

## The benefits of hypnosis as an adjunct treatment for bronchial asthma—a clinical trial

Evaluación de los efectos de la hypnosis como tratamiento complementario a pacientes con asma bronquial

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### ABSTRACT

**Introduction:** Bronchial asthma is a prevalent chronic respiratory disease associated with significant morbidity and healthcare costs. Complementary and alternative therapies, including hypnosis, have gained interest as potential adjunct treatments for asthma. However, rigorous scientific investigations exploring the specific effects of hypnosis on asthma management are very limited.

**Objective:** The study's objective was to evaluate the effects of hypnosis on asthma-related symptoms and psychological well-being in patients with moderate persistent asthma.

**Methods:** The study was enrolled 25 participants aged 18 to 65 with moderate persistent asthma. Patients received 12 hypnosis sessions in addition to their regular pharmacological treatment. The intervention included relaxation techniques,



diaphragmatic breathing exercises, and self-esteem reinforcement. Outcome measures were assessed using the Medical Cornell Index for psychological symptoms and clinical evaluations for respiratory status. Statistical analyses included the McNemar test and chi-square test.

**Results:** Before the intervention, patients reported various psychological symptoms, with nervousness and anxiety being the most prevalent (44 %). After 12 weeks of hypnosis, a notable improvement in psychological symptoms and somatic manifestations of asthma was observed. Notably, 60 % of patients experienced complete resolution of acute weekly asthma attacks, and respiratory distress symptoms significantly decreased ( $p < 0.0001$ ). Additionally, vesicular breath sounds and pulmonary hyperresonance improved ( $p = 0.1435$ ,  $p = 0.0035$ ).

**Conclusion:** This clinical trial provides valuable insights into the potential benefits of hypnosis as an adjunctive treatment for bronchial asthma. The results suggest that hypnosis may improve both psychological and somatic symptoms associated with asthma, leading to better disease control and reduced asthma attacks.

**Keywords:** hypnosis; asthma; complementary therapies.

## RESUMEN

**Intruducción:** El asma bronquial es una enfermedad respiratoria crónica prevalente asociada a una morbilidad y un costo sanitario significativo. Las terapias complementarias y alternativas, incluyendo la hipnosis, han ganado interés como importantes tratamientos para los pacientes que padecen de dicha enfermedad. Sin embargo, las investigaciones científicas rigurosas que exploran estos temas son muy limitadas.

**Objetivo:** Evaluar los efectos de la hipnosis sobre los síntomas relacionados con el asma y el bienestar psicológico en pacientes con asma moderada persistente.

**Métodos:** El estudio contó con 25 participantes de 18 a 65 años de edad, que padecían de asma moderada persistente. Recibieron 12 sesiones de hipnosis, además de su tratamiento farmacológico habitual. El procedimiento incluyó técnicas de relajación, ejercicios de respiración diafragmática y refuerzo de la autoestima. Las medidas de resultados se evaluaron utilizando el índice médico de Cornell para los síntomas psicológicos y



evaluaciones clínicas para el estado respiratorio. Los análisis estadísticos incluyeron la prueba de McNemar y la de chi cuadrado.

**Resultados:** Antes de los procedimientos, los pacientes refirieron diversos síntomas psicológicos, de los cuales el nerviosismo y la ansiedad fueron los más frecuentes (44 %). Tras 12 semanas de hipnosis se observó una notable mejoría de los síntomas psicológicos y las manifestaciones somáticas del asma. En particular, 60 % de los pacientes experimentó una resolución completa de los ataques agudos de asma semanales, y los síntomas de dificultad respiratoria disminuyeron significativamente ( $p < 0,0001$ ). Además, mejoraron los ruidos respiratorios vesiculares y la hiperresonancia pulmonar ( $p = 0,1435$ ,  $p = 0,0035$ ).

**Conclusiones:** Este artículo proporciona información valiosa sobre los beneficios potenciales de la hipnosis como tratamiento complementario para los pacientes que padece de asma bronquial. Los resultados indican que la hipnosis puede mejorar tanto los síntomas psicológicos como los somáticos, lo que lleva a un mejor control de la enfermedad y a la reducción de los ataques de asma.

