

Mixed-methods study examining patients' perceptions of the relationship between Discharge Teaching, Social Support, and Patient Readiness for Discharge

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Abstract

Background

Safe hospital-to-home transitions are critical for older patients undergoing robot-assisted radical prostatectomy (RARP), yet many face post-discharge self-management challenges. While discharge education and social support are vital, their specific contributions to readiness for hospital discharge (RHD) in this population remain under-explored.

Methods

An explanatory sequential mixed-methods design was employed at Nanjing Drum Tower Hospital, China. First, a cross-sectional survey (December 2022–April 2023) assessed sociodemographic characteristics, discharge teaching quality, and RHD in older men (aged 60–80) following RARP. Quantitative data were analyzed using descriptive statistics, multiple linear regression, and Importance-Performance Analysis (IPA). Subsequently, a qualitative descriptive phase (August 2023–January 2024) involved semi-structured interviews with 20 purposively selected patients (10 inpatients, 10 outpatients) to explain quantitative findings. Interviews were analyzed using inductive content analysis via NVivo 11.

Results

A total of 129 patients completed the survey (response rate: 84.9%; mean age 70.5 ± 5.1 years). Participants reported high RHD (mean 8.34 ± 0.63) and discharge teaching quality (mean 8.47 ± 0.45). IPA indicated that five key areas, including medical handling, fell into the “high importance–high performance” quadrant. Regression analysis identified discharge teaching quality ($\beta = 0.599$, $p < 0.001$) and social support ($\beta = 0.210$, $p = 0.002$) as significant predictors of RHD (adjusted $R^2 = 0.449$). Qualitative analysis of 20 interviews revealed two central themes: (1) “Personal support provided for gaining a sense of control,” highlighting the critical role of spousal care, economic security, and continuity of professional care in managing physical recovery; and (2) “Social support provided for personal growth,” emphasizing the need for peer interaction to reduce isolation and restore self-esteem and normalcy.

Conclusions

Older RARP patients generally exhibit high discharge readiness, significantly driven by discharge teaching quality and social support. While technical and tangible support from staff and spouses ensures physical safety and control, psychological adaptation requires broader social support, including peer validation and dignity preservation. Interventions should integrate structured education with enhanced social systems—such as peer groups and continuity of care models—to optimize recovery.

Background

Prostate cancer represents a significant and growing health burden for men worldwide, particularly among the aging population. In recent years, there emerges an annual increase of prostate cancer incidence in China, and its incidence rate ranks the 7th and mortality rate ranks the 10th among malignant tumors in Chinese men [1–3]. Robot-assisted radical prostatectomy (RARP) has emerged as the gold-standard surgical treatment for localized prostate cancer, offering benefits such as reduced blood loss and shorter hospital stays [4–5]. Following RARP, a critical aspect of postoperative management is the mandatory use of an indwelling urinary catheter, typically for one to two weeks, to ensure the integrity of the urethral-bladder anastomosis and prevent complications like urinary fistulas [6]. However, the

catheter itself is a significant source of patient morbidity. It is not only a primary driver of postoperative pain [7] but also predisposes patients to a constellation of catheter-related complications, such as urinary tract infection, urinary catheter displacement, bladder spasms, hemorrhage, obstruction, peri-catheter leakage, and incontinence, etc. All of them affect patients' postoperative recovery process, together with negative effects on their physical and mental health, sense of self-efficacy, and quality of life [8].

The transition from the structured hospital environment to home-based self-management is a period of heightened vulnerability for these patients. The responsibility for a range of complex care tasks—from surgical site care and pelvic floor muscle training to managing the psychological impact of the disease and its treatment—shifts abruptly to the patients and their families, who often feel overwhelmed by these high supportive care needs [9–12].

Ensuring a successful transition hinges on the patient's Readiness for Hospital Discharge (RHD), defined as a patient's subjective assessment of their ability to manage their care outside the hospital [13]. High RHD is a critical patient-centered outcome, consistently linked to fewer adverse events, reduced readmission rates, and improved quality of life post-discharge [14]. While literature consistently identifies quality of discharge teaching and social support as two key modifiable determinants of RHD [15–17], their interplay and specific relevance for the post-RARP population are poorly understood, presenting critical knowledge gaps.

