RESEARCH AT A GLANCE

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Research at a Glance

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PREFACE

Introduction

The library of the Central Council for Research in Homoeopathy has been circulating "Research at a Glance". The main objective is to disseminate precise information/citation about scientific articles published in various journals/magazine other than the journals subscribed by this Council.

Scope

This volume covers articles on Homeopathy, Ayurveda, Unani, Yoga.

Arrangement of Entries

The articles are indexed under the name of the authors, arranged in alphabetical order. The enteries have been made in the following order:

Author
Title
Name of Journal
year of publication; Volume (issue no.): pagination
Abstract

Acknowledgement

We are grateful to Dr. Anil Khurana, Director General Incharge, CCRH for his encouragement and valuable suggestions from time to time. We sincere acknowledge the cooperation of Mrs. Nisha Adhikari, DEO in compiling this bulletin.

(Dr. O.P. Verma)
Librarian

HOMOEOPATHY

Borkens Y. Bund katholischer Arzte: Homeopathic Conversion Therapists in 21st Century Germany. Front Sociol. 2022 Jan 17;6:667772. doi: 10.3389/fsoc.2021.667772. eCollection 2021. PMID: 5111839

Abstract:

Even in modern Germany of the 21st century there is still homophobia and other intolerances towards different sexualities and genders. These are also evident in the presence of so-called conversion therapies, which are still offered although there are already legal efforts. Among those groups, the Bund katholischer Ärzte (Association of Catholic Doctors) is a unique curiosity. Although this group is no longer really active, it is currently moving into the German focus again due to criminal charges and reporting in the tabloid press. The aim of this publication is to bring the Bund katholischer Ärzte not only into a more scientific but also into a more international focus. Furthermore, it is an ideal example to show what strange effects homophobia can produce.

Castilla Jimena JA, Ruiz Perez I, Henares Montiel J. Impact of socioeconomic and health-related factors on consumption of homeopathic and natural remedies in Spain in 2006, 2011 and 2017. J Integr Med. 2022 Jan;20(1):52-56. doi: 10.1016/j.joim.2021.10.003. Epub 2021 Oct 19. PMID: 34756809

Abstract:

Objective: Complementary and alternative medicine use and type of use may be influenced by sociodemographic and economic determinants through which we could identify characteristics of patients with greater trend to use it. This paper aims to describe the changes in the consumption of homeopathic and natural remedies in Spain for three time points in order to discern changes in rate of consumption, associated factors and whether their use has been affected by a period of economic recession.

Methods: This study utilized 2006, 2011 and 2017 cross-sectional data from the Spanish National Health Survey, a nationally representative survey of the population aged more than 15 years old and resident in Spain. Independent bivariate and multivariate descriptive analyses for each of the 3 years studied were performed.

Results: The rate of consumption of both homeopathic and natural remedies has decreased over the periods studied. In spite of this decrease, the consumer profile appears to remain stable over the three periods. The sociodemographic factors associated with their consumption were being female, being 30-64 years old, being separated/divorced, having higher education qualifications, being employed and belonging to a higher social class. Psychiatric morbidity, chronic health problems such as pain, mental health problems or malignant

tumors, and absence of major cardiovascular events were the clinical factors associated.

Conclusion: It can be concluded that beyond the economic situation, the use of homeopathic and natural remedies obeys to the needs of the patients related to their state of health and the response they receive from the health system. It may be that women have different needs and expectations of the healthcare system and, given this breach of expectations, seek remedy to alleviate their needs outside the system and conventional medicine.

Dew K, Clark-Grill M. Routes into the homeopathic profession: Witnessing, gender and subaltern therapeutics. Sociol Health Illn. 2022 Jan;44(1):99-112. doi: 10.1111/1467-9566.13401. Epub 2021 Nov 24. PMID: 34817882

Abstract:

Homeopathy, along with many other alternative therapies, has come under severe attack from apologists for orthodox medicine. Given the cultural authority of medicine, what then provides the impetus for people to take up homeopathy as a clinical practice? This article addresses this question in the context of homeopathic practice in New Zealand. Five focus groups were conducted with 22 homeopaths in five cities. The study found that it was common to be drawn to homeopathy through witnessing in themselves, their family, friends or animals, the positive effects of homeopathy, commonly after negligible success from conventional medicine. For many participants, all of whom were women, the opportunity to study homeopathy occurred when they were the primary carers of children, with homeopathy providing a possibility for a change in work trajectories. Many participants had previous occupations inside the conventional health system. Central to the appeal of homeopathy as a subaltern practice in New Zealand is the often dramatic impact of witnessing the effects of the therapeutic modality, which is conceptualised as analogous to an 'event' that tears at the fabric of the everyday.

Mourao LC, Alhanati M, Goncalves LS, Holandino C, Canabarro A. Comparative Evaluation of Homeopathic Therapy in the Treatment of Chronic Periodontitis. Altern Ther Health Med. 2022 Jan;28(1):100-106. PMID: 34197339

Abstract:

Context and Objective: Periodontitis and type 2 diabetes (T2D) are chronic diseases generally treated with conventional therapies alone. The aim of this study was to compare the effects of homeopathy as an adjunct to conventional periodontal therapy in individuals with periodontitis and T2D.

Design: 85 individuals, age between 35 and 70 years, of both genders, participated in this randomized study; 70 patients were from the Institute of Endocrinology and Diabetes of Rio de Janeiro, Brazil. They were divided into 2

groups: G1, individuals with periodontitis without systemic conditions; and G-2, individuals with periodontitis and T2D. Both groups received homeopathic treatment and were evaluated in clinical and laboratory examinations. The medication used was chosen based on the similarity principle: Berberis 6CH, Mercurius Solubilis/Belladona /Hepar Sulfur and a Pyrogenium 200CH biotherapic. Medications were prescribed in diluted low ultra-diluted concentration doses for all signs and symptoms, while biotherapics were used for chronic stimulation.

Setting: The study was performed in Brazil by university research professors of homeopathy and periodontics.

Results: Both groups showed significant clinical and laboratory improvements during the study from baseline to 1 year with reductions in total cholesterol (total-C), triglycerides, glucose, glycated hemoglobin (A1cHb), uric acid and C-reactive protein (CRP). Statistical and descriptive analyses were performed. For most parameters, G1 performed better than G2 ($P < .05$).

Conclusion: Homeopathy as an adjunct to periodontal treatment improves local and systemic clinics and can provide better health conditions for patients with or without T2D.

