]; (2) patients who underwent their first radical prostatectomy and attended regular outpatient clinic reviews; (3) age ≥ 60 years; and (4) patients who were conscious, in a normal mental state, and able to actively participate in the investigation. The exclusion criteria were as follows: (1) patients with other severe organic lesions or concurrent malignancies; and (2) patients involved in other research studies.

To ensure a suitable sample size for the multifactor analysis, which adheres to the principle that the sample size should be 10–20 times the number of independent variables and considers a potential attrition rate of 10%, a final calculated sample size of 220–440 cases was determined. Ultimately, a total of 250 patients who had undergone radical prostatectomy were included in this study. Ethical approval was obtained from the hospital, and all study participants were provided with comprehensive information regarding the study's objectives and procedures, and they provided informed consent to participate.

2.2. Methods

This study used well-established questionnaires to assess the different dimensions of social alienation.^[13] In addition, we investigated potential correlations between social alienation and factors such as age, postoperative complications, disease stigma, and psychological distress.

2.3. Research tools

2.3.1. General situation questionnaire Demographic information, including age, long-term residence, educational level, marital status, and disease-related factors, such as urinary incontinence and readmission after surgery, were collected and analyzed in this study.

2.3.2. General alienation scale The General Alienation Scale (GAS), developed by Jessor et al.,^[13] is used to assess patients' perceived social isolation and uncertainty regarding their engagement in social activities. The scale comprises 15 items that encompass the dimensions of meaninglessness (3 items), powerlessness (4 items), social alienation (5 items), and self-alienation (3 items), with a total possible score of 60. A higher score indicates a greater level of social alienation experienced by the patient. The scale uses a 4-grade Likert rating system ranging from "strongly disagree" to "strongly agree" (1 to 4). This scale was used to measure social alienation among Chinese older adults, demonstrating good reliability with a Cronbach's α coefficient of 0.77.

2.3.3. Perceived social support scale The Perceived Social Support Scale (PSSS), developed by Zimet et al., is extensively used in China to assess the level of social support perceived by individuals. The scale comprises 3 dimensions, namely, family support (4 items), friend support (4 items), and other support (4 items), for a total of 12 items.^[14,15] Each item is rated on a 7-point Likert scale ranging from "strongly disagree" to "strongly agree." The total score ranged between 12 and 84, with higher scores indicating greater levels of social support received by the patient. The original scale demonstrated a Cronbach's α coefficient of 0.88, whereas the Cronbach's α coefficient for this study's application of the scale was 0.83.

2.3.4. Social impact scale The Social Impact Scale (SIS), initially developed by Fife et al. and subsequently translated and revised into Chinese by Pan et al., is used to evaluate patients' perceived sense of disease stigma.^[16] The scale comprises 4 dimensions, namely, social exclusion (9 items), internalized shame (5 items), economic discrimination (3 items), and social isolation (7 items), resulting in a total of 24 items. Each item is assessed using a 4-grade Likert scale, with a score of 1 for "strongly disagree," 2 for "disagree," 3 for "agree," and 4 for "strongly agree." The overall score ranges from 24 to 96, with higher scores indicating greater severity of the patient's perceived sense of self-stigma. The Chinese version of the scale exhibits a Cronbach's α coefficient of 0.85, indicating high reliability.

2.3.5. Modified memorial anxiety scale for prostate cancer The Modified Memorial Anxiety Scale for Prostate Cancer (MAX-PC), originally developed by Roth et al.^[17] in 2003, was specifically translated and revised into Chinese to evaluate anxiety symptoms in prostate cancer patients. The scale comprises 3 dimensions, namely, prostate cancer anxiety (11 items), prostate-specific antigen anxiety (3 items), and fear of recurrence anxiety (4 items), resulting in a total of 18 items. Each item is rated on a 4-grade Likert scale, yielding a total score ranging from 0 to 54. Higher scores on the scale indicate greater levels of anxiety related to prostate cancer experienced by patients. The Cronbach's α coefficient for the Chinese version of the scale was 0.899, demonstrating high reliability and validity.