Consequently, a significant disjuncture has emerged between the clinical imperative to prepare these patients, and the empirical foundation required to guide evidence-based practice. First, while the benefits of discharge teaching are known, the specific educational topics that are most important to older RARP patients versus how well they are being delivered have not been systematically evaluated. Second, the relative contribution of discharge teaching versus social support in predicting RHD within this specific, high-risk surgical population remains unclear. Furthermore, quantitative surveys alone are insufficient to fully capture the complexities of the transition experience. They may reveal that patients feel unsupported or unprepared, but they cannot explain why these gaps exist or describe the lived reality of coping with catheter care and psychological stress at home [18]. A mixed-methods approach is therefore necessary to bridge the gap between statistical trends and the patients' detailed perspectives.

Therefore, this study employed an explanatory sequential mixed-methods design to: (1) investigate the levels of discharge readiness, quality of discharge teaching, and social support in older patients after RARP; (2) determine the relationship between these variables and identify the key predictors of discharge readiness; (3) use Importance-Performance Analysis (IPA) to pinpoint specific areas for educational improvement; and (4) deepen the understanding of these gaps by exploring patients' in-depth experiences and unmet needs during the transition from hospital to home.

Materials and Methods

Study Design

An explanatory sequential mixed-methods design was adopted to investigate readiness for hospital discharge (RHD) among older patients following RARP. The study began with a quantitative cross-sectional survey to identify general trends and predictors of discharge readiness. Based on the quantitative findings, a qualitative descriptive study was subsequently conducted to explore the underlying reasons for the statistical results and gain deeper insights into patients' lived experiences.

Participants and Recruitment

The study was conducted at the Department of Urology, Nanjing Drum Tower Hospital in Nanjing, China.

For the quantitative survey (December 2022 to April 2023), convenience sampling was used to recruit older adult patients. Inclusion criteria were: (1) male patients aged 60 to 80 years; (2) able to comprehend and respond to the questionnaire items; and (3) aware of their diagnosis and willing to participate. Patients were excluded if they: (1) exhibited unstable vital signs or severe postoperative complications that precluded participation; (2) had significant cognitive impairment; or (3) had a family request for non-disclosure of the diagnosis.

For the qualitative interview (August 2023 to January 2024), purposive sampling was used to select 20 participants (10 inpatients and 10 from the follow-up clinic). The inclusion and exclusion criteria were consistent with those of the quantitative study.

Based on the rule of thumb of 5-10 subjects per item for multivariate analysis, the sample size of 129 was considered sufficient for the regression model involving three main variables.

Ethical Considerations

This study was approved by the Institutional Review Board (IRB) of Nanjing Drum Tower Hospital (Approval No. 2022-533-02) and was conducted in accordance with the principles of the Declaration of Helsinki. All participants provided written informed consent for the survey and, where applicable, the audio-recorded interviews. They were assured of the confidentiality of their responses and their right to withdraw at any time.

Measures

Readiness for Hospital Discharge

The Readiness for Hospital Discharge Scale (RHDS), developed by Weiss and Piacentine [13], was used to assess patients' perception of their preparedness for discharge. This 23-item scale comprises four subscales: Personal Status, Knowledge, Coping Ability, and Expected Support. Items are rated on an 11-point numerical scale ranging from 0 (not ready) to 10 (totally ready), with higher scores indicating greater readiness. In the current study, the scale demonstrated excellent reliability with a Cronbach's alpha coefficient of 0.93, and the coefficients for the subscales ranged from 0.85 to 0.93. The content validity index of the scale was 0.85.

Quality of Discharge Teaching

The Quality of Discharge Teaching Scale (QDTS), developed by Weiss et al. [26], was employed to evaluate patients' perceptions of the education provided by nurses. The scale consists of 24 items divided into two dimensions: Content Received (what was taught) and Delivery and Effectiveness (how it was taught and its impact). The first 12 items form 6 paired sets that allow for a comparison between "needed content" and "received content" to identify gaps for improvement. In this study, the overall Cronbach's alpha coefficient for the QDTS was 0.92. The coefficients for the "Content Received" and "Delivery and Effectiveness" subscales were 0.85 and 0.93, respectively, indicating high internal consistency comparable to the original English version.

Social Support

Social support was evaluated using the Social Support Rating Scale (SSRS) developed by Xiao [27], a widely validated instrument in China. The scale consists of 10 items across three dimensions: Subjective Support, Objective Support, and Utilization of Support. The items include a mix of single-choice (7 items) and multiple-choice (3 items) formats. The total score ranges up to 66, with higher scores indicating a higher level of social support. In this study, the overall Cronbach's alpha coefficient for the SSRS was 0.708, with subscale coefficients ranging from 0.492 to 0.702.