Paoloni M, Agostini F, Bernasconi S, Bona G, Cisari C, Fioranelli M et al. Information Survey on the Use of Complementary and Alternative Medicine. Medicina (Kaunas). 2022 Jan 14;58(1):125. doi: 10.3390/medicina58010125. PMID: 35056433

Abstract:

Background and Objectives: Complementary and alternative medicines (CAMs) are generally considered non-scientific and poor effective therapies. Nevertheless, CAMs are extensively used in common clinical practice in Western countries. We decided to promote a Delphi consensus to intercept the opinion of Italian physicians on CAM use in clinical practice.

Materials and Methods: We run a Delphi-based consensus, interviewing anonymously 97 physicians. Of these, only 78 participate to the questionnaire.

Results: Consensus about agreement and disagreement have been reached in several topics, including indication, as well as safety issues concerning CAMs.

Conclusions: The use of CAMs in clinical practice still lacks evidence. Experts agree about the possibility to safely use CAMs in combination with conventional medicines to treat non-critical medical conditions.

Pineiro Perez R, Nunez Cuadros E, Cabrera Garcia L, Diez Lopez I, Escrig Fernandez R, Gil Lemus MA et al. Results of a national survey on knowledge and use of complementary and alternative medicine by

paediatricians. An Pediatr (Engl Ed). 2022 Jan;96(1):25-34. doi: 10.1016/j.anpede.2020.09.012. Epub 2021 Dec 11. PMID: 34906426

Abstract:

Introduction: The use of certain Complementary and Alternative Medicines (CAM) in children has been documented in Spain. The main aim of this study is to estimate the knowledge, recommendations, and use of CAM by Spanish paediatricians.

Material and methods: A national study was conducted from June to July 2020 using an online questionnaire. Two e-mails were sent to paediatricians who were members of the Spanish Association of Paediatrics (AEP).

Results: Out of 1414 responses received, acupuncture was considered as a science by 31.8%. Homeopathy was recommended to parents by 28.1%. CAM was used by 21.3% of physicians, at least once, to improve their own health. Only 3.8% had ever replaced a conventional treatment with CAM. The following variables were associated with a greater disposition to prescribe homeopathy: female, age over 45 years old, paediatricians working in Primary Care, and paediatricians working in private healthcare.

Conclusions: This AEP Committee on Medicines questionnaire provides new data that should be considered alarming and should ask for a serious thinking on the use of CAM in Spain. Some paediatricians are recommending parents to give treatments not supported by scientific evidence to their children. This practice could be potentially harmful, especially when conventional treatment is being replaced.

Shahjalal M, Chakma SK, Ahmed T, Yasmin I, Mahumud RA, Hossain A. Prevalence and determinants of using complementary and alternative medicine for the treatment of chronic illnesses: A multicenter study in Bangladesh. PLoS One. 2022 Jan 5;17(1):e0262221. doi: 10.1371/journal.pone.0262221. eCollection 2022. PMID: 34986159

Abstract:

Background: While conventional medicine (CM) is commonly used to treat non-communicable diseases (NCDs), complementary and alternative medicine (CAM) is gaining popularity as a healthcare option in Bangladesh. We aimed to investigate the prevalence and factors associated with using CAM solely and using CAM in conjunction with CM for chronic illness treatment among NCD patients in Bangladesh.

Methods: A multicenter cross-sectional study was conducted, including 549 adults with a confirmed chronic illness diagnosis from three tertiary care hospitals in Dhaka city. Interviews were used to gather socio-demographic data, while medical records were used to get information on chronic illnesses. A multinomial logistic regression model was used to determine the associated

factors of utilizing CAM primarily and CAM use in conjunction with CM to manage the chronic disease.

Results: Out of 549 NCD patients (282 women [51.4%], mean [standard deviation] age 45.4 [12.8] years), 180 (32.8%) ever used CAM for the treatment of chronic illness. Also, 15.3% of patients exclusively used CAM among the NCD patients, while 17.5% used CAM in conjunction with CM. Homeopathy medicine was the most prevalent type of treatment among CAM users (52.2%). Furthermore, 55.5% of CAM users said they used it due to its less adverse effects, and 41.6% trusted its effectiveness for chronic illness. Elderly patients (≥60 years) preferred CAM in complementary with CM, but they did not rely only on CAM. According to the multinomial regression analysis, unmarried patients, predominantly in the younger age group, adopted CAM significantly for chronic illness treatment (Relative risk ratio, RRR = 0.29, 95% CI = 0.12-0.71, reference = Unmarried). Patients in the high-income group used CAM in conjunction with CM (RRR = 6.26, 95% CI = 1.35-18.90, reference: low-income), whereas patients in the high-income group did not rely on CAM alone (RRR = 0.99, 95% CI = 0.34-2.85).

Conclusion: Although CM remains the mainstream of health care in Bangladesh, CAM services play an essential role in people's health care, particularly in treating chronic illnesses. Physicians of Bangladesh should be aware that their patients may be using other services and be prepared to ask and answer questions regarding the risks and benefits of using CAM in addition to regular medical care. Thus, clinicians required to follow best-practice guidelines, which are currently not practiced in Bangladesh, when disseminating information regarding integrative techniques that combine CM and CAM approaches.

Sharma M, Gupta PK, Gupta P, Garabadu D. Antinociceptive activity of standardized extract of Bacopa monnieri in different pain models of zebrafish. J Ethnopharmacol. 2022 Jan 10;282:114546. doi: .1016/j.jep.2021.114546. Epub 2021 Aug 19. PMID: 34418512

Abstract:

Ethnopharmacological relevance: Bacopa monnieri L. (Scrophulariaceae) is commonly known as Brahmi and traditionally used as a neuroprotective herbal medicine. Recently, Bacopa monnieri exhibited significant therapeutic activity against animal model of neuropathic pain. However, the therapeutic potential of methanolic extract of Bacopa monnieri in experimental animal model is yet to establish.

Aim of the study: The present study was designed to evaluate the anti-nociceptive potential of standardized methanolic extract of Bacopa monnieri in experimental adult zebrafish (Danio rerio) model of pain.

Materials and methods: The methanolic extract of Bacopa monnieri (BME) was standardized to bacoside-A using chromatographic method.

Subsequently, BME (0.75, 1.25 and 5.0 mg/ml) was evaluated for anti-nociceptive activity using adult zebrafish model.