2.4. Information collection

A survey was conducted among patients who underwent radical prostatectomy at a tertiary general hospital in Jinan. Paper questionnaires were used for data collection. The questionnaires were administered to patients during their initial postoperative review visit at the hospital, which occurred at an average of (30.15 ± 7.18) days after surgery. The investigator provided standardized instructions to the patients on how to complete the questionnaire using uniform language. Following completion, the investigator collected the questionnaires on site. A total of 250 questionnaires were distributed, with the exclusion of 5 questionnaires owing to the selection of the same option for multiple consecutive questions. Ultimately, 245 valid questionnaires were returned, resulting in a recovery rate of 98.10%.

2.5. Statistical analysis

Statistical processing was conducted using SPSS 24.0. For normally distributed measurement data, means and standard deviations were used for description and compared using 2 independent samples t test. Nonnormally distributed measurement data were described using medians and interquartile ranges and compared using the Mann-Whitney U test. Count data were presented as frequencies and percentages. Univariate analysis involved variance analysis and t tests. Pearson correlation analysis was used to examine the correlation between social alienation and variables such as

Table 1
Social alienation scores of radical prostatectomy patients with different characteristics (n = 245).

	n (%)	Scores	F/t	p
Educational level				
Middle school and below	85 (34.69)	47.78 ± 6.17	24.021	<0.001
High school or junior college	76 (31.02)	43.83 ± 6.96		
University or college	84 (34.29)	40.71 ± 6.79		
Long-term residence				
Towns	140 (57.14)	43.99 ± 7.13	-0.341	0.733
Countryside	105 (42.86)	44.31 ± 7.41		
Payment method for hospitalization insurance				
Employee social health insurance	131 (53.47)	44.67 ± 6.43	1.298	0.335
Resident health insurance	98 (40.00)	43.72 ± 8.14		
Self-financed	16 (6.53)	42.19 ± 7.61		
Per capita monthly household income (CNY)				
<3000	108 (44.08)	45.29 ± 7.48	2.535	0.081
3000–5000	91 (37.14)	43.34 ± 7.46		
>5000	46 (18.78)	42.98 ± 5.80		
Marital status				
Single	38 (15.51)	41.92 ± 7.27	2.275	0.105
Married	195 (79.59)	44.47 ± 7.19		
Divorced/widowed	12 (4.90)	45.67 ± 7.10		
Residence status				
Solitude	15 (6.12)	45.33 ± 7.34	0.656	0.521
With family	230 (93.88)	44.05 ± 7.24		
Urinary incontinence				
Yes	142 (42.04)	47.96 ± 6.61	-7.844	<0.001
No	103 (57.96)	41.35 ± 6.37		
Whether to be readmitted after surgery				
Yes	98 (40.00)	42.03 ± 6.85	-3.845	<0.001
No	147 (60.00)	45.53 ± 7.17		

age, perceived social support, self-efficacy, anxiety, and depression scores among patients after radical prostatectomy. Multiple linear regression was used to analyze the factors influencing social alienation in patients after radical prostatectomy.

3. Results

3.1. Social alienation scores of patients with different characteristics of radical prostatectomy

The findings indicated that there were no statistically significant differences in social alienation among patients who underwent radical prostatectomy with respect to long-term residence, payment method for hospitalization, per capita monthly household income, marital status, and residence status (*p* > 0.05). However, significant differences in social alienation scores were observed based on educational level, urinary incontinence, and readmission after surgery (*p* < 0.001, Table 1).

3.2. Scores of patients with radical prostatectomy on each scale

In this study, a total of 245 patients obtained a GAS score of 44.13 ± 7.24, with a mean item score of 2.94 ± 0.48. Among the dimensions of the GAS, the item related to meaninglessness had the highest mean score of 3.08 ± 0.71, whereas the item associated with social alienation had the lowest mean score of 2.82 ± 0.68. The overall score on the SIS was 60.67 ± 12.95, with a mean item score of 2.53 ± 0.54. Within the dimensions of the SIS, the item pertaining to economic discrimination had the highest mean score

of 2.62 ± 0.85, whereas the item related to social isolation had the lowest mean score of 2.47 ± 0.78. Regarding the PSSS, the total score was 54.63 ± 11.51, with a mean item score of 4.55 ± 0.96. Among the dimensions of the PSSS, the item concerning family support had the highest mean score of 4.75 ± 1.42, and the item related to other support had the lowest mean score of 4.37 ± 1.30. The MAX-PC yielded a total score of 33.25 ± 11.59, with a mean item score of 1.85 ± 0.64. Among the dimensions of the MAX-PC, the item associated with prostate-specific antigen anxiety had the highest mean score of 2.15 ± 0.75, whereas the item concerning general anxiety had the lowest mean score of 1.75 ± 0.85 (Table 2). Therefore, healthcare professionals are encouraged to develop targeted and rational care plans to alleviate patients' social alienation.

