International Journal of Advanced Scientific Research
www.allscientificjournal.com
E-ISSN: 2456-0421
Received: 15-09-2026, Accepted: 15-10-2026, Published: 30-10-2026
Volume 11, Issue 4, 2026, Page No. 37-47

Strategies and healing business models for spiritual health: Integrating quality service, natural healing and AI technologies

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DOI: https://doi.org/10.66856/ijasr.2026.11.4.11087

Abstract
The global health industry is undergoing a paradigm shift from "disease treatment" toward "whole-person health", and the meaning of health has expanded from the mere absence of physical illness to the overall balance of physical, psychological, social and spiritual dimensions. Within this trend, the revival of Eastern traditional regimen wisdom and the rise of five-senses natural healing have become important drivers in the field of health management, while the penetration of artificial-intelligence (AI) and Internet-of-Things (IoT) technologies has brought new opportunities for the digitalisation, personalisation and standardisation of traditional healing services. This study systematically examines the two core domains of spiritual health and five-senses healing, integrating traditional cultural wisdom, industrial management and smart-technology application, in order to construct a complete framework of healing-oriented health management. First, the theoretical connotations of spiritual health, meaning in life and values are reviewed; the core ideas of traditional regimen systems such as Traditional Chinese Medicine (TCM) and Ayurveda are analysed in depth; and the health benefits of mindfulness practice and traditional exercises are explained from a modern physiological standpoint. Second, the market positioning of traditional therapies within the modern health-service system is examined, together with regulatory oversight of healing products, service standardisation, professional ethics and quality-management systems; a business model and internationalisation strategy for Eastern regimen brands are proposed in conjunction with a longevity-service architecture. At the technology-application level, the study investigates the use of knowledge-graph technology in the digitalisation of traditional regimen knowledge, the practice of multimodal AI in regimen education, the design logic of personalised recommendation systems, and the evidence grading and AI content-verification mechanism for traditional therapies, and it presents a complete architecture for a prototype traditional-regimen knowledge-retrieval system. At the level of the five senses and natural healing, the scientific mechanisms by which sensory perception influences emotion and the autonomic nervous system are set out, the evidence base and effect boundaries of aromatherapy and forest therapy are reviewed, and the industrial business models of SPA aromatherapy, natural healing sites and natural wellness products are analysed. Finally, integrating AIoT sensing technology, environmental data analysis and intelligent control, the study proposes an overall design architecture and multiple application scenarios for a smart five-senses healing space.

Keywords: Spiritual health, traditional regimen, forest therapy, aromatherap, knowledge graph, smart healing space, five-senses experience

Introduction

Over the past half-century, the biomedical model has dominated the development of the global healthcare system, reducing health to the state of "absence of disease" and focusing the core of treatment on symptom confrontation at the organ, molecular and genetic levels. This model achieved remarkable achievements in controlling infectious diseases and reducing acute mortality, yet its limitations have gradually become apparent when confronting the chronic diseases, stress-related disorders and sub-health states that are increasingly prevalent in modern society. A growing body of research and practical experience indicates that human health depends not solely on biochemical indicators at the physiological level but on the dynamic balance of multiple dimensions — physical, psychological, social and spiritual. As early as 1948, the World Health Organization defined health as "a state of complete physical, mental and social well-being and not merely the absence of disease or infirmity"; this idea of Whole Person Health has, with the evolution of the era, gained increasing support from scientific evidence and recognition among the public (Lu, 2026) [18]. Within the context of this paradigm shift, two important health trends are rapidly reshaping the global health industry. The first is the revival of traditional regimen and spiritual health. Eastern traditional medical systems with thousands of years of history, such as TCM and Ayurveda, whose core ideas of holistic balance, treating disease before its onset, and joint cultivation of body and mind respond precisely to modern people's demand for whole-person health; meanwhile, mindfulness and loving-kindness practices derived from the Buddhist meditative tradition have, through validation by modern psychology and neuroscience, moved from marginal alternative therapies into mainstream medical and health-management systems. Large-scale observational studies and intervention trials have successively confirmed that plant-based dietary patterns, regular mind–body practice and balanced lifestyles can significantly reduce the risk of cardiovascular disease, metabolic disease and several cancers, while improving emotional state and quality of life (Dinu *et al*., 2017; Gan *et al*., 2021; Wang *et al*., 2021) [7, 12, 29]. These findings not only validate the contemporary value of traditional regimen wisdom but also drive the vigorous development of the global healing industry. The second

trend is the rise of natural healing and the five-senses experience economy. As urbanisation accelerates, modern people live in environments filled with artificial stimulation, stress and pollution, and their connection with nature grows increasingly distant; this alienation is regarded as one of the important reasons for the rise of stress disorders, emotional distress and civilisation diseases among modern populations. Healing services centred on the natural environment and five-senses experience — such as forest therapy, aromatherapy, hot-spring SPA and organic-farm experiences — have become important choices for relieving stress and seeking mind–body balance. Epidemiological research indicates that populations with regular exposure to natural environments exhibit lower stress-hormone concentrations, better autonomic balance and stronger immune function, together with significantly higher overall health status and subjective wellbeing (Ortolá *et al*., 2021; Cai *et al*., 2025) [5, 23]. For consumers, healing consumption is no longer a luxurious indulgence but a necessary investment against the pressures of modern life and for maintaining physical and mental health; for industry, the rise of the experience economy has upgraded healing services from a purely functional orientation to an integrated experience combining aesthetics, ritual and emotional resonance. At the same time, the rapid development of AI and IoT technology has brought a historic opportunity for innovation and upgrading in traditional regimen and healing services. On the one hand, natural-language processing, knowledge graphs and computer vision enable the systematic organisation and intelligent retrieval of the vast corpus of ancient medical texts, substantially lowering the learning threshold for traditional regimen knowledge; multimodal AI further provides movement instruction, personalised dietary advice and interactive health education, overcoming the human-resource and spatial-temporal constraints of traditional services (Chen *et al*., 2025; Marusic *et al*., 2025; Papastratis *et al*., 2024) [5, 19, 24]. Despite the vigorous development of the field, three core challenges currently constrain the long-term healthy development of the industry. First, the evidence base is uneven: the fields of traditional therapy and spiritual health are filled with a great variety of services and products, and some operators, for commercial marketing purposes, exaggerate efficacy and even blur the boundary between health promotion and medical treatment, harming consumer rights and damaging the credibility of the industry as a whole. Second, industrial standards are insufficient: the healing-service industry has long faced problems of chaotic practitioner certification, non-standardised service processes and incomplete professional-ethical norms, producing a very wide gap in service quality that consumers can hardly distinguish.