Data Collection Procedure

Quantitative data were collected using a paper-based questionnaire booklet. A trained researcher approached eligible patients to provide a comprehensive explanation of the study, including its purpose, procedures, the voluntary nature of participation, and the estimated time for completion. After obtaining written informed consent, the questionnaires were distributed. Patients were asked to complete the questionnaire independently. For those with physical limitations that precluded independent completion (e.g., visual impairment or physical incapacity), the researcher read the items aloud and recorded their verbal responses verbatim to ensure data accuracy and completeness.

Qualitative data were collected through semi-structured interviews. The time and location were arranged in advance with participants to ensure a quiet, comfortable, and suitable environment. Prior to the interview, the researcher explained the study's purpose and significance in detail, and audio recording was conducted only after obtaining the participant's consent. Interviews lasted between 20 and 30 minutes. Sampling and interviewing continued until data saturation was reached, defined as the point where no new themes emerged. Upon completion of the interview, each participant was asked to complete a general demographic questionnaire.

Data Analysis

Quantitative data analysis

Statistical analyses were performed using SPSS software (version 27.0). Descriptive statistics, including frequencies and percentages for categorical variables, and means with standard deviations (Mean $\pm$ SD) for continuous variables, were calculated to summarize sociodemographic characteristics, discharge teaching quality, and discharge readiness scores. One-way Analysis of Variance (ANOVA) was employed to examine differences in discharge readiness, teaching quality, and social support across various demographic groups. Pearson's correlation analysis was conducted to assess the relationships between discharge teaching quality, social support, and discharge readiness. To identify independent predictors of discharge readiness, a multiple linear regression model was constructed. Additionally, Importance-Performance Analysis (IPA) was utilized to evaluate discrepancies between patient expectations and the actual information received, with paired samples t-tests used to compare the differences between importance and satisfaction scores for specific topics. A two-tailed p-value < 0.05 was considered statistically significant.

Qualitative data analysis

All interviews were audio-recorded and transcribed verbatim within 24 hours to ensure accuracy and completeness. Data management was facilitated using NVivo 11 software (QSR International). We employed an inductive content analysis approach involving a three-phase coding process: preparation, organizing, and reporting.

First, the researchers achieved data immersion by reading the transcripts repeatedly to obtain a holistic understanding of the participants' experiences. Second, meaning units—sentences or paragraphs relevant to the study objectives—were extracted and assigned initial codes. Third, codes with similar patterns were grouped into categories (sub-themes). Finally, through an iterative process of abstraction, these categories were synthesized into central themes. Representative quotes were selected to substantiate the findings and ensure the results were grounded in the data.

Results

Participant Characteristics

Quantitative Survey Participants Characteristics

A total of 152 questionnaires were distributed, of which 129 were returned as valid and included in the final analysis, yielding an effective response rate of 84.9%. These participants were older men with a mean age of 70.5 ± 5.1 years,

predominantly in the 70–74 age group (41.1%). Participants were predominantly of Han ethnicity (99.2%) and mainly from urban environments (79.1%), with a significant concentration residing in Nanjing, Jiangsu Province (64.3%). Regarding family structure and support, 97.7% of the participants were married. The majority (62.0%) lived in two-person households (living with spouse only), and spouses assumed the primary caregiving role for nearly all patients (93.8%). Socioeconomically, the majority were retired (87.6%) and had attained secondary education (junior/senior high or vocational school, 63.6%). Most reported an annual household income between 10,000 and 100,000 RMB (69.8%), and public medical insurance coverage was nearly universal (96.9%). Clinically, the most frequently observed Gleason score was 7 (55.8%). Detailed sociodemographic and clinical characteristics are presented in Table 1.

