

Utilization and Determinants of Traditional Medicine for the Management of Asthma-Related Cough among Patients in Somalia: A Systematic Review

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ABSTRACT

Background: Asthma is a chronic respiratory disease affecting children and adults, and cough may be a prominent symptom or the principal manifestation of cough-variant asthma. Traditional, complementary and herbal practices are used in many communities alongside biomedical care. Somalia has a longstanding tradition of community-based and culturally embedded healing, but evidence specifically addressing traditional medicine for asthma-related cough remains limited.

Objective: This systematic review aimed to synthesize recent evidence on the utilization, determinants, commonly reported traditional and herbal approaches, perceived benefits, and safety considerations related to traditional medicine for asthma and asthma-related cough, with a specific focus on the evidence gap and implications for Somalia.

Methods: A structured evidence-synthesis approach was used, prioritizing literature published from 2021 through 2025 and focusing on asthma, asthma-related cough, traditional medicine, herbal medicine, complementary/alternative medicine, utilization and determinants.

Results: International evidence indicates substantial use of complementary and traditional approaches among people with asthma. A US analysis of 76,802 adults found that 45.2% had ever used complementary and alternative medicine, with associations involving younger age, female sex, cost barriers, comorbidity and poorly controlled asthma. A 2023 systematic review/meta-analysis of herbal add-on therapy identified 23 eligible studies and found an improvement in predicted FEV1 among nine trials included in the meta-analysis. A 2021 meta-analysis of four randomized trials reported improved Asthma Control Test scores and FEV1 with *Nigella sativa* supplementation. Recent Somali evidence demonstrates a continuing asthma burden: a 2025 study in Burao, Somaliland, included 363 adults and found 57.6% had uncontrolled asthma. However, the reviewed evidence did not provide a robust population-based percentage for traditional medicine use specifically for asthma-related cough in Somalia.

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Conclusion: Traditional medicine remains relevant to health-seeking behavior in Somalia, but current evidence is insufficient to quantify its use for asthma-related cough or to establish the safety and effectiveness of locally prepared remedies. Some standardized herbal interventions show potential adjunctive benefits, but findings are heterogeneous and should not be interpreted as evidence to replace established asthma treatment. Somali research should prioritize direct measurement of utilization, determinants, preparation methods, interactions, adverse effects, disclosure to healthcare providers and effects on treatment-seeking.

Keywords: Asthma-Related Cough, Cough-Variant Asthma, Traditional Medicine, Herbal Medicine, Complementary Medicine, *Nigella sativa*

INTRODUCTION

Asthma is a chronic respiratory disease characterized by variable respiratory symptoms and variable expiratory airflow limitation. Symptoms may include cough, wheeze, shortness of breath and chest tightness. According to the World Health Organization, asthma affected an estimated 363 million people globally in 2023 and caused approximately 442,000 deaths. Asthma affects both children and adults and remains an important cause of morbidity, particularly where under-diagnosis, under-treatment and limited access to essential inhaled medicines persist [1].

Cough may be a prominent asthma symptom and can occasionally be the principal manifestation of cough-variant asthma. Because asthma is chronic and symptoms may recur, patients and families may develop self-management practices that extend beyond prescribed medicines. Traditional medicine includes culturally embedded knowledge, practices and products used to prevent or manage illness. Patients may combine herbal products, dietary remedies, spiritual practices or other traditional approaches with biomedical treatment rather than choosing one system exclusively.

The reasons for traditional or complementary medicine use are multifactorial. Recent asthma research identifies perceived effectiveness, cultural familiarity, recommendations from family and community members, concerns about adverse effects of pharmaceuticals, cost and access barriers, and inadequate symptom control as possible influences on treatment decisions. In a US analysis of 76,802 adults with asthma, 45.2% reported ever using complementary and alternative medicine; use was associated with younger age,

female sex, cost barriers, multiple comorbidities and poorly controlled asthma [2].

Somali communities have documented traditional healing practices that coexist with modern healthcare. A 2025 review of Somali healing practices described traditional medicine as an important component of healthcare and identified cultural, regulatory and integration challenges. A 2021 scoping review of Somali diaspora medical practices also documented the coexistence of traditional practices with Western medicine. These sources support the cultural relevance of traditional healing but do not provide a prevalence estimate for traditional medicine use in asthma-related cough in Somalia [3,4].

