

Traditional Remedies for Diarrheal Diseases: Successes and Challenges

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ABSTRACT

Traditional remedies have been widely used for treating diarrheal diseases across different cultures, particularly in regions where access to modern healthcare remains limited. This review examines the historical significance, effectiveness, and challenges of integrating traditional medicine—such as Traditional Chinese Medicine (TCM), Ayurveda, herbal remedies, probiotics, and essential oils—into modern healthcare. While some traditional treatments have demonstrated potential efficacy, scientific validation remains a significant hurdle. Issues such as regulatory inconsistencies, standardization, and cultural skepticism pose challenges to their broader acceptance. However, global health initiatives increasingly recognize the value of traditional knowledge, fostering partnerships between biomedical researchers and traditional healers. Future research should focus on bridging gaps between traditional and modern medical approaches to ensure safe, effective, and culturally respectful healthcare solutions.

Keywords: Traditional medicine, diarrheal diseases, herbal remedies, Ayurveda, Traditional Chinese Medicine (TCM), probiotics, cultural healthcare practices.

INTRODUCTION

Traditional remedies have been vital in treating diarrheal diseases across cultures, predating modern medical treatments. Despite advancements in pharmaceuticals, around 80% of individuals in developing countries still depend on traditional methods. This paper examines the treatment of diarrheal diseases in Traditional Chinese Medicine (TCM) and Ayurveda, along with naturopathy's perspective on diarrhea, emphasizing probiotics and yoga, as well as essential oil therapy for gastrointestinal issues. The evaluation of these therapies addresses the dual challenge of infectious and non-communicable diseases. TCM comprises a rich pharmacopoeia, making up about a quarter of the medications in China, utilizing herbs, minerals, animal parts, and practices like acupuncture and Qigong. Various plants are used in cultural cuisines for diarrhea, with a study noting 25 plant species in Nigerian markets. Conversely, skepticism regarding the safety and efficacy of unregulated traditional remedies persists in Western medical practices and media. Factors such as spatial clustering, under-reporting of adverse drug reactions (ADRs), inconsistent data, and lack of a denominator complicate risk detection for adverse events. This, coupled with the growing research on herbal effects, raises concerns about potential biases in reporting herbal toxicities, with journals favoring statistically significant cases. The paper concludes with original scientific propositions and recommendations for medical authorities, professionals, and editors to encourage a more balanced understanding of traditional remedies [1].

Historical Perspectives on Traditional Remedies

The use of traditional remedies dates back to ancient civilizations that employed herbal treatments and dietary regulations to address ailments. This knowledge, passed down orally, was later documented as societies evolved. However, with the loss of certain ethnic groups, valuable treatment knowledge has also disappeared. In Africa, before missionaries arrived, people relied on ancestral religious practices and traditional therapies for diseases like diarrhea. The spread of modern medicine led to a shift away from

these practices, although some traditional remedies have persisted due to their effectiveness, such as those addressing thiamin deficiencies and enhancing ascorbic acid in drought conditions. Different cultural and environmental factors have influenced various approaches to diseases like malaria and diarrhea. Since World War II, modern drugs have often been viewed with skepticism by traditional healers and rural populations, leading to instances where individuals conceal their illnesses rather than disclose them to modern practitioners. However, attitudes towards homeopathic remedies differ, and traditional healers may support the use of suppressive drugs for severely ill patients. Cultural beliefs heavily shape the acceptance of modern medicine, revealing a complex system that still requires further exploration [2].

Ancient Civilizations and Traditional Healing Practices

Disease is a universal aspect of being human. While modern definitions and treatments are scientific, ancient civilizations sought philosophical understandings of health and disease. They applied medical knowledge in various ways, from Hippocrates' methods to diverse healing practices, addressing concerns over disease and treatment. Much of the historical focus remained on pharmaceuticals and the therapeutic effects of plants. Egyptian medicine gained recognition for its thoroughness and wide array of remedies, attracting attention from foreign observers. The ancient Greeks were among the first to formalize medicine as a practice distinct from other knowledge areas, although their healing practices were diverse and sometimes disconnected. The earliest physicians of the Hippocratic school operated within this varied body of knowledge. Despite the abundance of remedies in ancient Greece, precise details of healing methods remain elusive, as many practices were intertwined with religious healing. The medical rationale often revolved around philosophy, investigating disease causes primarily concerning hygiene and prevention. Hence, little is revealed about the mainstream medical practices of that era, while marginal and informal local medical traditions appear more prominent in the observations noted. The unique, often unquantifiable local healing knowledge of the time is frequently debated in terms of its significance in historical remedies [3].

