Rev Rene. 2025;26:e94769.
DOI: 10.36517/2175-6783.20252694769
www.periodicos.ufc.br/rene

Review Article

Effectiveness of auriculotherapy for urinary incontinence in adults and the elderly: a systematic review

Efetividade da auriculoterapia para incontinência urinária em pessoas adultas e idosas: revisão sistemática

How to cite this article:
Munhoz OL, Ilha S, Rangel RF, Scholze AR, Morais BX. Effectiveness of auriculotherapy for urinary incontinence in adults and the elderly: a systematic review. Rev Rene. 2025;26:e94769. DOI: https://doi.org/10.36517/2175-6783.20252694769

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Conflict of interest: the authors have declared that there is no conflict of interest.

EDITOR IN CHIEF: Ana Fatima Carvalho Fernandes
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ABSTRACT

Objective: to analyze the effectiveness of auriculotherapy for urinary incontinence in adults and elderly people. **Methods:** systematic review, with searches in seven sources of information. Experimental and observational studies on auriculotherapy for urinary incontinence in adults and the elderly were included. The methodological quality of the studies was assessed using the JBI instruments, and the certainty of the evidence using the Grading of Recommendations Assessment, Development, and Evaluation. Narrative data synthesis. **Results:** 2,205 references were identified, five of which were included in the evidence synthesis. The studies used seeds, magnetic *pallets,* and semi-permanent needles as materials. The main intervention acupoints were the bladder, liver, kidney, and internal genitalia, following Traditional Chinese Medicine. Auriculotherapy significantly improved urinary incontinence in three studies, promoting the well-being of the individuals. **Conclusion:** auriculotherapy was beneficial in controlling urinary incontinence in adults and the elderly, but there was variability in the interventions tested, and the certainty of the evidence was very low. **Contributions to practice:** the evidence from this review suggests that health services and professionals can use alternative interventions.
Descriptors: Auriculotherapy; Urinary Incontinence; Adult; Aged; Systematic Review.

RESUMO

Objetivo: analisar a efetividade da auriculoterapia para incontinência urinária em pessoas adultas e idosas. **Métodos:** revisão sistemática, com buscas em sete fontes de informação. Incluíram-se estudos experimentais e observacionais sobre auriculoterapia para incontinência urinária em pessoas adultas e idosas. A qualidade metodológica dos estudos foi avaliada com base nos instrumentos do JBI e a certeza da evidência com o *Grading of Recommendations Assessment, Development and Evaluation*. Síntese de dados narrativa. **Resultados:** foram identificadas 2.205 referências, sendo cinco incluídas na síntese de evidências. As pesquisas utilizaram sementes, *pallets* magnéticos e agulhas semipermanentes como materiais. Os principais acupontos interventivos foram bexiga, fígado, rim e genitais internos, seguindo a Medicina Tradicional Chinesa. A auriculoterapia repercutiu em melhora significativa de incontinência urinária em três estudos, promovendo bem-estar dos indivíduos. **Conclusão:** constataram-se benefícios da auriculoterapia para o controle de incontinência urinária em pessoas adultas e idosas, porém, verificou-se variabilidade de intervenções testadas e a certeza de evidência é muito baixa. **Contribuições para a prática:** as evidências desta revisão sugerem que intervenções alternativas podem ser empregadas pelos serviços e profissionais da saúde. A auriculoterapia favorece o alívio de incontinência urinária.
Descritores: Auriculoterapia; Incontinência Urinária; Adulto; Idoso; Revisão Sistemática.

Introduction

Lower Urinary Tract Symptoms are among the ailments that affect the general population, and as age progresses, their prevalence increases[1-3]. Among the urinary symptoms reported, urinary incontinence is a condition that hurts the health of adults and the elderly[2-3]. A condition related to the bladder's storage capacity, urinary incontinence is defined by the involuntary loss of urine that can be reported or ascertained and classified as stress, overflow, urge, functional, or mixed incontinence[1].

The presence of urinary incontinence can interfere with the biopsychosocial health of those affected, and clinical management depends on adherence and changing habits[4-5]. In addition, coping with this condition encounters barriers such as the fear of talking about it and the low demand for specialized care[6-7], which implies that the autonomy and independence of affected individuals are compromised.

The Jordanian population had a prevalence of 21.6% self-reported urinary incontinence, with urgency incontinence predominant[3]. It is noteworthy in Brazil that among women, urge and stress incontinence were predominant compared to men[6]. In South Korea, this disease affects 12% of men and 5% of women, and exertion is more prevalent in women[7].

