

## Original Article

# Clinical efficacy of soft-shelled turtle shell and salt moxibustion in improving kidney yang deficiency-type Laolin in middle-aged and elderly women

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**Abstract:** Objective: To evaluate the clinical efficacy of Soft-Shelled Turtle Shell and Salt Moxibustion in treating kidney yang deficiency-type Laolin in middle-aged and elderly women and assessing treatment impact on quality of life. Methods: A retrospective analysis was conducted on 72 middle-aged and elderly female patients with kidney yang deficiency-type Laolin treated at Suzhou Hospital of Traditional Chinese Medicine between June 2023 and April 2024 (research group). Patients with the same condition who received only basic treatment and care served as the control group. The research group received Soft-Shelled Turtle Shell and Salt Moxibustion in addition to the control treatment. Outcomes including traditional Chinese medicine (TCM) syndrome scores, clinical efficacy, immunoglobulin M (IgM), immunoglobulin G (IgG), routine urine white blood cell count, urine bacterial counts, quality of life scores, and complication rates were compared between the two groups. Results: The research group demonstrated significantly greater improvement in TCM syndrome scores, clinical efficacy, and urine bacterial counts compared to the control group (all  $P < 0.05$ ). Post-treatment IgM and IgG levels were also significantly higher in the research group (both  $P < 0.05$ ). Additionally, the research group exhibited a more pronounced reduction in urine white blood cell counts and achieved significantly higher quality of life scores (both  $P < 0.05$ ). The incidence of adverse reactions in the research group was lower than that in the control group ( $P < 0.05$ ). Patient satisfaction with care was notably higher in the research group ( $P < 0.05$ ). Conclusion: Soft-Shelled Turtle Shell and Salt Moxibustion is highly effective in treating middle-aged and elderly female patients with kidney yang deficiency-type Laolin. It significantly improves TCM syndrome scores, immunoglobulin levels, urine bacterial counts, and routine urine white blood cell counts while enhancing patients' quality of life. The therapy is safe, with minimal and self-limiting adverse reactions, primarily mild skin irritation.

**Keywords:** Soft-shelled turtle shell and salt moxibustion, middle-aged and elderly women, Laolin, TCM syndrome score, efficacy, quality of life

## Introduction

With an aging population, the incidence of urinary system diseases in middle-aged and elderly women is steadily increasing, with Laolin being particularly prominent. In traditional Chinese medicine (TCM), Laolin refers to urinary system dysfunctions characterized by symptoms such as frequent urination, incomplete voiding, urgency, and painful urination, which severely impact patients' quality of life. According to TCM theory, Laolin is often attributed to kidney yang deficiency and impaired

water metabolism [1]. This condition is especially common in middle-aged and elderly women, manifesting as insufficient yang energy and disrupted water metabolism, leading to urinary tract infections and associated symptoms [2]. These patients often experience classic signs of kidney yang deficiency, including soreness in the lumbar and knee regions, intolerance to cold, and cold extremities, which significantly impair their health and quality of life.

In modern medicine, antibiotics are commonly used to treat urinary tract infections; however,

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frequent use of antibiotics may result in drug resistance and fails to address systemic symptoms and underlying causes. Therefore, exploring safe and effective treatments that improve systemic functions is crucial. TCM external therapies, particularly moxibustion, are traditional warming treatments with demonstrated clinical efficacy in managing kidney yang deficiency-related conditions [3].

Soft-Shelled Turtle Shell and Salt Moxibustion is an external therapy that combines moxibustion and Chinese herbal medicine. It involves moxibustion on soft-shelled turtle shell with salt as a medium to enhance its warming effect. Turtle shell, which is salty and cold in nature, nourishes yin, subdues yang, and softens masses, complementing the yang-warming and kidney-tonifying effects of moxibustion. Recent studies suggest that this therapy is effective in treating kidney yang deficiency-related diseases [4].

However, clinical studies specifically focusing on its effects in middle-aged and elderly women with kidney yang deficiency-type Laolin are limited. Whether this therapy can significantly alleviate symptoms and improve quality of life in this specific patient population remains unexplored. This study aims to evaluate the clinical efficacy and safety of Soft-Shelled Turtle Shell and Salt Moxibustion in treating middle-aged and elderly women with kidney yang deficiency-type Laolin, providing evidence to support its clinical application.