Third, technology integration lacks a systematic architecture: current combinations of technology with traditional healing are mostly point applications; whether in the digitalisation of traditional knowledge or in smart healing spaces, an integrated architectural design and empirical validation are lacking, and the potential of technology has not been fully realised. Against this background, the present study integrates four dimensions — spiritual health, traditional regimen, five-senses healing and smart technology — in order to construct a complete healing-oriented health-management framework that balances scientific evidence, industrial practice and technological application.

Spiritual Health and Traditional Regimen

Spiritual health is the most inward dimension of whole-person health and the dimension most easily overlooked by the modern biomedical model. Unlike the practice of a specific religious faith, spiritual health is a more universal and inclusive concept, referring to an individual's capacity to seek meaning, purpose and a sense of connection in life, and to a state of harmonious relationship with the self, others, nature and transcendent values. Past health research often treated spirituality as an unquantifiable subjective feeling and even excluded it from scientific discussion; however, a growing body of evidence shows that spiritual state is not an abstract concept detached from the body but materially affects physical health and disease risk through neuroendocrine, immune and inflammatory pathways. It is found that long-term stress, emotional distress and existential anxiety, through excessive activation of the HPA axis, lead to a systemic chronic low-grade inflammatory state; inflammation is precisely the common pathological basis of numerous chronic diseases, metabolic abnormalities and even cognitive decline (Lu, 2026). Conversely, individuals with a clear sense of meaning in life, stable values and good social connection possess better stress-regulation capacity, lower inflammatory markers and more favourable overall health. Diet and the gut microbiome constitute one important mediating pathway through which spiritual state affects physical health. An individual's values and life attitude profoundly influence dietary choices and lifestyle, while dietary pattern is a key determinant of gut-microbiota composition and inflammatory state. A large body of research confirms that plant-based dietary patterns can significantly improve oxidative stress and inflammatory state in the body, enhance antioxidant defence and thereby reduce the risk of multiple chronic diseases (Aleksandrova *et al*., 2021; Eichelmann *et al*., 2016) [1, 8]. It is noteworthy that the motivation for choosing a plant-based diet is often not purely health-related but also involves value identification with life, nature and sustainability; this is precisely a concrete manifestation of how spiritual health influences life behaviour and, in turn, physical state. The gut–brain axis is another important physiological connection pathway. Gut microbiota participate not only in nutritional metabolism and immune regulation but also influence central-nervous-system function through multiple neural, immune and metabolic pathways, including emotion regulation, stress response and even cognitive function (Fried *et al*., 2021; Suganya & Koo, 2022) [11, 26]. Psychological states associated with spiritual health — such as emotional stability, stress-regulation capacity and mindful awareness — in turn affect the gut environment and microbial balance. This bidirectional interaction forms a circular network of "spiritual state – life behaviour – gut microbiome – physical and mental health", and explains why traditional regimen systems have always emphasised the holistic view of body–mind unity and the equal importance of diet and emotional regulation. TCM and Ayurveda are the two longest-established and most complete traditional medical systems in human history. Although born in different cultural soils, they share similar

holistic thinking and a preventive-medicine spirit, and are the most important cultural sources of contemporary spiritual health and regimen practice. The TCM regimen system takes the theory of yin–yang and the five phases as its philosophical foundation, holistic observation and syndrome differentiation as its methodological core, and emphasises "correspondence between humanity and nature" and "balance of yin and yang". TCM regards the human being as part of the natural whole, and holds that life activities must conform to natural laws and seasonal changes in order to maintain internal yin–yang balance, which is the root of health. The highest principle of regimen is "treating disease before its onset": before disease arises, bodily balance is maintained through dietary regulation, regular daily routine, exercise and daoyin, and emotional cultivation, rather than waiting until disease has formed before treating it (Lu, 2026). TCM never advocates a one-size-fits-all regimen method but emphasises the personalised principle of adapting to the person, the time and the place. TCM classifies constitution into several types, including yin deficiency, yang deficiency, qi deficiency, damp-heat and phlegm-dampness; the diet, exercise and daily routine suitable for people of different constitutions differ markedly. This syndrome-differentiation thinking, which values individual difference, coincides with the developmental direction of contemporary precision medicine and personalised health management. The principles of diversity, balance and plant-based food emphasised in TCM dietary regimen are also highly consistent with findings of modern nutritional science. Large-scale meta-analyses repeatedly verify that high-quality plant-based dietary patterns significantly reduce the risk of cardiovascular disease, type-2 diabetes and several cancers, with mechanisms related to improved blood lipids, reduced inflammation and enhanced insulin sensitivity (Dinu *et al*., 2017; Gan *et al*., 2021; Wang *et al*., 2021) [7, 12, 29]. Ayurveda is a traditional medical system originating in India; its name means "the science of life", and it has a development history of more than five thousand years. Ayurveda holds that the universe is composed of five elements — earth, water, fire, air and space — which correspond in the human body to three constitutional energies (Doshas): Vata (air type, governing movement and conduction), Pitta (fire type, governing metabolism and transformation) and Kapha (earth type, governing structure and lubrication). Every individual is born with a unique constitutional composition, which determines body type, character, metabolic tendency and disease susceptibility; disease arises when the three energies lose balance. The core goal of Ayurvedic regimen is to restore internal energy balance according to individual constitution through diet, herbs, massage, meditation, yoga and adjustment of daily routine. For example, Vata-type individuals are prone to anxiety, insomnia and poor digestion, and suit warm, nourishing foods and a regular, stable routine; Pitta-type individuals are prone to inflammation, internal heat and irritability, and suit cooling, calming foods and avoidance of overexertion; Kapha-type individuals tend toward heaviness, sluggishness and overweight, and suit light, warm foods and ample activity. Comparing TCM with Ayurveda, Patwardhan *et al*. (2005) [25] observe that, although originating in different cultures, the two-share high similarity in holism, individualised treatment, preventive medicine, mind–body integration and the use of natural remedies, both emphasising restoration of the body's self-healing capacity rather than mere symptom confrontation. This is not a historical coincidence but a shared understanding, reached by two civilisations through long practice, of the laws governing human health.