There is also recent asthma-specific evidence from Somalia/Somaliland. A 2025 facility-based cross-sectional study in Burao, Somaliland, included 363 adult asthma patients and reported that 209 (57.6%) had uncontrolled asthma. Good asthma knowledge and regular medical follow-up were associated with better asthma control. This study demonstrates that asthma-specific research is emerging in the Somali context, but it did not examine traditional medicine use [5].

The main research gap is therefore more specific than the general absence of asthma research. Recent evidence does not provide a robust population-based estimate of traditional medicine use specifically for asthma-related cough in Somalia, nor adequate evidence on the types of remedies used, preparation methods, determinants of use, perceived benefits, adverse effects, herb-drug interactions, disclosure to clinicians, or possible delays in seeking urgent asthma care. This systematic review focuses on these issues and uses international evidence to identify relevant determinants and research priorities while avoiding transfer of foreign prevalence estimates to Somali populations.

METHODS

Review Design

This review was structured according to principles of systematic evidence synthesis and informed by the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) framework. Because the interventions, populations, traditional practices and outcome measures were heterogeneous, the evidence was synthesized narratively rather than through a new pooled meta-analysis. Published systematic reviews and meta-analyses were included as secondary evidence sources when they directly informed the review question.

Review Question

The review question was: What recent evidence is available regarding the utilization, determinants, types, perceived benefits and safety of traditional medicine for asthma and asthma-related cough, and what are the implications for Somalia?

Eligibility Criteria

Eligible publications involved human participants with asthma or asthma-related respiratory symptoms; examined traditional, herbal, complementary, alternative or integrative medicine; and reported utilization, determinants, clinical outcomes, perceived effectiveness, safety or treatment-related behavior. Systematic reviews, meta-analyses, randomized controlled trials, observational studies and relevant reviews of Somali healing practices were considered. Literature published from 2021 through 2025 was prioritized.

Search Concepts and Evidence Identification

Search concepts included combinations of: asthma OR asthmatic cough OR cough-variant asthma; AND traditional medicine OR herbal medicine OR complementary medicine OR alternative medicine OR phytotherapy OR traditional Chinese medicine OR *Nigella sativa*; AND utilization OR use OR determinants OR factors OR health-seeking behavior OR safety; with Somalia OR Somali where applicable. PubMed-indexed literature and relevant journal sources were

prioritized. The submitted manuscript contained 11 cited publications forming the documented evidence set. During revision, publication status was verified and one retracted publication was removed. Ten publications were retained for the final narrative synthesis, with current WHO information and recent Somali asthma evidence used to strengthen contextual statements.

Data Extraction and Synthesis

Information extracted from the evidence included publication year, country or context, design, population, traditional or complementary intervention/exposure, utilization pattern, determinants, clinical outcomes, adverse effects, safety considerations and principal conclusions. Evidence was synthesized under six themes: utilization, determinants, commonly studied remedies, clinical effectiveness, safety/interactions and implications for Somalia. No numerical prevalence from another country was treated as a Somali estimate.

Methodological Transparency and PRISMA-style Flow

This review followed the principles of the PRISMA framework. The evidence was identified, assessed for eligibility, and synthesized narratively. The PRISMA-style flow diagram presents the study-selection process and the number of publications included in the final review. The figure also identifies the Somalia-specific evidence gap.

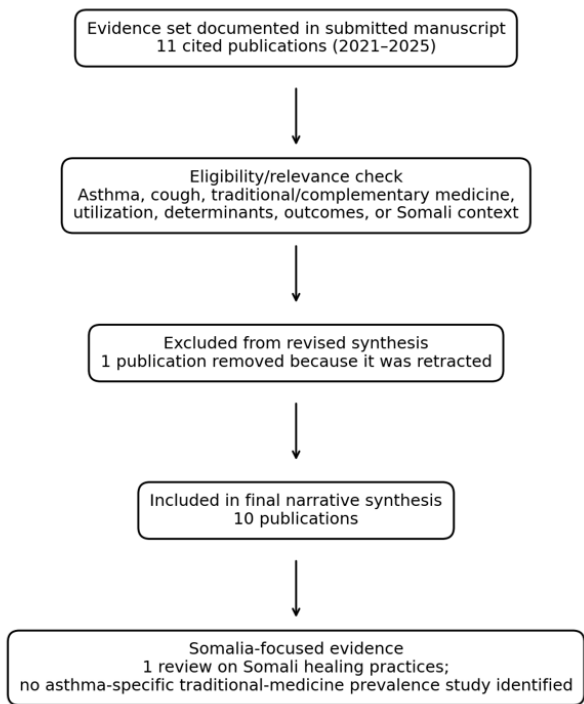


Figure 1. PRISMA-style evidence-selection flow reconstructed from the documented evidence

RESULTS

Utilization of Traditional and Complementary Medicine

The final narrative synthesis included 10 publications after removal of one retracted publication. The evidence base was geographically diverse and was dominated by international studies; only a small proportion directly addressed the Somali healthcare context. Therefore, the review provides contextual evidence rather than a Somali prevalence estimate.

