



# Clinical Application Effect of Postoperative Nursing Intervention on Patients Undergoing Transurethral Prostatectomy: A Systematic Review and Meta-Analysis

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## Abstract

**Background:** To study the clinical effect of postoperative nursing on patients undergoing transurethral resection of the prostate (TURP).

**Methods:** The relevant researches about nursing intervention effect evaluation after TURP during January 2000 to May 2024 were selected from databases. These were sorted into an intervention group (Int group) and a control group (Ctrl group) with different nursing methods. The emotional status, length of hospital stays (LOHS), nursing satisfaction, the incidence, volume, and frequency of urinary incontinence (UI), and the incidences of urinary hemorrhage (UH), bladder spasm (BS), and catheter occlusion (CO) were compared after intervention.

**Results:** Eleven articles and 1,020 cases were included. The LOHS in the Int group was much shorter (mean difference (MD)=-2.91, 95% confidence interval (CI): -4.47~-1.35, Z=3.66, P=0.0002). The nursing satisfaction was significantly improved (odds ratio (OR)=5.70, 95% CI: 3.65-8.90, Z=7.64, P<0.00001). For complications, incidence of UI (OR=0.41, 95% CI: 0.26-0.66, Z=3.72, P=0.0002), the volume of UI (MD=-66.17, 95% CI: -124.74~-11.60, Z=2.36, P=0.02), and the frequency of UI (MD=-1.18, 95% CI: -1.69~-0.67, Z=4.55, P<0.00001) greatly reduced. The incidences of UH (OR=0.43, 95% CI: 0.21-0.87, Z=2.35, P=0.02), BS (OR=0.24, 95% CI: 0.14-0.42, Z=4.97, P<0.00001), and CO (OR=0.20, 95% CI: 0.11-0.36, Z=5.21, P<0.00001) were also highly reduced.

**Conclusion:** Postoperative nursing intervention could effectively shorten LOHS after TURP in patients with benign prostatic hyperplasia (BPH), improving the nursing satisfaction and reducing the incidence of postoperative complications.

**Keywords:** Postoperative; Nursing intervention; Transurethral resection of the prostate; Meta-analysis

## Introduction

Benign prostatic hyperplasia (BPH) is a histopathological disease of the prostate caused by the proliferation of prostate stroma and epithelial cells (1). It is manifested as symptoms such as frequent micturition, urgency of urination, and incomplete emptying (2). BPH has a high inci-

dence in elderly patients over 60 years old, and its incidence increases remarkably with aging (3,4). With the increase of age, the clinical symptoms of BPH also aggravate (5,6). With the characteristics of small surgical trauma and fast postoperative recovery, TURP is the gold standard for clinical



BPH surgical treatment (7). However, the operation time is still long in the treatment process, postoperative complications such as bladder spasm (BS), urethral stricture, and secondary bleeding occur (8). Most nursing after TURP lacks scientificity and initiative, resulting in poor nursing effect, increasing the incidence of postoperative complications, and prolonging postoperative length of hospital stays (LOHS) and other adverse outcomes (9). Therefore, effective nursing for patients undergoing TURP treatment has an important impact on the recovery of BPH and the outcome of treatment.

Most patients after TURP have urinary incontinence (UI) (10), and the need for family care will undoubtedly increase the patients' self-blame and other psychological factors, thus affecting the treatment effect. Some researchers have used comprehensive nursing methods such as pelvic floor muscle, bladder, and urinary urgency control trainings to care for patients after TURP. The results showed that such a surgical method can effectively shorten the duration of UI and improve the life quality of patients (11-13). Besides, some other researchers have adopted clinical nursing pathways to care for patients after TURP, which can effectively shorten the LOHS, reduce postoperative pain scores, and increase patients' satisfaction. Robinson et al (14) also took the clinical nursing pathway to intervene patients after TURP, from which no visible difference was observed in postoperative pain scores and nursing satisfaction between the method and the routine nursing method. Vigneswaran et al (15) conducted painless nursing for patients undergoing TURP on the grounds of mind maps. It was discovered that this nursing method could effectively relieve the pain of patients, reduce the usage of analgesics, as well as effectively lower the incidence of complications. There are many nursing methods in clinical practice after TURP, but due to different methods, there are obvious differences in nursing effects.

