

Global prevalence of quackery practices: A scoping review of definitions, regulations and allied healthcare

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Abstract

Advancements in medical science and digital access made it easier for individuals to seek appropriate treatment. Despite living in the current information era, the practice of quackery has continued worldwide. The current scoping review was planned to explore different definitions and laws related to quackery, and the acceptance of allied healthcare services in traditional, cultural and legal contexts. The review examined a total of 3,327 published studies and 400 pieces of grey literature, including existing laws, regulatory authority websites, news articles and reports. A total of 56 studies and 21 excerpts were shortlisted for analysis. The definitions of quackery varied significantly across regions, but a general consensus is that unauthorised healthcare practices constitute quackery. Legal perspectives differed worldwide, with Europe, North America and Oceania discouraging allied healthcare services, such as homeopathy, naturopathy and traditional methods, considering them quackery. In contrast, Asian and African regions endorsed allied healthcare and established provider registration and licensing systems.

Keywords: Allied healthcare, Charlatan, Health fraud, Quackery, Traditional methods.

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Introduction

Individuals have always endeavoured to maintain their wellbeing and explore diverse approaches to healing. There is a long history of using various techniques to treat illnesses, such as the consumption of herbs as medicine, the use of animal dung ointments, and the bloodletting venesection technique involving cuts on various parts of the human body to drain the blood.¹ Some means of treatment are viewed as traditional methods that possess knowledge, skills and practices originating in various cultures. The World Health Organisation (WHO) defines that traditional practices were utilised for

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maintaining health, preventing, diagnosing, improving, or treating physical and mental illnesses.² Several other healthcare practices, such as religious, spiritual, magical, rituals, and many more were used to treat ailments and are now deemed quackery.³ In the modern era, the reliance on scientifically proven methods for treating diseases is predominant. Treatments rooted in ancient practices, traditional values and local religious affiliations lack explicit legal status and are subject to debate. Such practices that fail to receive legal recognition are categorised as quackery. Various definitions and discussions have defined and explained quackery in different regions according to their legal, cultural, social and religious backgrounds. There are regulatory authorities in every country, like the Food and Drug Authority (FDA) in the United States of America (USA),⁴ the Medicine and Healthcare Products Regulatory Authority (MHRA) of the United Kingdom (UK),⁵ the Health Products and Food Branch (HPFB) of Health Canada⁶ and Healthcare Commissions in Pakistan⁷ that are responsible to regulate the healthcare system and curtail quackery practices. However, the business of quacks has continued in new forms and with new titles. Due to the loopholes in regulatory frameworks, unregularised healthcare professionals can practice illegal treatments. Their treatments include different therapies, traditional methods and naturopathy.

Furthermore, certain companies or individuals exploited their registration with the authorities for trials or research, falsely asserting the success of their treatments and swindling impoverished patients worldwide. In early 2023, an instance was reported in the USA, where an ongoing stem cell treatment for blindness attracted patients from diverse regions of the world who travelled there and incurred significant financial losses due to the fraudulent treatment being offered.⁸

The global impact of quackery persists, evolving and varying across countries. The current scoping review was planned to explore diverse definitions and explanations of quackery, regulatory frameworks and the legal status of allied healthcare practices in various regions of the world.

Materials and Methods

The scoping review was conducted from June 2022 to June 2023, and comprised literature search on databases,

including Taylor and Francis, PubMed, Emerald, Wiley, JStor, Directory of open access journals (DOAJ), Global Index Medicus, Pakmedinet, Koreamed and Google Scholar.

A scoping review was targetted instead of a systematic review because it has been recommended when the purpose is to identify knowledge gaps, scope a body of literature or clarify certain concepts,⁹ which helps to provide an overview of the available research evidence without producing a summary answer to a discrete research question.¹⁰

The current review followed the steps of scoping review outlined in literature¹¹⁻¹³ (Figure 1). It incorporated published researches, grey literature, including reports, laws, regulatory authority websites, and news reports, to explore the complex intersection of quackery and the

argumentative legality of allied healthcare practices. The Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) guidelines (Figure 2) were followed.

Since the scoping review did not involve quality appraisals, therefore the relevant guidelines¹⁴ were followed. Search terms included 'quacks' and 'quackery' along with its synonyms 'charlatan' and 'medical fraud'. Relevant data was gathered using the search pattern mentioned in literature.¹⁵

The collected studies and grey literature were carefully analysed to determine their alignment with the study's objectives, and to establish a comprehensive understanding of quackery. After reviewing the titles and abstracts, studies and extracts, including news articles,

Stage of Scoping Review under guidelines of Arksey and O Malley



Figure 1: Stages of scoping review.