In the large US analysis by Ogbu et al., [2] 45.2% of 76,802 adults with current asthma reported ever using CAM; 25.3% reported one CAM modality and 19.9% reported two or more modalities. Use was associated with younger age, female sex, cost barriers, multiple comorbidities and poorly controlled asthma [2]. These findings demonstrate substantial CAM use in one population but should not be transferred to Somalia as a prevalence estimate.

A 2022 study from Pakistan examined allopathic and alternative asthma treatments and found that treatment choices were influenced by demographic, clinical and behavioral factors [6]. The evidence is relevant to understanding treatment choice as a culturally and socially situated behavior, but it is not evidence of Somali utilization.

For Somalia, the recent evidence identified in this review indicates that traditional medicine remains culturally relevant, while asthma-specific traditional-medicine utilization has not been adequately quantified. The 2025 Somali review describes coexistence of traditional and modern systems and emphasizes the need for regulation and collaboration [3].

Determinants of Traditional Medicine Utilization

Across the included evidence, determinants can be grouped into five domains: sociodemographic characteristics, socioeconomic constraints, cultural and social influences, clinical characteristics, and perceptions of conventional treatment. International evidence suggests that age, sex, cost barriers, comorbidity and asthma control may influence CAM use. [2]

In Somalia, cost of medicines, transportation, distance to health facilities and availability of specialized respiratory services may plausibly influence treatment choices, but these factors require direct Somali epidemiological investigation rather than assumption. Cultural influences may include recommendations from relatives, elders, community healers, religious leaders and peers. [3,4] Clinical status may also

influence treatment seeking when symptoms remain poorly controlled. These are research hypotheses for Somalia, not established population-level associations.

Herbal Medicine and Lung Function

The strongest recent quantitative evidence concerns herbal medicines used as adjunctive therapy. Derakhshan et al. [7] identified 1,525 records, reviewed 169 studies in depth, included 23 randomized controlled trials in the systematic review, and included nine trials in the meta-analysis of predicted FEV1. Herbal medicines improved predicted FEV1 by a weighted mean difference of 3.73 percentage points (95% CI 1.76–5.70) [7]. The interventions were heterogeneous, so the finding supports further investigation of standardized adjunctive therapies rather than a universal recommendation for traditional medicine.

A 2025 systematic review of phytotherapy and anthroposophic medicine also identified potential benefits in some studies while emphasizing methodological limitations and the need for more rigorous trials [8].

Nigella sativa

Nigella sativa is discussed because it has a specific asthma evidence base and is culturally familiar in many Muslim and African settings. A 2021 meta-analysis of four randomized controlled trials found improved Asthma Control Test scores and FEV1 with supplementation, while several other outcomes were not significantly improved [9]. This does not mean that *Nigella sativa* is the only relevant traditional remedy. Rather, it is one example for which quantitative asthma evidence is available. Evidence from standardized preparations should not be assumed to apply to locally prepared products without characterization of dose, composition, contamination and safety.

Other Traditional and Herbal Approaches

Traditional medicine for asthma is not a single therapeutic category. Evidence includes herbal preparations, phytotherapy and traditional medical systems. A 2021 systematic review of traditional Chinese herbs in children with cough-variant asthma included 13 studies involving 992 children in its meta-analysis and reported improvements in some outcomes, while also noting poor methodological quality and the need for caution [10]. This evidence is relevant to the broader international literature on asthma-related cough but cannot be directly transferred to Somali remedies.

A 2022 review of herbal acupoint application in asthma reported potentially favorable outcomes but was heterogeneous in intervention and evidence quality [11]. Importantly, a separate 2022 meta-analysis of traditional Chinese medicine acupoint application in children with asthma that appeared in the original manuscript was subsequently retracted in 2023. It has therefore been removed from the revised evidence base and reference list.

Safety and Treatment Interactions

Safety is a major consideration because herbal products may differ in plant species, preparation, concentration, contamination, dosage and route of administration. A clinical trial of a standardized extract cannot establish the safety of a household preparation. Potential herb-drug interactions are also important when traditional products are used together with inhaled or systemic medicines [8,11]. Another concern is delayed treatment during acute asthma exacerbations if traditional remedies are used before urgent biomedical care. The extent of this problem in Somalia remains unknown and should be studied directly.