Thus, while there are conventional treatments, it is essential to identify other alternatives that minimize the negative impacts of urinary incontinence. Evidence shows auriculotherapy is a possible intervention for urinary symptoms[8-9]. This therapy is developed by applying spherical and/or punctiform materials to the ear, a structure that has reflex connections with the Central Nervous System, whereby stimulating specific points in this structure reduces disorders in the human body. Auriculotherapy is safe, easy to apply, low cost, and can be used alone or combined with other interventions[10].

In this context, the benefits of using auriculotherapy as an intervention for, for example, anxiety[11-12], regulating blood pressure levels[13], stress[11], chronic spinal pain[14], improving quality of life[14-15] and sleep[16] have been revealed. However, research into the use of this practice for managing urinary incontinence is limited[5], which shows the importance of studies to investigate the benefits of auriculotherapy for this condition. The aim was, therefore, to analyze the effectiveness of auriculotherapy for urinary incontinence in adults and elderly people.

Methods

A systematic review was conducted using the JBI methodology[17] and written using the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) guidelines[18] and the PRISMA extension for acupuncture studies[19]. The review protocol is registered in the International Prospective Register of Systematic Reviews (PROSPERO) with CRD42023445508.

The mnemonic PICO[17] was used to structure the research question: P = adult and elderly people; I = auriculotherapy; C = no treatment, placebo or usual treatment; and O = control and/or reduction of urinary incontinence symptoms. The aim was to answer the following question: what evidence is there of the effectiveness of auriculotherapy in controlling and/or reducing urinary incontinence in adults and the elderly, compared to no treatment, placebo, and/or usual treatment?

Experimental and quasi-experimental studies (Randomized Clinical Trials (RCTs) or Non-Randomized Clinical Trials (NRCTs), before-and-after studies) or observational studies were eligible. No time or language restrictions were considered, and duplicate productions were assessed once. Detailed criteria were also established, based on the PICO strategy[17], which thought studies with the following characteristics: with adult and elderly people (aged ≥18 years) with a diagnosis/symptoms of urinary incontinence (of any type) being treated/monitored at home, outpatient or in hospital; who received pressure auriculotherapy, auriculopuncture or electrical stimulation, regardless of the material; compared to other therapies, no intervention (control), placebo (sham points)

and/or usual treatment; with the primary outcome being effects on symptoms/prevalence of urinary incontinence and, secondary, improvement in other urinary symptoms and quality of life.

The following sources of information were accessed: Medical Literature Analysis and Retrieval System Online (MEDLINE) via PubMed; SCOPUS; EMBASE; Latin American and Caribbean Health Sciences Literature (LILACS) via the Virtual Health Library (VHL); Web of Science; Cochrane Library; and Google Scholar (gray literature). The databases were accessed remotely through the journal portal of the *Coordenação de Aperfeiçoamento de Pessoal de Nível Superior* (CAPES). The reference lists of eligible articles were evaluated.

Specific strategies for each source were tested and evaluated by two researchers with experience in conducting review studies. DeCS (Health Science Descriptors), MeSH (Medical Subject Headings), keywords, and entry terms were mapped and combined with the Boolean operators "AND" and "OR". Firstly, a pilot test was carried out on the MEDLINE database, with subsequent adaptations for the other sources (following the specificities of each database), as shown in Figure 1. It should be noted that terms with all the letters of the mnemonic strategy were not considered, avoiding limiting the search for references. The strategies were inserted into their search sites on October 16, 2023, and updated on July 25, 2024.