The Buddhist meditative tradition is an important source of Eastern spiritual regimen; among its core practices, mindfulness and compassion have, over the past forty-odd years, been widely introduced into modern psychology, neuroscience and medicine, becoming the most thoroughly researched and widely applied Eastern healing methods. Mindfulness refers to the state of consciously and non-judgementally focusing attention on present-moment experience. Rooted in the Buddhist Noble Eightfold Path and meditative tradition, and systematised by the American scholar Jon Kabat-Zinn into Mindfulness-Based Stress Reduction (MBSR), it gradually detached from its religious context to become an important tool in mainstream psychotherapy and health management. The healing mechanism of mindfulness lies at its core in changing the individual's relationship with inner experience. Most psychological suffering does not arise directly from the event itself but from negative judgement, resistance, avoidance and repetitive rumination concerning the event; mindfulness practice, by training attentional stability, cultivates the capacities of "acceptance" and "decentring", enabling the individual to observe thoughts and emotions from a bystander's perspective without being swept into or controlled by them. From a cognitive-function perspective, mindfulness training can significantly improve attentional stability and executive control, reduce the frequency of mind wandering, and thereby enhance working-memory performance and cognitive efficiency. This is because mindfulness practice is essentially a form of attentional gymnastics: repeatedly pulling scattered attention back to a present anchor (such as the breath) strengthens the regulatory function of the prefrontal cortex and enhances autonomous control over attention. From a physiological perspective, regular mindfulness practice effectively regulates ANS balance, raises parasympathetic tone and reduces excessive sympathetic activation. Heart-Rate Variability (HRV) is the gold-standard indicator of autonomic regulatory capacity: high HRV indicates good bodily elasticity and adaptability, whereas low HRV is associated with stress overload, ageing and multiple diseases. Large-scale population studies show that HRV follows a regular trajectory with age and is highly correlated with sleep quality and physical activity (Alikhani *et al*., 2025) [2]. Compassion is another core element of Buddhist regimen wisdom, referring to empathic feeling for the suffering of all beings together with the active wish to alleviate that suffering. Compassion meditation, also known as loving-kindness meditation, is a practice specifically for cultivating compassion; it usually begins with blessing oneself and gradually extends to relatives, strangers, difficult people and, ultimately, all living beings. Compassion was long regarded as a moral sentiment, yet neuroscientific research finds that the capacity for compassion corresponds to specific brain networks and can be strengthened through training. The study by Klimecki *et al*. (2013) [14] found that, after short-term compassion training, participants' positive affect increased significantly and activity in brain regions associated with positive

emotion was enhanced, demonstrating a clear neuroplastic basis for the capacity for compassion. The benefits of compassion practice for physical and mental health are multilayered. At the psychological level, compassion practice cultivates self-compassion and reduces inner self-criticism and self-blame, with significant effects on improving depression, anxiety and low self-esteem; at the same time, compassion expands an individual's sense of connection, reduces isolation and alienation, and strengthens social-support networks. At the physiological level, compassion and positive social connection activate the parasympathetic nervous system, reduce stress response, and promote relaxation and repair; research even finds that compassion meditation can regulate inflammatory response and enhance immune function. The gut–brain axis is also an important pathway through which compassion and mindfulness practice affect health. A growing body of evidence shows that stress and negative emotion affect gut permeability and microbiota composition through the brain–gut axis, while changes in gut microbiota in turn affect emotion and cognitive function, forming a vicious cycle (Fried *et al*., 2021; Suganya & Koo, 2022) [11, 26]. Conversely, mindfulness and compassion practice, by reducing stress and improving emotion regulation, exert a positive influence on the gut environment; a healthy gut microbiota in turn supports emotional stability and cognitive function, forming a virtuous cycle.

Beyond static mental practice, dynamic traditional regimen exercises — such as Taijiquan, Baduanjin (Eight Pieces of Brocade), Wuqinxi (Five-Animal Play) and qigong — are important components of the Eastern regimen system. Their shared characteristics are slow, smooth and continuous movement combined with the integration of motion, breath and intention. Ageing is accompanied by loss of muscle mass, declining strength and degraded balance, which are the principal causes of falls, disability and loss of independent living among older adults. In research on exercise prescription for older adults, Cadore *et al*. (2014) [4] point out that, among both healthy and frail elders, regular resistance training and moderate endurance training effectively improve muscle strength, muscular endurance and cardiopulmonary function, and slow functional decline. Traditional exercises such as Taiji and Baduanjin, although less intense than gym resistance training, emphasise weight transfer, single-leg support and whole-body coordination, and are therefore especially effective in improving lower-limb strength, balance and proprioception — precisely the physical capacities most critical for fall prevention. The scientific statement of the American Heart Association particularly emphasises that functional fitness is a core indicator of older adults' health: cardiopulmonary function, muscle strength and balance not only determine independent living but are also strongly associated with all-cause mortality, with predictive power even exceeding that of traditional risk factors such as smoking and hypertension (Forman *et al*., 2017) [10]. Healthy ageing is not merely the absence of disease but the overall state of maintaining physical function, psychological state and social participation. Using an isotemporal-substitution model, Ortolá *et al*. (2021) [23] found that replacing sedentary time with physical activity significantly reduces the accumulation of unhealthy ageing; activities of differing intensities each carry benefits, and regular light-to-moderate physical activity alone can meaningfully influence the ageing process. Sleep quality is another key factor in healthy ageing, and regular physical activity is among the most effective non-pharmacological methods for improving sleep. The study by Cai *et al*. (2025) [5], targeting older populations, found a non-linear positive association between physical-activity volume and sleep duration, with a clear threshold effect: reaching a daily activity threshold yields significant benefit for sleep quality. Beyond physiological benefits, traditional regimen exercises also bring psychological and social benefits. Group practice provides social connection and peer support, reducing loneliness; the concentration and awareness emphasised during practice carry a psychological-regulatory effect akin to mindfulness. This simultaneous exercise of body, regulation of emotion and connection to community is precisely the unique value that distinguishes traditional exercises from ordinary sport, and the reason they promote overall healthy ageing.