## Materials and methods

### Case selection

This retrospective study included data of 144 middle-aged and elderly female patients with Laolin and kidney yang deficiency type who were admitted to the Nephrology Department of Suzhou Hospital of Traditional Chinese Medicine between June 2023 and April 2024. Among them, 72 cases who received standard treatment and care without any TCM interventions were set as the control group, while 72 cases who received Soft-Shelled Turtle Shell and Salt Moxibustion in addition to the interventions given to the control group were set as the research group. The study was approved by the Suzhou Hospital of Traditional Chinese Medicine's medical ethics committee.

Inclusion criteria: ① Diagnosed with recurrent urinary tract infection according to Western medicine criteria [5]; ② Diagnosed with Laolin (kidney yang deficiency type) based on traditional Chinese medicine syndrome differentiation criteria [6]; ③ Aged 45-75 years, long-term residents of Suzhou, able to live independently, and with at least a primary school education; ④ No change in urinary tract infection medication regimen within the past two weeks; ⑤ Voluntarily agreed to participate.

Exclusion criteria: ① First episode of acute urinary tract infection or acute pyelonephritis; ② High fever, ulceration at the moxibustion site, inability to maintain the moxibustion position, extreme intolerance to heat, menstruation, or mental disorders making moxibustion unsuitable; ③ Imaging evidence of congenital urinary tract malformations, stones, or hydronephrosis; ④ Unconsciousness or mental illness.

### Methods

The control group received standard treatment and care without any TCM interventions. Before enrollment, a specialized nephrology nurse provided standardized health education and guidance for patients and their families. For patients with kidney yang deficiency-type Laolin, the basic treatment focused on strengthening the spleen and kidneys, warming yang, and boosting qi. Lifestyle interventions included health education, moderate exercise, and maintaining a positive mindset.

In terms of nursing care, patients followed standard TCM internal medicine protocols, which emphasized a light and nutritious diet rich in vegetables, avoiding spicy foods, alcohol, and tobacco, and drinking 1.5-2.0 liters of water daily. Hygiene practices included maintaining cleanliness of the external genital area, timely and proper urine sample collection, and adhering to a regular daily routine while avoiding overexertion. Patients experiencing severe negative emotions received psychological counseling to reduce their psychological burden and boost their confidence in treatment.

The research group received Soft-Shelled Turtle Shell and Salt Moxibustion in addition to the interventions given to the control group (**Figure 1**). Moxibustion Locations and Acupoints: Shenque, Qihai, Guanyuan, Zhongji.

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**Figure 1.** Soft-shelled turtle shell and salt moxibustion.

**Duration:** Each session lasted 30 minutes, performed once daily for 7 consecutive days per course, with a total intervention period of 2 weeks.

**Procedure [7]:** 70 g of coarse salt was spread evenly on a clean turtle shell. Twelve g of moxa was molded into a 5.7 cm diameter bowl shape, and was placed on the coarse salt. 95% alcohol was sprinkled on the moxa and ignited. Once the open flame subsided and smoke began to rise, a PY-SM5 thermometer was used to measure the temperature at the lowest point of the turtle shell base. When the temperature reached 43°C, the patient assumed a supine position with the lower abdomen exposed. A single layer of gauze was placed on the moxibustion area. With Shenque as the center, moxibustion was applied along the Ren meridian, with a focus on Shenque, Qihai, Guanyuan, and Zhongji. The speed and pressure of the massage were adjusted according to the temperature, holding key acupoints for 1-2 minutes to enhance heat penetration. Each session lasted 30 minutes, conducted once daily for 7 consecutive days per course, over a total of 2 weeks.

**Precautions:** The patient was instructed to empty their bladder before the procedure and assume a supine position. The patient's response was monitored during treatment to prevent burns. After moxibustion, patients were advised to drink 200 mL of warm water.

### *Observation indicators*

**Main observation indicators:** TCM Syndrome Scores: The "TCM Syndrome Grading Quanti-

fication Standard" was used for evaluation. Symptoms were scored as 2 points for mild, 4 points for moderate, and 6 points for severe [8]. Assessments were conducted by trained investigators while patients were awake, before treatment, at the end of the first treatment course, and at the end of the second treatment course.