Data sources	**Advanced search strategies**
MEDLINE	((((“auriculotherapy”[MeSH Terms]) OR (“acupuncture, ear”[MeSH Terms])) OR (“auriculotherapy”[All Fields])) OR (“acupuncture ear”[All Fields])) OR (“nada protocol”[All Fields]) AND ((((((((“incontinence, urinary”[MeSH Terms]) OR (“urination disorders”[MeSH Terms])) OR (“urinary retention”[MeSH Terms]))) OR (“lower urinary tract symptoms”[MeSH Terms]) OR (“incontinence, urinary”[All Fields]) OR (“urination disorders”[All Fields])) OR (“urinary retention”[All Fields]))) OR (“lower urinary tract symptoms”[All Fields]))))
LILACS	(auriculoterapia OR auriculoacupuntura OR “acupuntura auricular” OR “acupuntura na orelha” OR auriculotherapy OR “acupuncture ear”) AND (“urinary incontinence” OR “lower urinary tract symptoms” OR “retención urinaria”) AND (db:(“LILACS”))
EMBASE	(‘auricular acupuncture’:ti,ab,kw OR ‘auriculotherapy’:ti,ab,kw OR ‘acupunture ear’:ti,ab,kw) AND ‘incontinence urinary’:ti,ab,kw OR ‘lower urinary tract symptom’:ti,ab,kw
SCOPUS	(auriculotherapy) OR (“acupuncture, ear”) OR (“nada protocol”) AND (“incontinence, urinary”) OR (“lower urinary tract symptoms”) OR (“urination disorders”) OR (“urinary retention”)
Web of Science	(auriculotherapy) OR (“acupuncture, ear”) AND (“incontinence, urinary”) OR (“urination disorders”) AND (adult OR adults OR elderly OR aged)
Cochrane	auriculotherapy OR “acupuncture, ear” AND “incontinence, urinary” OR “urination disorders”
Google Scholar	auriculotherapy OR “acupuncture, ear” AND “incontinence, urinary” OR “urination disorders”

Figure 1 – Search strategies for systematic review. Palmeira das Missões, RS, Brazil, 2025

Two reviewers with expertise in the subject and method selected and screened the productions. First, the titles and abstracts were read, followed by a complete reading of those included. After each stage, the databases were compared to identify divergences and proceed with consensus. A third review was planned but not necessary. The references were managed by removing duplicates in the Endnote Web software and using Rayyan for selection.

As for the critical evaluation of the studies, the instruments recommended by the JBI[17] were used. The checklists for RCTs, Quasi-Experimental Studies, and Case-Control Studies were followed, with 13, 9, and 10 questions, respectively, with answer options of yes, no, uncertain, and not applicable. Although not standardized by the JBI, the studies were classified as low (<50% of items answered "yes"), moderate (between 50% and 70%), and high methodological quality (>70% of checklist items).

Data was extracted identifying the article (au-

thors, year, title, journal, language, and country of origin of the study), methodological characteristics (design, sample, research instruments and outcomes assessed); characteristics of study participants (gender, age, diagnosis); interventions carried out (auriculotherapy treatment line, location and points applied, sessions and interval between them, therapy material and intervention ear); main results and conclusions (size of intervention groups, improvement or worsening effects, statistical differences, side effects). The information extracted was compiled using Excel® software and followed the recommendations of the Revised STandards for Reporting Interventions in Clinical Trials of Acupuncture (STRICTA)[20]. Two reviewers also carried out the critical evaluation and data extraction stages.

As for the synthesis of the evidence, a narrative and descriptive synthesis was carried out using relative and absolute frequencies and figures. The evaluation of the recommendation of the evidence was carried out following the Grading of Recommendations Assessment, Development and Evaluation Working Group (GRADE)[21-22], which states that the strength of the evidence can be classified as high, moderate, low and very low, based on the following evaluation domains: risk of bias, inconsistency, indirect evidence, imprecision, and publication bias. As you know, GRADE in narrative synthesis evidence is also recommended[22]. This process was developed for the urinary incontinence outcome using the free GRADEpro software[23].

Results

2,208 references were identified, and 71 duplicates were analyzed once. In the selection stage, 2,137 titles and abstracts were read. After that, 11 remained for eligibility (reading in full), six of which were disregarded (two because they were studies with children; one was a simple abstract; one evaluated auricular sensitivity in people with urinary incontinence; two others tested systemic acupuncture). This left five articles that made up the *corpus of* this review.

The PRISMA guidelines[18-19] summarized this review's screening and selection process (Figure 2).