Types of Traditional Remedies

In general, traditional remedies for diarrhea are a mix of various types of medicines applied in combination, resulting in multiple therapeutic effects. Moreover, traditional remedies based on single plants as well as formulations are employed. Single plants may be used in their crude form or as mixtures of powdered plants, extracts, or freshly prepared infusions, decoctions, or extracts. The following types of remedies are used to treat diarrhea: [4]. Remedy-based therapy: Many herbal practitioners prescribe a decoction of the stem bark or root of one or a few plants to treat diarrhea. A mixture of several plants is usually boiled, and the decoction is used on the day it is prepared or stored to be taken one or a few spoonfuls at regular intervals during diarrheal events. The dose employed and the specific plants used in these treatments depend on the age of the patient and the community where the healer is working. Alternatively, the healer may prepare a powder of a mixture of plants and dispense the dose in a cup of warm water, milk, or plant juice to be taken immediately by the patient. Other widely used preparations include mixtures of macerated fresh plant parts or fermented whole fresh plants. These may be administered immediately to the patient as a dose or during regular intervals throughout the day of the treatment. Mastication of fresh or dry medical plants may be recommended, too [5].

Herbal Remedies

Herbal preparations are a primary medicine source for 80% of the global population. In the U.S., China, Italy, and Russia, 30–60% of drugs are of natural origin. For instance, India utilizes about 1,200 medicinal plant species, resulting in 20,000 patented products. In West Africa, medicinal plants help treat diarrheal diseases, with 190 plant species and 400 herbal combinations cataloged in Ghana. These plants are relied upon in both rural and urban settings across Mali, Burkina Faso, Côte d'Ivoire, Kenya, Nigeria, Ethiopia, and Malawi due to limited access to factory-made drugs. Traditional treatments use locally grown plants, including *Vernonia amygdalina*, *Azadirachta indica*, and *Carica papaya*, which are known for their antidiarrheal properties. In Ghana, prominent plants include *Acacia nilotica*, *Euphorbia hirta*, and others. Recent reports provide practical information about antidiarrheal herbal plants used by Ghanaian children under five [6].

Homeopathic Remedies

In Bangladesh, many practicing homeopaths are trained by itinerant homeopaths who teach lay associates to treat common medical issues. Similarly, India has numerous individuals trained in homeopathy. These countries widely use homeopathic remedies for conditions lacking clinical effectiveness evidence, with the controversial treatment of diarrhea standing out. Only two randomized, placebo-controlled studies exist

on homeopathic remedies for diarrhea, examining the effects of homeopathic globules and granules on affected children against saline and placebo controls. However, both studies inadequately described their randomization methods and allocation processes. Besides the need for scientific evidence on effectiveness, safety is crucial, as current homeopathic practitioners utilize highly diluted toxic substances. To gain medical doctors' support, future homeopathy trials must be rigorous. Some traditional healers, such as Ayurvedic physicians, suggest that homeopathic remedies are milder than Ayurvedic ones. Homeopaths report encountering unpleasant side effects from multiple treatments, often opting for single remedies or tinctures, like aconite for summer colds, to mitigate adverse effects [7].