**Palabras clave:** hypnosis; asma; terapias complementarias.

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## Introduction

Bronchial asthma is a chronic respiratory disease characterized by reversible airway obstruction, airway inflammation, and heightened sensitivity to various triggers. It affects a significant portion of the global population. According to the World Health Organization (WHO), more than 339 million individuals worldwide are estimated to have asthma, making it one of the most prevalent non-communicable diseases.<sup>(1)</sup> The global burden of disease study reported an incidence of 477.9 per 100,000 population over 204 countries in 2019.<sup>(2)</sup> In addition to its high prevalence, asthma places a high burden on both



individuals and healthcare systems. Asthma-related hospitalizations, emergency department visits, and outpatient care contribute to soaring healthcare costs. The economic impact of asthma is wide-ranging, including direct medical expenses like hospitalization, medication, and doctor visits, as well as indirect costs resulting from lost productivity, missed workdays, and reduced quality of life. Particularly, uncontrolled asthma was estimated to account for \$963.5 billion [95 % confidence interval (CI), \$664.1 billion–1 262.9 billion] healthcare costs and 15.46 million (95 % CI, 12.77 million–18.14 million) lost quality-adjusted life years from 2019 through 2023 in American adults.<sup>(3)</sup>

There is a growing trend towards complementary and alternative medicine (CAM) used by around 45.2 % of the US population with asthma.<sup>(4)</sup> This has been partly attributed to cost barrier to healthcare (Odds Ratio: 1.43,  $p < 0.001$ ) and concerns over side effects of conventional medication.<sup>(5,6)</sup> Such therapies include for instance breathing exercises, herbal medicine and vitamins.<sup>(7,8)</sup> However, a study on 486 patients found an association between the lack of asthma control and CAM use.<sup>(9)</sup> This highlights the need for the innovation of complementary therapeutic strategies.

Already in the 1960s, the effectiveness of hypnosis on asthma was explored with significant improvement of symptoms in the treatment group.<sup>(10)</sup> Hypnosis may prove effective in treating bronchial asthma by targeting underlying psychological and physiological factors that contribute to asthma severity and symptoms. Studies indicate that psychological stress, anxiety, and maladaptive coping mechanisms can worsen asthma symptoms and lead to poor disease control.<sup>(11,12)</sup> By addressing these psychosocial factors, hypnosis offers a holistic approach to asthma management, complementing standard pharmacological interventions.

To fully understand the potential benefits and mechanisms of hypnosis in asthma treatment, rigorous scientific investigation is necessary. This study aims to address this knowledge gap by conducting a clinical trial to evaluate the impact of hypnosis as an adjunctive treatment for bronchial asthma. Through an exploration of the effects of hypnosis on asthma-related measures, this research aims to contribute to the growing body of knowledge on complementary therapies for bronchial asthma. The findings of this study may have implications for clinical practice by providing evidence-based recommendations for incorporating hypnosis into comprehensive asthma management.



## Methods

A therapeutic clinical trial was conducted in the health area of Chivirico, at the Giraldo Aponte Fonseca Teaching Hospital in the Guamá, municipality of Santiago de Cuba, during the period from December 2006 to December 2007. Patients aged between 18 and 65 years old diagnosed with moderate persistent bronchial asthma according to the National Asthma Education and Prevention Program (NAEPP) classification of asthma severity were approached.<sup>(13)</sup> A further criterion for inclusion was the evaluation of a specialized internal medicine consultation and a regular treatment for the disease. Patients with intellectual disability, dementia, down syndrome, psychiatric comorbidities or other chronic diseases were excluded. In total, 77 patients were approached, out of which n= 25 were included in the study. The participants were informed about the research objectives, methods to be used, potential drawbacks, benefits, and possible outcomes. After being fully informed, the patients voluntarily decided to participate in the research and provided written consent. This study was approved by the ethics committee of the Universidad de Ciencias Médicas de Santiago de Cuba (14-6-2009, #23).

The group continued with their usual pharmacological treatment, and therapeutic hypnosis was introduced as an adjunct after conducting suggestibility tests. The medications used by patients included inhaled bronchodilators such as Salbutamol, inhaled steroid anti-inflammatories like Intal, and oral steroids such as prednisone in doses of 5 and 20mg. The hypnosis treatment consisted of 12 sessions, each lasting 45 minutes to 1 hour. The consultations were scheduled regularly at similar times and in the same location to maintain treatment stability.