**Clinical efficacy:** Syndrome treatment efficacy was calculated using the formula:  $\text{Efficacy Index} = (\text{Total Score Before Treatment} - \text{Total Score After Treatment}) / \text{Total Score Before Treatment} \times 100\%$  [9, 10]. Symptoms were scored as 2 points for mild, 4 points for moderate, 6 points for severe, and 0 points for disappeared symptoms. Assessments were performed by trained investigators while patients were awake, before treatment and at the end of the treatment course. Efficacy was categorized as ineffective (<30%), effective (30-70%), significant effect (70-95%), and cured ( $\geq 95\%$ ). The effective rate was calculated as  $(\text{Cured} + \text{Significant Effect} + \text{Effective}) / \text{Total Number of Cases} \times 100\%$ .

**Immunoglobulin level testing:** Fasting blood samples (5 mL) were collected from patients and processed in the laboratory. Serum was separated using a centrifuge, and levels of IgG and IgM were measured using the immunoturbidimetric method.

**Secondary observation indicators:** Routine Urine White Blood Cell Counts: Urine samples were collected from patients before the intervention and after 2 weeks of treatment. Patients provided midstream urine in clean containers after waking up, and samples were analyzed for routine white blood cell counts in the laboratory.

**Urine bacteria count:** Midstream urine samples were collected before the intervention and after 2 weeks of treatment. Patients used sterile containers to collect morning midstream urine, which was promptly sent to the laboratory for bacterial culture. The urine bacteria count was recorded.

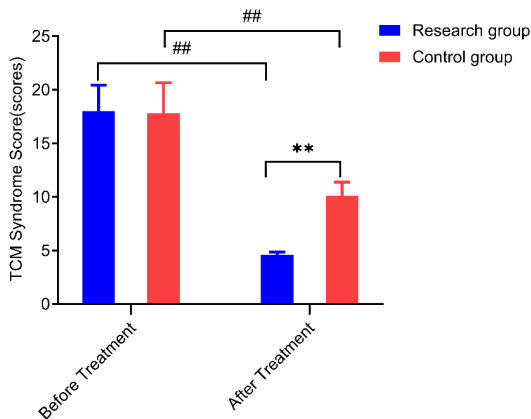
**Quality of life:** The quality of life of both groups was assessed after 2 weeks of treatment using the SF-36 scale, with a Cronbach's alpha coefficient of 0.75 and a structural coefficient of 0.825. The maximum score was 100, with

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**Table 1.** Comparison of baseline data between the two groups (n,  $\bar{x} \pm s$ )

Project	Research group (n=72)	Control group (n=72)	t/ $\chi^2$	P
Gender (n)			0.028	0.867
Female	33	35		
Male	39	37		
Age (years)	57.83 $\pm$ 14.76	55.10 $\pm$ 1.83	1.558	0.122
Disease Duration (years)	5.04 $\pm$ 2.81	5.65 $\pm$ 3.84	1.106	0.271
Liver Function				
ALT (U/L)	18.04 $\pm$ 10.95	18.74 $\pm$ 14.49	0.327	0.744
AST (U/L)	20.62 $\pm$ 5.33	21.79 $\pm$ 10.77	0.826	0.410
Kidney Function				
Scr ( $\mu$ mol/L)	72.34 $\pm$ 17.78	75.46 $\pm$ 22.21	0.931	0.354
BUN (mmol/L)	4.85 $\pm$ 1.77	5.13 $\pm$ 1.76	0.952	0.343
Ccr (ml/min)	78.55 $\pm$ 17.72	78.34 $\pm$ 22.48	0.062	0.950

ALT (U/L): Alanine Aminotransferase; AST: Aspartate Aminotransferase; Scr: Serum Creatinine; BUN: Blood Urea Nitrogen; Ccr (ml/min): Creatinine Clearance Rate.



**Figure 2.** Comparison of TCM syndrome scores between the two groups. Note: \*\*P<0.01 compared with the control group; ##P<0.01 compared with before treatment. TCM: Traditional Chinese medicine.

higher scores indicating better quality of life in related dimensions [11].

**Adverse reaction incidence:** Adverse reactions during treatment were recorded, including symptoms such as itching, redness, and ulceration at acupoints, as well as symptoms of yin deficiency with excessive fire.