Ayurvedic Remedies

Ayurveda, one of the world's ancient systems of medicine, with a two-millennia-old tradition in India, is still practiced. The Ayurvedic classics describe plant-derived drugs for the treatment of diarrhea, dysentery, flatulence, flatulent colic, and disorders of the digestive system, indicating that fermentation remedies were established methods during ancient times. Herbal drugs such as Ashvagandha are indicated as remedies for flatulence, and bel is useful for diarrhea. Three simple remedies, a mixture of all three: crystal salt, both Terminalia chebula, and surplus clove, are indicated as medicines against flatulence, gripe, or colic. The medicament of a mixture of dry ginger, the two Terminalia Myrobalans, and rock salt or common salt or cumin also performs as an arousing agent for incrustation in the stools. The flatulence remedy of coriander also serves as a tonic for the stomach. The pure concoction of cold, dry ginger and long pepper can be used as a lozenge or to anoint the mouth and tongue. Loose stools can be managed by drinking the decoction of mango flowers. Ripe bilva is the first grafting agent of cumin that begins to thrive in the decoction. Gobhava should be fried in oil. Balances of apricots is difficult to improve with yogurt. The onset of vibhitaka constitutes the first modification if jaggery and honey are assimilated in the same manner. The current improvement should be laid down during the rainy season. Drugs like Myrobalans are beneficial for pashanbheda in frequent diarrhea diseases. Similarly, Myrobalans are beneficial for the piper to free and fermented stools and command a lemma by suppressing the frequent sensation of stool. Ayurvedic medicines are prepared using certain methods. They may be available as guggul, kalpa, and lepa. The quantity and contents of guggul recommended in the medicine are similar to those of tablets and capsules. The quantity and contents of guggul recommended in the medicine are similar to the method of kalpa. The line of treatment in Ayurveda is very interesting; it is based on the theory of doshas and gunas and is designed to remove mental defects. The treatment should also be purgative because it demands strict adherence to diet and lifestyle for the purpose. If Shuddhi medication is not followed, no cure is obtained. This means that samnipata is the main root of difficult, mischievous bowel diseases and fatal diarrhea. The main aim of a Siddhi is to stop serious diarrhea. The physician should promptly stop the diarrhea and assume treatment of the patient accordingly. Using drugs other than those mixed with honey and alum should also be avoided. The aim of the physician should only be to administer an abyssal vomit or a lozenge, other than lozenges with honey or the decoction to the patients, owing to the strengthening effects of food, vomit, and drugs that irritate the intestines, the nourishing effects of medicaments, and the repose of an overload at four are the pituitary [8].

Traditional Chinese Medicine

Traditional Chinese medicine (TCM) is a comprehensive medical system rooted in ancient Chinese principles, capable of diagnosing and treating diseases, prescribing medications, and performing surgeries. TCM integrates methods such as acupuncture, moxibustion, tuina, shiatsu, qigong, herbology, and dietetics, providing relief for millions suffering from diarrheal diseases. It views diarrhea as stemming from imbalances among internal organs, with stress and overwork harming yin or yang seen as contributors to disease. Preventive treatment is emphasized. Effective TCM seeks to harmonize yin and yang, enhance qi and blood flow, and support the spleen and stomach. Remedies for diarrhea are tailored to individual TCM diagnoses, utilizing combinations to optimize effects while minimizing herb-herb and drug-drug interactions. Common ingredients include Chinese rhubarb root, ginseng root, and red tangerine seeds. Despite its proven benefits, TCM faces challenges regarding public awareness, regulatory issues, and the need for standardized, high-quality treatments [9].

Efficacy of Traditional Remedies

Cow's milk is often given to dehydrated children in developing countries. This practice is based on the observation of old country physicians that cow's milk has some ability to reduce dehydration caused by diarrhea. However, that practice is inappropriate in a clinical setting as studies show that cow's milk

exacerbates dehydration due to diarrhea. There is evidence that sweetened cow's milk acts like a rehydration solution. Certainly, the incorporation of the cholera toxin model would suggest that a clinical trial of sweetened cow's milk would be a logical avenue to pursue. Furthermore, it would reduce the cost of diarrhea management and potentially increase compliance. This is an important consideration in the management of diarrheas due to cholera because many people at medical risk from cholera are among the poorest in developing countries. Some of the demonstrated and potential antidiarrheal compounds found in fresh cow's milk are listed [10].