Session 1 involved a medical interview to establish rapport with the patient and determine their predominant psychological symptoms. The patient was provided with a detailed explanation of the procedure to instill confidence. Additionally, some disease production mechanisms that could be useful in therapy were explained, and susceptibility tests (hand clasping, forward fall, backward fall) were conducted according to each specific case and patient characteristics.



In sessions 2, 3, and 4, relaxation techniques were applied to each patient, and repetitive and progressive diaphragmatic breathing exercises were performed. Direct suggestions were employed to induce the patient into a hypnotic trance or pseudo-hypnotic states using imagery and concentration. Elements of self-esteem were reinforced to increase patient confidence, and the signal sign was introduced (session 2) and reinforced for later use in sessions 3 and 4. A signal sign is a signal given beforehand by the therapist that allows the patient to re-enter the hypnotic trance more easily. In subsequent sessions, it behaves as a post-hypnotic suggestion. It can be conveyed through specific words, finger snaps, or any means the therapist can imagine.

In sessions 5, 6, and 7, the signal sign was activated to quickly induce the patient into a trance. Visualization exercises of the respiratory system, bronchial state, and immune system were conducted through autoscopic techniques. Metaphorical constructions such as "your lungs light up when you breathe calmly" were used. The immune system was also addressed to modulate its response and defense against allergens, influencing the bronchial hyperreactivity present in these patients. Post-hypnotic suggestions were added to reinforce the therapeutic content.

In sessions 8, 9, and 10, the signal sign was activated with the same objective as in previous sessions. Specific creative visualizations were continued under hypnotic trance, and mechanisms to regulate anxiety and fears were provided. Assertive behavior patterns were incorporated to improve the patient's attitude towards the disease. Post-hypnotic suggestions were maintained.

In sessions 11 and 12, patients were trained in self-hypnosis, and post-hypnotic suggestions used in previous sessions were reinforced.

The following post-hypnotic suggestions were used:

- You will always remember that you are an intelligent, determined, courageous, and resilient individual, with unwavering willpower, capable of overcoming any obstacle. These suggestions aim to enhance your self-esteem and inner strengths.
- Keep in mind that the brain is the command center, and when it is healthy, calm, and balanced, it can efficiently regulate all other bodily functions.



- Remind yourself that your willpower is your greatest asset, empowering you to achieve healing and well-being.
- You will effortlessly regulate the airflow in your lungs, enabling proper and peaceful breathing.
- You possess the ability to widen your airways, facilitating smooth air passage and preventing any blockages. Your brain is a remarkable self-programming computer that adapts and functions effortlessly.
- Your brain guides the respiratory system to work harmoniously and effectively.
- Practice taking five deep breaths while focusing your energy, and drink a glass of water with them to help clear any secretions that might hinder proper airflow in your system.
- Your brain will aptly control the secretion of substances responsible for mucus production and cellular reactions causing bronchial inflammation. As a result, you will experience a delay or even elimination of asthma symptoms.

A comprehensive evaluation of the patients including medical interview and relevant physical examination were conducted at the beginning of the treatment and upon its completion (12 weeks later) in collaboration with the internal medicine specialist. The assessment considered symptoms experienced by the patients, such as the presence of rhinitis, skin rash, cough, tearing, ocular itching, transient shortness of breath and the number of asthma attacks during the study period. In addition, the psychometric test Medical Cornell Index was administered to assess personality traits and psychosomatic symptoms. Clinical progress was assessed based on the presence of the following: coarse and wheezing breath sounds, decreased breath sounds, intercostal retraction, suprasternal retraction, expiratory dyspnea, and hyper-resonance in the lungs.

Data were analyzed using SPSS statistics version 28.0 (IBM, SPSS Inc., Armonk, NY). Descriptive statistics were calculated for all variables. Continuous variables were expressed as the mean and standard deviation. After determining by Levene's test that the data was not normally distributed, the non-parametric McNemar test was used for the pre- and post-treatment comparison. Chi-square test was used for comparison of categorical variables. Significance was set at  $p < .05$ .