**Patient satisfaction:** Patient satisfaction was evaluated using a self-developed satisfaction survey scale validated by the hospital (content validity coefficient: 0.87, Cronbach's alpha coefficient: 0.89). Scores were categorized as satisfactory (90-100), moderately satisfactory

(60-89), or unsatisfactory (<60). Satisfaction rate was calculated as: Satisfaction Rate = (Satisfactory + Moderately Satisfactory Cases)/Total Cases  $\times$  100%.

### Statistical analysis

Data were analyzed using SPSS 20.0 software. Measurement data were expressed as mean  $\pm$  standard deviation ( $\bar{x} \pm sd$ ), and comparisons between groups were conducted using the t-test or paired t test. Count data were presented as numbers and percentages (n, %) and analyzed using the chi-square test ( $\chi^2$ ). Statistical significance was set at P<0.05.

## Results

### Comparison of baseline data between the two groups

There were no statistically significant differences in baseline characteristics, including sex, age, disease duration, liver function, and renal function indicators, between the two groups (all P>0.05). See **Table 1**.

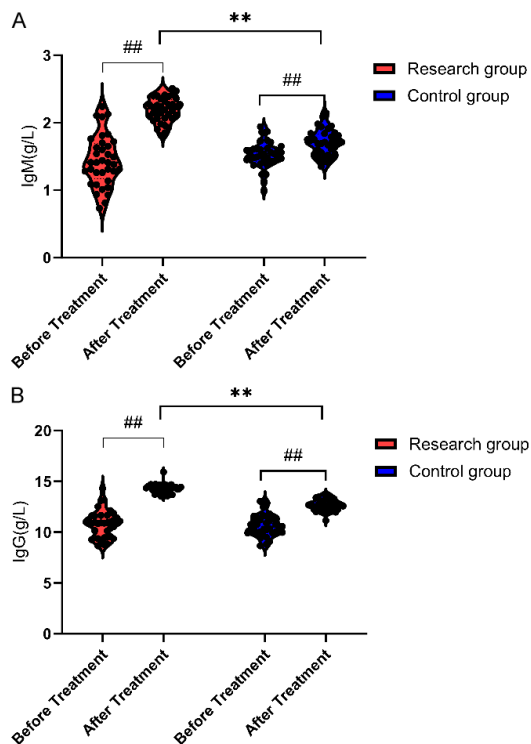
### Comparison of TCM syndrome scores

Before treatment, the TCM syndrome scores were comparable between the two groups (P>0.05). After treatment, both groups showed improvement, but the improvement in the research group was significantly greater than in the control group (P<0.05). See **Figure 2**.

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**Table 2.** Comparison of clinical efficacy between the two groups (n, %)

Group	n	Cured	Significant effect	Effective	Ineffective	Total significant effect	Total effectiveness
Research group	72	32 (44.44)	18 (25.00)	16 (22.22)	6 (8.33)	50 (69.44)	66 (91.67)
Control group	72	20 (27.78)	12 (16.67)	20 (27.78)	20 (27.78)	32 (44.44)	52 (72.72)
$\chi^2$						4.589	6.821
P						0.032	0.009



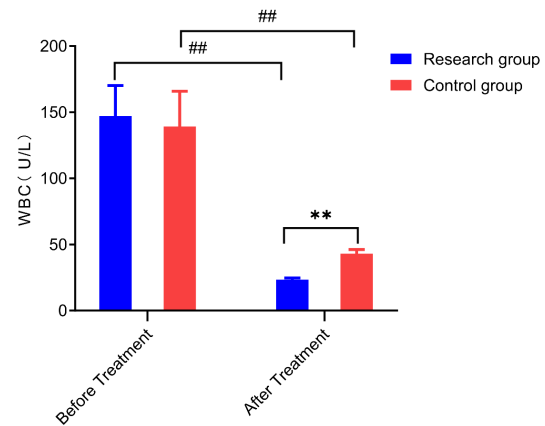
**Figure 3.** Comparison of immunoglobulin levels between the two groups. A: Comparison of IgM between the Two Groups; B: Comparison of IgG between the Two Groups. \*\*P<0.01 compared with the control group; ##P<0.01 compared with before treatment.

### Comparison of clinical efficacy

The overall effective rate in the research group was significantly higher than in the control group (P<0.05). See **Table 2**.