At present, there are obvious differences in the effects of nursing intervention on postoperative complications after TURP, which need to be fur-

ther clarified. This study systematically compared the differences between innovative nursing methods such as bladder training, continuous bladder irrigation nursing, painless nursing based on mind map, and music nursing and conventional nursing in improving patients' postoperative results, and clarified the role of various nursing interventions in reducing complications and their influence on patients' postoperative emotional state and nursing satisfaction, filling the systematic gap of the influence of different postoperative nursing interventions on patients undergoing TURP. It can provide some reference for the nursing and prognosis of patients after TURP, and enhance the understanding of the importance of postoperative nursing intervention for patients with benign prostatic hyperplasia, which is relatively lacking in the current literature.

## Materials and Methods

### *Methods of including data*

Patients who underwent TURP were included as the research objects, all of whom were males. The included data included the authors of study, published year, nursing method, and emotional status of patients after intervention with different nursing methods, incidence of complications, LOHS, and nursing satisfaction.

### *Criteria based on which the participants were included or excluded*

Criteria based on which the participants were included were described as follows. 1) Articles were published from January 2000 to May 2024. 2) The objects of the studies were more than 1 patient who received TURP treatment. 3) Researchers were related to the evaluation of nursing intervention effect after TURP. 4) The research type was a randomized controlled study. 5) For different nursing intervention methods, bladder training, continuous bladder irrigation nursing, mind map-based painless nursing, and music nursing intervention were taken as the intervention group (Int group), while routine nursing as the control group (Ctrl group). 6) Number of patients after

TURP, age, grouping, different nursing methods, post-nursing evaluation indicators, and more were recorded completely in details.

Exclusion criteria: 1) Publicity literatures such as individual case reports, expert comments, editorial opinions, news reports, and product descriptions were excluded. 2) Literature reviews were excluded. 3) No original data was provided. (4) The articles had duplicate publications. 5) The literatures were irrelevant to TURP treatment. 6) It was not a postoperative nursing intervention effect evaluation for TURP patients. 7) Literature did not show statistics on evaluation indicators of nursing effect for patients after nursing. 8) Those were basic researches such as animal experiments and in vitro cell experiments.

### ***Retrieval strategies***

Data collected in different databases were systematically searched from 1/2000 to 5/2024. The keywords “transurethral resection of prostate”, “transurethral resection of the prostate”, “TURP”, “nursing intervention”, “nursing”, and “caring”, were searched in online databases with “or” and “and”. The searched databases consisted of PubMed, Nature, Web of Science Spring, Science Direct, Google Scholar, CNKI, and so on. A series of related MeSH (medical subject words) words were used in PubMed for retrieval. The MeSH words used specifically included “Transurethral Resection of Prostate”, “Prostatic Hyperplasia”, “Postoperative Care”, “Nursing Care” and “Nursing Intervention”, and the search formula was as follows: (((((((((((Transurethral Resection of Prostate) OR (Transurethral Resection of the Prostate)) OR (TURP)) OR (transurethral prostatectomy)) AND (ostoperative Care)) OR (Postoperative Nursing)) OR (Nursing Intervention)) OR (Nursing Care)) AND (Urinary Incontinence)) OR (Urinary Tract Infections)) OR (Urinary Hemorrhage)) OR (Bladder Spasm)) OR (Catheter Occlusion). Relevant researches on the clinical application effect evaluation of postoperative nursing intervention on TURP patients published within the time range were searched. The above retrieval keywords were freely combined and entered to re-

trieve the target literatures, and the language was not limited during retrieval.

### ***Literature screening and quality evaluation***

On the basis of Cochrane Reviewer’s Hand-book (CRHB) system, 2 reviewers independently performed the quality assessment and data extraction. Thus, literatures being determined as unqualified and those with low quality were excluded. For any inconsistency between two results from the above reviewers, discussion can be adopted for solution, or help from the third person can be asked.