Results: Standardized BME showed antioxidant effect through radical quenching activity in in vitro study. BME at 1.25 mg/ml significantly decreased the nociceptive effect induced by different noxious agents like acetic acid where as BME at 2.5 mg/ml exhibited significant antinociceptive activity against glutamate, formalin, capsaicin, cinnamaldehyde when compared to control and sham group animals.

Conclusion: BME exerted antinociceptive activity in adult zebrafish. It could be presumed that BME may involve glutamatergic receptor, ASIC and TRP channel activity in its anti-nociceptive effect. BME could be considered as a potential therapeutic option in the management of pain.

Stub T, Kristoffersen AE, Overvag G, Jong MC, Musial F, Liu J. Adverse effects in homeopathy. A systematic review and meta-analysis of observational studies. Explore (NY). 2022 Jan-Feb;18(1):114-128. doi: 10.1016/j.explore.2020.11.008. Epub 2020 Nov 28. PMID: 33303386

Abstract:

Background: Almost all health care interventions have the potential to be associated with risk to patient safety. Different terminologies are used to define treatment induced risk to patient safety and a common definition is the term adverse effect. Beyond the concept of adverse effect and specific to homeopathy is the concept of homeopathic aggravation. Homeopathic aggravation describes a transient worsening of the patients' symptoms, which is not understood as an adverse effect. In order to ensure patient safety within a homeopathic treatment setting, it is important to identify adverse effects, as well as homeopathic aggravations, even though it may be challenging to distinguish between these two concepts. To date there is an obvious lack of systematic information on how adverse effects and homeopathic aggravations are reported in studies. This systematic review and meta-analysis focuses on observational studies, as a substantial amount of the research base for homeopathy are observational.

Method: Eight electronic databases, central webpages and journals were searched for eligible studies. The searches were limited from the year 1995 to January 2020. The filters used were observational studies, human, English and German language. Adverse effects and homeopathic aggravations were identified and graded according to The Common Terminology Criteria for Adverse Effects (CTCAE). Meta-analysis was performed separately for adverse effects and homeopathic aggravations.

Results: A total of 1,169 studies were identified, 41 were included in this review. Eighteen studies were included in a meta-analysis that made an overall comparison between homeopathy and control (conventional medicine and herbs). Eighty-seven percent (n = 35) of the studies reported adverse effects.

They were graded as CTCAE 1, 2 or 3 and equally distributed between the intervention and control groups. Homeopathic aggravations were reported in 22,5% (n = 9) of the studies and graded as CTCAE 1 or 2. The frequency of adverse effects for control versus homeopathy was statistically significant (P < 0.0001). Analysis of sub-groups indicated that, compared to homeopathy, the number of adverse effects was significantly higher for conventional medicine (P = 0.0001), as well as other complementary therapies (P = 0.05).

Conclusion: Adverse effects of homeopathic remedies are consistently reported in observational studies, while homeopathic aggravations are less documented. This meta-analysis revealed that the proportion of patients experiencing adverse effects was significantly higher when receiving conventional medicine and herbs, compared to patients receiving homeopathy. Nonetheless, the development and implementation of a standardized reporting system of adverse effects in homeopathic studies is warranted in order to facilitate future risk assessments.

Weiermayer P, Keusgen M, Pannek J, Panhofer P, Geiger M, Etter-Kalberer G et al. How is evidence-based medicine defined? Homeopathy: A therapeutic option in medical practice. HNO. 2022 Jan;70(1):72-74. doi: 10.1007/s00106-021-01122-0.

Weiermayer P, Keusgen M, Pannek J, Panhofer P, Geiger M, Etter-Kalberer G et al. How is evidence-based medicine defined? Homeopathy-a therapeutic option in medical practice. HNO. 2022 Jan;70(1):72-74. doi: 10.1007/s00106-021-01122-0. Epub 2021 Dec 17. PMID: 34919156

AYURVEDA

Abass S, Parveen R, Irfan M, Jan B, Husain SA, Ahmad S. Synergy based extracts of medicinal plants: Future antimicrobials to combat multidrug resistance. Curr Pharm Biotechnol. 2022 Jan 26. doi: 10.2174/1389201023666220126115656. Online ahead of print. PMID: 35081888

Abstract:

The use of herbal medicines and supplements in the last thirty years has increased enormously. Herbal medication has demonstrated promising and effective potential against various diseases. Herbal and phytoconstituent medications are gaining popularity globally and many people are adopting herbal remedies to deal with different health issues. The indiscriminate use of antibiotics, due to the development of antimicrobial resistance, poses an unprecedented problem for human civilization. Bacterial infections are difficult to cure because of the propensity of microbes to acquire resistance to a wide range of antimicrobial drugs. New compounds are being explored and quantified for possible antibacterial activity with little or no side effects. Researchers are investigating the range of therapeutic plants mentioned in Unani, Ayurveda, and Siddha around the globe. Known and commonly acclaimed global databases such as PubMed, Research Gate, Science Direct, Google Scholar, were searched using different search strings such as Indian medicinal plants, multidrug resistance (MDR), thin layer chromatography (TLC), antimicrobials, and Synergism were used in diverse combinations to reclaim numerous citations associated with this area. Thus, the current review aims to shed a light on the information of medicinal plants as a potential foundation of herbal drugs and elucidate how synergism and TLC bioautography plays a crucial role in finding antimicrobial compounds.

Akhila VG. Management of Sannipata Jwara w.s.r to COVID-19: Case report. J Ayurveda Integr Med. 2022 Jan-Mar;13(1):100416. doi: 10.1016/j.jaim.2021.02.007. Epub 2021 Mar 6. PMID: 33716425

Abstract:

Jwara is considered to be the 'lord' of diseases. *Sannipata jwara* refers to a condition where there is disturbance in all the three *dosha*. COVID-19 is an infectious disease caused by the most recently discovered corona virus and has already acquired an epidemic nature. In the present scenario there is no evidence that conventional medical system can prevent or cure the disease while the time tested traditional knowledge of Ayurveda can help in management and prevention of the disease. The primary objective of this report is to highlight the role of Ayurveda in the management strategy of COVID-19 as a standalone therapy in uncomplicated cases. This article represents the case of a 36 year old male patient, who tested positive for COVID-19 with symptoms like fever, headache, body pain etc successfully managed with Ayurveda medicines alone. The prime aim of the management was to improve

the *Agni* and facilitate *ama pachana* with medicines like *Indukantham Kashyam, Amrutharishtam and Sudarshanam* tablet along with other medicines like *Vettumaran tablet, Nasarsha tailam* and Legrain tablet for symptomatic relief. Post COVID phase management was done using *Agastya rasayanam* and *Haridrakhandam* with an aim to strengthen the respiratory system. The management strategy was formulated adopting the principles of *Jwara, Janapadodhwamsa* etc mentioned in the classics. The scope of Ayurveda in the management of the pandemic is enormous which needs to be incorporated in the mainstream healthcare system judiciously.