PRISMA: Preferred Reporting Items for Systematic Reviews and Meta-Analyses.

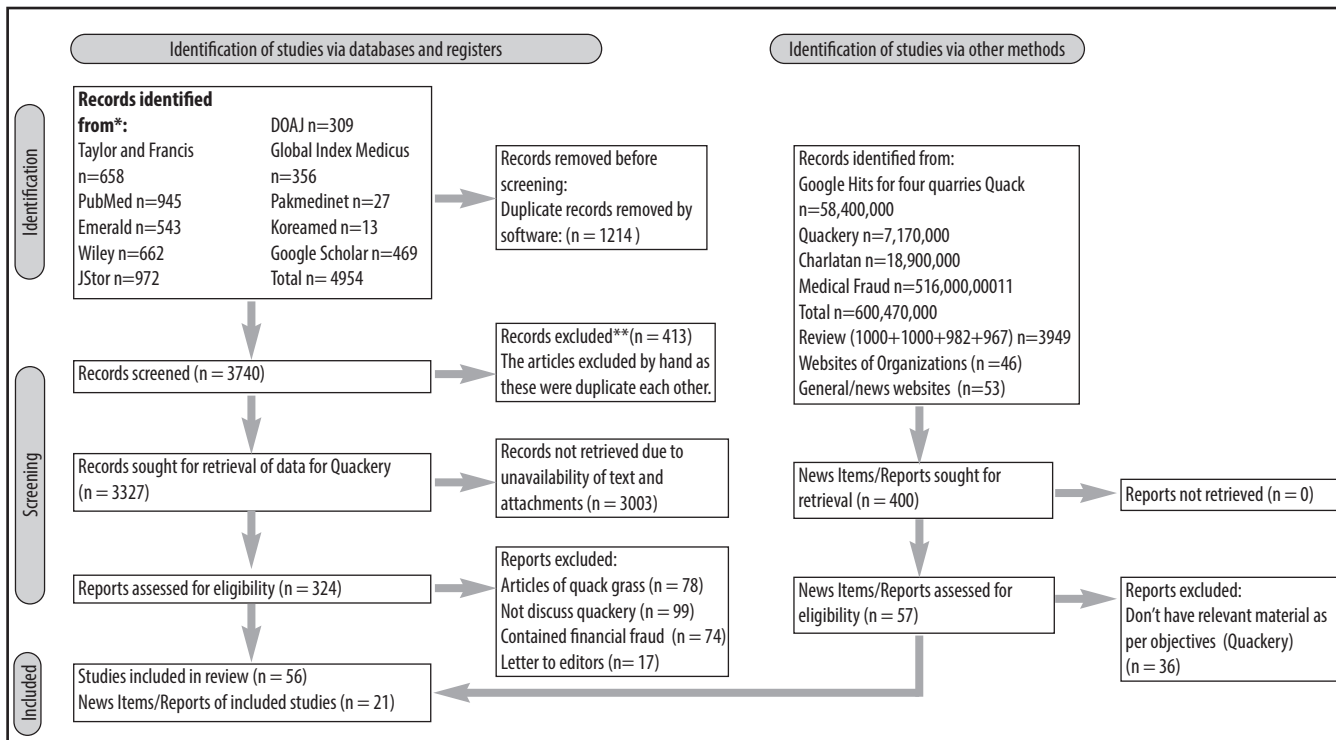


Figure-2: Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) flowchart.

*Consider, if feasible to do so, reporting the number of records identified from each database or register searched (rather than the total number across all databases/register).
**If automation tools were used, indicate how many records were excluded by a human and how many were excluded by automation tools.

Table-1: Characteristics of the participants (n=10).

S. No.	Name of Search Engine	Results for Charlatan Quack*	Results for Quackery	Results for Medical Fraud	Total
1	Taylor and Francis	240	232	186	658
2	PubMed	563	364	18	945
3	Emerald	443	89	11	543
4	Wiley	566	92	04	662
5	JStor	695	259	18	972
6	DOAJ	110	43	156	309
7	Global Index Medicus	154	77	125	356
8	Pakmedinet	20	06	01	27
9	Koreamed	04	04	05	13
10	Google Scholar	75	147	247	469
Grand Total					4954

DOAJ: Directory of open access journals.

letters, editorials, blogs, websites and other related materials, were shortlisted. While searching for the term 'fraud', some outcomes were related to financial misappropriations, and the term 'quack' yielded results linked to quack grass, a plant, and studies related to natural sciences. All the identified articles were screened, and those not aligned with the study's objectives, duplicate search outcomes, commentaries and book reviews were excluded.