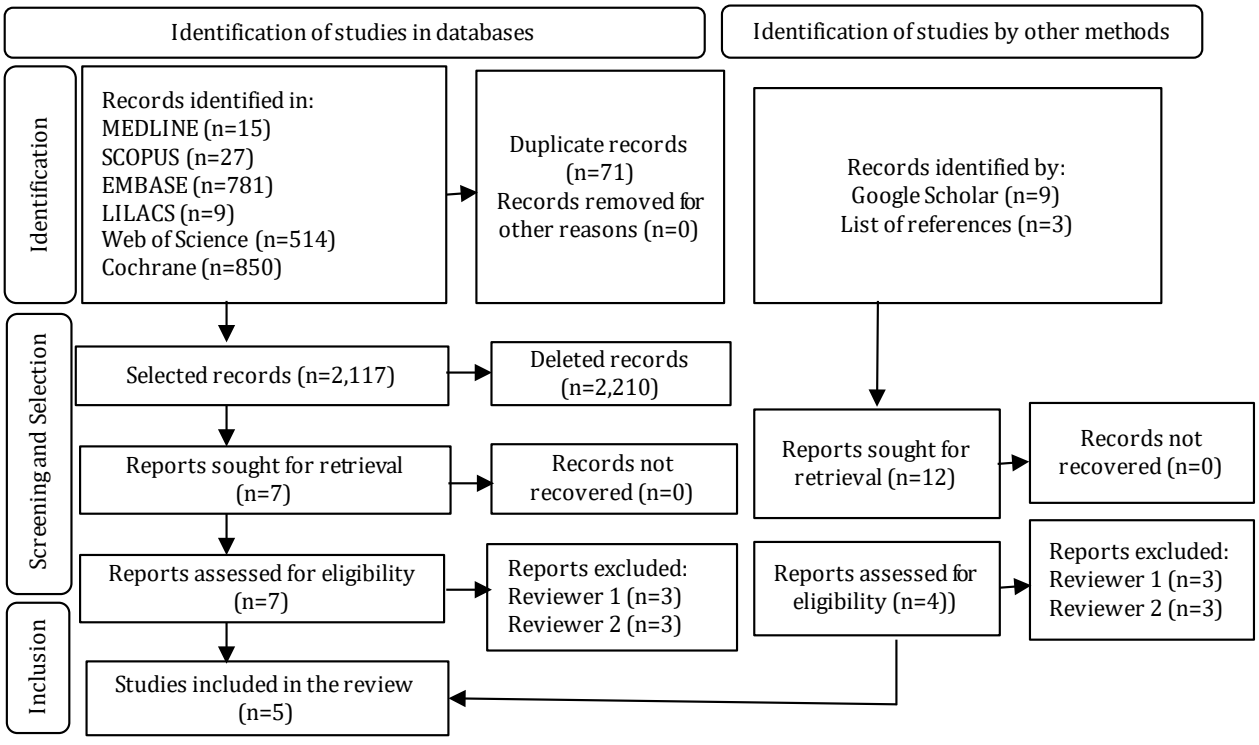

Figure 2 – PRISMA flowchart for selecting studies (adapted)[18-19]. Palmeira das Missões, RS, Brazil, 2025

The studies were published in 2015[24], 2020[25-26] and 2024[27-28], two in English[26-27], one in Chinese[24], one in Portuguese[25] and one in Korean[28]. Of these, two were developed in China[24,26], two in Brazil[25,27], and one in South Korea[28], and had a total of 273 participants (sum of the samples).

With regard to the auriculotherapy intervention, four studies[24,26-28] followed the Traditional Chinese Medicine approach, and one[25] followed the French approach. As for the intervention material, seeds[24-25,28], magnetic *pallets* (stimulated for one minute using a Pointer Pulse™ laser device)[26], and semi-permanent needles[27] were used. In addition, two studies used manual palpation to detect points[24,28], one used a point locator (EL30 Finder NKL)[27], and two did not specify[25-26]. Figure 3 shows the other characteristics of the studies included.