Arunachalam K, Yang X, San TT. Tinospora cordifolia (Willd.) Miers: Protection mechanisms and strategies against oxidative stress-related diseases. J Ethnopharmacol. 2022 Jan 30;283:114540. doi: 10.1016/j.jep.2021.114540. Epub 2021 Sep 9. PMID: 34509604

Abstract:

Ethnopharmacological relevance: Tinospora cordifolia (Willd.) Miers (Menispermaceae) is a Mediterranean herb, used in Ayurvedic, Siddha, Unani, and folk medicines. The herb is also used in conventional medicine to treat oxidative stress-related diseases and conditions, including inflammation, pain, diarrhea, asthma, respiratory infections, cancer, diabetes, and gastrointestinal disorders.

Aim of the review: The taxonomy, botanical classification, geographical distribution, and ethnobotanical uses of T. cordifolia, as well as the phytochemical compounds found in the herb, the toxicology of and pharmacological and clinical studies on the effects of T. cordifolia are all covered in this study.

Materials and methods: To gather information on T. cordifolia, we used a variety of scientific databases, including Scopus, Google Scholar, PubMed, and Science Direct. The information discussed focuses on biologically active compounds found in T. cordifolia, and common applications and pharmacological activity of the herb, as well as toxicological and clinical studies on its properties.

Results: The findings of this study reveal a connection between the use of T. cordifolia in conventional medicine and its antioxidant, anti-inflammatory, antihypertensive, antidiabetic, anticancer, immunomodulatory, and other biological effects. The entire plant, stem, leaves, root, and extracts of T. cordifolia have been shown to have a variety of biological activities, including antioxidant, antimicrobial, antiviral, antiparasitic, antidiabetic, anticancer, anti-inflammatory, analgesic and antipyretic, hepatoprotective, and cardioprotective impact. Toxicological testing demonstrated that this plant may have medicinal applications. T. cordifolia contains a variety of biologically active compounds from various chemical classes, including alkaloids, terpenoids, sitosterols, flavonoids, and phenolic acids. Based on the reports researched for this review, we believe that chemicals in T. cordifolia may

activate Nrf2, which leads to the overexpression of antioxidant enzymes such as CAT, GPx, GST, and GR, and thereby induces the adaptive response to oxidative stress. T. cordifolia is also able to reduce NF-κB signalling by inhibiting PI3K/Akt, activating AMPK and sirtuins, and downregulating PI3K/Akt.

Conclusions: Our findings indicate that the pharmacological properties displayed by T. cordifolia back up its conventional uses. Antimicrobial, antiviral, antioxidant, anticancer, anti-inflammatory, antimutagenic, antidiabetic, nephroprotective, gastroprotective, hepatoprotective, and cardioprotective activities were all demonstrated in T. cordifolia stem extracts. To validate pharmacodynamic targets, further research is needed to evaluate the molecular mechanisms of the known compounds against gastrointestinal diseases, inflammatory processes, and microbial infections, as immunostimulants, and in chemotherapy. The T. cordifolia safety profile was confirmed in a toxicological analysis, which prompted pharmacokinetic assessment testing to confirm its bioavailability.

Bajaj KK, Chavhan V, Raut NA, Gurav S. Panchgavya: A precious gift to humankind. J Ayurveda Integr Med. 2022 Jan 5;13(2):100525. doi: 10.1016/j.jaim.2021.09.003. Online ahead of print. PMID: 34998645

Abstract:

Panchgavya represents milk, urine, dung, ghee, and curd, derived from cow and serves irreplaceable medicinal importance in Ayurveda and traditional Indian clinical practices. In Ayurveda,Panchgavya treatment is termed as 'Cowpathy'. In India, the cow is worshipped as a god called 'Gaumata,' indicating its nourishing nature like a mother. Ayurveda recommends Panchagavya to treat diseases of multiple systems, including severe conditions, with almost no side-effects. It can help build a healthy population, alternative sources of energy, complete nutritional requirements, eradicate poverty, pollution-free environment, organic farming, etc. Panchgavya can also give back to mother nature by promoting soil fertility, earthworm production, protecting crops from bacterial and fungal infections, etc. Scientific efforts shall be taken to build evidence for the clinical application of Cowpathy. The present review aims to summarize the health and medicinal benefits of Panchgavya.

Balkrishna A, Bhattacharya K, Sinha S, Dev R, Srivastava J, Singh P et al. Apparent Hepatotoxicity of Giloy (Tinospora cordifolia): Far From What Meets the Eyes. J Clin Exp Hepatol. 2022 Jan-Feb;12(1):239-240. doi: 10.1016/j.jceh.2021.09.009. Epub 2022 Jan 12. PMID: 35068809

Balkrishna A, Yagyadev S, Vipradev S, Singh K, Varshney Y, Rastogi S et al. Vishaghn Dhoop, Nano-Scale Particles with Detoxifying Medicinal Fume, Exhibits Robust Anti-Microbial Activities: Implications of Disinfection Potentials of a Traditional Ayurvedic Air Sterilization Technique. J Evid Based Integr Med. 2022 Jan-

Dec;27:2515690X211068832. doi: 10.1177/2515690X211068832. PMID: 34985370

Abstract:

The rapidly increasing global burden of healthcare associated infections (HAI) is resulting in proportionate increase in chemical disinfection in healthcare settings, adding an extra burden of environmental toxicity. Therefore, alternative disinfection techniques with less or no adverse side-effects need to be explored. In this regard, ayurvedic '*dhoopan*' technique involving slow combustion of medicinal herbs, minerals and animal products hold great promise. In this study, *dhoopan* of a traditionally defined ayurvedic medicinal mix, 'Vishaghn Dhoop' (VD) has been assessed for its anti-microbial potentials against both Gram-positive and negative pathogenic bacteria, *Mycobacterium* and pathogenic fungus, *Candida albicans*. Fume generated from slow combustion of VD was subjected to physico-chemical characterization and was assessed for anti-microbial effects. VD fume contained particles of 354 ± 84 nm size, laden with anti-microbial metabolites. On agar plates, VD fumigation reduced bacterial growth by 13 - 38%. Liquid culture aeration with VD fume inhibited bacterial growth by 50 - 85%, and fungal growth by 80%. In real life settings *(in vivo)*, un-sanitized rooms fumigated with VD fumes for 30 min reduced the environmental microbial loads by 10 folds. In addition, the safety of VD fumigation was evaluated through *in vitro* cytotoxicity assay on human lung epithelial (A549) cells. Cells exposed to media-collected VD fumes for 24 h exhibited normal cyto-safety profile. Collectively, these observations provide scientific evidence in support of a traditional technique of disinfection, which can be fine-tuned to have implications in clinical, healthcare and food industry where, disinfection is a prime requirement.

