

Quackery in Health is Still Around: Pseudoscientific Healing Practices Across the Globe

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ABSTRACT

Fraudulent medical practices remain prevalent globally, fueled by digital platforms spreading false claims. This study analysed 3,327 published studies and 400 grey literature sources, selecting 38 studies and 19 excerpts for detailed examination. It identified 126 distinct quackery techniques and products used throughout history. Traditional methods are considered legitimate in Asian and African regions and dismissed as quackery in the West. In Western countries, quacks often use electricity, mechanical instruments, and gadgets for treatment. Historically, faith-based treatments are practised globally. However, these were limited to Asia and Africa. The rise of the internet has enabled quacks to exploit digital platforms to deceive and attract victims. These findings highlight the persistence of quackery and underscore the need for targeted strategies to combat these deceptive practices globally.

Key Words: Charlatan, Illegal treatment, Medical fraud, Quackery.

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INTRODUCTION

Health is arguably the life's most valuable asset, and people naturally seek relief when illness strikes. Globally, approaches to treatment vary widely, shaped by factors such as access to healthcare, cultural practices, faith, and beliefs. Treatment methods that meet scientific standards are considered legitimate.¹ On the contrary, illegitimate practices fall under quackery. *Quackwatch.org* is a globally accessible platform dedicated to combating quackery. It defines quackery as promoting unsubstantiated methods that lack a scientifically plausible rationale.² According to the Food and Drug Administration of the US, "health fraud products are articles of unproven effectiveness that are promoted to improve health, well-being, or appearance. They can be medicines, devices, foods or cosmetics for human or animal use".³

Quackery has persisted throughout history, and modern advertising and the internet have expanded its reach, creating an unregulated market for dubious treatments. Aggressive marketing floods inboxes and social media with ads for weight loss, fair skin, diabetes, sexual enhancement, and more, often preying on vulnerable groups such as the chronically ill or those with mental or sexual health concerns. Quackery exists worldwide, from developed nations to underdeveloped ones.

A notable instance occurred in 2023 in the United States regarding stem cell treatment for blindness which led to significant financial losses for international citizens due to deceptive treatment practices.⁴ In 2024, in India, the Supreme Court directed a religious figure and his associate to issue a public apology for marketing unproven products as treatments by *Patanjali*.⁵ During the 1990s and early 2000s, thousands of pilgrims from the Europe, America, Southeast Asia, and Africa journeyed to Nigeria to witness a faith healer's miraculous healing demonstrations.⁶ The aim of this study was to explore the varied methods and modalities of quackery across different regions, encompassing historical and contemporary practices.

METHODOLOGY

The study followed the steps of a scoping review.⁷ The process of all five stages is presented in Figure 1. Published research and grey literature, including reports, blogs, and news articles, were examined to explore the various quackery methods used across regions and historical periods.

This study was conducted from June 2022 to June 2023 in Sindh, Pakistan. Quack, quackery, charlatan, and medical fraud were keywords for searches. Data for the academic research were collected following approved protocols⁸ from sources including Taylor and Francis, PubMed, Emerald, Wiley, JStor, DOAJ, Global Index Medicus, PakMediNet, KoreaMed, and Google Scholar, with 4,954 studies covering the relevant keywords. The study utilised various news websites, reports, blogs, and websites of organisations selling products online to gather grey literature, incorporating 19 relevant materials into the analysis.