Industrial Development and Quality Management of Traditional Healing Services

Traditional and Complementary and Alternative Medicine (CAM) occupies an important and continuously growing position within the global health-service system. According to World Health Organization estimates, approximately 80% of the world's population uses some form of traditional medicine as part of primary care; in developed countries the proportion using complementary and alternative therapies rises year by year, with the most common types including herbal supplements, massage therapy, mindfulness meditation, yoga and aromatherapy. Underlying this market growth is a shift in consumer health demand: from the passive model of "treating only when ill" toward the active model of "proactively pursuing health and wellbeing". From a market-positioning perspective, traditional healing services and mainstream medicine are complementary rather than competitive, occupying different positions along the health spectrum. The core strength of mainstream medicine lies in diagnosis and treatment of disease, excelling in acute illness, infection, major injury and conditions requiring invasive procedures; the core positioning of traditional healing services, by contrast, lies in the broad grey zone between health and disease, focusing on sub-health regulation, stress adaptation, adjunctive chronic-disease care, health promotion and overall body–mind–spirit balance. The great majority of consumers do not abandon formal medicine but seek traditional therapies as an adjunct alongside formal treatment, in order to improve quality of life, reduce treatment side-effects, or satisfy spiritual and emotional needs left unmet by mainstream medicine. Divided along the two axes of "intervention intensity" and "medical attribute", the traditional healing market falls broadly into four quadrants. Quadrant 1 comprises low-medical-attribute, low-intensity public health-promotion offerings such as regimen courses, SPA massage, aromatic experiences and introductory mindfulness, whose main appeal is relaxation, stress relief and quality-of-life improvement; these carry the lowest consumer threshold and the largest market size. Quadrant 2 comprises constitution-regulation services such as TCM therapy and Ayurvedic consultation, with stronger theoretical systems and personalised prescriptions, deeper intervention, and some services approaching the medical boundary. Quadrant 3 comprises rehabilitation-adjunct categories such as massage therapy and exercise

rehabilitation, often cooperating with the medical system as adjuncts to recovery. Quadrant 4 comprises spiritual-growth offerings such as deep meditation and silent retreat camps, focusing on exploration and growth at the spiritual level; these carry the lowest medical attribute but the strongest spiritual content.

As the healing industry flourishes, the safety and efficacy management of related products has become a shared concern of national health authorities and industry. Healing products span a wide range, from herbal supplements, essential oils and aromatic products to regimen foods and fitness equipment; different types fall under different regulatory architectures, and regulatory models differ markedly across countries, reflecting differing regulatory philosophies and policy trade-offs. In the United States, dietary supplements are regulated by the Food and Drug Administration (FDA) under the Dietary Supplement Health and Education Act (DSHEA, 1994). Its core spirit positions supplements as foods rather than drugs: products require no prior FDA review or approval before marketing, and manufacturers are responsible for product safety and the truthfulness of efficacy claims. Manufacturers may use "structure/function claims" describing the product's effect on bodily structure or function but must never claim to treat, prevent, diagnose or cure any disease, and must display an explicit disclaimer beside the claim informing consumers that the product has not been evaluated by the FDA and is not intended to treat disease. Prior submission of safety data to the FDA is required only when a new dietary ingredient is used. The FDA's principal responsibility lies in post-market safety monitoring and enforcement, managing risk through the adverse-event reporting system and market sampling. Analysing the regulatory architecture for functional foods and dietary supplements, Taylor (2004) [27] notes that this model's strengths lie in a low threshold and high innovative flexibility, enabling rapid response to market demand; its weaknesses are uneven product quality, with problems such as inaccurate ingredients, adulteration with drugs and exaggerated efficacy claims, and relatively weak consumer protection. Lewis and Strom (2002) [15] likewise observe that, although the open market mechanism brings industrial vitality, clear market failure exists: consumers cannot readily judge product quality and claim truthfulness, and false products not only waste money but may harm health. Balancing innovation encouragement with consumer protection remains the enduring challenge of this regulatory model. Compared with the highly regulated medical-service sector, the healing-service industry has long faced insufficient standardisation, uneven practitioner qualifications and a wide quality gap. Establishing a systematic system of standards, ethics and quality management is the key turning point for the industry's movement from a "wild-west phase of contending schools" toward a mature professional service industry. Service standardisation does not erase the personalised warmth and uniqueness of healing services but establishes a basic threshold and common norms of service quality, ensuring that consumers receive services meeting safety and professional requirements whichever provider they choose. A complete standardisation system should cover at least four dimensions. First, personnel-qualification standards — the first line of defence for service quality: different healing services should correspond to different training hours, core competencies and assessment standards. Second, service-process standards: every stage, from booking consultation and on-site assessment through service delivery to post-service follow-up, should follow a standardised operating procedure. Healing services involve an individual's body, emotion and even privacy, with a marked power imbalance; professional ethics are therefore especially important. The CAM field contains numerous ethical challenges, including false efficacy claims, inadequate informed consent, financial exploitation, potential safety risks and cultural appropriation. Establishing clear ethical norms is the foundation for safeguarding consumer rights and building industrial credibility. With the arrival of ageing societies and popularisation of preventive-medicine concepts, Longevity Health has become a new hotspot of the global health industry. Unlike traditional geriatric medicine, which focuses on disease treatment, the core of longevity services is proactive prevention, delaying ageing and extending healthspan, so that people live not only longer but healthily and with quality. The holistic regulation, prevention-first and mind–body-equal emphasis of traditional regimen wisdom align closely with longevity-health philosophy and constitute an important element of longevity service systems. The longevity-clinic architecture proposed by Mironov *et al*. (2024) [20] provides a clear reference model for modern longevity services. A complete longevity-service system comprises three layers: at the base, a data-diagnostic layer, which comprehensively understands individual health state and degree of ageing through deep health testing, functional-medicine assessment, constitution analysis and lifestyle survey; in the middle, a clinical-intervention layer, which draws on medicine, nutrition, exercise and mind–body practice to formulate personalised health-promotion plans; at the top, a life-support layer, which integrates health management into daily life through continuous tracking, reminders and support. This three-layer architecture characterises modern longevity services as data-driven, personalised, prevention-oriented and long-term companionable.