Evidence Specific to Somalia

The Somali-specific evidence base remains limited. Bashir’s 2025 review documents the continuing coexistence of traditional and modern medicine in Somalia and highlights cultural and regulatory issues [3]. Nuh and Adam’s 2025 [5] study from Burao provides asthma-specific evidence, reporting 57.6% uncontrolled asthma among 363 adults and identifying asthma knowledge and regular medical follow-up as important factors associated with control [5]. However, neither study establishes the prevalence or determinants of traditional medicine use for asthma-related cough.

Accordingly, no Somali percentage for traditional medicine use in asthma-related cough is reported in this review. Reporting the 45.2% US CAM figure as a Somali percentage would be methodologically inappropriate. Future Somali studies should directly measure age, sex, education, occupation, income, residence, distance to health facility, asthma duration, asthma control, exacerbation history, prescribed medicines, traditional remedy type, source of recommendation, preparation method, frequency, perceived benefit, adverse effects and disclosure to healthcare professionals.

Table 1: Evidence retained in the revised narrative synthesis (2021–2025)

Source	Design/context	Evidence	Key finding	Relevance to Somalia
Ogbu et al., 2023 [2]	Cross-sectional; 76,802 US adults	CAM use in asthma	45.2% ever used CAM; associated with several demographic/clinical factors	Identifies determinants; not a Somali prevalence
Derakhshan et al., 2023 [7]	Systematic review/meta-analysis; 23 RCTs	Oral herbal add-on therapy	Predicted FEV1 WMD 3.73 percentage points (95% CI 1.76–5.70)	Supports cautious adjunctive research
Han & Shi, 2021 [9]	Meta-analysis; 4 RCTs	Nigella sativa	Improved ACT and FEV1; other outcomes inconsistent	Relevant example; local preparations need study
Braunwalder et al., 2025 [8]	Systematic review; 23 studies	Phytotherapy/anthroposophic medicine	Potential benefits; more rigorous trials needed	Supports standardized research
Wong et al., 2021 [11]	Systematic review	Chinese herbal medicine	Mechanisms and possible herb-drug interactions	Context only; not transferable directly
Farooq et al., 2022 [6]	Cross-sectional; Pakistan	Allopathic/alternative treatment choice	Demographic, clinical and behavioral factors influenced choices	Context for determinants
Han et al., 2021 [10]	Systematic review/meta-analysis; 13 studies	Chinese herbs for cough-variant asthma	Some outcomes improved; methodological quality limited	Direct cough-variant-asthma context only

Bashir, 2025 [3]	Review; Somalia	Traditional and modern healing	Traditional medicine remains important; regulation/ collaboration emphasized	Direct Somali cultural/ system context
Nuh & Adam, 2025 [5]	Cross-sectional; Burao, Somaliland; n=363	Asthma knowledge/control	57.6% had uncontrolled asthma	Direct Somali asthma burden; not traditional medicine
Wu et al., 2022 [12]	Systematic review/ meta-analysis	Herbal acupoint application	Potential benefit with variable evidence quality	International context only

Table 2: Proposed determinants and research variables for Somalia

Domain	Potential variables	Interpretation/research purpose
Sociodemographic	Age, sex, education, occupation, marital status	May influence beliefs, information sources and health-seeking behavior
Socioeconomic	Income, medicine cost, employment, transport cost	May affect access to biomedical treatment and traditional options
Cultural/social	Family recommendation, traditional beliefs, community norms, religious influence	May influence acceptance and continued use
Healthcare access	Distance, availability of medicines, waiting time, perceived quality	Limited access may influence treatment choices
Clinical	Asthma duration, cough frequency, exacerbations, asthma control	Greater symptom burden may increase search for additional therapies
Treatment perceptions	Fear of adverse effects, perceived naturalness, satisfaction	May influence substitution or concurrent use
Safety/disclosure	Preparation, dose, frequency, adverse effects, herb-drug combinations, disclosure	Needed to characterize safety and interaction risk

DISCUSSION

This review indicates that traditional and complementary medicine remains relevant to asthma-related healthcare behavior internationally and is likely to be culturally important in Somalia. The revised synthesis, however, does not support a Somali prevalence estimate for traditional medicine use in asthma-related cough. The principal finding is the limited amount of direct Somali evidence.