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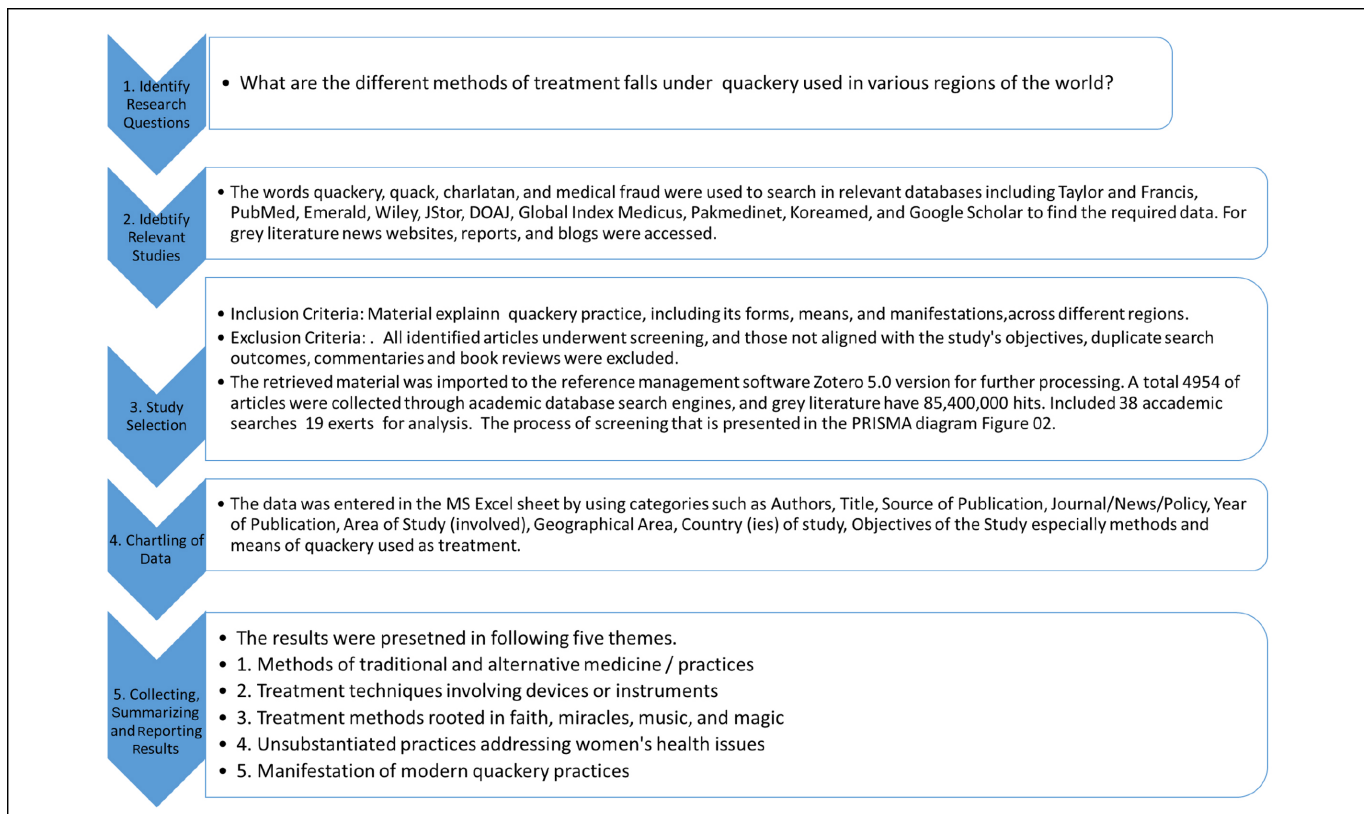