AI Applications in the Traditional Regimen Knowledge System

Thousands of years of Chinese medical and regimen wisdom are preserved in a vast corpus of ancient texts. Statistics indicate that more than ten thousand TCM ancient books survive, covering medical classics, materia medica, formula collections, acupuncture, regimen and numerous other categories; these constitute an extremely precious cultural and intellectual asset. Most ancient texts, however, are written in Classical Chinese, with abstruse terminology, complex systems and dispersed knowledge; the retrieval and learning threshold is very high for both professional researchers and the general public. The development of AI, particularly the application of natural-language processing and knowledge graphs, provides a breakthrough solution for the digital revitalisation of ancient medical texts. The TCMSF framework proposed by Zeng *et al*. (2024) [31] designs a complete knowledge-graph construction specifically for TCM syndrome ancient books. The study fine-tuned a pretrained language model, combined conditional random fields for named-entity recognition, and proposed a progressive entity-relation extraction method with dual-mode feature combination. Validation using the yin-deficiency syndrome as an example yielded a mean

entity-extraction F1 of 0.77, significantly outperforming traditional methods; the resulting knowledge graph contained more than 120,000 entities and 1.18 million relations, demonstrating that AI can effectively process the complex semantics of TCM ancient texts. Similarly, a knowledge graph of *Shennong Bencao Jing* has been constructed on a BERT model, comprising thousands of nodes and tens of thousands of relations, achieving structured storage and visualised querying of materia-medica knowledge. Going further, Li *et al*. (2024) combined a large language model to construct a knowledge graph of TCM rheumatology ancient texts, validating large-language-model potential for automatic annotation of ancient books.

Beyond textual retrieval, the promotion and transmission of traditional regimen knowledge requires vivid, interactive educational forms. Multimodal AI, combining text, image, speech and video, opens new possibilities for regimen health education and resolves many constraints of traditional teaching. Movement-type regimen exercises such as Taiji, Baduanjin, yoga and daoyin are important components of the system, yet their learning depends heavily on on-site coaching. Beginners relying solely on pre-recorded videos often fail to notice movement errors, which over time not only reduces effectiveness but may cause sports injury. Mature AI pose-recognition technology provides an excellent solution. Through the lens of a phone or ordinary camera, the AI system detects human skeletal keypoints in real time, compares them against a standard movement model, automatically judges correctness and gives immediate spoken corrective feedback, like a portable virtual coach. In the domain of rehabilitation-movement assessment, deep-learning models based on Transformer architectures have demonstrated exceptional performance, evaluating overall movement quality, precisely identifying error types, computing joint importance and providing concrete correction guidance (Marusic *et al*., 2025) [19]. This technology may be applied directly to teaching traditional exercises: the system counts repetitions but also identifies concrete problems such as “knee over-adduction”, “weight-shift deviation” or “rounded back”, enabling users practising at home to obtain guidance approximating that of a professional coach.

The development of large language models and generative AI opens personalised production of textual and spoken regimen content. Past regimen courses, meditation guidance and recipe advice were pre-recorded, standardised content unable to adjust to each person’s state and needs. Now AI can dynamically generate personalised regimen advice — corresponding dietary therapy, routine adjustment and simple exercises — according to constitution, symptoms, habits and health goals. The study by Papastratis *et al*. (2024) [24] validates the applied potential of generative AI in nutrition recommendation: a system combining a deep generative model with a large language model generates optimised meal suggestions from user characteristics and nutritional guidelines, balancing nutritional correctness with menu diversity. This concept extends directly to the regimen domain: AI offers not only nutrition advice but, combining TCM constitution theory, corresponding dietary, daily-routine and exercise recommendations, forming a complete personalised regimen prescription. The systematic review by Compared with traditional single-modal health-education materials, multimodal AI health education performs better in knowledge acquisition, behaviour-change intention and user satisfaction; the underlying reason is that interactivity and personalisation effectively raise learning motivation and participation and thereby improve learning outcomes (Lu, 2026).

Personalisation is the core of precision health and the modern embodiment of TCM syndrome differentiation and treatment. Every individual differs in constitution, lifestyle, health goals and preferences, and the most suitable regimen method naturally differs likewise. A sound recommendation system gives the best-matched advice according to unique personal conditions rather than offering generic one-size-fits-all guidance. Algorithm design for a regimen recommendation system must combine rule-based expert knowledge with machine learning; the two complement each other to balance correctness and flexibility. Rule-based recommendation forms the system’s backbone, establishing explicit recommendation rules from traditional regimen theory and modern professional knowledge of nutrition and exercise science — for example, dietary dos and don’ts for different constitutions, regimen emphases for different health goals, and precautions for different disease states. Rule-based systems are transparent, explainable and professionally compliant, ensuring basic correctness and avoiding advice that violates regimen principles; their weakness is limited flexibility in handling complex individual differences and dynamic change. Machine-learning models handle complex personalisation and dynamic adaptation; among these, Reinforcement Learning (RL) is particularly suited to the regimen-recommendation setting. Regimen is a long-term dynamic process, individual state changes over time, and the recommendation system must continuously adjust strategy according to execution and outcome feedback to maximise long-term health benefit. The study by Tragos *et al*. (2023) [28] validates the effectiveness of an RL framework in home-fitness recommendation: relative to baseline algorithms, the RL recommendation framework significantly raises user engagement and retention, because the system dynamically learns user preferences and response patterns and strikes an optimal balance between challenge and achievement. The traditional-therapy field has long been beset by mixed information and uneven quality. Among the regimen claims circulating online, some carry solid clinical evidence, some are mere hearsay, and some are purely commercial marketing rhetoric, and the general public cannot readily distinguish truth from falsehood. Establishing an evidence-grading system for traditional therapies and employing AI to assist content verification are important infrastructure for raising industrial credibility and protecting consumers. Evidence grading, a central mechanism of modern medicine, classifies medical evidence into levels according to rigour of research design, number of studies and consistency of results, serving as a reference for clinical decision-making. The classic architecture is the evidence pyramid: at the apex are systematic reviews and meta-analyses, followed by randomised controlled trials, cohort studies, case–control studies and case reports, with expert opinion and personal experience at the base (Evans, 2003) [9].

Building on the technical foundations and design principles above, this study proposes complete design architecture for a “prototype traditional-regimen knowledge-retrieval system” as a concrete implementation of AI-enabled

traditional wisdom. The system comprises four layers, from bottom to top: the knowledge-resource layer, the knowledge-graph layer, the AI-engine layer and the application-interface layer.

Layer 1: Knowledge-resource layer. This is the data foundation and the value root of the whole system, comprising four databases. The first is the ancient-text library, collecting digitised and professionally annotated regimen classics such as the *Yellow Emperor's Inner Canon*, the *Shennong Bencao Jing*, regimen formula collections across dynasties and daoyin texts, as the original source of knowledge. The second is the modern-research literature library, collecting relevant scientific papers, meta-analyses and clinical-trial results as reference for modern validation. The third is the evidence-grading database, marking evidence level, applicable scope, contraindications and safety precautions for common regimen methods, ingredients and exercises. The fourth is the multimedia teaching-resource library, containing exercise-instruction videos, spoken guidance and illustrated explanations to support multimodal learning.