Authors/ year/ periodical	Design; Setting; Participants; Outcomes and instruments	Characteristics of the auriculotherapy sessions and intervention (IG) and placebo/ control (PG/CG) groups	Ear points used in the intervention	Recommended stimulus, application ear, and adverse effects	Effects of auriculotherapy for urinary incontinence (UI) in adults and the elderly
Leilei 2015[24] Clin J Tradit Chin Med	- Case-control; - Encephalopathy Center of the Affiliated Hospital of Anhui Medical University; - 78 patients with stroke and UI; - Outcome: urinary incontinence; - Measured by self-report.	- Six sessions, with material changed twice a week; - Outcome assessment: self-reports (Recovery: I feel the urge to urinate, and I control it; Improvement: I can control my urine on my own, but occasionally I have incontinence; Ineffective: there is no noticeable improvement in symptoms); - Case group (n=40); auriculotherapy (amaranth seeds) combined with moxibustion. - CG (n=38): routine care.	- Bladder; - Urethra; -Pituitary gland; - Subcortical nervous; system - Occipital; - Liver.	- Manual stimulation, three times a day, for 10 seconds; - Alternating ears; - Adverse effects not explicit.	Before the intervention, the case group had eight participants with total incontinence and 32 with partial incontinence. Afterwards, one patient remained with total incontinence, 18 with partial incontinence and a further 21 achieved complete self-control. The control group had seven participants with total incontinence and 31 with partial incontinence. After the intervention, one participant had complete incontinence control. The treatment group improved compared to the control group ($p<0.05$).
Martinez et al 2020[25] Acta Elit Salutis	- Almost experimental (before and after) - Elderly Health Center; - 3 elderly people with UI; - Outcome: quality of life related to urinary incontinence; - Measurement instruments: KHQ and ICIQ-SF.	- Four sessions over four weeks (no interval specified); - Outcome assessment: before the first session and at the end of the four-week follow-up period; - IG (n=2): four sessions of auriculotherapy combined with seven sessions of physiotherapy to strengthen the pelvic floor muscles (PFM); - PG (n=1): patient who underwent seven sessions of PFM physiotherapy.	- Shenmen; - Kidney; - Brainstem; - Bladder; - Spleen; - Liver; - Gallbladder; - Anxiety; - Tension; - Sanjiao.	Not specified	No significant differences were found. The patients reported a reduction in urinary loss and an increase in urine control time. Both patients in IG were classified as having a "severe impact" of urinary incontinence on quality of life, and one evolved to mildy. The control patient went from very severe to severe impact.
Suen et al 2020[26] Aging Male	- Randomized Clinical Trial; - Hong Kong senior centers; - 62 elderly people; - Outcomes: urinary symptoms; quality of life associated with urinary symptoms; - Measurement instruments: Qmax, post-micturition residual urine (in ml) and IPSS.	- Eight sessions, with the magnetic pallets and Junci Medulla (dried perennial plant stem) replaced every three days; - Outcome assessment: at the start of the study, 4 weeks after (completion), and during follow-up meetings (1 and 3 months); - Group I (n=20): placebo laser auriculotherapy (Junci Medulla, perennial plant stem, dry and soft) and placebo magneto auriculotherapy; - Group II (n=20): real laser and magneto auriculotherapy (magnetic pallets); - Group III (n=22): placebo laser auriculotherapy and real magneto auriculotherapy (magnetic pallets).	- Angle of the upper shell (prostate); - Kidney; - Bladder; - Ureter; - External genitalia; - Internal genitalia.	- Electrical stimulation of the intervention points (2.5 mW power, 1 min energy density with 0.54 J/cm2 and 10 Hz pulse); - With alternating ears; - Adverse effects are not explicit.	Significant reductions in urinary symptoms were observed in Group 2 compared to those in Groups 1 ($p<0.01$) and 3 ($p<0.05$). A considerable decrease in post-micturition residual urine (ml) was observed in participants in Groups 2 and 3 compared to those in Group 1—no significant change in quality of life. A combined auriculotherapy approach using laser and magneto auriculotherapy exhibited a more substantial treatment effect in relieving micturition problems, higher peak urinary flow rate, and less post-micturition residual urine than placebo approaches.

(the Figure 3 continue in the next page...)

Authors/ year/ periodical	Design; Setting; Participants; Outcomes and instruments	Characteristics of the auriculotherapy sessions and intervention (IG) and placebo/control (PG/CG) groups	Ear points used in the intervention	Recommended stimulus, application ear, and adverse effects	Effects of auriculotherapy for urinary incontinence (UI) in adults and the elderly
Azevedo et al 2024[27] Eur J Oncol Nurs	- Randomized Clinical Trial; - Outpatient unit of a High Complexity Oncology Care Center; - 66 men, post radical prostatectomy. - Outcomes: urinary incontinence; quality of life; - Instruments: EIUPR, ICIQ-SF and KHQ.	- Eight sessions, one week apart; - Outcome assessment: before the 1st session and one week after the 8th session; - IG (n=33) = Auricular acupuncture (with semi-permanent needles) associated with guidance on pelvic floor muscle training; - CG (n=33) = guidance on pelvic floor muscle training.	- Shenmen; - Kidney; - Vegetative nervous system; - Pelvis; - Internal genitalia; - Bladder; - Liver; - Spleen; - Vagus;- Brain.	- Stimulation is not recommended; - With alternating ears; - Adverse effects are not explicit.	UI decreased without significance between the pre-test and post-test in the IG and CG. Significant differences were found between groups in the post-test for the "severity measures" domain (p=0.013). The IG was 20.8% (p=0.007) less likely to have nocturia and 25.3% (p=0.002) to have urinary urgency. A reduction in the impact of UI on quality of life in the "emotions" (p<0.001) and "sleep and mood" (p=0.008) domains was seen in GI.
Yeonjin; Hyojung 2024[28] J Korean Acad Fundam Nurs	- Randomized Clinical Trial. - Social care institutions for the elderly in Seoul. - 64 elderly women with stress urinary incontinence. - Outcomes: urinary incontinence, quality of life, and sleep quality. - Instruments: ICIQ-SF and I-QOL.	- Six sessions, one week apart (seeds removed on the 6th day by the participants themselves). - Outcome assessment: before the 1st and one week after the 6th session. - IG (n=32): seeds in dots for the outcome. - CG (n=32): placebo points (wrist, elbow, helix 2 and helix 3).	- Kidney. - Bladder. - Central border. - Anterior lobe.	- Daily manual stimulation, five times weekly (text messages sent to stimulate participants). - With alternating ears.	The ICIQ-SF score in the IG decreased by 8.11±5.04 points compared to the CG, which declined by 2.57±4.69 points (t=4.13, p<0.001). In the IG, there was an improvement in the degree of UI (t = 8.34, p<0.001), and in the CG, there was a decrease from 14.27±3.02 to 11.69±4.37 points in the intervention (t=2.80, p=0.010). In the IG, the I-QOL score increased from 71.92±14.99 points to 92.22±12.28 before and after the intervention, improving UI-related quality of life (t=-7.85, p<0.001). There was no significant difference in the CG.