### ***Extraction of literatures***

Literature data were extracted by the same 2 reviewers. The main contents extracted were as follows. 1) Basic data of included literatures, including article title, first author, publication year, and publication journal. 2) Research objects: the number of samples included in the articles, grouping, nursing methods, age, etc. 3) The postoperative nursing evaluation indicators of patients undergoing TURP were determined by searching the literatures. The evaluation indicators included in this work mainly included emotional status, LOHS, nursing satisfaction, incidence of UI after intervention, volume of UI, frequency of UI, The incidence of urinary hemorrhage (UH), BS, and catheter occlusion (CO).

### ***Statistical methods***

Excel 2016 was utilized to list the data, and CRHB was adopted for evaluating the quality of the literatures. A meta-analysis was performed on the data using RevMan5.3.

For heterogeneity analysis, the chi-square test was first adopted for a preliminary test of heterogeneity, and  $\alpha=0.05$  and  $P<0.05$  were defined.  $I^2$  in RevMan5.3 was utilized to quantitatively evaluate the heterogeneity.  $I^2<25\%$ ,  $25\%<I^2<50\%$ , and  $I^2>50\%$  meant a low, moderate, and substantial heterogeneity, respectively. In the first two cases, a fixed-effect model (FEM) was applicable; while a random-effect model (REM) was usable in the third case. RevMan5.3 was applied to draw the

funnel plots, to analyze potential publication bias and output the forest plots. The  $Z$  value and  $P$  value were extracted for further judgment, and each effect size was represented by a 95% CI.  $P < 0.05$  suggested the difference was statistically significant.

## Results

### Retrieval of documents

A total of 513 articles in total were retrieved by searching. Overall, 103 duplicate literatures were excluded, and 410 relevant literatures were retrieved. Eleven literatures were finally included for analysis. The retrieval and screening process of this work is shown in Fig. 1.