Figure 1: Five stages of scoping review.⁷

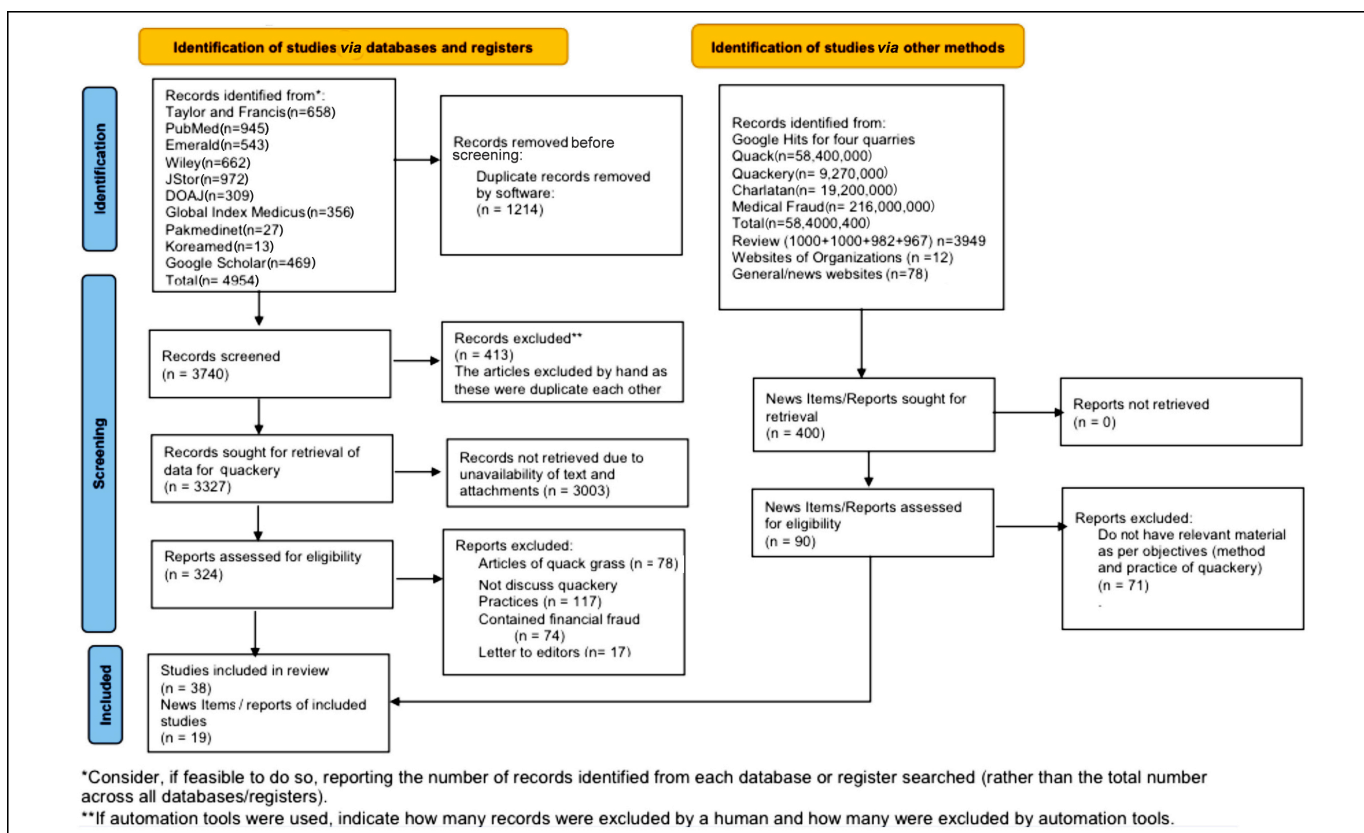


Figure 2: The selection process of studies under PRISMA (preferred reporting items for systematic reviews and meta-analyses).

The collected articles and grey literature were carefully analysed to determine the forms, means, and manifestations of quackery in healthcare. Results not aligned with the study's objectives, duplicate search outcomes, commentaries, and book reviews were excluded. The inclusion and exclusion criteria details are presented in the PRISMA diagram in Figure 2.

quacks, and cultural contextualisation. The meta-synthesis methodology was used, and the findings were examined through an inductive approach,⁹ prioritising relevance, inter-relations, and commonalities, as elucidated within the results section.

The present investigation included 38 research papers and 19 excerpts from the grey literature for analysis. The study identified 124 distinct methods and practices that healers have used to treat illnesses. After a careful analysis, these treatment methods were grouped together based on their similarities. This led us to identify the five main themes for

more in-depth discussion to illustrate the various techniques and treatment methods utilised by diverse practitioners to address a range of illnesses (Figure 3).

Methods of traditional and alternative medicine / practices:

The study found 54 traditional, cultural, and alternative methods of treatment rooted in the old Greek, Arab, Asian, and African systems, as well as experience / invention-based therapeutic care. These methods were based on herbs, minerals, metals, precious stones, diet-control techniques, practices, and combinations of non-medicinal therapies.¹⁰ Blood purification methods through Leeches, bloodletting, cupping, anti-toxin tonics, and blood detoxification were utilised for treating various skin and blood diseases ailments.¹¹ The problem of male sexuality (erectile dysfunction and reproductive organ issues) was treated through the use of snake oil, crocodile oil, man-paddling tonics, and mixtures of herbs with opium.¹²⁻¹⁴ The treatment of broken bones, fixing misalignments, massages, and some surgical procedures for bones were commonly treated by bonesetters in various parts of the globe, especially in the Asian and African regions.^{15,16} In dentistry, specialised methods such as Narcotics powder to pull the tooth, pills for Odontalgia (toothache), and powder / liquid for dental cleaning, treatment of lancing, Laxatives, and itching teeth were found.¹⁷⁻¹⁹ Amygdalin is the bitter substance found in fruit pits, such as apricots, raw nuts, lima beans, clover, sorghum,²⁰ *moringa* tree leaves,²¹ cannabis, and yoga.²² For deafness, the most popular method of massage was Finger surgery.²³ Chiropractic is legally allowed and is practised in many countries, including the USA, Canada, and other European countries, after formal education and licensing through association,²⁴ while not recognised in many Asian countries such as Pakistan.²⁵