Table 1 Quantitative Survey Participants Characteristics (n=129)

Characteristics	n (%)
Age (years)	
60-64	21 (16.3)
65-69	27 (20.9)
70-74	53 (41.1)
75-80	28 (21.7)
Residency	
Rural	27 (20.9)
Urban	102 (79.1)
Location	
Nanjing (Local)	83 (64.3)
Outside Nanjing	46 (35.7)
Education Level	
Graduate students and above	3 (2.3)
Undergraduate	8 (6.2)
Junior college	14 (10.9)
Senior high schools (Technical secondary schools)	40 (31.0)
Junior high schools	42 (32.6)
Primary school	20 (15.5)
No or very little literacy	2 (1.6)
Employment Status	
Retired	113 (87.6)
Farmer	12 (9.3)
Employed	4 (3.1)
Annual Household Income (RMB)	
≤ 10,000	16 (12.4)
10,001-100,000	90 (69.8)
100,001-200,000	17 (13.2)
≥ 200,000	6 (4.7)
Residential situation	
Spouse cohabitation	80 (62.0)
Live alone	4 (3.1)
Others	45 (34.9)

Caregiver availability	
spouse	121 (93.8)
children	3 (2.3)
None (Self-care)	5 (3.9)
Gleason score	
6	38 (29.5)
7	72 (55.8)
8	19 (14.7)

Qualitative Interview Participants Characteristics

Purposive sampling was used to select 20 participants for semi-structured interviews. Participants were stratified into two groups:

The pre-discharge group (n=10) had a mean age of 69.9 ± 6.5 years (range: 60–83). Five participants resided in Nanjing, while the remaining five were from other cities. All were married, and most (n=9) lived exclusively with their spouses. Care was primarily provided by wives, with supplemental support from children (n=5) or siblings (n=1). The majority were retired (n=8), and the most prevalent Gleason score was 7 (n=5). The mean total length of stay (LOS) was 7.6 ± 1.3 days, with a mean postoperative stay of 4.1 ± 0.9 days (Table 2).

Table 2. Characteristics of Pre-discharge Participants (n=10)

ID	Age	Residency	Occupation	Insurance	Caregivers	Living Arrangement	Gleason Score	Total LOS (d)	Post-op LOS (d)
F1	66	Local	Retired	UEBMI	Spouse	Spouse only	6	7	4
F2	69	Local	Retired	UEBMI	Spouse	Spouse only	6	7	3
F3	74	Local	Retired	UEBMI	Spouse	Spouse only	7	8	5
F4	64	Local	Retired	UEBMI	Spouse	Spouse only	7	9	5
F5	69	Non-local	Farmer	URBMI	Spouse & Children	Extended family [†]	6	8	4
F6	72	Non-local	Retired	UEBMI	Spouse & Children	Spouse only	8	7	4
F7	60	Non-local	Retired	UEBMI	Spouse & Children	Spouse only [‡]	7	9	5
F8	67	Non-local	Retired	UEBMI	Spouse	Spouse only	6	9	5
F9	83	Local	Freelance	URBMI	Spouse & Children	Spouse only	7	5	3
F10	75	Non-local	Retired	UEBMI	Spouse & Family	Spouse only	7	7	3

Note: **Abbreviations:** LOS = Length of Stay; UEBMI = Urban Employee Basic Medical Insurance; URBMI = Urban Resident Basic Medical Insurance. **Residency:** "Local" refers to residents of Nanjing; "Non-local" refers to residents outside of

Nanjing.

[†] Participant lives with spouse, son, and daughter-in-law (extended family).

[‡] Participant lives with spouse; children reside in the same residential community.

The post-discharge group (n=10) comprised patients interviewed during outpatient follow-up, 10 to 14 days after surgery. The mean age was 69.6 ± 4.6 years (range: 62–75). As with the pre-discharge group, the majority were residents of Nanjing (n=9). Most participants primarily were married (n=9) and lived in two-person households with their spouses (n=7). Care was primarily provided by spouses, with assistance from children (n=3) or siblings (n=1). The most prevalent Gleason score was 6 (n=5). The mean duration of indwelling catheterization was 13.8 ± 0.8 days (Table 3).

Table 3. Characteristics of Post-discharge Participants (n=10)

ID	Age	Residency	Occupation	Insurance	Caregivers	Living Arrangement	Gleason Score	Total LOS (d)	Catheter Days
H1	71	Local	Retired	UEBMI	Spouse	Spouse only	8	6	14
H2	67	Local	Retired	UEBMI	Spouse	Spouse only	7	7	14
H3	75	Non-local	Retired	UEBMI	Spouse	Spouse only	6	6	12
H4	74	Local	Retired	UEBMI	Spouse	Spouse only	7	5	14
H5	62	Local	Retired	UEBMI	Spouse	Spouse only	6	8	14
H6	73	Local	Retired	UEBMI	Spouse & Children	Extended family [†]	6	6	14
H7	63	Local	Retired	UEBMI	Spouse	Spouse only	6	9	15
H8	71	Local	Retired	UEBMI	Spouse & Siblings	Spouse only [‡]	6	5	14
H9	67	Local	Retired	UEBMI	Children	With children	8	9	13
H10	73	Local	Retired	UEBMI	Children	Living alone [§]	7	9	14