3.3. Pearson correlation analysis

The findings revealed significant associations between social alienation and various factors in patients who underwent radical prostatectomy. Age demonstrated a positive correlation with social alienation (*r* = 0.32, *p* < 0.001), as did disease stigma (*r* = 0.57, *p* < 0.001) and anxiety (*r* = 0.42, *p* < 0.001). Conversely, social support was negatively correlated with social alienation (*r* = -0.63, *p* < 0.001) (Fig. 1).

3.4. Multiple linear regression analysis

Multiple linear regression analysis was conducted to explore the relationship between patients' social alienation scores (dependent variable) and significant factors in the general data, including age, disease stigma score, anxiety score, and perceived score (independent variables). The results of the multiple linear regression analysis demonstrated that educational level, age, urinary incontinence, disease stigma, anxiety, and social support exerted an influence on the social alienation experienced by patients who underwent radical prostatectomy (*p* < 0.05) (Table 3).

4. Discussion

This study revealed that patients who underwent radical prostatectomy experienced a total social alienation score of 44.13 ± 7.24. Notably, the dimension of alienation from others obtained the

Table 2
GAS, SIS, PSSS, and MAX-PC scale scores in patients with radical prostatectomy.

	Items	Scores	Average item score	
GAS total score				
	15	44.13 ± 7.24	2.94 ± 0.48	
	Meaninglessness	3	9.23 ± 2.12	3.08 ± 0.71
	Powerlessness	4	11.94 ± 2.90	2.99 ± 0.73
	Social alienation	5	14.08 ± 3.42	2.82 ± 0.68
	Self-alienation	3	8.89 ± 2.27	2.96 ± 0.76
SIS total score				
	24	60.67 ± 12.95	2.53 ± 0.54	
	Social exclusion	9	22.9 ± 6.59	2.54 ± 0.73
	Internalized shame	5	12.56 ± 3.84	2.51 ± 0.77
	Economic discrimination	3	7.86 ± 2.55	2.62 ± 0.85
	Social isolation	7	17.30 ± 5.48	2.47 ± 0.78
PSSS total score				
	12	54.63 ± 11.51	4.55 ± 0.96	
	Family support	4	18.98 ± 5.66	4.75 ± 1.42
	Friend support	4	18.16 ± 5.47	4.54 ± 1.37
	Other support	4	17.49 ± 5.18	4.37 ± 1.30
18-item MAX-PC total score				
	18	33.25 ± 11.59	1.85 ± 0.64	
	Prostate cancer anxiety	11	19.27 ± 9.40	1.75 ± 0.85
	PSA anxiety	3	6.44 ± 2.26	2.15 ± 0.75
	Fear of recurrence anxiety	4	7.54 ± 3.27	1.89 ± 0.82

GAS = General Alienation Scale; MAX-PC = Modified Memorial Anxiety Scale for Prostate Cancer; PSA = prostate-specific antigen; PSSS = Perceived Social Support Scale; SIS = Social Impact Scale.