Bhapkar V, Sawant T, Bhalerao S. Critical analysis of CTRI registered AYUSH studies for COVID- 19. J Ayurveda Integr Med. 2022 Jan-Mar;13(1):100370. doi: 10.1016/j.jaim.2020.10.012. Epub 2020 Nov 26. PMID: 33262559

Abstract:

Background: The COVID-19 pandemic has provided an opportune time to evaluate the efficacy of traditional medicine. Many clinical studies involving AYUSH systems are being initiated and registered with Clinical Trials Registry - India (CTRI) since last few months.

Objective: The present work is an analysis of different characteristics of these studies on the basis of available datasets.

Material and methods: COVID-19 related clinical studies involving the healthcare systems of AYUSH, registered on CTRI between 1st February 2020 and 24th August 2020, were searched. They were analysed as per different characteristics such as registration month, study sites, aim, sample size,

population, setting, sponsorship, intervention and comparators, duration & outcome measures.

Results: A total of 197 AYUSH studies were registered on CTRI of which majority (n = 113) were from Ayurveda, with another nine of them with an intra-AYUSH collaboration. The highest number of studies were registered in month of June (n = 57). Maximum study sites were in Maharashtra (n = 65). From the 197 total studies, only six were observational studies, with 191 being interventional studies. As an outcome, majority of the studies aimed at recovery (n = 112). Majority of studies (n = 105) were Government of India sponsored and proposed in AYUSH setting (n = 107). The proportion of comparative studies was more than single arm studies. Guduchi (Tinospora cordifolia) was the most frequently mentioned drug.

Conclusion: Our analysis revealed some interesting characteristics of the registered studies such as use of platform trial design, system specific criteria for assessment and personalized interventions. Though it was not possible to evaluate the quality of these studies in view of the limited dataset used for trial registration, we could notice variations in important characteristics like sample size, treatment arms, comparator used and study duration according to the primary aim of the studies. Overall, the present review underlines the formidable efforts of AYUSH sector in combating COVID-19 outbreak.

Bhapkar V, Sawant T, Bhalerao S. Critical analysis of CTRI registered AYUSH studies for COVID- 19. J Ayurveda Integr Med. 2022 Jan-Mar;13(1):100370. doi: 10.1016/j.jaim.2020.10.012. Epub 2020 Nov 26. PMID: 33262559

Abstract:

The Ministry of AYUSH recommended the use of a decoction of the mixture of Ocimum tenuiflorum, Cinnamomum verum, Piper nigrum, Zingiber officinale, and Vitis vinifera as a preventive measure by boosting the immunity against the severity of infection caused by a novel coronavirus (COVID-19). The present study aimed to identify the probable modulated pathways by the combined action of AYUSH recommended herbal tea and golden milk formulation as an immune booster against COVID-19. Reported phytoconstituents of all the medicinal plants were retrieved from the ChEBI database, and their targets were predicted using DIGEP-Pred. STRING database and Cytoscape were used to predict the protein-protein interaction and construct the network, respectively. Likewise, MolSoft and admet SAR2.0 were used to predict the druglikeness score and ADMET profile of phytoconstituents. The study identified the modulation of HIF-1, p53, PI3K-Akt, MAPK, cAMP, Ras, Wnt, NF-kappa B, IL-17, TNF, and cGMP-PKG signaling pathways to boost the immune system. Further, multiple pathways were also identified which are involved in the regulation of pathogenesis of the multiple infections and non-infectious diseases due to the lower immune system. Results indicated that the recommended herbal formulation not only modulated the pathways involved in boosting the immunity but also modulated the multiple pathways that are

contributing to the progression of multiple disease pathogenesis which would add the beneficial effect in the co-morbid patients of hypertension and diabetes. The study provides the scientific documentation of the role of the Ayurvedic formulation to combat COVID-19.

Choudhary N, Singh V. Multi-scale mechanism of antiviral drug-alike phytoligands from Ayurveda in managing COVID-19 and associated metabolic comorbidities: Insights from network pharmacology. Mol Divers. 2022 Jan 7:1-20. doi: 10.1007/s11030-021-10352-x. Online ahead of print. PMID: 34993740

Abstract:

The novel coronavirus disease (COVID-19), which emerged in Wuhan, China, is continuously spreading worldwide, creating a huge burden on public health and economy. Ayurveda, the oldest healing schema of Traditional Indian Medicinal (TIM) system, is considered as a promising CAM therapy to combat various diseases/ disorders. To explore the regulatory mechanisms of 3038 Ayurvedic herbs (AHs) against SARS-CoV-2, in this study, multi-targeting and synergistic actions of constituent 34,472 phytochemicals (APCs) are investigated using a comprehensive approach comprising of network pharmacology and molecular docking. Immunomodulatory prospects of antiviral drug-alike potentially effective phytochemicals (PEPs) are presented as a special case study, highlighting the importance of 6 AHs in eliciting the antiviral immunity. By evaluating binding affinity of 292 PEPs against 24 SARS-CoV-2 proteins, we develop and analyze a high-confidence "bi-regulatory network" of 115 PEPs having ability to regulate protein targets in both virus and its host human system. Furthermore, mechanistic actions of PEPs against cardiovascular complications, diabetes mellitus and hypertension are also investigated to address the regulatory potential of AHs in dealing with COVID-19-associated metabolic comorbidities. The study further reports 12 PEPs as promising source of COVID-19 comorbidity regulators.