Note: **Abbreviations:** LOS = Length of Stay; UEBMI = Urban Employee Basic Medical Insurance. **Residency:** "Local" refers to residents of Nanjing; "Non-local" refers to residents outside of Nanjing. [†]Participant lives with spouse and children.

[‡]Participant lives with spouse; siblings provide care but reside elsewhere. [§]Participant lives alone, with children residing in the same building.

Quantitative results

Discharge Readiness and Teaching

Patients in the study sample reported a high level of readiness for hospital discharge, evidenced by a mean score of 8.34 (SD = 0.63). The overall perceived quality of discharge teaching was also rated favorably (mean = 8.47, SD = 0.45). Within this domain, the delivery dimension (mean = 8.77, SD = 0.44) scored higher than the received content dimension (mean = 7.86, SD = 0.64).

Importance-Performance Analysis (IPA) revealed that five of six items—including home assistance, medical handling, treatment information, family care, and self-care—were rated in the “high importance–high performance” quadrant (Figure 1).

Figure 1 Four-quadrant plot of IPA

Social Support

The mean total score on the Social Support Rating Scale was 41.62 (SD = 5.38). The mean scores for the subscales were 22.19 (SD = 2.70) for subjective support, 11.43 (SD = 1.77) for objective support, and 7.99 (SD = 2.29) for utilization of support.

Univariate analysis revealed that social support scores differed significantly across groups based on education, occupation, income, and marital status (all $p < 0.05$). Post-hoc tests further clarified these differences. For instance, patients with a bachelor’s degree or above reported significantly higher total support scores compared to those with a junior high/vocational school education (MD = 4.90, $p < 0.05$), a middle school education (MD = 5.70, $p < 0.01$), or an elementary school education (MD = 7.08, $p < 0.01$). Similarly, farmers reported significantly lower total support scores than retirees (MD = -3.48, $p < 0.05$) and enterprise employees (MD = -7.67, $p < 0.01$). Significant differences were also observed in support utilization scores across these groups.

Relationship Between Discharge Readiness, Teaching, and Social Support

Correlation analysis showed that discharge readiness was positively correlated with both discharge teaching ($r = 0.645$, $p < 0.01$) and social support ($r = 0.340$, $p < 0.01$). Discharge teaching and social support were also positively correlated ($r = 0.217$, $p < 0.05$).

Multiple linear regression (Table 4) identified discharge teaching and social support as significant predictors of discharge readiness (adjusted $R^2 = 0.449$, $p < 0.001$). Among them, discharge teaching exerted the strongest effect ($\beta = 0.599$), followed by social support ($\beta = 0.210$).

Table 4 Multiple regression analysis on influencing factors of discharge readiness

Independent Variables	B	SE	β	t	P	VIF
(Constant)	0.193	0.796	—	0.242	0.809	—
Total Social Support Score	0.025	0.008	0.21	3.12	0.002	1.05
Discharge Teaching Quality	0.841	0.094	0.599	8.917	0.001	1.05
Model Summary						
Adjusted R^2	0.449					
F-value	53.188					
Durbin-Watson	1.888					

Note: Dependent Variable: Discharge Readiness. VIF = Variance Inflation Factor.

Qualitative results

Based on the analysis of the semi-structured interviews, the supportive care needs and experiences of patients were categorized into six sub-categories, which were further synthesized into two central themes: (1) Personal support

provided for gaining a sense of control (addressing physiological and safety needs); and (2) Social support provided for personal growth (addressing belongingness and esteem needs). The thematic framework is presented in Table 5.

Table 5. Thematic Framework of Post-discharge Support Needs

Central Themes	Sub-categories	Key Elements
Theme 1: Personal support provided for gaining a sense of control	Tangible & Financial Support	Spousal caregiving; assistance with ADLs; impact of insurance coverage; financial burden on retirees.
	Information & Continuity	Specificity of discharge instructions; direct access to surgeons; distrust of fragmented primary care.
	Trust & Professionalism	Empathy from staff; need for "one-on-one" communication; safety in established medical relationships.
Theme 2: Social support provided for personal growth	Belonging & Peer Support	Shared understanding in patient groups; emotional validation from peers; reducing isolation.
	Self-Esteem & Normalcy	Preserving dignity; privacy regarding medical devices (e.g., catheter bags); finding purpose in hobbies.