### Comparison of immunoglobulin levels

Before treatment, there was no statistically significant difference in immunoglobulin levels (IgG and IgM) between the two groups (both P>0.05). After treatment, both indicators were significantly higher in the research group compared to the control group (both P<0.05). See **Figure 3**.



**Figure 4.** Comparison of routine urine white blood cell count between the two groups. Note: \*\*P<0.01 compared with the control group; ##P<0.01 compared with before treatment. WBC: White Blood Cell Count.

### Comparison of routine urine white blood cell counts

Before treatment, the urine white blood cell counts were similar between the two groups (P>0.05). After treatment, the white blood cell counts in both groups decreased, with a significantly greater reduction observed in the research group (P<0.05). See **Figure 4**.

### Comparison of urine bacteria counts

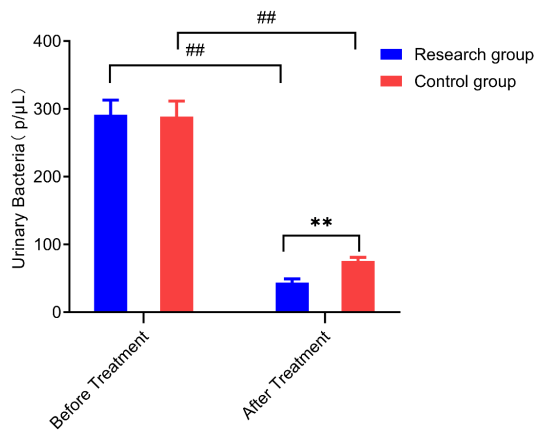
Before treatment, the urine bacteria counts were comparable between the two groups (P>0.05). After treatment, both groups exhibited a reduction in urine bacteria counts, but the research group showed a significantly greater reduction, resulting in significantly lower counts compared to the control group (P<0.05). See **Figure 5**.

### Comparison of quality of life

The research group achieved significantly higher quality of life scores across all dimensions



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**Figure 5.** Comparison of urine bacteria count between the two groups. Note: \*\* $P < 0.01$  compared with the control group; ## $P < 0.01$  compared with before treatment.

compared to the control group after treatment (all  $P < 0.05$ ). See **Table 3**.

### Comparison of adverse reaction incidence

During treatment, the incidence of adverse reactions, including nausea, diarrhea, abdominal distension, abdominal pain, itching, redness, ulceration, and symptoms of yin deficiency with excessive fire, was significantly lower in the research group compared to the control group ( $P < 0.05$ ). See **Table 4**.

### Comparison of patient satisfaction

The patient satisfaction rate in the research group was 91.67%, significantly higher than the 80.56% observed in the control group ( $P < 0.05$ ). See **Table 5**.

## Discussion

In TCM, “water stagnation” refers to a pathological condition caused by kidney yang deficiency, leading to disrupted water metabolism. This manifests as symptoms such as frequent urination, incomplete voiding, and soreness in the lower back and knees [12-14]. Kidney yang deficiency impairs the normal circulation of bodily fluids, resulting in fluid retention, edema, reduced urine output, and urinary tract infections. According to the TCM principle of “treatment by addressing the root cause”, regulating water metabolism to expel excess water and restore the kidney’s qi transformation function

can effectively alleviate these symptoms and restore water balance in the body.

With the aging population, the prevalence of Laolin among middle-aged and elderly women has been steadily increasing, with symptoms being particularly pronounced in those with kidney yang deficiency. These symptoms significantly impair quality of life [15-17]. Although modern medicine employs antibiotics to treat urinary tract infections, it does not address the systemic imbalance caused by kidney yang deficiency.

Soft-Shelled Turtle Shell and Salt Moxibustion is a warming external therapy that combines moxibustion with a soft-shelled turtle shell, providing a kidney-warming, urination-promoting, yang-strengthening, and foundation-stabilizing effects. It helps tonify kidney yang and regulate water metabolism without harming yin or retaining pathogenic factors. Studies have demonstrated the significant clinical efficacy of this therapy in treating kidney yang deficiency-type Laolin, improving both clinical symptoms and patients’ quality of life [18].