Various aspects of quackery, including its definitions, explanations, contextual factors, such as publication dates,

Table-2: Grey literature search outcome.

S. No.	Queries	Total Hits	Checked for relevancy	Reviewed in included for analysis	Included for analysis
1	Quack	58,400,000	100	07	03
2	Quackery	7,170,000	100	14	08
3	Charlatan	18,900,000	100	17	02
4	Medical Fraud	516,000,000	100	18	09
Total		58,400,400	400	56	21

geographical presentations, terminology and cultural context, were systematically segregated and examined. The summarised findings of the academic (Table 1) and grey literature (Table 2) were noted and used for developing a charting framework, which was checked and refined before beginning data analysis. The data was thematically analysed, considering relevance, associations, and similarities between the quackery definitions.

Results and Discussion

The review explored global definitions of quackery, aiming to uncover similarities and differences. The distribution of search items (Figure 3) as well as their geographical spread (Figure 4) were noted. The definition and characterisation of quacks and quackery services in various countries and regions around the world highlighted the different practices and behaviours associated with quackery in each location.

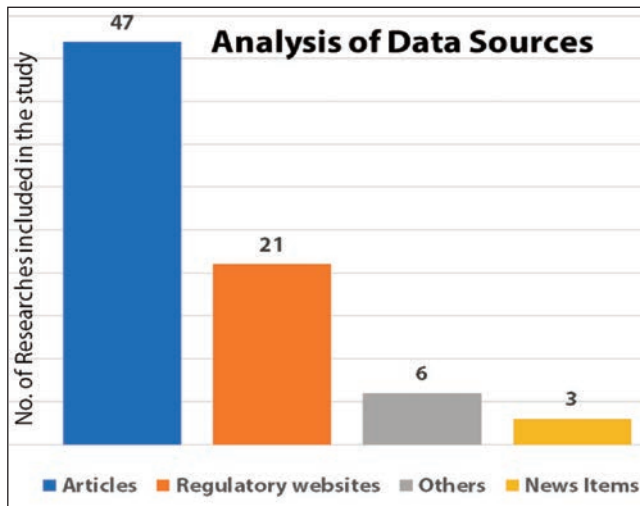


Figure-3: Distribution of search items included for analysis.

In Europe, quackery often involves women, particularly postmenopausal, who claim the exclusive ability to heal. In Asia, quackery encompasses unqualified healers, informal healthcare practitioners, faith-healers, and individuals with no proper qualifications offering healthcare services. North and South America deal with quackery in the form of individuals who claim to cure all diseases and employ deceptive tactics to attract patients. African countries confront fraudulent practices, spiritualism and unlicensed practitioners. Oceania grapples with non-science-based treatments and fraudulent medical claims (Table 3).^{3,16-51}

In the European region, with respect to legality, governments have begun to establish clear boundaries between quackery and unauthorised healthcare providers. In Spain, during the 16th century, King Phillip II introduced two cadres: 'Boticarios' (professionals who dispensed prescription drugs and acted as primary healthcare providers) and 'Protomedico' (prestigious healthcare providers who served the king and the royal family directly).⁵² Currently, in Spain, Law 44/2003 on the Management of Health Professions states that individuals who lack the required qualifications, licenses or legal authorisation are not allowed to offer healthcare services, while engaging in quackery, or providing healthcare services without appropriate credentials is considered illegal and can result in penalties^{53,54} In Ireland, an act was passed in 1858 that required practitioners to register with the College of Physicians, and those who failed to register were considered quacks.⁵⁵ The UK established the Medical Register in 1860 to regulate and document all healthcare providers in the kingdom.⁵⁶ Presently, quackery in the UK is addressed and regulated under the Consumer Protection from Unfair Trading Regulations 2008 and the Medicines Act 1968 to protect the public from false or misleading claims about healthcare products and services.⁵⁷ In France,