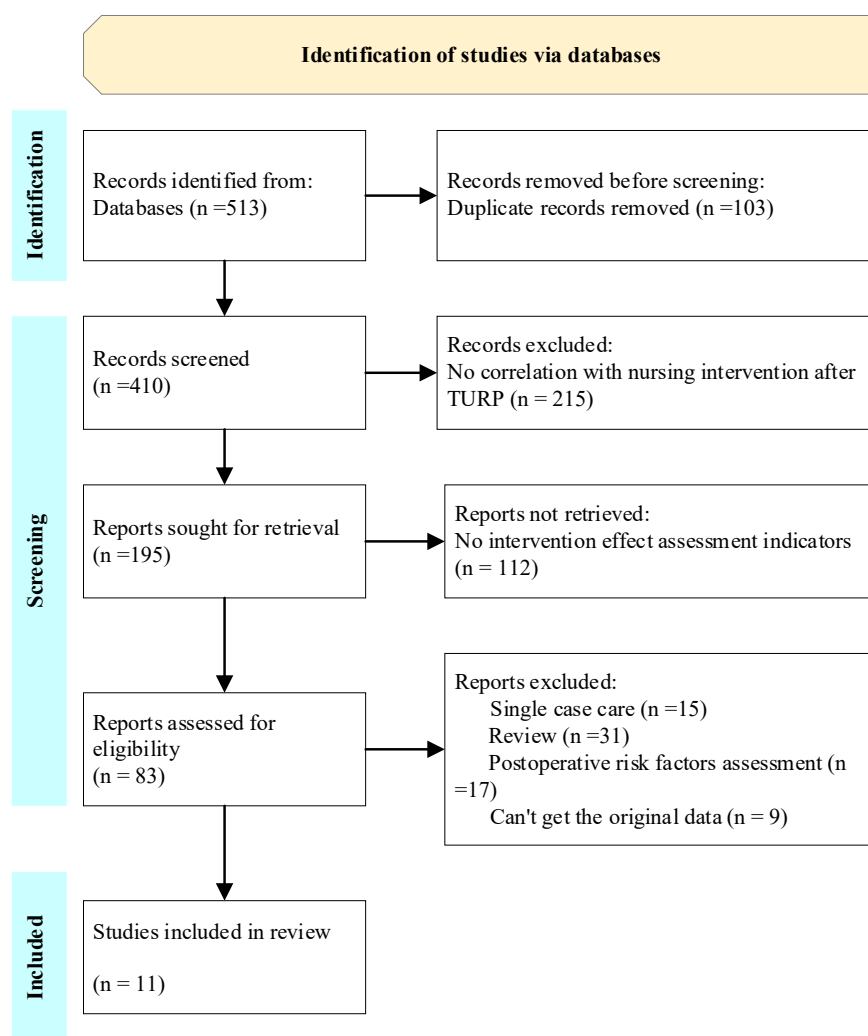


Fig. 1: Basic flow of literature retrieval

### Introduction of the obtained literature

The basic data of 11 literatures (16-26) included in the work were statistically analyzed. Overall, 1,020 patients who underwent TURP were included in total, all of whom were males. Accord-

ing to different nursing methods, they were grouped into an Int group (520 cases) and a Ctrl group (500 cases). The literatures included is briefly introduced in Table 1.

Table 1: Brief introduction of literatures

First author	Year	Sample size (cases)	Int group (cases)	Ctrl group (cases)	Outcome indicators
Büyükyılmaz F (16)	2020	50	28	22	LOHS, incidence of UI, volume of UI, frequency of UI
Ding A (17)	2016	146	76	70	LOHS, incidence of BS
Jiang J (18)	2022	149	76	73	Emotional status, LOHS, nursing satisfaction, incidence of UI, volume of UI, frequency of UI, incidence of UH
Liu Y (19)	2020	96	48	48	Emotional status, LOHS, nursing satisfaction
Lu C (20)	2018	100	50	50	Emotional status, LOHS, nursing satisfaction, incidence, volume, and frequency of UI after intervention
Lu P (21)	2022	98	49	49	Emotional status, nursing satisfaction, incidence of UH
Ma ZZ (22)	2020	103	54	49	Nursing satisfaction, incidence of urinary BS, incidence of CO
Sayed SY (23)	2021	80	40	40	Nursing satisfaction, incidence of UI, incidence of UH, incidence of BS, and incidence of CO
Talreja V (24)	2016	86	43	43	LOHS, incidence of UH
Yung PMB (25)	2009	20	10	10	Emotional status
Zhang X (26)	2022	92	46	46	Nursing satisfaction, incidence of BS

**Quality evaluation of the included literatures**

The quality of the literatures included in the work was evaluated by CRHB, as shown in Fig. 2. The random sequence generation, allocation concealment, blinding of participants and personnel, and other bias of all the 11 literatures included were all at low risk (LR). The evaluation result of “blinding of participants and personnel (performance bias)” of the study by Ma ZZ (22) was high risk, while that of Lu C (20) was unclear risk. The evaluation results of “incomplete outcome data (attrition bias)” of the studies by Talreja V (24) and Yung PMB (25) were high risk and unclear risk, respectively. The selective reporting (reporting bias) of the studies (16, 17) were both unclear risks. Cochrane Reviewer’ Handbook literature evaluation results showed that the quality of all literatures included was above grade B.

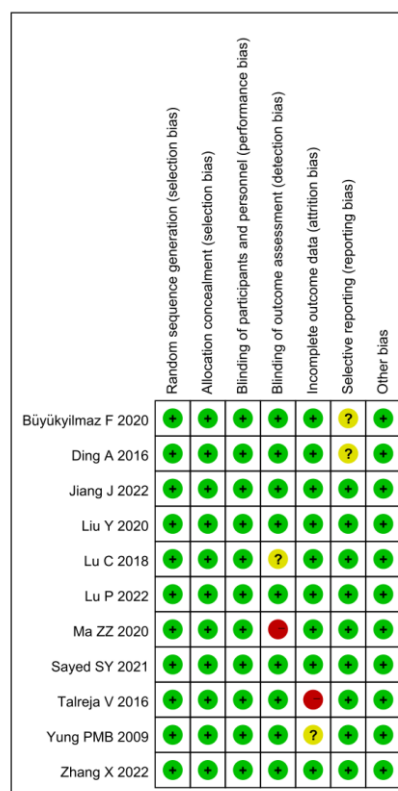
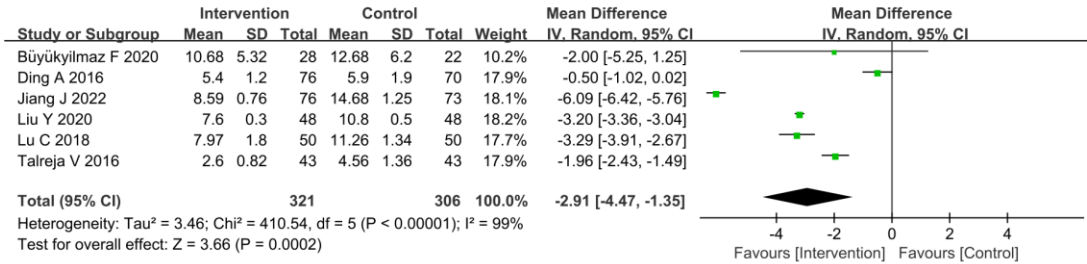