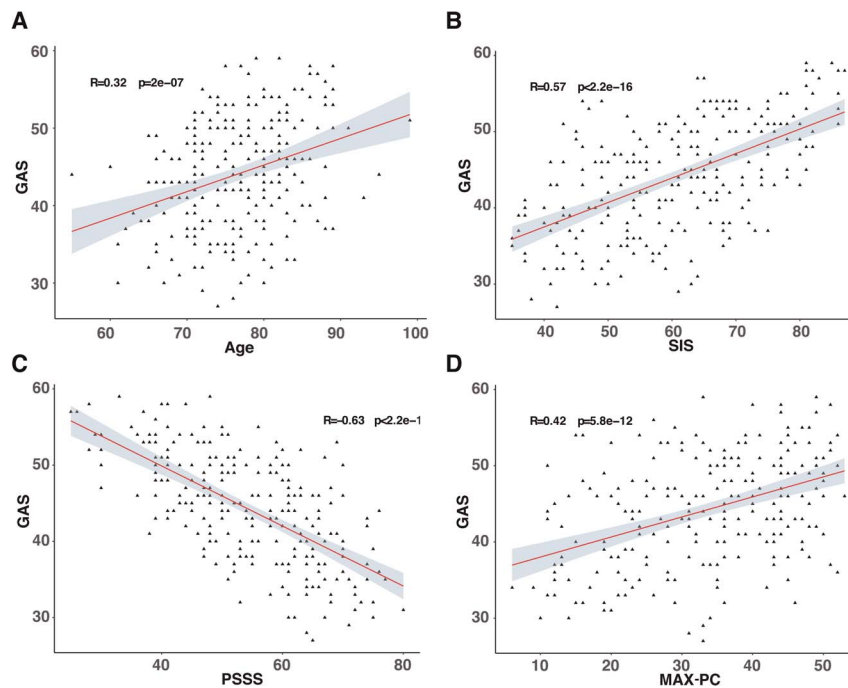


Figure 1. Correlation analysis of social alienation with age (A), disease stigma (B), social support (C), and anxiety (D), and the corresponding *R* values and *p* values. GAS = General Alienation Scale; MAX-PC = Modified Memorial Anxiety Scale for Prostate Cancer; PSSS = Perceived Social Support Scale; SIS = Social Impact Scale.

highest score of 14.08 ± 3.42 , indicating a strong sense of social alienation among cancer patients. The analysis suggests that, in the future, patients who undergo radical prostatectomy may face challenges such as urinary incontinence, which can affect their daily life and social interactions. Moreover, they may also grapple with the fear of disease recurrence and societal pressure, making them susceptible to social alienation. In addition, patients' limited physical activity postsurgery, coupled with potential disruptions in family roles due to the illness, may reduce their inclination to actively engage in social activities and subsequently contribute to higher levels of social alienation.^[18] Consequently, it is recommended that cognitive-behavioral interventions should be provided to patients with prostate cancer to facilitate a proper understanding of their condition and alleviate social alienation.

4.1. Educational level

This study demonstrated that educational level significantly influenced social alienation in patients who underwent radical prostatectomy ($B = -1.227, p = 0.012$). Furthermore, it was observed that individuals with lower educational levels experienced higher levels of social alienation, consistent with the research by Kroenke et al.^[19] Analyzing these findings revealed that patients with lower educational backgrounds tended to have a limited understanding of the disease and were more susceptible to negative emotions, such as anxiety, frustration, and helplessness, during the prolonged recovery process. Consequently, they are more likely to adopt negative coping strategies, including avoidance, withdrawal, and self-isolation.^[20] Conversely, patients with higher educational levels are inclined to adopt a realistic, optimistic, and rational coping style,^[19] resulting in a diminished sense of social alienation. For patients who have undergone radical prostate surgery and have lower educational attainment, it is recommended that healthcare professionals enhance health education efforts, improve patients' understanding of the disease, alleviate feelings of anxiety and helplessness, and reduce their level of social alienation.

4.2. Urinary incontinence

This study revealed that patients who experienced urinary incontinence after radical prostatectomy exhibited higher levels of social alienation than those who did not ($t = -7.844, p < 0.05$). This analysis is likely due to the tendency of radical prostatectomy to impair the innervation function of the transverse urethral and detrusor muscles, resulting in postoperative urinary incontinence among patients.^[21] In such cases, patients may require catheterization and the use of nursing pads for an extended period, which can potentially lead to urinary system and skin infections, thereby limiting their daily interactions. Consequently, they may experience increased disease stigma, social avoidance, and withdrawal, ultimately contributing to higher levels of social isolation.^[22,23] To address this issue, it is suggested that healthcare professionals enhance health education through semistructured interviews. This approach can help patients in adjusting their perceptions of the disease, alleviating their distress, and ultimately reducing their social avoidance and levels of social alienation.

Table 3
Multiple linear regression analysis of factors influencing social alienation in patients with radical prostatectomy.

	<i>B</i>	<i>SE</i>	β	<i>t</i>	<i>p</i>
Educational level	-1.227	0.487	-0.141	-2.522	0.012
Urinary incontinence	1.777	0.764	0.121	2.326	0.021
Age	0.165	0.052	0.156	3.144	0.002
Disease stigma	0.133	0.029	0.239	4.559	<0.001
Anxiety in prostate cancer patients	0.170	0.029	0.272	5.868	<0.001
Perceived social support	-0.193	0.037	-0.308	-5.159	<0.001

B = unstandardized coefficients; *SE* = standard error; β = standardized coefficients.