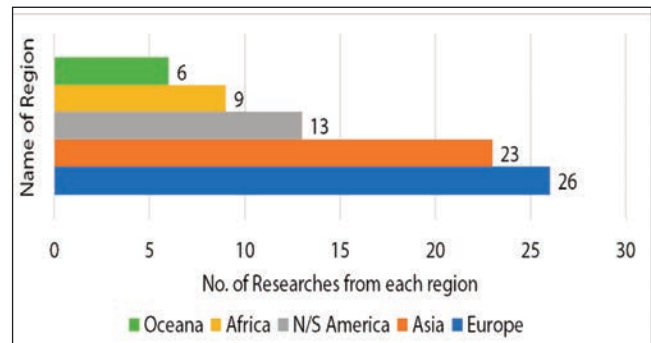


Figure-4: Regional distribution of search items.

quackery is specified under Article L4161-1 of the French Public Health Code, which defines it as the exercise of medicine by individuals who are not legally authorised, or who provide healthcare services that are not recognised or accepted by scientific or professional communities.⁵⁸ In Norway, healthcare and quackery practices are regulated under the Act on Healthcare Personnel 2000. This legislation requires healthcare providers to meet qualifications, adhere to professional standards, and prohibits false claims and exceeding legal limits, with such activities being considered quackery.⁵⁹ However, there is diversification to allow allied healthcare in Europe, as Norway and Denmark allowed Complementary and Alternative Medicine, especially acupuncture, under the Norwegian Act on Alternative Treatment of Disease, Injury, or Disability 2004.⁶⁰ In contrast, these were discouraged in the UK and France, and were potentially deemed as quackery.⁶¹

In the Asian region, Bangladesh, India, Nepal and Pakistan agree that the practice of a person who does not have the required qualification and registration to practice health services or provide services beyond the scope of registration is illegal and falls under quackery.^{62,63} However, allied and traditional healthcare services in several Asian countries, including China, India, Iran and Pakistan, have legal standing. In China, the local and cultural Traditional Chinese Medicine (TCM), including the practice of herbal medicine, acupuncture, moxibustion, cupping and Tui Na (a form of therapeutic massage), are allowed through trained practitioners⁶⁴ In India, Ayurveda, Yoga, Naturopathy, Unani, Siddha, and Homeopathy (AYUSH) system of medicine is widely prevalent and practised, overseen by the Department of Indian System of Medicine.⁶⁵ In Iran, Traditional Iranian Medicine (TIM), also known as Persian Medicine or traditional treatments, includes the practice of herbal medicine, acupuncture, chiropractic, homoeopathy, dietary advice, cupping, and other therapies, and is legally permitted by trained and qualified practitioners.⁶⁶ Those who provided services outside the academic arena of traditional methods are

Table-3: Definition and characterisation of quacks and quackery services in various countries.