Layer 2: Knowledge-graph layer. Building on the resource layer, a regimen knowledge graph covering multidimensional relations is constructed. Core entity types include: regimen methods, food and medicinal materials, constitutions and syndromes, efficacy actions, contraindications, related classics and historical figures; core relations include: applicable to, contraindicated, composed of, indicated for, derived from, recorded in, and so on. The knowledge graph is the core of intelligent retrieval and associative reasoning, understanding semantic relations between concepts rather than merely matching keywords — the greatest difference between intelligent retrieval and a conventional search engine.

Layer 3: AI-engine layer. This is the intelligent core, comprising five functional modules. The first is the natural-language-understanding module, parsing user query intent and converting colloquial questions into retrievable conditions. The second is the retrieval-and-reasoning module, performing intelligent retrieval and associative reasoning over the knowledge graph to locate the most relevant knowledge units and integrate across classics. The third is the answer-generation module, combining retrieved knowledge to produce structured answers in accessible modern Chinese while marking source citations. The fourth is the evidence-annotation module, automatically marking corresponding evidence levels and attaching safety reminders and precautions. The fifth is the multimodal-interaction module, supporting voice input, movement recognition and other interaction modes for a richer experience.

Layer 4: Application-interface layer. Two interfaces serve different user populations: a public version and a professional version. The public interface emphasises simplicity and ease of use, supporting natural-language questions, accessible answers, related regimen advice and safety reminders, and clearly marking that information is for health-promotion reference only and cannot substitute medical advice. The professional interface provides advanced retrieval, visualised knowledge-graph browsing, side-by-side original ancient-text comparison and research-literature links for professionals and researchers.

Scientific Foundations of the Five Senses and Natural Healing

Humans receive external information through the five senses of sight, hearing, smell, taste and touch, constructing a subjective experience of the world. For a long period, senses were regarded merely as passive information channels relaying external signals to the brain; modern neuroscience and psychology, however, show that sensory stimulation profoundly affects emotional state, cognitive function, the autonomic nervous system and even immune function, serving as an important bridge between the external environment and inner mind–body state. In other words, the sensory environment we inhabit not only shapes subjective feeling but materially affects bodily health. Different sensory signals act through different neural pathways, each with a unique mechanism. Smell is the oldest and most direct emotional sense: olfactory signals need no thalamic relay but project directly to the limbic system, including the amygdala (emotion processing) and hippocampus (memory). Hearing likewise exerts a deep influence: rhythmic sound affects neural oscillation frequency and directly influences the rhythm of heartbeat and breathing. Vision is humanity's dominant sense, with more than half of the brain engaged in visual processing; visual environmental features such as colour, texture, complexity and naturalness significantly affect emotion and cognition. Touch is humanity's most primitive soothing channel: gentle, moderate contact promotes oxytocin secretion, reduces stress response and brings security and connection. Lu (2026) observes that human sensory experience never operates independently but results from multisensory integration: signals from different senses mutually influence and reinforce one another in the brain to construct a unified experience. Although input pathways differ, all sensory signals ultimately converge on the autonomic nervous system as the common terminal regulatory pathway: every five-sense stimulus ultimately affects body–mind state by altering the sympathetic–parasympathetic balance. Favourable stimulation raises parasympathetic tone and lowers sympathetic activity, producing relaxation and recovery; unfavourable stimulation activates the sympathetic branch and elevates stress response. HRV, the gold indicator of autonomic regulation, therefore becomes the most commonly used objective physiological measure of five-senses healing effect. Large-scale population studies have established normal HRV trajectories across age and sex as comparison benchmarks (Alikhani *et al*., 2025) [2].

Aromatherapy uses plant-extracted essential oils, applied through inhalation, massage diffusion and other means, to promote relaxation and health; it is among the most representative five-sense healing methods and among the world's most popular complementary therapies. A large body of research over recent decades has examined its health effects. The systematic review by Burnett *et al*. (2004) [3], targeting randomised controlled trials, found aromatherapy to have a consistent and statistically significant effect in reducing anxiety, with the most substantial evidence for lavender oil. Other studies show that lavender, sweet orange and bergamot oils improve sleep quality, reduce postoperative nausea, relieve pain and ease

stress. At the physiological-indicator level, research confirms that inhaling specific essential oils raises HRV, lowers cortisol and slows heart rate, reflecting parasympathetic activation and a weakened stress response. Mechanistically, the anti-inflammatory and antioxidant potential of aromatherapy also attracts attention: stress and inflammation are closely related, long-term stress produces chronic low-grade inflammation, and many plant constituents regulate inflammatory response. The meta-analysis by Aleksandrova *et al*. (2021) [1] on dietary patterns and oxidative-stress/inflammation biomarkers note that plant bioactive constituents significantly improve redox state and lower inflammatory markers; many aromatic molecules in essential oils, as plant secondary metabolites, carry similar bioactive potential.

Forest Therapy (Shinrin-yoku / Forest Bathing) originated in Japan in the 1980s; it refers to immersively experiencing the forest environment through the five senses to relax body and mind and promote health. Its physiological benefits are thoroughly and consistently validated. A series of pioneering studies by Li (2010) found that a day of forest bathing significantly raises natural-killer-cell (NK-cell) activity and count, with effects maintained for over a week; NK cells are a key line of immune defence against viruses and tumour cells, suggesting long-term immune-enhancement potential of forest contact. The systematic review by Hansen *et al*. (2017) [13], integrating existing research, concludes that, relative to urban environments, forests significantly lower blood pressure, heart rate and stress hormones while improving negative affect, supporting forest therapy as an effective stress-management method. The large-sample population study by White *et al*. (2019) [30], covering nearly twenty thousand people, provides the strongest epidemiological evidence: individuals spending at least 120 minutes weekly in natural environments showed significantly higher overall health and subjective wellbeing than those without nature contact; crucially, this effect was consistent across age, socioeconomic status and health state, unaffected by demographic characteristics, providing strong population-level evidence for "nature prescription" that nature contact is an effective public-health strategy for population health. Forest therapy and natural contact carry particularly important value for promoting the health of older populations. First, walking and activity in natural environments are low-intensity, gentle and safe physical activity with considerable health benefit; Ortolá *et al*. (2021) [23] note that replacing sedentary time with physical activity significantly reduces unhealthy-ageing accumulation, and forest activity combines both physical activity and natural contact for a compounded benefit. Second, natural contact improves older adults' sleep quality and emotional state; Cai *et al*. (2025) [5] find a close association between physical activity and sleep quality, and regular outdoor natural activity simultaneously provides exercise, daylight and relaxation, especially helpful for common sleep complaints. Third, social activity in natural environments reduces older adults' loneliness, yielding psychological benefit.