Theme 1: Personal Support for Gaining a Sense of Control

This theme highlights the fundamental requirements for patients to manage their physical recovery and navigate the healthcare system safely.

Tangible and Economic Security Spouses, particularly wives, were identified as the cornerstone of daily support, managing household chores and nursing tasks. This tangible support allowed patients to focus on recovery without domestic worries. However, economic stability was a major determinant of psychological burden. While patients with comprehensive insurance and pensions felt secure, those with limited coverage expressed significant anxiety regarding the high costs of prostate cancer treatment.

"For us retired enterprise workers, it is a big burden. But there is no other way; to save my life, I must treat it... even if my family's finances were poor, we had to find a way to pay." (Participant F1)

Continuity of Care and Trust Patients prioritized professional authority and continuity. They expressed a strong preference for follow-up care provided by their original surgical team rather than rotating doctors or community clinics. Trust was built on the surgeon's familiarity with their specific case and the perceived professional competence of the nursing staff. The lack of a unified referral system made patients reluctant to use community health centers for catheter maintenance.

"I prefer coming here [the tertiary hospital] because the chief surgeon knows my condition firsthand... If the community hospital were linked to the big hospital in a unified system, that would be convenient, but otherwise, I don't trust private clinics." (Participant F6/H1) *"When I see the clear discharge instructions... knowing exactly when to remove the catheter and when to review the pathology report, I feel confident."* (Participant F4)

Theme 2: Social Support for Personal Growth

Beyond physical safety, patients sought support that fostered psychological adaptation, belonging, and a return to normalcy.

Empowerment through Shared Experience Interacting with peers who shared similar medical histories provided a unique form of emotional validation that family members could not offer. Whether through online groups or offline interactions, witnessing the recovery of others reduced feelings of isolation and fear.

"My colleague had the same disease... but he looks great. [I realized] this is not a death sentence." (Participant F2) *"We are like a group; everyone has experienced the same thing. I think chatting with them is also a form of rehabilitation."* (Participant H3)

Restoring Self-Esteem and Normalcy Patients strove to maintain their identity beyond being a "patient." They expressed a strong desire for privacy, often hiding visible signs of illness (such as drainage bags) to avoid pity or public scrutiny. Engaging in meaningful hobbies (e.g., music, outdoor activities) served as a critical coping mechanism, helping them regain a sense of inner peace and control over their lives.

"I try to hide the drainage bag as much as possible when I go out. Otherwise, people know you are a patient and stare at you. I want to be normal." (Participant F1) *"I play the piano at home. As soon as the music starts, my spirits lift immediately because I feel this is part of my life."* (Participant F2)

Discussion

This study employed a mixed-methods approach to comprehensively evaluate the discharge readiness and supportive care needs of older patients undergoing RARP. The quantitative results indicated high levels of discharge readiness, strongly driven by the quality of discharge teaching and social support. The high level of discharge readiness observed in this cohort appears favorable when compared to levels reported for patients undergoing more invasive open surgeries [18–21]. This difference may be attributable to the minimally invasive nature of RARP, which facilitates faster physical recovery and greater postoperative independence [22]. The qualitative findings further contextualized these results, revealing that while patients felt physically prepared, they navigated complex psychological needs involving dignity, privacy, and a desire for continuity of care.

The Pivotal Role of Tailored Discharge Teaching

Discharge teaching emerged as the most influential determinant of discharge readiness ($\beta = 0.599$). The correlation and regression findings support previous research emphasizing the pivotal role of discharge education in promoting adherence to medical advice, improving rehabilitation outcomes, and supporting successful community reintegration [23–25]. Effective discharge teaching provides both patients and caregivers with essential knowledge and skills, thereby enhancing patients' confidence and self-care capacity. While the quantitative survey showed high satisfaction with the delivery of teaching, the qualitative interviews uncovered a nuanced gap: patients desired more specific, actionable information. Although the "high importance–high performance" rating in the IPA suggests general satisfaction, the qualitative theme of Information & Continuity highlighted that patients often felt insecure when severed from their original surgical team. This suggests that trust is a critical component of discharge readiness, and while nurses teach well, the specific content may need to be more personalized to maintain that trust post-discharge.