## Results

The study group consisted of 25 patients (13 male/ 12 female, mean age: 33.0 ±5.6). Before the treatment, a notable proportion of patients experienced various psychological symptoms assessed with the Medical Cornell Index. The most prevalent symptoms, ranked in order of occurrence, were nervousness and anxiety (44 %), inadequacy and fear (44 %), hypochondriasis and asthenia (36 %), inferiority and suspicion (28 %), depression (20 %), panic reaction (16 %), and gastrointestinal symptoms (12 %). After the 12-week intervention, improvements of these symptoms were observed (Table 1). In addition, an alleviation of somatic symptoms became evident (Table 2). Notably, n= 15 patients (60 %) experienced an acute weekly asthma attack even with conventional treatment. By providing adjunct hypnosis session, the number decreased to zero. In addition, before the intervention, expiratory dyspnea, intercostal retractions, and suprasternal retractions were observed in 16 % of the participants each. However, following the intervention, these symptoms completely resolved, and none of the participants showed any of these clinical signs ( $p<0.0001$ ), indicating a significant improvement in their respiratory status. Prior to the study, 52 % of the participants had decreased vesicular breath sounds, suggesting compromised lung function. After the intervention, this percentage decreased to 20 % ( $p=0.1435$ ). Pulmonary hyperresonance was observed in 24 % of the participants before the study, and after the intervention, this percentage decreased to 16 % ( $p=0.0035$ ), suggesting an improvement in the condition of participants' lungs. Additionally, at the beginning of the study, 28 % of the participants presented with rhonchi. However, after the intervention, only 4 % of the participants still exhibited this symptom ( $p<0.0001$ ), indicating a significant reduction in respiratory distress. Furthermore, wheezing was present in 16 % of the participants before the study, but there were no instances of wheezing observed after the intervention ( $p<0.0001$ ), indicating an improvement in airway obstruction for these individuals (Table 3).



**Table 1.** Psychological response before and after treatment assessed with the Medical Cornell

Psychological symptoms	Assessment				p-value (McNemar test)
	Before		After		
	No.	%	No.	%	
Inferiority and suspicion	7	28	3	12	0.002
Hypochondriasis and asthenia	9	36	3	12	0.004
Inadequacy and fear	11	44	5	20	0.064
Depression	5	20	1	4	0.0001
Panic reaction	4	16	0	0	0.0001
Gastrointestinal symptoms	3	12	2	8	0.0001
Nervousness and anxiety	11	44	4	16	0.031

**Table 2.** Symptoms experienced during an asthma attack response before and after treatment

Somatic symptoms	Assessment				p-value (McNemar test)
	Before		After		
	No.	%	No.	%	
Cough	11	44	5	20	0.064
Ocular itching	8	32	3	12	0.004
Skin rash	3	12	0	0	<0.001
Rhinitis	19	76	7	28	1.000
Tearing	11	44	0	0	0.001
Weekly acute asthma attack	15	60	0	0	0.012
Transient shortness of breath	23	92	6	24	0.289

**Table 3.** Clinical symptoms before and after the intervention period

Clinical signs	Assessment				p-value (McNemar test)
	Before		After		
	No.	%	No.	%	
Expiratory Dyspnea	4	16	0	0	<0.001
Intercostal Retractions	4	16	0	0	<0.001
Suprasternal Retractions	4	16	1	4	<0.001
Decreased Vesicular Breath Sounds	13	52	5	20	0.1435
Pulmonary Hyperresonance	6	24	4	16	0.004
Rhonchi	7	28	1	4	<0.001
Wheezing	4	16	0	0	<0.001

## Discussion

The present study aimed to evaluate the potential benefits of hypnosis as an adjunctive treatment for bronchial asthma. The results of this clinical trial indicate that hypnosis showed promising effects in improving both psychological and somatic symptoms associated with asthma. Before the intervention, a substantial number of patients experienced psychological symptoms, such as nervousness, anxiety, inadequacy, fear, hypochondriasis, asthenia, depression, panic reactions, and gastrointestinal symptoms.



However, after the 12-week intervention, a notable improvement in these symptoms was observed. In addition to the positive psychological outcomes, hypnosis also demonstrated significant alleviation of somatic symptoms. Patients who had previously experienced expiratory dyspnea, intercostal retractions, and suprasternal retractions all showed complete resolution of these clinical signs following the intervention. Moreover, pulmonary hyperresonance and decreased vesicular breath sounds, which are indicative of compromised lung function, significantly improved after the hypnosis sessions. The adjunctive hypnosis sessions also had a substantial impact on asthma attacks. Prior to the study, 60% of the participants experienced acute weekly asthma attacks despite conventional treatment. However, after incorporating hypnosis into their treatment plan, the number of asthma attacks decreased to zero. This suggests that hypnosis may play a role in reducing the frequency and severity of asthma exacerbations.