ICIQ-SF: International Consultation on Incontinence Questionnaire; I-QOL: Incontinence Quality of Life; KHQ: King's Health Questionnaire; Qmax: maximum urinary flow; IPSS: International Prostate Symptom Score; EIUPR: Urinary Incontinence Scale Post Radical Prostatectomy

Figure 3 – Characteristics of the studies included in the evidence synthesis. Palmeira das Missões, RS, Brazil, 2025

Figure 4 shows the critical evaluation of the studies: three[26-28] are of high methodological quality, and two[24-25] are of low quality.

The strength of recommendation of the evidence for the urinary incontinence outcome was considered very low (Figure 5).

Case-control study											
Reference	**Q1**	**Q2**	**Q3**	**Q4**	**Q5**	**Q6**	**Q7**	**Q8**	**Q9**	**Q10**	
Leilei[24]	S	NC	S	N	N	N	N	N	NC	NC	

"Q1 - Were the groups comparable, except for the presence of disease in the cases or the absence of disease in the controls? Q2 - Were cases and controls adequately matched? Q3 - Were the same criteria used to identify cases and controls? Q4 - Was exposure measured standardized, valid, and reliable way? Q5 - Was exposure measured in the same way for cases and controls?
Q6 - Have confounding factors been identified? Q7 - Were strategies for dealing with confounding factors stated? Q8 - Were the results assessed in a standardized, valid, and reliable way for cases and controls? Q9 - Was the exposure period of interest long enough to be significant? Q10 - Was appropriate statistical analysis used?"

(the Figure 4 continue in the next page...)

Quasi-experimental study									
Reference	**Q1**	**Q2**	**Q3**	**Q4**	**Q5**	**Q6**	**Q7**	**Q8**	**Q9**
Martinez et al[25]	Y	Y	NC	Y	N	NC	NC	N	N

"Q1 - Is it clear from the study which is the 'cause' and the 'effect' (i.e., there is no confusion about which variable comes first)? Q2 - Were participants included in any similar comparisons? Q3 - Were participants included in any comparisons that received identical treatment/care besides the exposure or intervention of interest? Q4 - Was there a control group? Q5 - Were multiple outcome measurements before and after the intervention/exposure? Q6 - Was follow-up complete, and if not, were the differences between the groups in terms of follow-up adequately described and analyzed? Q7 - Were the participants' results included in any comparison measured similarly? Q8 - Were the results measured reliably? Q9 - Was an appropriate statistical analysis used?"