Costantini E, Jarlapoodi S, Serra F, Aielli L, Khan H, Belwal T et al. Neuroprotective Potential of Bacopa monnieri: Modulation of Inflammatory Signals. CNS Neurol Disord Drug Targets. 2022 Jan 11. doi: 10.2174/1871527321666220111124047. Online ahead of print. PMID: 35021981

Abstract:

Background: To date, much evidence has shown the increased interest in natural molecules and traditional herbal medicine as alternative bioactive compounds to fight many inflammatory conditions, both in relation to immunomodulation and in terms of their wound healing potential. Bacopa monnieri is a herb that is used in the Ayurvedic medicine tradition for its anti-inflammatory activity.

Objective: In this study, we evaluate the anti-inflammatory and regenerative properties of the Bacopa monnieri extract (BME) in vitro model of neuroinflammation.

Methods: Neuronal SH-SY5Y cells were stimulated with TNF and IFN and used to evaluate the effect of BME on cell viability, cytotoxicity, cytokine gene expression, and healing rate.

Results: Our results showed that BME protects against the Okadaic acid-induced cytotoxicity in SH-SY5Y cells. Moreover, in TNF and IFN primed cells, BME reduces IL-1, IL-6, COX-2, and iNOS, mitigates the mechanical trauma injury-induced damage, and accelerates the healing of wounds.

Conclusion: This study indicates that BME might become a promising candidate for the treatment of neuroinflammation.

Dash MK, Joshi N, Dubey VS, Dwivedi KN, Gautam DNS. Screening of anti-cancerous potential of classical Raudra rasa and modified Raudra rasa modified with hiraka bhasma (nanodiamond) through FTIR & LC-MS analysis. J Complement Integr Med. 2022 Jan 24. doi: 10.1515/jcim-2021-0410. Online ahead of print. PMID: 35106982

Abstract:

Objectives: Raudra rasa is an ayurvedic medicine explicitly prescribed for the treatment of arbuda (cancer), whereas hiraka bhasma has the potential to promote cancer healing properties. Together, these two medicines provide multifunction benefits. This paper analyses the functional groups of Raudra rasa modified with hiraka bhasma and compares it with the classically prepared raudra rasa. To identify the functional group, organic ligands, and active compounds present in samples of raudra rasa (CRR) and modified raudra rasa with hiraka bhasma (MRR) contributing to cancer alleviation by using Fourier transform infrared spectroscopy (FTIR) & LC-MS analysis.

Methods: Classical raudra rasa (CRR), its ingredients, shadguna kajjali (SK); decoction of Piper betel Linn. (PBD); Amaranthus spinosus Linn. (ASD); Boerhaavia diffusa Linn. (BDD); Piper longum Linn. (PLD); cow urine (GM), & similarly modified raudra rasa (MRR), its ingredients, hiraka bhasma (HB); shadguna rasasindura (SHR); water-soluble extract of Piper betel Linn. (PBE); Amaranthus spinosus Linn. (ASE); Boerhaavia diffusa Linn. (BDE); cow urine ark (GA); Piper Longum Linn. (PLE) were subjected to FTIR and LC-MS analysis.

Results: Among all 15 samples studied, maximum numbers of peaks (21) were seen in MRR indicating a greater number of functional groups. Further, in MRR, a maximum peak in the double bond region is suggestive of its higher stability compared to CRR. Both the compound is preliminarily a mixture of the number of functional groups like; fluoro, methyl, amino, hydroxy, nitro, methylamino, carbonyl, and iodo groups, having known anti-proliferative

activities. By the FT-IR analysis, the biologically active compounds in aqueous and methanol extract of CRR & MRR were identified that have anti-cancerous compounds. In the present study, a total of 40 major compounds like alkaloids, amino acid, carboxylic acid, Flavonoids, Nucleoside, Nucleotide, phenylpropanoid, Sphingosine, stilbenoid, sugar, phosphate, terpenoids, vitamin from aqueous & methanol extract of CRR & MRR were identified by LC-MS.

Conclusions: This research paper highlights the presence of different functional groups and bioactive compounds known to have anti-cancer activities. Thus, this review suggests future recommendations for the design and development of improved anticancer drugs with higher efficacy.

Deng X, Shi B, Ye Z, Huang M, Chen R, Cai Y et al. Systematic identification of Ocimum sanctum sesquiterpenoid synthases and (-)-eremophilene overproduction in engineered yeast. Metab Eng. 2022 Jan;69:122-133. doi: 10.1016/j.ymben.2021.11.005. Epub 2021 Nov 12. PMID: 34781019

Abstract:

Plant-derived natural active products have attracted increasing attention for use in flavors and perfumes. These compounds also have applications in insect pest control because of their environment-friendly properties. Holy basil (Ocimum sanctum), a famous herb used in Ayurveda in India, is a natural source of medical healing agents and insecticidal repellents. Despite the available genomic sequences and genome-wide bioinformatic analysis of terpene synthase genes, the functionality of the sesquiterpene genes involved in the unique fragrance and insecticidal activities of Holy basil are largely unknown. In this study, we systematically screened the sesquiterpenoid biosynthesis genes in this plant using a precursor-providing yeast system. The enzymes that synthesize β-caryophyllene and its close isomer α-humulene were successfully identified. The enzymatic product of OsaTPS07 was characterized by in vivo mining, in vitro reaction, and NMR detection. This product was revealed as (-)-eremophilene. We created a mutant yeast strain that can achieve a high-yield titer by adjusting the gene copy number and FPP precursor enhancement. An optimized two-stage fed-batch fermentation method achieved high biosynthetic capacity, with a titer of 34.6 g/L cyclic sesquiterpene bioproduction in a 15-L bioreactor. Further insect-repelling assays demonstrated that (-)-eremophilene repelled the insect pest, fall leafworm, suggesting the potential of (-)-eremophilene as an alternative to synthetic chemicals for agricultural pest control. This study highlights the potential of our microbial platform for the bulk mining of plant-derived ingredients and provides an impressive cornerstone for their industrial utilization.