The Healing-Service Industry and the Five-Senses Experience Economy

SPA and aromatherapy clubs are the most representative industrial form of five-senses healing service. From early European hot-spring convalescence traditions to later urban SPAs combining Eastern regimen, aromatherapy and aesthetic design, the industry has been upgraded from a simple body-care function to a comprehensive healing service integrating five-senses experience, spiritual relaxation and lifestyle aesthetics. The core driver behind this evolution is precisely the rise of the experience economy: theory holds that, at a certain stage of economic development, consumer demand upgrades from products and services to experience; consumers pay an additional premium for "unforgettable personal experiences" rather than merely functional products, and competition shifts from function and price toward experiential uniqueness and memorability (Papastratis *et al*., 2024) [24]. Applying this model to SPA tourism, oh *et al*. (2007) [21] find that all four experience dimensions — entertainment, educational, escapist and esthetic experience — positively predict customer satisfaction and revisit intention.

With the rise of natural healing, traditional organic farms and leisure agriculture are transforming by combining agricultural production, natural experience and healing services into the new form of "healing agriculture". Unlike the enclosed spatial experience of urban SPA, natural healing sites offer open countryside and forest environments in which people heal while performing agricultural activity and touching the land. The core value lies in grounded healing power derived from real labour and natural contact: rather than passively receiving service, participants actively engage, gaining focus, accomplishment and authenticity through hands-on work. Common offerings are diverse: organic farming experiences (sowing, weeding, harvesting), herb gathering and essential-oil crafting, forest bathing and nature guidance, rural vegetarian cooking, camping and stargazing meditation. In business model, natural healing sites generally adopt a diversification strategy covering multiple revenue sources to spread risk: the production layer sells self-produced organic goods, herbal essential oils and crafts as a base; the experience layer offers healing courses, holiday events, day experiences and workshops as main service income; the service layer provides accommodation, dining and packaged itineraries to lengthen stays and raise per-customer spend; and the enterprise/group layer delivers B2B business such as employee stress-relief programmes, outdoor education for schools and healing programmes for social-welfare groups, bringing stable group clientele.

The five-senses healing trend has likewise driven the flourishing market for natural skincare, aromatic products and regimen foods. From essential oils, diffusers and aromatherapy skincare to herbal teas, bath salts and scented candles, products marketed as natural, organic and healing have grown rapidly as popular items in health consumption. Consumer motivation extends well beyond function: functional value (moisturising, relaxation, sleep aid) is the foundation, but deeper drivers are emotional value, symbolic value and lifestyle identification. In a competitive market, successful natural-wellness brands typically possess four key elements. First, quality and safety: "natural" does not equal "safe"; consumers expect purer, gentler, more reassuring quality, and products must pass strict inspection ensuring ingredient purity, no harmful residue, and clear ingredient and contraindication labelling. Second, sensory experience: scent, texture, packaging and visual design are all part of product experience. Third, brand narrative and value resonance: origin stories, place humanity, ingredient traceability and sustainability inject emotional meaning and

build deep connection. Fourth, omnichannel experience: online e-commerce provides convenient purchase and rich selection, while offline stores offer trial smell, trial use and consultation, complementing each other.

AIoT Design Architecture of the Smart Five-Senses Healing Space

The five-senses healing experience depends heavily on environmental conditions; parameters such as air quality, temperature, humidity, lighting, sound and fragrance directly affect healing effect and comfort. Traditional environmental control relies on manual settings and manager experience, struggling to respond precisely to headcount changes, outdoor climate fluctuation and individual differences. AIoT (AI Internet of Things) technology makes precise environmental sensing, intelligent regulation and personalisation possible. On the basis of environmental sensing, an AI control system dynamically regulates each environmental factor to build the optimal healing environment. Relative to traditional timed, fixed-temperature control, AI control's advantages lie in dynamic adaptation, personalisation and multifactor holistic optimisation. Lighting management is a focus: smart illumination adjusts brightness and colour temperature dynamically according to time, scene and user state. Sound management matters equally: smart audio plays corresponding background sound according to ambient noise and scene needs — raising white-noise or nature-sound volume to mask rising outdoor noise, switching to gentler background when the space is quiet. Temperature, humidity and air quality form the comfort base: air conditioning, fresh-air systems and humidification/dehumidification operate in concert to hold conditions in the comfort zone. The value of a smart healing space lies not only in automatic control but in using data analysis to understand the relationship between environmental factors, bodily comfort and healing effect, thereby scientifically optimising spatial design and service content. Traditional comfort assessment relies on subjective questionnaires, which are time-consuming, non-real-time and bias-prone. AI models may combine objective environmental data (temperature, humidity, wind speed, radiant temperature, air quality) with bodily data (heart rate, HRV, skin temperature from wearables) to build personalised comfort-prediction models. Multifactor interaction is the focus of comfort analysis: thermal comfort is determined not by temperature alone but by the joint action of temperature, humidity, wind speed, radiant temperature, clothing insulation and activity, as considered in the classic PMV (Predicted Mean Vote) model. A smart healing space may extend this architecture with air quality, lighting, sound and fragrance to construct a more comprehensive "five-senses comfort index"; under identical temperature–humidity, a space with fresh air, soft light, soothing background sound and pleasant fragrance yields markedly higher subjective comfort and relaxation. Combining wearable physiological data allows objective assessment of actual healing effect: the large-scale age/sex HRV trajectories established by Alikhani *et al*. (2025) [2] serve as normal reference benchmarks for more precise comparison of individual change, and the physical-activity/sleep methodology of Cai *et al*. (2025) [5] may extend to analysing environment–sleep relationships. Introduction of these objective indicators replaces purely subjective description with a quantifiable, comparable, optimisable scientific basis. Analysis ultimately feeds back into spatial design and service optimisation; data-driven continuous improvement is the key to sustaining high quality. Unlike traditional spaces, which are hard to adjust once built, smart spaces continuously fine-tune environmental parameters and control logic through data feedback, growing closer to genuine user needs.