Social Support: Beyond Family Care to Peer Empowerment

Social support also significantly influenced discharge readiness, though to a lesser extent than discharge teaching. This aligns with prior evidence showing that strong interpersonal support buffers stress and improves recovery trajectories [18]. In this study, most patients relied on female partners as primary caregivers (93.8%), underscoring the critical role of family involvement. However, the qualitative results extended this understanding by identifying a unique role for peer support—a dimension often overlooked in standard scales. While spouses provided essential physical

care (physiological/safety needs), they often could not fully empathize with the patient's internal experience. As revealed in the Empowerment through Shared Experience theme, interaction with fellow patients provided emotional validation and reduced isolation, addressing higher-level belongingness needs that family alone could not fulfill.

Socioeconomic Disparities and Vulnerability

The univariate analysis highlighted significant disparities: patients with lower education, lower income, and those from farming backgrounds reported significantly weaker social support. The qualitative interviews provided a vivid explanation for this statistical trend. Participants with limited financial means expressed profound anxiety about the economic burden of treatment (“even if my family's finances were poor, we had to find a way to pay”). This financial stress likely erodes their perceived social support and psychological readiness. These findings emphasize the need for targeted interventions, integrating professional social workers and multidisciplinary teams to ensure equitable care and mitigate social disparities.

Psychological Adaptation: Dignity and Normalcy

A key contribution of the qualitative component was uncovering the tension between the need for care and the desire for dignity—a facet not captured by the quantitative survey. The theme Restoring Self-Esteem and Normalcy revealed that patients actively managed their public image by concealing medical devices (e.g., drainage bags) to avoid the “patient” label. This aligns with Maslow’s esteem needs. While the quantitative data showed high readiness scores, the qualitative narratives suggest this “readiness” might partially stem from a stoic desire to return to normalcy and hide their vulnerability from the public eye. Therefore, healthcare providers should address these psychosocial barriers by teaching discrete catheter management strategies and encouraging resumption of meaningful hobbies to facilitate psychological reintegration.

Limitations

Several limitations should be noted. First, the single-center design and convenience sampling may limit the generalizability of findings to other regions with different healthcare resources. Second, the study relied on self-reported data, which may be subject to recall bias or social desirability bias, particularly regarding sensitive topics like incontinence. Third, while the mixed-methods design provides depth, the cross-sectional nature of the quantitative phase precludes causal inferences. Future longitudinal studies are needed to track how discharge readiness translates into long-term quality of life and readmission rates.

Conclusion

Older RARP patients demonstrate high discharge readiness, primarily driven by effective discharge teaching and social support. However, this readiness is not merely physical; qualitative findings highlight critical unmet needs regarding psychological dignity, peer connection, and continuity of care. Vulnerable groups, particularly those with lower socioeconomic status, face greater challenges due to financial anxiety and weaker support systems.

To improve outcomes, clinical practice should move beyond standard education to include: (1) continuity-focused follow-up to maintain patient trust; (2) peer support mechanisms to address emotional isolation; and (3) targeted interventions for economically vulnerable patients. Addressing these logistical and humanistic needs is essential for a holistic recovery.

Abbreviations

ADL: Activities of Daily Living **ANOVA:** Analysis of Variance **IPA:** Importance-Performance Analysis **IRB:** Institutional Review Board **LOS:** Length of Stay **QDTS:** Quality of Discharge Teaching Scale **RARP:** Robot-assisted radical prostatectomy **RHD:** Readiness for hospital discharge **RMB:** Renminbi (Chinese currency) **SD:** Standard Deviation **SPSS:** Statistical Package for the Social Sciences **SSRS:** Social Support Rating Scale **UEBMI:** Urban Employee Basic Medical Insurance **URBMI:** Urban Resident Basic Medical Insurance **VIF:** Variance Inflation Factor

Declarations

Ethics approval and consent to participate

This study was performed in accordance with the Declaration of Helsinki and was approved by the Institutional Review Board (IRB) of Nanjing Drum Tower Hospital (Approval No. 2022-533-02). Informed consent was obtained from all subjects involved in the study. Written informed consent was obtained from participants for the survey and, where applicable, the audio-recorded interviews.