Region	Country	Quacks and quackery services were defined as;
Europe	Bosnia and Herzegovina	The traditional healing practices exclusively carried out by women, particularly those who have reached menopause. This is based on popular beliefs that only "pure" women possess the ability to treat unwell individuals [3].
	Finland	Intentional and misleading advertisement and offer of unscientific promises under the guise of alternative medicine or complementary therapies [16]
	Georgia	The Advertising Professors, who enticed clients with fabricated narratives and false promises of effective treatment [17].
	Greece and France	Services provided by charlatans, untrained healers, whore chasers, liars, wise women, and cunning folks [18], [19].
	Italy and the Netherlands	Dishonest healthcare providers, who offer services with false hopes to needy patients for their financial gains [20], [21].
	Norway	Quacks, in general, were depicted as dishonest, cheeky, greedy, charlatans, and unscrupulous thugs, who were dangerous to human life [22].
	United Kingdom	Quackery practices were driven by monetary motives, where practitioners employed a variety of strategies and potentially exaggerated the benefits of their products and services for promotion [23].
Asia	Bangladesh and Russia	Health service provided by medicine and pharmacy healers, were not required qualifications to provided services in health [24], [25].
	China	Services by Yong-yi (itinerant doctors, midwives and shaman doctors) were declared as quackery [26].
	India	Informal healthcare practices of low-grade, unregistered and traditional practitioners [27], use of cow urine for treatment [28]
	Iran, Pakistan, and the UAE	Certain religious and faith-based practices including sorcery, use of amulets, fumigation of incense, visits to tombs of religious scholars, rituals (Mahaya), drinking or bathing in water that was washed off holy book verses written on a plate [29], use of religious scriptures [30], treatment of pir faqeer (religious father)[31] were discussed as quackery.
	Korea	Services by unlicensed medical practitioners, medical practitioners with no public qualifications, half doctor (Quasi-doctor), and Self-approved practitioner [32].
	Nepal	Informal healthcare providers without formal education or training from authorized institutions from experienced individuals and were not registered with government regulatory agencies [33].
	Philippines and Vietnam	Practices of fake medical treatments and overstated promotion of medicines by people who claim they have medical knowledge and background [34] [35].
	Russia	Services of clairvoyant and witches deemed quackery. [36]
	Pakistan	Healthcare services by illegal drug sellers, pharmacists providing healthcare services, traditional healers, bonesetters [37], assistants (who worked with seniors) [38], lab technicians/lab attendants, midwives/nurses, practitioners of Homeopathic Medical System and Hakeem (Herbal) who are practicing allopathy, and rent seekers (who falsely provide services under the name or board of a licensed doctor) [39], users of medicines those were prepared or derived from animals or from their products with a claim to cure everything [40] are deemed as quackery.
North and South America	Argentina	Services by a person who claims to know everything and cure every disease and quacks told fake stories to attract patients [41].
	Canada and USA	Healthcare services of irregulars, quacks, frauds, menaces, bootblacks, scavengers, incompetents, and charlatans, and their practices were seen as unscientific and quackery [42], [43]. The misrepresentation of skills, making false claims about treatment outcomes, and promoting unproven or fraudulent medical schemes for personal financial gain also falls in quackery [42], [44].
	Mexico	Healthcare services of an ignorant or fraudulent pretender to medical skill, who placed personal gain above his patients' best interests [45].
	Venezuela	Healthcare services by healers, alternative doctors, therapists, homeopaths, who claim to cure for every ailment [71]
	Kenya	Healthcare practices of the practitioner provided with intention of fraud and dishonesty [46].
	Nigeria	The method of treatment under spiritualism, divination, bone setting and services of unlicensed practitioners [47] and mobile doctors, who were actually herbalists using digital medical equipment to create a false impression of providing treatment [48].
	South Africa	Healthcare practice by unlicensed practitioners, who claimed themselves falsely as registered doctors. [35]
Oceania	Australia	As propagation of non-science-based treatments and fraudulent medical claims, and in the rise of false health and lifestyle experts [49].
	New Zealand	Healthcare services by irregular practitioners, itinerant hawkers, traditional Maori and immigrant Chinese medicine practitioners and providers [50]. Homeopaths, naturopaths and chiropractors are deemed an alternative-to-science practitioners [51].

known as quacks⁶⁷ In Pakistan, treatment by homeopaths and herbalists are legally allowed, and there are councils for registration and monitoring of these services.^{39,68}

In North and South America, legally in the 16th century, the Spanish administrators in Mexico initially defined the scope of healthcare services providers, called 'Curanderos' (healers).⁶⁹ In South American countries, quacks were known as travelling doctors and vendors of miracles.⁷⁰ In Venezuela the quacks are known as 'healers', 'alternative doctors', 'therapists' and 'homeopaths', who claim to have a cure for every ailment.⁷¹

In North and South America, different countries have established diverse legal definitions to characterise quackery according to their respective laws. The USA government formed a special committee of Senate members to present report on the quackery challenge in 1983. The submitted report, 'Quackery: A \$10 Billion Scandal', defined quacks as anyone who promotes medical schemes or remedies known to be false, or that are unproven, for a profit.⁷² In addition, the FDA, under Compliance Policy Guide (CPG) section 120.500, defines Health Fraud as the "deceptive promotion, advertisement, distribution or sale of articles, intended for human or

animal use, that are represented as being effective to diagnose, prevent, cure, treat, or mitigate disease (or other conditions), or provide a beneficial effect on health, but which have not been scientifically proven safe and effective for such purposes".⁷³

Similarly, Health Canada, the department of the Canadian government that oversees public health, explains that medical fraud usually involves making false claims and producing fake receipts to secure unearned medical benefits from insurers. Medical fraud charges are generally covered under Section 380 of the Criminal Code.⁷⁴ The Health Products and Food Branch (HPFB) of Health Canada is mandated to regulate the health and food services, like the FDA USA.⁶