Fazil M, Nikhat S. Why the "sugars" in traditional Unani formulations are a pivotal component: A viewpoint perspective. J Integr Med. 2022 Jan

13:S2095-4964(22)00002-4. doi: 10.1016/j.joim.2022.01.002. Online ahead of print. PMID: 35078747

Abstract:

Traditional medicine systems around the globe, like Unani, Ayurveda and traditional Chinese medicine, include a number of sugar-based formulations, which contain a large amount of saccharide-containing sweetener, such as honey, sucrose or jaggery. With pervasive lifestyle disorders throughout the world, there have been discussions to consider alternative sweetening agents. Here, from the perspective of Unani medicine, we discuss how the saccharide-based sweeteners may be an essential component of these traditional preparations, like electuaries, which may be deprived of their bioactivities without these saccharides. With contemporary researches, it is known that apart from their own therapeutic effects, saccharides also form deep eutectic solvents which help in enhancing the bioactivity of other ingredients present in crude drugs. In addition, they provide energy for fermentation which is essential for biotransformation of compounds. Interestingly, the sugars also increase the shelf-life of these compound drugs and act as natural preservatives. On the basis of this review, we strongly believe that saccharide-based sweeteners are an essential component of traditional medicines and not merely an excipient.

Gautam S, Gautam A, Chhetri S, Bhattarai U. Immunity against COVID-19: Potential role of Ayush Kwath. J Ayurveda Integr Med. 2022 Jan-Mar;13(1):100350. doi: 10.1016/j.jaim.2020.08.003. Epub 2020 Aug 17. PMID: 32837101

Abstract:

SARS-CoV-2 infection associated respiratory disease- COVID-19 has evolved into a pandemic but, being a new form of virus, pathogenesis of disease causation is not fully understood and drugs and vaccines against this virus are still being tested so that no effective drugs or vaccines have been advised by regulatory authority. In this context, the Ministry of AYUSH, Government of India has recommended 'Ayush Kwath' to improve the immunity and combat the infection. Our objective of this literature review is to review the role of immunity in pathogenesis of COVID-19 and role of Ayush Kwath against the virus and regulation of immunity. Current review was conducted using a search of available literature on COVID-19 and immunity, Vyadhikshamatwa, Ayurveda and COVID-19, Rasayana, Coronavirus, SARS-CoV-2, immunomodulatory effects of medicinal plants; Tulsi/Holy Basil/Ocimum sanctum, Dalchini/Cinnamon/Cinnamomum zeylanicum, Sunthi/Ginger/Zingiber officinale and Marich/Black Pepper/Piper nigrum. Ayurveda, being an ancient science have both medicinal and cultural values and had stimulated our kitchen and influenced what we ate in different seasons and the remedies we used for common ailments. Herbs such as Tulsi, Marich, Sunthi, Dalchini are the most commonly used and easily available drugs in home. Thus, Ayush Kwath due to its immune-modulatory, antiviral,

anti-oxidant, anti-inflammatory, anti-platelet, anti-atherosclerotic, hepato-protective, reno-protective properties; seems to be effective in immuno-regulation for controlling viral infections like COVID-19. Further pre-clinical and clinical trials need to be done for the evaluation of safety and efficacy of this polyherbal formulation.

Girhepunje KS, Gupta V, Srivastava VK, Pandey AK, Prasad R, Singh OP. Management of Psoriatic Erythroderma (PsE) with Ayurvedic herbomineral preparations: A case report. J Ayurveda Integr Med. 2022 Jan 3;13(2):100533. doi: 10.1016/j.jaim.2021.11.001. Online ahead of print. PMID: 34991934

Abstract:

Psoriatic Erythroderma (PsE) is a presentation of Erythroderma due to a history of psoriasis showing inflammation and exfoliation of epidermal skin characterized by erythema and scaling. There is no definite treatment in contemporary medical science but the principle-based Ayurvedic approach has been proved to be effective. We present a case of PsE treated for 3 months with Ayurvedic herbomineral preparations and dietary restrictions for non-vegetarian and dairy items. As per the Ayurvedic diagnostic view, the presented case is correlated with Audumbara Kushtha and Ekakushtha due to their intricate features. Thus, Ayurvedic approaches were directed to eliminate vitiated doshas responsible for acute exacerbation of Kushtha (~dermatitis) and to maintain equilibrium among them. The patient was initially considered as a case of Saam stage of Kushtha with Pitta-Rakta-Vata predominance. Thus, management was planned into different domains-treatment of Saam stage of Kushtha, Vyadhipratyanika chikitsa (~disease antagonistic treatment), Rasayana intervention (~Immunomodulation therapy) and Ayurvedic drugs were given accordingly. The assessment was done based on subjective parameters and PASI score. The patient was followed for about one and half year without any complication and relapse. This case study shows PsE can be managed with an Ayurvedic approach and proper diet planning.

Girija PLT, Sivan N, Naik P, Murugavel YA, M Ravindranath T, Cv K. Standalone Ayurvedic treatment of high-risk COVID-19 patients with multiple co-morbidities: A case series. J Ayurveda Integr Med. 2022 Jan-Mar;13(1):100466. doi: 10.1016/j.jaim.2021.06.006. Epub 2021 Jun 17. PMID: 34276163

Abstract:

We report a case-series of Ayurvedic treatment in seven COVID-19 positive patients with multiple co-morbidities, categorized as high-risk for poor outcome from SARS-CoV-2 infection. All of them recovered completely from their illness with resolution of symptoms following Ayurvedic treatment. The data was collected from patients treated during the early months of the COVID-19 pandemic (June 2020 to September 2020) at an out-patient Ayurvedic Clinic, Chennai, India. This is a retrospective case series from among the initial

247 COVID-19 patients out of whom 39% were found to be suffering from co-morbidities. We have chosen seven of these patients who fulfilled the criteria for high-risk category, represented by multiple co-morbidities that included cancer, chronic kidney disease (CKD), coronary artery disease (CAD), chronic obstructive pulmonary disease (COPD), diabetes mellitus (DM), hypertension, and an elderly person over the age of 90 years. Classical Ayurvedic formulations for COVID -19 were chosen so as to avoid complicating co-morbid conditions and patients were maintained on a modified diet. All these high-risk patients were treated at an out-patient setting. The patients were under home quarantine and self-monitored their progress with daily follow-up over the phone by the treating Ayurvedic physician. The main outcome measure included resolution of symptoms and complete recovery from COVID-19 disease in all patients. This case series demonstrates the scope of Ayurvedic interventions in the management of high-risk COVID-19 patients with severe co-morbidities with successful outcome in an out-patient setting.