Clinical Studies and Research Findings

Clinical evaluation of cryptosporidiosis in HIV/AIDS cases revealed that chest pain, breathlessness, and diarrhea were the common symptoms. Fecal samples from all the cases showed the presence of *C. parvum*. There was no case of leucocytosis or an associated bacterial infection leading to chronic diarrhea. Two of the cases responded to an anti-cryptosporidial drug therapy, five showed complete recovery upon ART, and one was lost to follow-up. In the nine-year-old boy with asthma, during corticosteroid therapy, he passed out large amounts of mucus in the stools, still showing 20–25 erythrocytes, and was treated for *C. parvum* infection. After just a few days without asthma medication and while consuming cow's milk, diarrhea and pruritus had ceased. There are still insufficient clinical and histological data on the role of *C. parvum* as a trigger for bowel disease and particularly for relevance in the differential diagnosis of chronic diarrhea, but this report may serve as a reminder. Cryptosporidiosis occurs in about 3–10% of AIDS patients suffering from chronic diarrhea. The importance of this protozoan in the AIDS category is based on the appearance of high fever, often life-threatening diarrhea, weight loss, and dehydration through malabsorption of water in the intestine. There is a positive relationship between the severity of diarrheagenesis, the degree of immune suppression, and the length of *Cryptosporidium parvum* infection in HIV-infected patients. In immunosuppressed patients, infection of *Cryptosporidium coccidium* leads to severe cholera-like diarrhea due to partial affinity for upper epithelium cells in the microvillus border. Nonetheless, *Cryptosporidium* was rarely identified in the stools of severely immunosuppressed patients by direct examination [11].

Challenges in Incorporating Traditional Remedies into Modern Healthcare

The integration of traditional remedies in community healthcare alongside Western medicine is a compelling topic for exploration. Traditional medical practices face challenges in merging with modern healthcare, particularly due to the prevalence of unstandardized remedies. These remedies often use plant parts that lack clear descriptions and may be toxic if not prepared correctly. The absence of placebo-controlled, double-blind studies further complicates the verification of these remedies' efficacy as they are customized for individual patients, making traditional treatments challenging to standardize. While statistical standards may not be met, this does not imply that these treatments lack effectiveness. Instead, comparing clinical outcomes could serve as a practical alternative to double-blind assessments. However, conventional medicine remains hesitant to endorse unverified practices based solely on historical use. Integrating traditional medicine necessitates recognizing traditional healers and standardizing herbal treatments, a complex task lacking clear guidance in the literature. Various overlapping standards for evaluating herbal remedies require expertise that many traditional societies may not have. Addressing the quality control of herbs is crucial, especially in societies using diverse substances with minimal regulation. Additionally, practices like applied astrology among traditional healers are underrepresented in research. The challenges of integrating these practices differ greatly depending on cultural and regional contexts, making a universally applicable set of guidelines difficult to establish. Success in this endeavor hinges on collaboration between biomedicine and traditional healthcare. Joint research and policy development that incorporates traditional practices may provide pathways to unify these medical fields. The ultimate aim of global health policy should be to leverage the strengths of all medical systems, ensuring comprehensive patient care rather than imposing a biomedical standard across the board [12].

Regulatory Hurdles

Traditional remedies face significant regulatory challenges due to varied health care and insurance systems across countries. While some countries have accessible traditional remedies, others impose market exclusions, leading to misconceptions and inferior products. The limited funding for pharmacological and clinical research exacerbates this issue. The WHO's Traditional Medicine Strategy aims to develop regulatory systems that integrate traditional remedies and practitioners into healthcare. However, substantial confusion persists in the pharmaceutical industry regarding the regulatory status of traditional medicine. The WHO strategy highlights the need for modernization efforts to facilitate

integration into healthcare. Regulatory frameworks are defined by national governments and influenced by various organizations, some overt and others covert. Some regulatory aspects, such as Good Agricultural Practices, require NGO involvement, whereas safety and efficacy must be led by government initiatives. Developing a consistent policy to harmonize traditional medicine with national healthcare systems poses numerous challenges. High standards for safety and efficacy may inadvertently exclude or make traditional remedies unaffordable. Additionally, these remedies reflect local therapeutic practices that often do not align with conventional pharmacological efficacy models, making them hard to evaluate by standard research methodologies. Promoting evidence-based research in traditional medicine does not yield straightforward solutions. A need exists for distinct research methodologies that address healthcare practices beyond typical clinical epidemiology [13].