Fig. 2: Risk of bias assessment

**Postoperative LOHS and patient psychological state**

LOHS in 6 of the 11 literatures included were counted after intervention in the Int group and the Ctrl group (Fig. 3). A significant heterogeneity was observed in the LOHS of patients with

TURP after different postoperative nursing interventions ( $I^2=99\%$ ,  $P<0.00001$ ). Thus, based on the REM results, the LOHS of patients after intervention was remarkably shorter than that of the Ctrl group (mean difference (MD)=-2.91, 95% CI: -4.47~- 1.35;  $Z=3.66$ ,  $P=0.0002$ ).



**Fig. 3:** Postoperative LOHS of patients undergoing TURP

Five literatures (18-21,25) recorded the psychological state of patients after intervention, and there was significant heterogeneity among different psychological states studied ( $I^2=100\%$ ,  $P<0.0001$ ). REMs were used for analysis, and the results showed that there was no statistical difference between the two groups of psychological states (MD=-6.94, 95% CI: -15.16-1.28;  $Z=1.66$ ,  $P=0.10$ )

**Incidence of UI and nursing satisfaction**

There was no significant heterogeneity between the incidence of UI ( $Chi^2=7.17$ ,  $P=0.13$ ,  $I^2=44\%$ )

and nursing satisfaction ( $Chi^2=11.39$ ,  $P=0.08$ ,  $I^2=47\%$ ) in different studies. Therefore, a FEM was used for analysis. The results showed that the incidence of UI in the intervention group was significantly lower than that in the control group after nursing (OR=0.41, 95% CI: 0.26-0.66;  $Z=3.72$ ,  $P=0.0002$ ), while nursing satisfaction (OR=5.70, 95% CI: 3.65-8.90;  $Z=7.64$ ,  $P<0.0001$ ) was higher than the control group (Table 2).

**Table 2:** Comparison of UI incidence and nursing satisfaction

Indicator	No. of reference	Intervention		Control		Weight(%)	OR (95% CI)
		Events	Total	Events	Total		
Incidence of urinary incontinence		<b>35</b>	<b>263</b>	<b>68</b>	<b>260</b>	<b>100.0</b>	<b>0.41 (0.26, 0.66)</b>
	18	4	76	17	73	28.9	0.18 (0.06, 0.57)
	19	15	48	25	48	30.2	0.42 (0.18, 0.96)
	20	4	50	14	50	22.7	0.22 (0.07, 0.74)
	21	6	49	5	49	7.7	1.23 (0.35, 4.32)
	23	6	40	7	40	10.5	0.83 (0.25, 2.74)
Nursing satisfaction		<b>325</b>	<b>363</b>	<b>234</b>	<b>355</b>	<b>100.0</b>	<b>5.70 (3.65, 8.90)</b>
	18	74	76	64	73	9.6	5.20 (1.08, 24.97)
	19	40	48	30	48	28.0	3.00 (1.15, 7.82)
	20	47	50	36	50	12.1	6.09 (1.63, 22.82)
	21	49	49	42	49	2.4	17.47 (0.97, 314.95)
	22	49	54	43	49	23.4	1.37 (0.39, 4.80)
	23	30	40	7	40	9.8	14.14 (4.78, 41.86)
26	36	46	12	46	14.6	10.20 (3.90, 26.67)	