In Mexico, the Comisión Federal para la Protección contra Riesgos Sanitarios (COFEPRIS), or the Federal Committee for Protection from Sanitary Risks, is the department within the federal health ministry that deals with matters related to controlling health facilities and monitoring the manufacturing, import or export of health products. Any healthcare service without approval of COFEPRIS falls under the definition of quackery.⁷⁵

The status of alternative healthcare remains a topic of discussion and debate among states in the US and provinces in Canada. In Ontario, Canada, practitioners of naturopathy, TCM, acupuncture and homeopathy seek official recognition and regulation through state-sanctioned measures.⁷⁶ In the US, chiropractors, naturopathic practitioners and acupuncturists are regulated in many states, while traditional methods are generally not permitted⁷⁷ and homeopathy services and sales also fall under quackery.⁷⁸ In South America, such as Brazil, the treatment of homeopathy is legally allowed and is part of the public health system under the National Policy for Integrative and Complementarity Medicine.⁶¹

In African nations, such as Kenya, Nigeria and South Africa, the legal system addresses quacks who lack valid registration and licenses for their services. Kenya defines quackery under the Witchcraft Act, Cap 67, stating that "any person who, of his pretended knowledge of so-called witchcraft, intends to injure, cause fear, annoyance or injury in mind, person or property to any person shall be guilty of an offense".⁴⁶ In Nigeria, quackery is defined as attempt to describe the duplicitous misrepresentation of ability and experience for treatment and diagnosis of any disease.⁷⁹

Following the recommendations of WHO for recognising and regulating African traditional medicine (ATM), countries in Africa have undertaken measures to investigate and study traditional medicine.² However, there

is still significant variation in national policies and regulations regarding traditional medicine among African countries. During 2001-02, Ivory Coast, Comoros, Seychelles and Cape Verde had no provisions for traditional medical practitioners or regulatory frameworks. In South Africa, traditional practitioners were recognised as integral to primary healthcare, but not yet part of the public health service.⁸⁰ In contrast, Ghana made early efforts to fully integrate traditional medicine into primary healthcare. By 2004, inclusive healthcare systems were reportedly established in countries, such as Zimbabwe, Guinea, Nigeria, Mali, Ghana and South Africa.⁸¹

In the Oceania region, Australia and New Zealand are making specific legislation targetting unqualified or fraudulent healthcare practices under consumer protection laws. The Australian Consumer Law 2011⁸² was meant to protect the citizens from medical fraud, and the Australian Health Practitioner Regulation Agency (AHPRA) ensures compliance with standards of education, competence and ethical conduct, and bans unregistered practitioners.⁸³ New Zealand has the Health Practitioners Competence Assurance Act 2003 to establish registration boards for healthcare professions and setting standards for registration and ongoing competence.⁸⁴ The parliament of New Zealand passed the Tohunga Suppression Act 1907 to ban the practices of quacks who claim to be experts in curing all diseases⁸⁵ and in 2015, an Australian medical study investigation ruled homeopathy ineffective.⁷⁸

In December 2003, Australia and New Zealand established a joint regulatory agency to oversee therapeutic products, including medical devices, prescription drugs, over-the-counter medications, and complementary medicines, which replaced the Australian Therapeutic Goods Administration (TGA) and the New Zealand Medicines and Medical Devices Safety Authority (Medsafe), and is responsible for monitoring unauthorised practices, specifically those falling under quackery.⁸⁶

The current scoping review has limitations that it includes a bias towards literature predominantly sourced from Europe and the USA because these regions have a long history of taking actions against quackery. There is limited representation of research from Oceania, Africa and Asia due to unavailability of material on the subject. Additionally, the availability of studies addressing laws and regulations pertaining to quackery is limited globally. To compensate for this gap, websites of diverse legal authorities across various countries were relied upon.

Conclusion

The definitions of quackery vary across different regions, but there is a consensus that healthcare practices not

deemed appropriate or approved by authorised health authorities fall within the domain of quackery. Legal perspectives regarding the approval of healthcare services vary worldwide. Laws have been designed and implemented in Europe, North America, South America and Oceania to eliminate quacks and discourage traditional methods. The status of allied healthcare services, such as homoeopathy, chiropractic, and naturopathy in these parts of world differ, where some countries permit allied healthcare, while others classify them as quackery. In contrast, Asian and African regions tend to support traditional methods and allied healthcare practices by registering and licensing homoeopaths, herbalists and other traditional healthcare providers as legitimate practitioners within the healthcare system.

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