This study found that patients treated with Soft-Shelled Turtle Shell and Salt Moxibustion showed a significant reduction in TCM syndrome scores, with the overall efficacy rate being notably higher than that of the control group. This effect may be attributed to the therapy’s warming yang, kidney-tonifying, blood-activating, and stasis-removing properties, which effectively alleviate the symptoms of kidney yang deficiency-type Laolin. The inclusion of soft-shelled turtle shell and salt enhances the warming effect of moxibustion, improving the disrupted qi transformation caused by kidney yang deficiency. This helps alleviate water stagnation symptoms and enhances clinical outcomes. These findings align with those of Chen et al. [19, 20]. This result underscores the outstanding efficacy of Soft-Shelled Turtle Shell and Salt Moxibustion in alleviating kidney yang deficiency symptoms and enhancing therapeutic outcomes.

The research group showed significantly higher levels of IgG and IgM compared to the control group after treatment, suggesting that Soft-Shelled Turtle Shell and Salt Moxibustion may exert its therapeutic effects by modulating immune function. The increase in immunoglob-

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**Table 3.** Comparison of quality of life between the two groups (scores,  $\bar{x} \pm s$ )

Short-Form 36 Item Health Survey (SF-36)	Research group (n=72)	Control group (n=72)	t	P
Physical functioning	79.64±9.42	64.51±8.31	10.214	<0.001
General health	92.64±6.20	84.04±12.51	4.341	<0.001
Social functioning	73.85±10.24	64.28±9.55	5.799	<0.001
Role limitations caused by emotional problems	63.08±8.96	54.97±6.91	6.074	<0.001
Mental health	68.85±9.42	56.08±6.97	9.247	<0.001

**Table 4.** Comparison of the incidence of adverse reactions between the two groups [n (%)]

Project	Research group (n=72)	Control group (n=72)	X <sup>2</sup>	P
Nausea	2 (2.78)	0 (0.00)	4.345	0.037
Diarrhea	3 (4.17)	1 (1.39)		
Abdominal bloating and pain	1 (1.39)	0 (0.00)		
Itchy skin sensation	0 (0.00)	1 (1.39)		
Redness	0 (0.00)	1 (1.39)		
Ulceration	0 (0.00)	0 (0.00)		
Symptoms of yin deficiency with excessive fire	11 (15.28)	0 (0.00)		
Total	17 (23.61)	3 (4.17)		

**Table 5.** Comparison of satisfaction between the two groups (n, %)

	Satisfactory	Moderately Satisfactory	Unsatisfactory	Total satisfaction (%)
Research group (n=72)	38 (52.78%)	28 (38.89%)	6 (8.33%)	66 (91.67%)
Control group (n=72)	30 (41.67%)	28 (38.89%)	14 (19.44%)	58 (80.56%)
Chi-Square				7.418
P				0.005

ulin levels enhances the body's resistance, thereby reducing the incidence of urinary tract infections. Similar findings have been reported in studies by Gao Qimeng and colleagues, which demonstrated that analogous traditional Chinese medicine treatments effectively elevated IgG and IgM levels in elderly female patients with urinary tract infections. Additionally, Li's and Zhao's research highlights the significant impact of traditional Chinese medicine on improving immune function, aligning with the results of this study [21, 22].

The therapeutic effects of Soft-Shelled Turtle Shell and Salt Moxibustion in modulating immune function may be attributed to four key mechanisms: Warming Yang and tonifying the Kidneys; Soft-Shelled Turtle Shell and Salt Moxibustion alleviates kidney yang deficiency symptoms and enhances overall bodily functions. In traditional Chinese medicine, the kidney governs water metabolism, and kidney yang deficiency disrupts fluid balance, leading

to reduced immune function. By restoring the yin-yang balance, normalizing fluid metabolism, and improving immune function, this therapy strengthens the body's resistance [18].

Soft-Shelled Turtle Shell, with its salty and cold nature, enters the liver and spleen meridians, nourishing yin, subduing yang, softening hardness, and dispersing accumulations. The blood-activating and stasis-removing effects of Soft-Shelled Turtle Shell and Salt Moxibustion improve blood circulation, enhance oxygen delivery to tissues and organs, and promote immune cell activity and proliferation. This process increases the production and secretion of immunoglobulins, further boosting immune defense [21].