OR: odds ratio

### UI volume and frequency of UI occurrence

Three literatures statistically analyzed the amount and frequency of UI after intervention (Table 3). There was significant heterogeneity in the amount of UI ( $Tau^2=2332.98$ ,  $Chi^2=1076.65$ ,  $P<0.0001$ ) and frequency of UI occurrence ( $Tau^2=0.18$ ,  $Chi^2=24.07$ ,  $P<0.0001$ ,  $I^2=92\%$ ) among different studies. Therefore, a REM was

used for analysis. The results showed that the intervention group had significantly lower levels of UI (MD=-68.17, 95% CI: -124.74~-11.60;  $Z=2.36$ ,  $P=0.02$ ) and frequency of UI (MD=-1.18, 95% CI: -1.69~-0.67;  $Z=4.55$ ,  $P<0.0001$ ) after nursing care (MD=-66.17, 95% CI: -124.74~-11.60;  $Z=2.36$ ,  $P=0.02$ ) compared to the control group.

**Table 3:** Comparison of UI volume and frequency

Indicator	No. of reference	Intervention		Control		Weight(%)	MD (95% CI)
		Mean $\pm$ SD	Total	Mean $\pm$ SD	Total		
Urinary incontinence volume			<b>154</b>		<b>145</b>	<b>100</b>	<b>-68.17 (-124.74, -11.60)</b>
	16 F	66.36 $\pm$ 38.8	28	194.1 $\pm$ 107	22	28.6	-127.75 (-174.7, -80.7)
	18	81.64 $\pm$ 8.49	76	159.8 $\pm$ 15.0	73	35.6	-78.23 (-21.30, -19.55)
	20	25.85 $\pm$ 2.39	50	26.17 $\pm$ 3.25	50	35.7	-10.32 (-11.44, -9.20)
Frequency of urinary incontinence			<b>154</b>		<b>145</b>	<b>100.0</b>	<b>-1.18 (-1.69, -0.67)</b>
	16	0.48 $\pm$ 0.33	28	1.53 $\pm$ 0.76	22	31.7	-1.05 (-1.39, -0.71)
	18	2.04 $\pm$ 0.21	76	2.88 $\pm$ 0.30	73	36.6	-0.84 (-0.92, -0.76)
	20	3.02 $\pm$ 0.51	50	4.73 $\pm$ 1.13	50	31.6	-1.71 (-2.05, -1.37)

MD: mean difference

### Incidence of postoperative complications

In the included literature, some studies conducted statistical analysis on the incidence of complications in patients after different nursing interventions (Table 4), with the main complications including UH, BS, and CO. There was no heterogeneity in the incidence of UH ( $Chi^2=1.52$ ,  $P=0.68$ ,  $I^2=0\%$ ), BS ( $Chi^2=1.98$ ,  $P=0.58$ ,  $I^2=0\%$ ),

and CO ( $Chi^2=1.31$ ,  $P=0.52$ ,  $I^2=0\%$ ) among different studies. Therefore, a FEM was used for analysis. The results showed that the incidence of postoperative UH (OR=0.43, 95% CI: 0.21-0.87;  $Z=2.35$ ,  $P=0.02$ ), BS (OR=0.24, 95% CI: 0.14-0.42;  $Z=4.97$ ,  $P<0.0001$ ), and CO (OR=0.20, 95% CI: 0.11-0.36;  $Z=5.21$ ,  $P<0.0001$ ) in the intervention group were significantly lower than those in the control group.