Standardization and Quality Control

Among the most successful traditional remedies in the developing world is the treatment of diarrheal diseases, typically involving various plant species wrapped in banana leaves with substances like butter and salt, then heated. Leaves are bruised, and sap or juice is either inserted as an enema or swallowed. Widely used powders and concoctions vary greatly by country, having evolved through families or tribal elders. This results in significant differences in materials and practices, causing major issues in standardization and quality control. Variations in ingredients and methods occur not only across different regions but also within the same provider's practices with different patients and conditions. Consequently, there's substantial variability in efficacy, both between and within locations. Dosages may differ, sometimes based on the disease and patient profile, or manipulated by practitioners. Furthermore, practitioners' perceptions, often rooted in cultural beliefs, may conflict with modern scientific understanding. The collection and treatment of leaves vary seasonally, affecting quality [14].

Cultural and Societal Considerations

Explaining traditional healing is challenging due to its distinct differences from biomedical perspectives on illness. Despite limited data, findings indicate that rural populations in the South Pacific, Africa, and Asia utilize available therapeutic resources during illness, treating visits to traditional healers as effectively as obtaining over-the-counter medicines. In regions with inadequate healthcare, people often prefer herbal, religious, or home remedies due to constrained access to biomedicines, while local healers help address emotional distress. Interestingly, some individuals trust both traditional therapies and biomedicines, using them concurrently. Promoting trust in diverse health systems within the same legal framework faces several hurdles. Village health workers trained locally value home remedies and feel compelled to incorporate traditional treatments into their practice. However, traditional healers, often older women from specific social backgrounds, lack legal rights and face increased risks of persecution. Those who continue their practices may be at risk of arrest, and stories of incarceration for healing work fuel fear, especially as bio medics operate with impunity against suspected practitioners of traditional medicine [15].

Beliefs and Attitudes towards Traditional Remedies

People's faith in health care varies based on personal and community experiences with wellness and disease. Cultural backgrounds significantly influence beliefs about safe and effective treatments. Culturally learned models often lead to misunderstandings and prejudice regarding customary health practices, which can inhibit their wider acceptance. Experiences of injury and misfortune contribute to complex narratives around health. Spiritual sources, natural environments, lifestyles, and notions of divine punishment also shape perceptions of healing, affecting how individuals view credit, belief, and security in health practices. Preferences differ; some individuals embrace various health practices, while others reject traditional remedies. Warnings against neighborhood treatments, often portrayed as witchcraft, may deter people from considering these options. Improved education and dialogue could lead to better health decision-making. Collaboration between traditional healers and modern medical practitioners could enhance safe practices in healthcare [15].

Traditional Remedies in Global Health Initiatives

Traditional remedies have long been a crucial part of health strategies for illness and comfort, differing across cultures and eras. They often supplement formal healthcare in areas where access is limited. Consequently, national health organizations collaborate with local healers, training them to recognize and manage critical conditions. These practitioners also assist in patient referrals and knowledge sharing. Notably, some modern healthcare professionals have diagnosed illnesses through traditional practitioners' frameworks. Despite facing challenges such as cultural dialogue and differing beliefs on health, successful