4.3. Age

This study found that age significantly influenced social alienation in patients who underwent radical prostatectomy ($B = 0.165$, $p < 0.05$). Moreover, it was observed that, as patients got older, their level of social alienation increased. The study included elderly patients aged 60 years and older, who were predominantly retired, and who experienced social role deficits. Advanced age is often associated with a reduced ability to learn and accept new technologies, such as smartphones or the Internet. In addition, many elderly patients who underwent radical prostatectomy live alone and lack regular communication with their family and friends, leading to heightened feelings of social alienation.^[24] Therefore, healthcare professionals working with elderly patients who underwent radical prostatectomy are encouraged to use group communication strategies to facilitate emotional expression, increase social support, and strengthen connections with family and friends. These interventions can effectively reduce social alienation in this patient population.

4.4. Disease stigma

The correlation analysis conducted in this study revealed a moderately positive correlation between social alienation and disease stigma among patients who underwent radical prostatectomy. Multiple linear regression analysis further demonstrated that disease stigma significantly influenced social alienation in this patient population ($p < 0.05$). As the level of disease stigma increased, the level of social alienation among patients with radical prostate cancer also increased. The analysis of the underlying reasons revealed that patients with higher levels of disease stigma displayed a reduced initiative for social engagement and reported higher levels of social alienation.^[25] Moreover, stronger disease stigma was associated with more negative attitudes toward the disease and increased difficulty in accepting and adapting to society. Patients experienced limitations in their ability to participate in social life following the onset of the disease, leading to the avoidance of social activities and further exacerbating their level of social alienation. To address this issue, it is recommended that healthcare professionals used positive thinking training and semistructured interviews to enhance patients' acceptance of the disease, improve their ability to cope with negative emotions, and subsequently reduce social avoidance and mitigate the level of social alienation.^[26,27]

4.5. Anxiety

The findings of this study revealed that anxiety related to prostate cancer significantly influenced the social alienation experienced by patients who underwent radical prostatectomy. Moreover, a positive correlation was observed between the level of anxiety about prostate cancer and the level of social alienation ($p < 0.05$). Long-term studies have demonstrated that cancer patients often face negative emotional distress as a persistent challenge.^[28] In particular, anxiety has been found to reduce treatment adherence and negatively affect patient prognosis.^[29] On one hand, patients with higher levels of anxiety after cancer surgery tend to adopt a hostile and avoidant attitude toward disease treatment and social interactions. They also display a reduced willingness to initiate interactions with others, resulting in heightened levels of social alienation.^[30] On the other hand, patients experience postoperative complications, such as urinary incontinence, which significantly impairs their daily lives and subsequently triggers social anxiety, thus contributing to an increased sense of social alienation.^[21] Healthcare professionals should prioritize the psychological well-being of patients after radical prostatectomy and provide support through enhanced health education and appropriate medication when necessary. By effectively addressing stressful events in

the socialization process, patients can adjust their mindset and reduce their sense of social alienation.^[31]

4.6. Social support

This study revealed that social support significantly influenced social alienation in patients who underwent radical prostatectomy ($p < 0.05$). Patients with higher levels of social support exhibited lower levels of social detachment. The analysis suggests that patients with greater social support benefit from improved access to medical resources and better overall conditions. They also tend to have a more accepting attitude toward their disease. By facing their illness and associated challenges more positively, they are better able to adapt to changing social roles. Moreover, active participation in social life and activities, even after surgery, is associated with lower levels of social alienation. To reduce patients' social alienation, healthcare professionals can facilitate patient support communication activities, thereby helping patients establish a sense of social belonging and improve the level of social support they receive.

It is crucial to acknowledge that this study is conducted solely within a tertiary hospital in Jinan City, which imposes certain limitations on the sample selection. To address these limitations, future research endeavors could use a multiregion, multicenter, longitudinal survey design. Such an approach would enable the exploration of a broader range of factors influencing social alienation among patients who have undergone radical prostatectomy. Furthermore, considering the potential limitations of cross-sectional surveys in capturing the full extent of the social alienation experienced by these patients, supplementing the surveys with in-depth interviews may be beneficial. This combined approach would facilitate a more comprehensive exploration of the factors influencing social alienation and potential interventions relevant to patients' experiences.