Randomized clinical trials												
Reference	**Q1**	**Q2**	**Q3**	**Q4**	**Q5**	**Q6**	**Q7**	**Q8**	**Q9**	**Q10**	**Q11**	**Q12**	**Q13**
Suen et al[26]	Y	Y	Y	Y	NC	Y	Y	Y	Y	Y	Y	Y	Y
Azevedo et al[27]	Y	Y	Y	Y	NC	Y	Y	Y	N	Y	Y	Y	Y
Yeonjin; Hyojung[28]	Y	Y	Y	Y	N	NC	Y	Y	NC	Y	Y	Y	Y

"Q1 - Was true randomization used for assignment of participants to treatment groups? Q2 - Was allocation to treatment groups concealed? Q3 - Were treatment groups similar at the baseline? Q4 - Were participants blind to treatment assignment? Q5 - Were those delivering treatment blind to treatment assignment? Q6 - Were the outcome assessors blind to treatment assignment? Q7 - Were treatment groups treated identically other than the intervention of interest? Q8 - Was follow up complete and if not, were differences between groups in terms of their follow up adequately described and analyzed? Q9 - Were participants analyzed in the groups to which they were randomized? Q10 - Were outcomes measured in the same way for treatment groups? Q11 - Were outcomes measured in a reliable way? Q12 - Was an appropriate statistical analysis used? Q13 - Was the study design proper, and were any deviations from the standard clinical trial design (individual randomization, parallel groups) considered when conducting and analyzing the study?"

Q: Question; Y: Yes; N: No; NC: Unclear

Figure 4 – Results of the critical evaluation of the included studies. Palmeira das Missões, RS, Brazil, 2025

Certainty assessment							Certainty
Studies	**Delineation**	**Risk of bias**	**Inconsistency**	**Indirect evidence**	**Imprecision**	**Other considerations**	
Suen et al [26] Azevedo et al [27] Yeonjin; Hyojung[28]	Randomized Clinical Trials	Not serious	Severe*	Severe†	Severe‡	None	⊕◯ ◯◯ Very low
Leilei[24]/ Martinez et al[25]	Observational study/ Quasi-experimental	Very severe§	A lot severe*‖	Very severe†¶	Very severe‡	**	–

*Important clinical and methodological differences; †Different interventions, samples and measurement instruments; ‡Limited sample; §Methodological inconsistencies; ‖Cases and controls not properly matched, criteria and exposure measures not standardized; ¶Exposure not measured equally in cases and controls, confounding factors and self-reported results not considered; **Statistical criteria and confusing graphs

Figure 5 – Evaluation of the strength of recommendation of the evidence, according to GRADE. Palmeira das Missões, RS, Brazil, 2025

Discussion

Through this systematic review of effectiveness, the benefits of auriculotherapy in managing urinary incontinence in adults and the elderly were identified, revealing different ways of applying and combining the technique. However, the limited number of investigations, the heterogeneity of the articles included, and the very low certainty of evidence reveals the need for new studies, and these findings need to be interpreted carefully and consider each study's particularities.

Recent research on the subject has been carried out in China, Brazil, and South Korea. This may be justified since one of the lines of auriculotherapy is based on the precepts of Traditional Chinese Medicine. However, despite being an ancient practitioner, in the Brazilian context, it was included in the Unified Health System following the publication of the National Policy for Integrative and Complementary Practices in 2006[29].

Studies have investigated the effects of auriculotherapy for urinary incontinence in the elderly[25-26,28], in stroke patients[24], and in men who have undergone radical prostatectomy[27]. These data corroborate the literature since there is no clarity regarding the population with the highest prevalence of the condition; in other words, these symptoms affect both men[5-7] and women[7,30-31]. However, urinary incontinence is related to increasing age and comorbidities among individuals, mainly affecting elderly people[7,31].

A disparity was identified in terms of the material, sessions, and technique used to locate the auricular points tested. In terms of the material used for auricular stimulation, systemic acupuncture traditionally uses needles[10]. Auriculotherapy uses semi-permanent needles, but due to their painful sensitivity and permanence in the auricle, they can be replaced by other minimally invasive materials, such as seeds or metal spheres[5, 10].

In addition, the difference between the materials used in auriculotherapy is that spherical materials depend on daily stimulation carried out correctly by the individual[10], unlike semi-permanent needles, which stimulate continuously and do not require manual stimulation. Thus, when seeds are used, the effects may be compromised if the individual doesn't participate in the stimulation[5,10].

Another strategy used in the studies was the use of lasers, which act through a photochemical effect, i.e., the transformation of light energy into cellular chemical energy. Painless and less invasive, when combined with auriculotherapy, laser therapy had beneficial effects on the urinary tract, relieving urination problems, increasing urinary flow, and reducing post-micturition residual urine[26].

Regarding point locators, three studies used this approach. The manual locator identifies the points by assessing the individual's sensitivity and the presence of alterations that have not previously been identified. In this way, it is possible to identify regions or points of the ear where the individual's sensitivity is most excellent. On the other hand, electrical locators detect reactive points through an electrical response[10], which is the most recommended technique for research, as it produces a lower risk of bias in locating the points[5,11].