Consent for publication

Not applicable.

Availability of data and materials

The data that support the findings of this study are available on request from the corresponding author. The data are not publicly available due to privacy or ethical restrictions.

Competing interests

The authors declare that they have no competing interests

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Authors' contributions

Q G: Methodology, Statistical analysis, Writing-Original Draft; J S: Writing-Original Draft, Editing the draft, Review; J X: Methodology, Investigation, Statistical analysis; Y W & Z W: Editing the draft, Review; P L: Opinion-Review. All authors have read and approved the manuscript.

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Figures

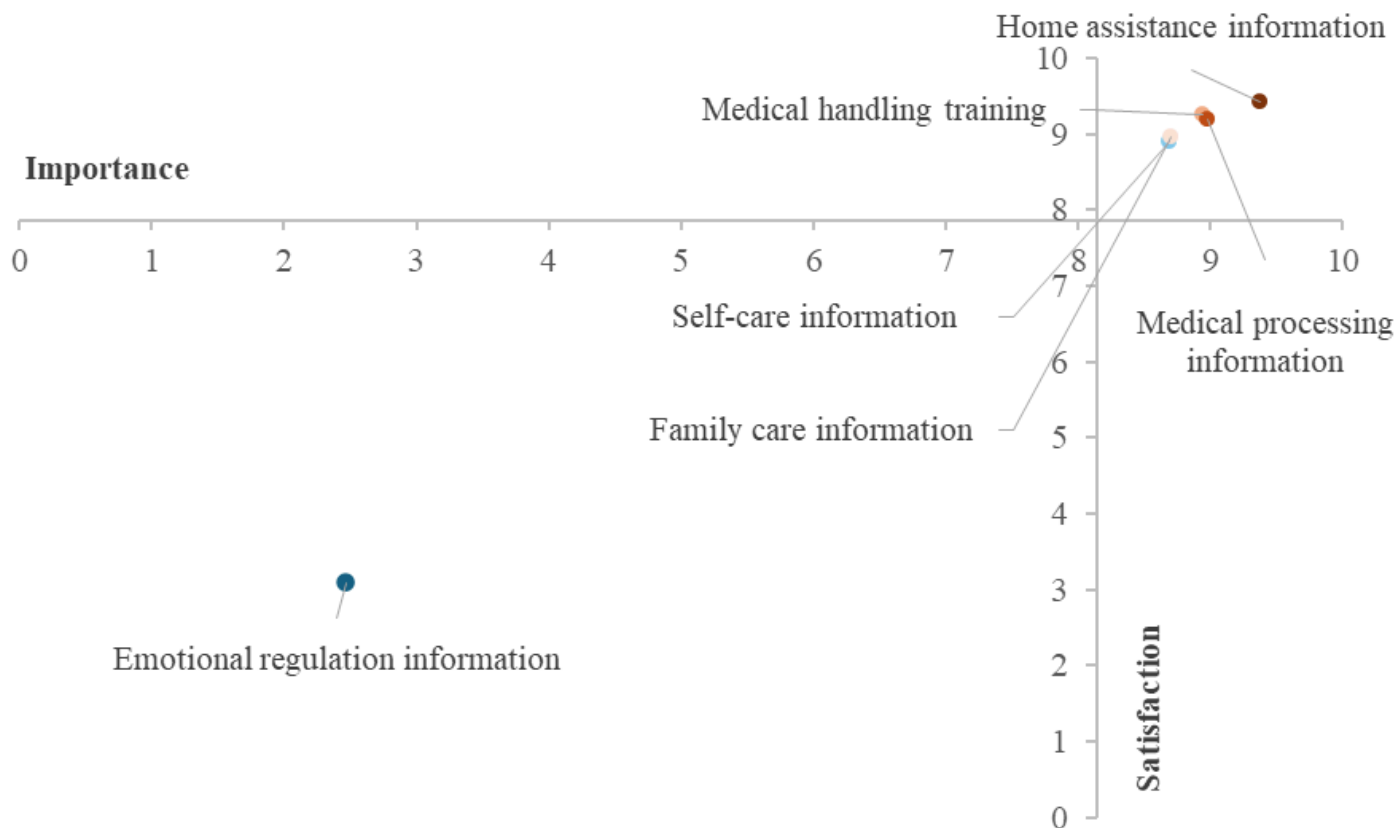


Figure 1

Four-quadrant plot of IPA