5. Conclusions

This study revealed a higher sense of social alienation among patients who had undergone radical prostatectomy. Educational level, age, urinary incontinence, disease stigma, anxiety, and social support emerged as influential factors contributing to social alienation in these patients. Postoperative urinary incontinence is a significant contributing factor to social alienation in patients undergoing radical prostatectomy. Furthermore, advanced age, lower educational level, stronger sense of disease stigma, higher level of anxiety, and lower social support were associated with social alienation among patients. In clinical practice, healthcare professionals should accurately identify high-risk patients experiencing social alienation and implement personalized intervention strategies tailored to their specific degree of social alienation. These interventions aim to effectively reduce patients' sense of social alienation, encourage their active reintegration into society, and enhance their overall postoperative quality of life.

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None.

Statement of ethics

This study was approved by the Ethics Committee of Shandong Provincial Hospital Affiliated to Shandong First Medical University (SWYX:NO.2023-188). All participants provided written informed

consent for their participation and publication of this study. All procedures performed in study involving human participants were in accordance with the ethical standards of the institutional and national research committee and with the 1964 Helsinki declaration and its later amendments or comparable ethical standards.

Conflict of interest statement

The author has declared no conflict of interest.

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Author contributions

XF, KR: Participated in the writing of the paper and data analysis; XF, FW, YL: Participated in the follow-up and data collection; QM, JZ, ML: Participated in data analysis and proof reading; MM, XW: Participated in the performance of the research; MZ: Participated in research design and final approved the version to be submitted.

All authors have read and approved the final manuscript.