Local heating and drug penetration reduce inflammatory responses, lowering the incidence of urinary tract infections. The anti-inflammatory effects contribute to the increase in immunoglobulin levels, enhancing the body's

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resistance to infections [22]. The local warming effect stimulates nerve endings in the skin, activating the central nervous system, which in turn influences the endocrine system and regulates immune function. Through this interconnected regulatory network, Soft-Shelled Turtle Shell and Salt Moxibustion enhances immune defense capabilities and increases immunoglobulin levels. These findings indicate that Soft-Shelled Turtle Shell and Salt Moxibustion not only alleviates local symptoms but also enhances systemic immune function.

The study revealed that patients treated with Soft-Shelled Turtle Shell and Salt Moxibustion exhibited lower routine urine white blood cell counts and reduced bacterial presence in urine. This outcome may be attributed to the warming effect of Soft-Shelled Turtle Shell and Salt Moxibustion, which promotes local blood circulation, enhances immune function, and inhibits bacterial growth and reproduction. These effects contribute to a reduction in urinary tract infections and inflammatory responses. The combination of moxa's warming and invigorating properties, which promote the flow of qi and blood, disperse cold, and relieve pain, along with the yin-nourishing, yang-subduing, hardness-softening, and nodule-dissipating characteristics of Soft-Shelled Turtle Shell, and as such plays a crucial role in reducing white blood cells and bacteria. By regulating the immune system, moxibustion effectively reduces inflammation and infection [22]. This confirms the positive role of Soft-Shelled Turtle Shell and Salt Moxibustion in controlling urinary tract infections and mitigating inflammatory responses.

Following treatment with Soft-Shelled Turtle Shell and Salt Moxibustion, patients experienced significant improvements in quality of life scores, particularly in dimensions such as physical function, general health, social function, emotional role, and mental health. These improvements are likely due to symptom relief and enhanced physical function, directly contributing to better quality of life [23]. The warming yang, kidney-tonifying, and blood-circulating effects of moxibustion restore physical function, alleviate symptoms, and improve psychological well-being, collectively enhancing overall quality of life. These findings demonstrate the significant positive impact of Soft-

Shelled Turtle Shell and Salt Moxibustion on patients' quality of life.

The incidence of adverse reactions during treatment was significantly lower in the Soft-Shelled Turtle Shell and Salt Moxibustion group compared to the control group, with most reactions being mild and self-limiting skin irritations. This may be due to the gentle warming effect of this non-invasive therapy, which minimizes damage to the skin or other tissues. The inclusion of Soft-Shelled Turtle Shell and salt further enhances the safety of moxibustion by preventing excessive heat stimulation, making it suitable for a broad range of patients. In TCM theory, warming yang and tonifying the kidneys strengthen the body's vital qi, providing defense against external pathogens and alleviating symptoms of yin deficiency with excessive fire [24]. Research indicates that the combination of Soft-Shelled Turtle Shell and salt not only intensifies the warming effects of moxibustion but also mitigates manifestations of yin deficiency through its yin-nourishing, yang-subduing, hardness-softening, and nodule-dissipating properties [25]. These findings confirm the high safety profile of Soft-Shelled Turtle Shell and Salt Moxibustion, making it appropriate for long-term use.

Despite the significant efficacy demonstrated by Soft-Shelled Turtle Shell and Salt Moxibustion in treating middle-aged and elderly female patients with kidney yang deficiency-type Laolin, this study has several limitations. First, the retrospective design lacks the rigor of a randomized controlled trial. Second, the absence of long-term follow-up prevents assessment of the therapy's long-term effects and recurrence rates. Future studies should adopt large-scale, multi-center randomized controlled trials to improve the reliability and generalizability of the findings. Additionally, long-term follow-up studies are necessary to evaluate the sustained efficacy and recurrence rates of this therapy. Furthermore, exploring the specific mechanisms of action through modern medical technologies, such as molecular biology and imaging techniques, could elucidate the physiological effects of warming yang, tonifying the kidneys, and promoting blood circulation to remove stasis.

In conclusion, Soft-Shelled Turtle Shell and Salt Moxibustion demonstrates significant clini-



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cal efficacy in middle-aged and elderly female patients with kidney yang deficiency-type Laolin. It effectively improves TCM syndrome scores, immunoglobulin levels, routine urine white blood cell counts, and urine bacteria counts, while enhancing quality of life. The therapy is associated with minimal adverse reactions, primarily mild and self-limiting skin irritations, indicating a high level of safety.

### Disclosure of conflict of interest

None.

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