**Table 4:** Comparison of incidence of complications

Indicator	No. of reference	Intervention		Control		Weight (%)	OR (95% CI)
		Events	Total	Events	Total		
Urinary hemorrhage		<b>23</b>	<b>208</b>	<b>37</b>	<b>205</b>	<b>100.0</b>	<b>0.43 (0.21, 0.87)</b>
	18	2	76	5	73	20.0	0.37 (0.07, 1.96)
	21	1	49	6	49	23.7	0.15 (0.02, 1.29)
	23	20	40	25	40	50.3	0.60 (0.25, 1.46)
	34	0	43	1	43	6.0	0.33 (0.01, 8.22)
Bladder spasm		<b>19</b>	<b>216</b>	<b>58</b>	<b>205</b>	<b>100.0</b>	<b>0.24 (0.14, 0.42)</b>

Table 4: Continued ...

	17	8	76	21	70	36.1	0.27 (0.11, 0.67)
	22	6	54	14	49	24.1	0.31 (0.11, 0.89)
	23	2	40	5	40	8.8	0.37 (0.07, 2.02)
	26	3	46	18	46	31.1	0.11 (0.03, 0.40)
<b>Catheter ob- struction</b>		<b>18</b>	<b>170</b>	<b>55</b>	<b>159</b>	<b>100.0</b>	<b>0.20 (0.11, 0.36)</b>
	17	12	76	39	70	68.9	0.15 (0.07, 0.32)
	22	4	54	11	49	21.5	0.28 (0.08, 0.94)
	23	2	40	5	40	9.6	0.37 (0.07, 2.02)

OR: odds ratio

## Discussion

The incidence of BPH is related to various factors such as age, genetic factors, smoking, obesity, hypertension, diabetes, and sexual life (27,28). In clinical practice, indicators such as maximum urinary flow rate and residual urine volume are often used to evaluate the severity of BPH (29,30). Although TURP can effectively solve the lower urinary tract clinical symptoms of BPH patients such as dysuria, the stress response generated by anesthesia and surgery become stronger because the patients are generally older (31). Reasonable nursing methods can effectively lower the occurrence of postoperative complications in BPH patients after TURP, speed up the postoperative recovery, shorten the postoperative LOHS, and reduce the economic pressure of patients (32). Nursing staff are not able to effectively take the initiative in routine care, which leads to the low nursing satisfaction (33). Therefore, in view of the clinical symptoms and potential risks of patients after TURP, researchers have established a variety of nursing methods, such as high-quality nursing, painless nursing under mind maps, and psychological nursing intervention. Different nursing methods have different roles in the rehabilitation of patients after TURP (34-36). In this work, these nursing methods and the routine nursing method were undertaken as the Int group and Ctrl group, respectively, to discuss the clinical effect of postoperative nursing intervention methods on patients treated with TURP. The study mainly analyzed the relevant research on the evaluation of the effectiveness of TURP postoperative nursing interventions from January

2000 to May 2024, mainly because there had been significant advances in TURP surgical techniques and postoperative nursing practices since 2000, and the concepts and methods of nursing interventions (bladder training, music nursing, mind mapping painless nursing, etc.) had undergone important developments. Therefore, research conducted after 2000 can comprehensively reflect the effectiveness of postoperative care in modern medical practice.

In the meta-analysis, postoperative nursing intervention can effectively accelerate the recovery process of patients, reduce unnecessary hospitalization time, improve nursing satisfaction, and reduce the incidence of UI, urethral bleeding UH, BS, and CO. This can not only reduce the economic burden on patients, enhance their positive experience of the nursing process, but also improve their quality of life. Indicating that nursing measures have a positive effect on improving bladder function. Based on these findings, it is recommended that clinical nursing staff develop personalized bladder training programs, guide patients to practice muscle relaxation methods, provide educational support for postoperative complications, help patients gradually recover normal urination function, alleviate BS symptoms, and enhance their self-management abilities. Excessive activity of the detrusor muscle of the bladder can cause BS, resulting in increased bladder instability, decreased compliance, and increased stress response to surgical stimuli, in which the incidence of BS increases (37). Effective postoperative bladder training and other nursing methods can reduce the time of catheter indwelling in patients after TURP, thereby shortening the postoperative LOHS (38). There is sig-



nificant heterogeneity between different studies in terms of length of stay, mental status, amount of urinary retention, and incidence of UI, which may be related to factors such as nursing methods, demographic differences of patients (age, gender, health status, etc.), geographical location, and environment. However, since no relevant data are provided in the original data, it is impossible to further analyze the specific source information of heterogeneity through subgroups. In nursing satisfaction assessment, there are differences in satisfaction assessment tools and standards among different studies. To ensure the universality of the results, the data was standardized during the meta-analysis process. However, there is still heterogeneity between different studies, which may be related to factors such as research background and culture.