Data availability

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

References

- [1] Siegel RL, Miller KD, Fuchs HE, Jemal A. Cancer statistics, 2022. *CA Cancer J Clin* 2022;72(1):7–33.
- [2] Luciani LG, Mattevi D, Mantovani W, et al. Retropubic, laparoscopic, and robot-assisted radical prostatectomy: A comparative analysis of the surgical outcomes in a single regional center. *Curr Urol* 2017;11(1):36–41.
- [3] Luchaichana N, Ramart P. Management of rectal injury and rectourinary fistula from radical prostatectomy. *Urol Ann* 2023;15(1):31–34.
- [4] Spector BL, Brooks NA, Strigenz ME, Brown JA. Bladder neck contracture following radical retropubic versus robotic-assisted laparoscopic prostatectomy. *Curr Urol* 2017;10(3):145–149.
- [5] Meissner VH, Peter C, Ankerst DP, et al. Prostate cancer-related anxiety among long-term survivors after radical prostatectomy: A longitudinal study. *Cancer Med* 2023;12(4):4842–4851.
- [6] Irusen H, Fernandez P, Van der Merwe A, et al. Depression, anxiety, and their association to health-related quality of life in men commencing prostate cancer treatment at tertiary hospitals in Cape Town, South Africa. *Cancer Control* 2022;29:10732748221125561.
- [7] van de Wal M, van Oort I, Schouten J, Thewes B, Gielissen M, Prins J. Fear of cancer recurrence in prostate cancer survivors. *Acta Oncol* 2016;55(7):821–827.
- [8] Badger TA, Segrin C, Crane TE, et al. Social determinants of health and symptom burden during cancer treatment. *Nurs Res* 2023;72(2):103–113.
- [9] Lord BD, Harris AR, Ambs S. The impact of social and environmental factors on cancer biology in Black Americans. *Cancer Causes Control* 2023;34(3):191–203.
- [10] Kang DW, Fairey AS, Boulé NG, Field CJ, Wharton SA, Courmeya KS. A randomized trial of the effects of exercise on anxiety, fear of cancer progression and quality of life in prostate cancer patients on active surveillance. *J Urol* 2022;207(4):814–822.
- [11] Han J, Zhou F, Zhang L, Su Y, Mao L. Psychological symptoms of cancer survivors during the COVID-19 outbreak: A longitudinal study. *Psychooncology* 2021;30(3):378–384.
- [12] Gillessen S, Bossi A, Davis ID, et al. Management of patients with advanced prostate cancer. Part I: Intermediate/high-risk and locally advanced disease, biochemical relapse, and side effects of hormonal treatment: Report of the advanced prostate cancer consensus conference 2022. *Eur Urol* 2023;83(3):267–293.
- [13] Jessor R. Problem-behavior theory, psychosocial development, and adolescent problem drinking. *Br J Addict* 1987;82(4):331–342.
- [14] Cui S, Cheng F, Zhang L, et al. Self-esteem, social support and coping strategies of left-behind children in rural China, and the intermediary role of subjective support: A cross-sectional survey. *BMC Psychiatry* 2021;21(1):158.
- [15] Zimet GD, Powell SS, Farley GK, Werkman S, Berkoff KA. Psychometric characteristics of the multidimensional scale of perceived social support. *J Pers Assess* 1990;55(3–4):610–617.
- [16] Pan AW, Chung L, Fife BL, Hsiung PC. Evaluation of the psychometrics of the social impact scale: A measure of stigmatization. *Int J Rehabil Res* 2007;30(3):235–238.
- [17] Roth AJ, Rosenfeld B, Kornblith AB, et al. The memorial anxiety scale for prostate cancer: Validation of a new scale to measure anxiety in men with prostate cancer. *Cancer* 2003;97(11):2910–2918.
- [18] Moore S, Leung B, Bates A, et al. Social isolation: Impact on treatment and survival in patients with advanced cancer. *J Clin Oncol* 2018;36(34):156.
- [19] Kroenke CH, Michael YL, Shu XO, et al. Post-diagnosis social networks, and lifestyle and treatment factors in the after breast cancer pooling project. *Psychooncology* 2017;26(4):544–552.
- [20] Gao Y, Yuan L, Pan B, Wang L. Resilience and associated factors among Chinese patients diagnosed with oral cancer. *BMC Cancer* 2019;19(1):447.
- [21] Lee S, Lee JY, Kim H, Lee K, Lee T. Advanced practice nurses' experiences on patient safety culture in hospital-based home healthcare: A qualitative descriptive study. *Risk Manag Healthc Policy* 2022;15:2297–2309.
- [22] Wood AW, Barden S, Terk M, Cesaretti J. The influence of stigma on the quality of life for prostate cancer survivors. *J Psychosoc Oncol* 2017;35(4):451–467.
- [23] Ernst J, Mehnert A, Taubenheim S, Rentsch A, Hornemann B, Esser P. Stigmatization in employed patients with breast, intestinal, prostate and lung cancer. *Psychother Psychosom Med Psychol* 2017;67(7):304–311.
- [24] Klinenberg E. Social isolation, loneliness, and living alone: Identifying the risks for public health. *Am J Public Health* 2016;106(5):786–787.
- [25] Choi K-H, Steward WT, Miège P, Hudes E, Gregorich SE. Sexual stigma, coping styles, and psychological distress: A longitudinal study of men who have sex with men in Beijing, China. *Arch Sex Behav* 2016;45(6):1483–1491.
- [26] Chatters LM, Taylor HO, Nicklett EJ, Taylor RJ. Correlates of objective social isolation from family and friends among older adults. *Healthcare (Basel)* 2018;6(1):24.
- [27] Hinzey A, Gaudier-Diaz MM, Lustberg MB, DeVries AC. Breast cancer and social environment: Getting by with a little help from our friends. *Breast Cancer Res* 2016;18(1):54.
- [28] Bobevski I, Kissane DW, Vehling S, McKenzie DP, Glaesmer H, Mehnert A. Latent class analysis differentiation of adjustment disorder and demoralization, more severe depressive and anxiety disorders, and somatic symptoms in patients with cancer. *Psychooncology* 2018;27(11):2623–2630.
- [29] Li C, Hu M, Yang T, Shao X, Zheng D. Correlates of stigma for poststroke patients: A meta-analysis. *J Clin Nurs* 2023;32(9–10):1952–1962.
- [30] Puigpinós-Riera R, Graells-Sans A, Serral G, et al. Anxiety and depression in women with breast cancer: Social and clinical determinants and influence of the social network and social support (DAMA cohort). *Cancer Epidemiol* 2018;55:123–129.
- [31] Graboyes EM, Hill EG, Marsh CH, Maurer S, Day TA, Sterba KR. Body image disturbance in surgically treated head and neck cancer patients: A prospective cohort pilot study. *Otolaryngol Head Neck Surg* 2019;161(1):105–110.

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