International studies suggest that CAM use may be influenced by demographic, socioeconomic and clinical factors. The 45.2% figure from the US study is useful for demonstrating the scale of CAM use in that population, but it cannot be generalized to Somalia. Similarly, evidence from Pakistan and East Asian traditional medicine identifies possible determinants and clinical questions but does not establish their magnitude in Somali communities.

The Somali evidence base has begun to expand. Recent work has documented traditional healing practices and has also examined asthma control in Burao. Nevertheless, the specific intersection of traditional medicine and asthma-related cough remains poorly studied. There is no adequate population-based estimate of how many Somali patients use traditional remedies for asthma-related cough, which remedies are most common, how they are prepared, or how often they are used alongside prescribed asthma medicines.

Nigella sativa is included because it has a quantitative asthma evidence base, not because it is assumed to be the dominant Somali treatment. Likewise, Chinese-medicine studies are retained only as international contextual evidence. A retracted Chinese acupoint meta-analysis from the original submission has been removed to maintain evidence integrity. This distinction is important because evidence from a standardized intervention in one medical system cannot automatically establish the efficacy or safety of a locally prepared Somali remedy.

The research gap is therefore both epidemiological and clinical. Future community-based studies should estimate utilization and determinants, while mixed-methods studies should explore beliefs, family influence, healer practices, disclosure and healthcare-seeking pathways. Laboratory studies are needed to characterize frequently used products, including dose, chemical composition, contamination and adulteration. Clinical trials should only be considered after adequate standardization and safety assessment.

From a clinical perspective, healthcare professionals should ask patients respectfully about traditional medicine use, document products and doses when possible, assess potential interactions and reinforce evidence-based asthma action plans. Patients should not stop prescribed controller or reliever treatment without medical advice, and severe breathing difficulty requires urgent medical assessment.

Strengths and Limitations

A strength of this review is its specific focus on the under-researched intersection of traditional medicine, asthma-related cough and the Somali context. It integrates evidence on utilization, determinants, clinical outcomes, safety and health-system considerations.

The main limitation is the scarcity of Somalia-specific evidence. International studies were therefore used to identify patterns and research hypotheses, not to estimate Somali prevalence. The included studies also differ in definitions of traditional medicine, interventions, populations and outcomes. In addition, the original submission did not contain the complete search log or screening counts. The revised manuscript therefore avoids fabricating PRISMA numbers and transparently presents the documented evidence set and the final number of retained publications.

Implications for Practice, Research and Policy

Clinical Practice

Healthcare providers should routinely ask patients about traditional and herbal medicine use, document products and doses when possible, assess potential interactions and adverse effects, and reinforce evidence-based asthma action plans. Traditional remedies should not replace prescribed controller or reliever therapy.

Research

Further research should assess the prevalence and determinants of traditional medicine use among asthma patients in Somalia. Mixed-methods studies should explore beliefs, family influence, traditional healer practices, and healthcare-seeking pathways. Future studies should also assess the safety, preparation, and potential interactions of commonly used traditional remedies.

Policy

Somali health authorities and academic institutions could develop a research and regulatory framework for traditional medicine, including minimum safety standards, documentation and appropriate collaboration with biomedical providers. The aim should be culturally responsive and safe care rather than uncritical promotion of traditional products.

CONCLUSION

Traditional medicine remains an important component of healthcare behavior and is culturally relevant in Somalia. Recent international evidence indicates that utilization may be associated with clinical symptoms, socioeconomic barriers, treatment perceptions and cultural factors. Some standardized herbal interventions, including *Nigella sativa*, show potentially beneficial adjunctive effects on asthma control or lung function, but the evidence is heterogeneous and does not justify replacing established asthma therapy.

The most important evidence gap is the lack of high-quality Somali research describing which traditional remedies are used for asthma-related cough, who uses them, why they are used, how they are prepared, whether they are safe, whether they interact with prescribed medicines, and whether they influence adherence or delays in seeking emergency care. Until stronger local evidence is available, traditional remedies should be approached as complementary practices requiring careful safety assessment and should not substitute for guideline-based asthma management.

DECLARATIONS

Ethics Approval and Consent to Participate

Not applicable. This review synthesizes previously published literature and does not involve direct recruitment of human participants.

Availability of Data and Materials

No original participant-level dataset was generated for this review. The evidence was obtained from published sources.

Competing Interests

The author declares no competing interests.

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Author Contributions

Hassan Ahmed Dirie: conceptualization, literature synthesis, interpretation, and manuscript preparation.

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