In the late 1950s and 1960s, anecdotal clinical reports regarding the potential effectiveness of hypnosis in relieving asthma symptoms started to emerge.<sup>(14,15,16)</sup> In 2021, Susanto YS<sup>(17)</sup> carried out a research where demonstrated that there is some evidence suggesting a potential effect of hypnosis in reducing respiratory symptoms. Before, in 2020, Mohebbi Z<sup>(18)</sup> published a randomized controlled trial on this subject; one month after completing the research intervention, the FEV1 in the intervention group increased than the control group and the severity of asthma in the intervention group decreased than the control group. In addition, Martin RJ<sup>(19)</sup> showed that the effect of functional relaxation and guided imagery techniques on lung function was assessed in a randomized trial that included 64 patients with mild-to-moderate allergic asthma. After four weeks, those in the functional relaxation group experienced an increase in FEV1 of  $7.6 \pm 13.2$  percent compared with a decrease in FEV1 of  $1.8 \pm 11.1$  percent in the guided imagery group. However, therapeutic mechanisms involved in hypnosis therapy or imagery techniques in asthma remain largely unknown, as there is currently a lack of relevant information concerning their psychophysiological effects. The effectiveness of hypnosis in reducing asthma symptoms appears to involve an intricate interplay between somatic and psychological factors, where each can influence the other in a bidirectional manner.<sup>(20)</sup> This bidirectional interplay suggests that hypnosis creates a synergistic effect,



where somatic and psychological elements reinforce and complement each other, leading to potential improvements in asthma symptom management.

The present study has several limitations that should be taken into consideration. Firstly, the sample size was relatively small, comprising only 25 participants, which may limit the generalizability of the findings to a broader population of individuals with bronchial asthma. Additionally, the absence of a control group in the study design makes it challenging to isolate the specific effects of hypnosis as an adjunct treatment for asthma. Without a control group, it is difficult to determine whether the observed improvements can be solely attributed to hypnosis or if other factors might have contributed to the outcomes. Moreover, the follow-up period was limited to 12 weeks after the intervention, which may not capture the longer-term effects of hypnosis on asthma management. Furthermore, the study was conducted in a single healthcare center, which might limit the generalizability of the findings to other healthcare settings or patient populations. The assessment of psychological symptoms and asthma-related measures relied on self-report and clinical evaluations, which may be subject to bias and variability. Additionally, the study was not fully blinded, which might introduce bias in the assessment of outcomes, particularly when subjective measures were used. Furthermore, the study investigated hypnosis as an adjunct to conventional treatment, and the exact mechanisms through which hypnosis influences asthma outcomes remain incompletely understood. The presented findings significantly contribute to the existing body of knowledge on the potential benefits of hypnosis as an adjunct treatment for bronchial asthma. By demonstrating its effectiveness in improving asthma-related symptoms and respiratory status, the study adds valuable evidence to the limited existing research in this area. These findings highlight the potential of hypnosis as a complementary therapeutic strategy that addresses both psychological and physiological aspects of asthma management. The findings of this study have several implications for clinical practice and asthma management. By demonstrating the efficacy of hypnosis as an adjunctive treatment, healthcare professionals can consider integrating hypnosis into comprehensive asthma treatment plans, which may lead to better symptom control.



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### **Conflict of interest**

The authors have no conflicts of interest to declare.

### **Author contributions**

Yaimarelis Picó Carela: Investigation, resources, writing–review and editing. (15 %)

Alberto Erconvaldo Cobián Mena: Conceptualization, methodology, formal analysis, investigation, resources, data curation, writing–review and editing. (20 %)

Thomas Loew: Validation, investigation, resources, writing–review and editing. (15 %)

Nike Walter: Validation, formal analysis, investigation, resources, writing-original draft preparation, writing–review and editing. (20 %)

Adolfo Lambert Delgado: Conceptualization, methodology, formal analysis, investigation, resources, data curation, writing-original draft preparation, writing–review and editing. (30 %)





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