Integrating the technologies and methods above, this subsection proposes an overall design architecture as a reference template for future healing-space upgrading. Four core design principles apply. First, human-centred, invisible technology: technology is a tool serving experience and must not dominate. Second, integrated five senses, dynamic balance: multiple sensory factors (sight, hearing, smell, touch, temperature) are considered holistically for a coordinated experience, and adjusted dynamically by time, scene and user to maintain optimal balance. Third, individual difference, flexible adaptation: preferences and needs are respected, personalisation provided while retaining manual adjustment. Fourth, safety, privacy and sustainable health: environmental safety and data privacy are prioritised; building materials and equipment are chosen healthy, sustainable and low-emission, in line with healthy-building philosophy (Lu, 2026). A complete system divides into four tiers. The perception layer contains environmental sensors, wearable interfaces and user-feedback interfaces, collecting environmental and bodily data. The edge-computing layer, through regional controllers, performs local real-time control and data preprocessing, ensuring response speed and data privacy. The platform layer, via a cloud data platform, handles storage, analysis, model training and scene management, providing a back-office interface. The application layer contains preset scene modes (meditation, relaxation, reading, sleep) switchable with one tap, alongside custom modes and personal preferences.

Conclusions

This study systematically examines the two domains of spiritual health and five-senses healing, integrating traditional cultural wisdom, industrial management and smart-technology application to construct a complete healing-oriented health-management framework. The principal findings are summarised as follows. First, in spiritual-health theory, spiritual health is an important component of whole-person health, and meaning in life and values materially affect physical health through neuroendocrine, immune and inflammatory pathways. Eastern traditional regimen systems such as TCM and Ayurveda are centred on holism, balance and prevention-first, while mindfulness and compassion practice promote mind–body settling at the levels of attention and emotion regulation; these traditional wisdoms retain high practical value in the contemporary era. The health benefits of plant-based diet and regular physical activity are broadly supported by modern epidemiological research. Second, in the healing-service industry, traditional therapies are positioned as a complement to mainstream medicine within the modern health-service system, focusing on health promotion and stress adaptation. Global regulatory systems divide into prior-review and post-market-surveillance models, each with merits and trade-offs. Service standardisation, professional ethics and quality management

are the keys to maturation; integrity, autonomy, non-maleficence, confidentiality and cultural respect are the core ethical principles. Longevity healing services develop in a data-driven, personalised, prevention-oriented direction, and the key to internationalising Eastern regimen brands lies in cultural translation and responsible cultural marketing. Third, in the combination of AI with traditional regimen, knowledge-graph technology effectively structures the complex knowledge of ancient texts, markedly raising retrieval efficiency and accuracy; multimodal AI brings innovative applications of movement instruction, content generation and immersive experience; techniques such as reinforcement learning build personalised recommendation systems; and AI may assist evidence grading and content verification, raising information credibility. The prototype traditional-regimen knowledge-retrieval architecture proposed in this study demonstrates technical feasibility and practical application value. Fourth, in five-senses and natural-healing science, sensory perception profoundly affects emotion and autonomic state through neuroendocrine pathways, and multisensory integration creates a compounded experiential effect. Aromatherapy has light-to-moderate effects in reducing anxiety and stress, bounded by individual difference, uneven study quality and safety risk; forest therapy and nature contact carry more substantial epidemiological and physiological evidence and may serve as public-health-level promotion strategy. Fifth, in healing-industry operation, services belong to the experience economy, and whole-journey five-senses design is the operational core. From urban SPA and natural healing sites to natural wellness products, the industry develops diversely while facing homogenisation, professionalism and quality-gatekeeping challenges; technologicalisation, inclusiveness, sustainability and integration are the long-term trends. Sixth, in smart healing spaces, AIoT sensing monitors multiple environmental parameters in real time, and AI dynamic control of light, sound, temperature and fragrance builds a personalised five-senses environment; outcome analysis combining wearable physiological data further optimises design and quality, and the smart space applies broadly across commercial, enterprise, medical and home scenarios.

There are several practical recommendations for industry, policymakers, and general publics. First, professional standards and ethical norms should be established, with strengthened practitioner training and certification to raise the industry's professional image and credibility; practitioners should hold correct safety knowledge and effect awareness and face service boundaries honestly. Second, the evidence base should be valued, effects and limitations presented objectively, exaggerated efficacy avoided, and long-term consumer trust built through integrity; vague concepts such as "spirituality" or "energy" should not be exploited as marketing rhetoric, and service value presented concretely and verifiably. Third, experience-economy thinking should optimise service design, managing the five-senses experience and ritual in detail to create differentiated brand value; building barriers through experiential depth and professionalism rather than competing on price. Fourth, digital technology may be introduced moderately to raise efficiency and personalisation, but technology should remain invisible and warm, never replacing genuine human connection; technology is always an auxiliary tool, and human warmth and professional judgement remain the core of healing (OpenAI, 2026) [18]. Integrate spiritual health and the healing industry into overall health policy, promote preventive care and whole-person health, and support related research and industrial development; health policy should address not only disease treatment but health promotion and quality of life. Establish management norms and practitioner certification for healing services to safeguard consumers and guide sound development, with corresponding mechanisms for natural products, aromatherapy services and regimen courses. Expand urban green space and natural open space, raise nature accessibility, and promote public-health policies such as "green prescription", and narrow health inequality so that natural-healing benefits reach all social strata rather than a selected few. Support research on the digitalisation and smartification of traditional medicine, and build an open, shared traditional-medicine knowledge database to promote cultural transmission and innovation. Recognise the importance of spiritual health: alongside pursuing physical health and achievement, reserve time for reflection, stillness and connection, and explore meaning and values; health is not merely bodily data but inner wellbeing and balance. Spend more time in nature and cultivate a suitable regimen habit — mindfulness, aromatherapy or forest walking — choosing a liked, sustainable practice for daily self-care; regimen need not be complex or expensive, and simple regularity works best. Facing the vast array of products and services, maintain rational judgement, prefer professionally endorsed, transparent options, avoid superstition and over-consumption, understand each method's effect boundary and scope, and take responsibility for one's own health.

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