Interventions with auriculotherapy have been compared to pelvic floor muscle training[25,27], routine care[24], and placebo[26,28], and one study tested the technique alone[28]. Two studies presented data on improvement in urinary incontinence in patients after using auriculotherapy but considering descriptive criteria[25] and self-reporting[24]. Others have identified significant reductions in this condition with the use of laser and magneto-auriculotherapy[26] and seeds (in isolation)[28]. There was a reduction in urinary incontinence in both the intervention and control groups[27]. Thus, these results suggest that auriculotherapy helps reduce incontinence in adults and the elderly. However, it is necessary to consider the particularities of the conditions that lead patients to have this problem, such as stroke and radical prostatectomy, as the pathophysiology and structures affected are different, so

the treatment/intervention should be directed at these particularities.

The auricular points of the bladder, liver, kidney, and internal genitalia were the most commonly used, applied between six and eight sessions. According to Traditional Chinese Medicine, the kidneys govern the metabolism of water and body fluids. The bladder is responsible for transporting energy (Qi) and excreting fluids. A lack of energy (yang or Qi) can cause symptoms such as incontinence, enuresis, and extra urination pressure. It is, therefore, necessary to regulate the flow of energy to normalize the force of excretion of diuresis by the bladder. The liver point is essential in this process, as it is responsible for the free energy flow in this region[32].

Benefits of auriculotherapy have also been identified for nocturia and voiding urgency[27] and post-void residual urine[26] in people with urinary incontinence. Regarding quality of life and sleep, two studies[27-28] observed a significant improvement while a third study[26] did not find favorable results. Urinary incontinence can worsen the physical and cognitive functionality of individuals, negatively influencing the quality of life and sleep, as well as aggravating conditions such as frailty, falls, and social isolation[31], especially in the elderly population. In this review, the studies included show that relieving incontinence symptoms promotes health and well-being in individuals.

As for the critical evaluation of the included studies, the RCTs[26-28] were classified as high quality. In addition, it should be noted that the interventionists in the studies were not blinded to administering the intervention. Still, this aspect is inherent in experiments where the application depends on the expertise/training of the person applying the auriculotherapy[10]. In two studies[27-28], it is unclear whether an intention-to-treat analysis was conducted, in which even participants who did not complete the entire interventional follow-up should be evaluated, as this is considered a quality parameter for analysis in experimental studies[17].

When considering the methodological and clinical differences of the studies included in this review, the certainty of the evidence recommending the use of auriculotherapy for urinary incontinence in adults and the elderly was classified as very low, which means that the results of the studies evaluated are limited. The uncertainty of the data found is high[21-22]. Therefore, future research on the subject investigated is necessary and will have an impact on the findings regarding the effects of the intervention and the outcomes investigated.

Study limitations

When considering the methodological and clinical differences of the studies included in this review, the certainty of the evidence recommending the use of auriculotherapy for urinary incontinence in adults and the elderly was classified as very low, which means that the results of the studies evaluated are limited. The uncertainty of the data found is high[21-22]. Therefore, future research on the subject investigated is necessary and will impact on the findings regarding the effects of the intervention and the outcomes investigated.

Contributions to practice

The evidence from this systematic review can serve as a basis for alternative interventions to be employed by health services and professionals, as studies show that auriculotherapy helps relieve urinary incontinence. Furthermore, the gaps found also contribute to advancing knowledge in the health area, as they suggest that new studies be developed in line with methodological quality criteria, aiming for rigor and transparency.

Conclusion

It was possible to identify the benefits of using auriculotherapy to reduce urinary incontinence in adults and the elderly. On the other hand, it was found that the studies are limited, there is variability in the

interventions tested, and the certainty of evidence is very low, which suggests that new experimental studies are needed to verify the effectiveness of the technique. So, the evidence from this review should be taken with caution.

Acknowledgments

The *Coordenação de Aperfeiçoamento de Pessoal de Nível Superior*, Funding Code 001 and the *Conselho Nacional de Desenvolvimento Científico e Tecnológico* - Brazil.

Authors' contribution

Conception and design or data analysis and interpretation: Munhoz OL, Ilha S, Morais BX. Writing of the manuscript or relevant critical review of the intellectual content, Final approval of the version to be published, and Agreement to be responsible for all aspects of the manuscript relating to accuracy or completeness being investigated and resolved appropriately: Munhoz OL, Ilha S, Rangel RF, Scholze AR, Morais BX.

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