collaborations between traditional methods and biomedicine have enhanced health outcomes, illustrating the value of integrating traditional wisdom into global health. However, challenges persist regarding power dynamics and cultural misunderstandings. Traditional medicine often views the body as a socially connected entity, contrasting with the mechanistic perspective of Western approaches. This can lead to clashes in treatment methods, as specific administration procedures in traditional practices may impact drug effectiveness. Despite these issues, many traditional healing practices reflect empirical medical knowledge compatible with modern principles. Rejecting traditional medicine for biomedicine can be culturally insensitive, as seen with acupuncture's long journey toward recognition in chronic pain treatment. There's a rising movement toward health policies that embrace diverse healing methods. Learning from global health successes and failures can guide the integration of different health paradigms. Ethical concerns around indigenous medical knowledge also need addressing, promoting collaboration between biomedical and folk healing communities. While caution is necessary, fostering effective and safe traditional practices is essential [16]. Traditional remedies are crucial in addressing diarrheal illnesses, particularly in agricultural societies. Diarrhea is often viewed as a result of "unbalanced social relations," prompting efforts to restore harmony within communities. Treatments include hot and cold applications with herbs, bones, mud, or foods, along with body stimulation and massages by traditional healers to redistribute fluids and energies. Additional symbolic materials, such as amulets, help promote social unity. Conversely, industrialized societies perceive diarrhea as a digestive failure and focus on stopping fluid loss with medications. While traditional remedies are effective and affordable, they may involve specific rituals. Emphasizing their role in tackling diarrhea highlights the need to assess their efficacy and consider integrating these methods with modern health practices for improved outcomes [17].

Partnerships and Collaborations

The integration of traditional remedies into healthcare represents a critical development in addressing global health initiatives. Often, these initiatives fall short of being universally applicable. Beyond quantitative analyses, insights from field experiences reveal differing progress reports from institutional projects and informal collaborations between healers and healthcare workers. Successful partnerships are being studied to illustrate the benefits of these collaborations for patient care and broader access to treatments while also highlighting significant challenges in integrating conceptually distinct healing traditions. Case studies in Indonesia, Tanzania, and Ghana show the need for improved relationships between formal healthcare institutions and the informal sector. Unfortunately, there is mutual disdain for each other's practices, with criticisms regarding excessive reliance on methods perceived as 'black magic' versus the condescension directed at traditional practices by biomedical practitioners. Within a global context, biomedicine holds a dominant position, relegating traditional healers to extralegal roles. Nonetheless, the TRIPs declaration from the GATT agreement recognizes intellectual property rights related to traditional knowledge, prompting efforts to standardize practices and hold healers accountable for grievances [18, 19].

Future Directions and Research Opportunities

The methodology and strategy used for the inclusion of eight African case studies in the database were reported in a previous article. Based on feedback from the African delegation, like-minded countries and observers to the World Health Organization can further recommend this to the Secretariat. Results will be shared in upcoming meetings and through other communication channels. Empirical treatment pairs have been identified for the following ICD-10 diseases: HIV/AIDS, sexually transmitted diseases, and malaria. This approach may facilitate the search for commonalities in the dual treatment of what is perceived today as unrelated diseases and can be applied to further scientific research. The pathogenesis of wind diseases in traditional West African medicine is additive and includes external factors that influence the pathogenesis. Results of seven years of collaboration between the Institute of Pharmacognosy and Phytotherapy / Faculty of Medicine (Mali) and the Institute of Systematic Botany / Department of Systematics, Biodiversity and Evolution of Plants (Germany) on the useful plants in the treatment of wind diseases are presented [20, 21]. Traditional remedies for individual diseases can provide clues to their specific pathogenesis. Due to the correlation in pathogenesis of what is perceived as unrelated diseases in modern and traditional medicine, it is also worth reconsidering the idea that diseases previously named the same might have been the same disease even though current knowledge of physiology allows us to disprove this. An approach to the dual use of traditional remedies for further scientific research is proposed [22-26].

CONCLUSION

Traditional remedies for diarrheal diseases have played a crucial role in global healthcare for centuries, particularly in resource-limited settings. Despite their historical significance and continued use, these treatments face challenges in scientific validation, regulation, and integration into mainstream healthcare. Overcoming these barriers requires collaborative efforts between traditional healers, biomedical researchers, and policymakers. By fostering partnerships, ensuring quality control, and respecting cultural practices, traditional medicine can complement modern healthcare, ultimately improving health outcomes worldwide. Further research and policy support are essential to harness the full potential of traditional remedies while ensuring patient safety and efficacy.

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CITE AS: Namukasa Mugerwa F. (2025). Traditional Remedies for Diarrheal Diseases: Successes and Challenges. NEWPORT INTERNATIONAL JOURNAL OF PUBLIC HEALTH AND PHARMACY, 6(2):80-87. <https://doi.org/10.59298/NIJPP/2025/628087>