Various products such as nauseous teas, birch tar,²⁶ yoghurt pills,²⁷ Swiss tea,²⁸ biotic products, lemon, garlic, beetroot, and various plants are used for various general complaints.²⁹ Heavy metals and other chemicals such as gold, iron, mercury, arsenic, copper, zinc, silver, and precious stones such as pearl, coral, and diamond, poisons including 'Ahiphen' (opium), 'Kupilu' (strychnine), 'Dhattur' (atropine), 'Vatsanabha' (aconite), and 'Bhallataka' (Semicarpol) were also found in the treatment of health problems.¹⁰ The treatment by an examination of urine, hydrotherapy, elixirs, emetics (cause vomiting by solid solution of salt, mustard water, powdered ipecac), itch powder, viper drops, and Turlington's balsam of life were used under cure for all slogans in western countries.³⁰

Treatment techniques involving devices or instruments:

The current study identified 17 methods involving electricity and instruments for treating various health issues.

Medical galvanism, also known as the Franklinism method, is where the electric current passes from the affected body part through a frictional machine to treat the twisted mussels and nerves with an electric charge.³¹ Treatment of impotence was done through electric shocks.^{14,27} At the end of the 19th century, Dr. Hercules Sanche introduced his electropoise and Polizer with the product Oxydonor (method of treatment with gas-pipeline) to treat various diseases such as headaches, female weakness, diphtheria, appendicitis, male problems, yellow fever, and asthma.³² The galvanic belt and batteries were used as necklaces for women to cure nervous debility¹⁴ and the Relax-a-cizor electric shocks were used to reduce extra flash from the body of women.³³ Purging (clyster syringes) method was used to clean bowl and eradicate abdominal diseases.¹¹ Kolon motors by tri-way fixed vertically on bathroom walls simulating colon massage for constipation relief or prevention.²⁷ The metallic tractors by Perkin, the product of Elisha Perkins (1740-1799), combined two metal rods employed to relieve rheumatism, pain, inflammation, and tumours.¹⁶ Female corset was introduced for the treatment of obsessed women, having rheumatic affection, organic diseases, and complaints of weak back.³⁴ The Punkt-roller has suction-cupped rolling pins, to help in weight loss.³³ The use of Cryptoscope-like boxes for x-rays,³⁵ and shoulder wheels for flexion, seizure, or rotation to treat the mussel's pull problems.³⁶

Treatment methods rooted in faith, miracles, music, and magic:

The study reveals 22 methods of spiritual healing treatment conducted by priests, monks, and abbots, encompassing blessings, charms, incantations, magical spells, prayers, and astroscopic texts.³⁷ The cow urine was used in *Ayurveda* and detailed in various texts, for a variety of various diseases.^{38,39} Various health problems were diagnosed as *jinn* possession, the shadow of evil eye/spirit, and witchcraft treated by employing various methods, including meditation, sacrifices, fasting, prayers, amulets with *Quranic* verses, incense fumigation, shrine visits, and purification rituals with *Quranic* verse-infused water.⁴⁰ The healers used music, especially violin, in the treatment,¹⁷ to claim a cure for impotence or infertility,¹⁸ and arranged medicine shows to sell miracle remedies for unwell people.¹¹

Unsubstantiated practices addressing women's health issues:

The study found 14 methods of quackery practices targeting female health issues. There was a claim for anti-hysteria (pills that prevent hysteria) cure for all other ailments, such as a sad countenance, giddiness, and palpitation.⁴¹ The medical water was sold to eliminate female obstructions and repulse courses (blockage in the reproductive tract), and delay in menarche.¹⁸ The cutting of female genital parts was witnessed in the African region to confirm virginity, secure

fertility, and safeguard the economic and social future of daughters.⁴² There was the use of various mixtures, pills, hair loss remedies, oils, and biotics with a claim to provide sustainable solutions to female health problems.⁴³ The sale of breast enlarge creams and the use of love potions in women to enhance romance and attraction were also found.⁴⁴

Manifestation of modern quackery practices:

The web and social media amplify unscientific treatments, fraudulent medical claims, and the emergence of fake health and lifestyle experts.²² The study found 19 various methods and practices in modern quackery. The promotion of special dietary foods, vitamin products, and food supplements as the most widespread and expensive kind of quackery in the United States sold under the name and logo of herbal products and energy medicine.^{45,46} The selling, advertising, and administration of human growth hormone (hGH) as anti-ageing is conceivably the most barefaced form of modern quackery.⁴⁷ In Africa, quantum resonance magnetic (a shiny machine connected to a laptop that presented spinning numbers and images) was used as a disease diagnostic tool.⁴⁸ A removable device, the SmartByte, composed of biocompatible materials, placed in the mouth at the time of eating, contained a small proprietary sensor to precisely measure the times, duration, and frequency of food used at intervals of 5 minutes.⁴⁹ The sale of products from the *Moringa* tree, including those derived from the leaves, flowers, pods, seeds, and roots, for treatment.²¹ In Finland, the sale of colloidal silver products, including those with cancer treatment claims, was found.⁵⁰ The treatment through stem-cell therapy for cancer⁵¹ reported negative effects on transplanted organs and also may cause blood clotting.⁵² Other sales of products such as detox foot pads claim to remove toxins from the body through the feet while sleeping, energy bracelets, to have healing properties that help to balance the body, mind, and spirit of the user.⁵³ Magnetic field therapy treatment used for different types of pain, such as feet, back and arthritis, wound healing, insomnia, headaches, and fibromyalgia pain,⁵⁴ use of colloidal silver for various diseases from viral infection to cancer were found as the modern quackery products.⁵⁵

DISCUSSION

This study aimed to comprehensively review treatment methods categorised as quackery. However, due to the scarcity of relevant research directly addressing the study's objectives, the authors were compelled to include a broader range of older references to fill this gap. The treatment methods have been employed for diverse therapeutic approaches, including herbal remedies, minerals, metals, precious stones, and non-medicinal therapies. Although these methods lack scientific confirmation, they interestingly achieved legal status in healthcare systems such as China legalised traditional Chinese medicine (TCM), including herbal

medicine, acupuncture, moxibustion, and cupping.^{56,57} In India, the AYUSH (Ayurveda, Yoga, Naturopathy, Unani, Siddha, and Homeopathy) system of medicine is legal.^{58,59} Iran also approved herbal medicine, acupuncture, chiropractic, homeopathy, dietary advice, and cupping.⁶⁰ In Pakistan, treatment by homeopaths and herbalists is legally allowed.⁶¹ On the other hand, traditional methods are generally not permitted in Western countries.⁶² Chiropractic treatment has been a subject of debate. Following formal education and licensing through associations, it is permitted in over 60 countries, including the USA, Canada, and various European nations. However, the remaining countries have not approved it as an authorised treatment method.⁶³

In the West, modern techniques and interventions were used, even among high-profile individuals such as the Prince of Wales, the Earl of Sandwich, and the Duchess of Devonshire.⁴¹ The King Louis XIV of France believed in the medicinal properties of the suppository.⁶⁴ The use of these methods by notables made it more undoubted for common people. The tendency still prevails, the sale of med-beds as a miraculous device was reported in the year 2022 without concrete evidence of healing abilities.⁶⁵ On the flip side, faith and spiritual healing were standard practices in Eastern countries and continue to be prevalent today.

Marketers target consumer needs by introducing products that align with demand. The blurred line between quackery and orthodox treatment often claimed to offer nutritional and therapeutic benefits and energy and dietary supplements, confuses buyers.⁴⁷ Sales and advertisement of products for obesity and weight loss are conceivably the most barefaced and systematised form of quackery in today's era.⁴⁸ In the USA, stem-cell treatment for blindness was deducted as a fraudulent treatment in 2023.⁴ The quackery is not closed chapter, current study provided a landscape of quackery practices and products, tracing their historical evolution to their presence in contemporary healthcare systems, highlighting the blurred lines between traditional methods and modern-day medical interventions and invites future research in the subject".

CONCLUSION

Quacks have utilised a diverse array of approaches, ranging from exploiting faith and religion to tapping into spiritual and emotional vulnerabilities. In the contemporary world, the widespread reach of the internet and access to information have become breeding grounds for false news and fabricated traps, where quacks introduce new claims to entice victims. The finding necessitates comprehensive research and the formulation of customised strategies to eliminate quackery and demands the committed engagement of all stakeholders for a successful resolution.

COMPETING INTEREST:

The authors declared no conflict of interest.

AUTHORS' CONTRIBUTION:

GYV: Contributed to conceptual development, literature search, and manuscript writing.

AA: Contributed to approving the charting framework and reviewing the manuscript.

AQS, AGS: Did a quality assessment and manuscript review.

All authors approved the final version of the manuscript to be published.

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