Based on the meta-analysis results of this study, it is recommended to combine multiple nursing intervention methods when formulating postoperative nursing protocols to provide more comprehensive nursing services and improve overall nursing outcomes. In the nursing process, it is necessary to establish a systematic monitoring and evaluation mechanism to regularly assess the recovery of postoperative patients, timely identify and address potential issues, and provide a basis for optimizing subsequent nursing plans. Adverse psychological status and emotions such as fear or anxiety will lower the body's pain threshold, triggering physiological reactions such as pain and muscle tension in patients (39). Anxiety, fear, and other negative emotions of patients can be eliminated through effective psychological nursing methods, and the recovery of patients can be promoted (40). This work found that no heterogeneity was observed in the psychological status between the Int group and the Ctrl group after different nursing interventions. This suggested that nursing intervention affects the psychological status of patients after surgery slightly. Xu et al (41) used nursing methods to intervene in patients after TURP. The results showed that an effective psychological nursing intervention mode could significantly improve anxiety and depression, in patients after TURP. Nursing in-

terventions such as muscle relaxation training activities and listening to light music can relieve patients' tension and anxiety, and improve patients' bad behaviors and emotions (42). The results of this study are different from the above results, which may be related to the differences in specific nursing measures and methods.

The Int group in this study adopted a variety of nursing intervention methods (such as bladder training, continuous bladder irrigation, painless nursing based on mind map, and music nursing), which focused more on physical recovery and may not fully penetrate the psychological level of patients. In contrast, muscle relaxation training and listening to light music in the research of Xu et al (41) may focus more on psychological nursing intervention, so it can directly intervene in patients' psychological state. In addition, the frequency and intensity of intervention may not fully meet the needs of patients' mental health. Finally, the index to evaluate patients' psychological state in this work was the scores of multiple psychological scales, and there may be differences between different scales, resulting in a certain degree of deviation in the results. Therefore, the influence of postoperative nursing intervention on the psychological effect of TURP patients still needs to be further verified and analyzed by increasing sample size and unifying indicators. In the aspect of nursing, future research should consider strengthening nursing intervention aimed at psychological state and optimizing intervention scheme to obtain more consistent and remarkable results.

This study showed that postoperative nursing interventions significantly shortened patients' hospitalization time, improved patient satisfaction with nursing care, and reduced the incidence of postoperative complications such as UI, urethral infection, hematuria, BS, and CO. This indicates that postoperative nursing interventions not only alleviate patients' economic burden and improve their quality of life, but also reduce additional medical costs and treatment burdens. However, the limited sample size included in this study may have affected the accurate assessment of the incidence of certain complications. In ad-

dition, there are differences in the specific implementation methods of nursing interventions in different studies, which leads to heterogeneity among different studies. In summary, the research findings emphasize the crucial role of postoperative nursing interventions in improving patient rehabilitation outcomes, and suggest that effective nursing interventions should be actively promoted and implemented in clinical practice to enhance nursing quality. In future research, large-scale, prospective randomized controlled trials will be conducted to verify the effectiveness of nursing interventions in actual clinical environments, and to explore the specific implementation methods and optimal combinations of different intervention strategies.

## Conclusion

This work discussed the clinical application effect of nursing intervention on patients undergoing TURP. Post-nursing intervention could effectively shorten the LOHS in BPH patients after TURP, improve nursing satisfaction, and reduce the incidence, volume, and frequency of postoperative UI. It could also lower the incidence of UH, BS, and CO. In short, this work provided a certain reference for the nursing and prognosis of patients after TURP.

## Journalism Ethics considerations

Ethical issues (Including plagiarism, informed consent, misconduct, data fabrication and/or falsification, double publication and/or submission, redundancy, etc.) have been completely observed by the author.

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## Conflict of Interest

The authors declare that there is no conflict of interests.

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