Joshi JA, Puthiyedath R. Outcomes of Ayurvedic care in a COVID-19 patient with hypoxia: A case report. J Ayurveda Integr Med. 2022 Jan-Mar;13(1):100363. doi: 10.1016/j.jaim.2020.10.006. Epub 2020 Oct 13. PMID: 33071521

Abstract:

This paper reports for the first time, the outcomes of Ayurvedic intervention in a COVID-19 patient with hypoxia requiring supportive oxygen therapy. Patient developed fever, severe cough, loss of smell, loss of taste, nasal block, anorexia, headache, body ache, chills, and fatigue and was hospitalised when she developed severe breathing difficulty. Later, she tested positive for COVID-19 by RT-PCR. The patient sought Ayurvedic treatment voluntarily when her SPO_2 remained at 80% even after being given oxygen support. The patient was administered Ayurvedic medicines while undergoing oxygen therapy at the hospital. The patient refused to take Fabiflu recommended by the treating physician and discontinued other Allopathic drugs except for Vitamin C. The patient showed clinical improvement within a day of administration of Ayurvedic medicines and was able to talk, eat, and sit on the bed without breathing difficulty and her SPO_2 became stable between 95 and 98%. In the next two days, she was asymptomatic without oxygen support and was discharged from the hospital in the following week. Since obesity and high plasma C-Reactive Protein (CRP) levels indicated high risk for progression to severe disease, the favourable outcomes with Ayurvedic treatment in this patient is significant and warrants further studies. Ayurvedic care may be considered as a first-line cost-effective alternative for COVID-19 patients presenting with symptomatic hypoxia in an integrative setup.

Joshi MB, Kamath A, Nair AS, Yedehali Thimmappa P, Sriranjini SJ, Gangadharan GG et al. Modulation of neutrophil (dys)function by Ayurvedic herbs and its potential influence on SARS-CoV-2 infection. J Ayurveda Integr Med. 2022 Jan-Mar;13(1):100424. doi: 10.1016/j.jaim.2021.03.006. Epub 2021 Mar 16. PMID: 33746457

Abstract:

For centuries, traditional medicines of Ayurveda have been in use to manage infectious and non-infectious diseases. The key embodiment of traditional medicines is the holistic system of approach in the management of human diseases. SARS-CoV-2 (COVID-19) infection is an ongoing pandemic, which has emerged as the major health threat worldwide and is causing significant stress, morbidity and mortality. Studies from the individuals with SARS-CoV-2 infection have shown significant immune dysregulation and cytokine overproduction. Neutrophilia and neutrophil to lymphocyte ratio has been correlated to poor outcome due to the disease. Neutrophils, component of innate immune system, upon stimulation expel DNA along with histones and granular proteins to form extracellular traps (NETs). Although, these DNA lattices possess beneficial activity in trapping and eliminating pathogens, NETs may also cause adverse effects by inducing immunothrombosis and tissue damage in diseases including Type 2 Diabetes and atherosclerosis. Tissues of SARS-CoV-2 infected subjects showed microthrombi with neutrophil-platelet infiltration and serum showed elevated NETs components, suggesting large involvement and uncontrolled activation of neutrophils leading to pathogenesis and associated organ damage. Hence, traditional Ayurvedic herbs exhibiting anti-inflammatory and antioxidant properties may act in a manner that might prove beneficial in targeting over-functioning of neutrophils and there by promoting normal immune homeostasis. In the present manuscript, we have reviewed and discussed pathological importance of NETs formation in SARS-CoV-2 infections and discuss how various Ayurvedic herbs can be explored to modulate neutrophil function and inhibit NETs formation in the context of a) anti-microbial activity to enhance neutrophil function, b) immunomodulatory effects to maintain neutrophil mediated immune homeostasis and c) to inhibit NETs mediated thrombosis.

Kasprzak Drozd K, Oniszczuk T, Gancarz M, Kondracka A, Rusinek R, Oniszczuk A. Curcumin and Weight Loss: Does It Work? Int J Mol Sci. 2022 Jan 7;23(2):639. doi: 10.3390/ijms23020639. PMID: 35054828

Abstract:

Obesity is a global health problem needing urgent research. Synthetic anti-obesity drugs show side effects and variable effectiveness. Thus, there is a tendency to use natural compounds for the management of obesity. There is a considerable body of knowledge, supported by rigorous experimental data, that natural polyphenols, including curcumin, can be an effective and safer alternative for managing obesity. Curcumin is a is an important compound present in *Curcuma longa* L. rhizome. It is a lipophilic molecule that rapidly permeates cell membrane. Curcumin has been used as a pharmacological traditional medicinal agent in Ayurvedic medicine for ~6000 years. This plant metabolite doubtless effectiveness has been reported through increasingly detailed in vitro, in vivo and clinical trials. Regarding its biological effects, multiple health-promoting, disease-preventing and even treatment attributes

have been remarkably highlighted. This review documents the status of research on anti-obesity mechanisms and evaluates the effectiveness of curcumin for management of obesity. It summarizes different mechanisms of anti-obesity action, associated with the enzymes, energy expenditure, adipocyte differentiation, lipid metabolism, gut microbiota and anti-inflammatory potential of curcumin. However, there is still a need for systematic and targeted clinical studies before curcumin can be used as the mainstream therapy for managing obesity.

Khanal P, Duyu T, Patil BM, Dey YN, Pasha I, Wanjari M et al. Network pharmacology of AYUSH recommended immune-boosting medicinal plants against COVID-19. J Ayurveda Integr Med. 2022 Jan-Mar;13(1):100374. doi: 10.1016/j.jaim.2020.11.004. Epub 2020 Nov 25. PMID: 33250601

Abstract:

The Ministry of AYUSH recommended the use of a decoction of the mixture of *Ocimum tenuiflorum*, *Cinnamomum verum*, *Piper nigrum*, *Zingiber officinale,* and *Vitis vinifera* as a preventive measure by boosting the immunity against the severity of infection caused by a novel coronavirus (COVID-19). The present study aimed to identify the probable modulated pathways by the combined action of AYUSH recommended herbal tea and golden milk formulation as an immune booster against COVID-19. Reported phytoconstituents of all the medicinal plants were retrieved from the ChEBI database, and their targets were predicted using DIGEP-Pred. STRING database and Cytoscape were used to predict the protein-protein interaction and construct the network, respectively. Likewise, MolSoft and admet SAR2.0 were used to predict the druglikeness score and ADMET profile of phytoconstituents. The study identified the modulation of HIF-1, p53, PI3K-Akt, MAPK, cAMP, Ras, Wnt, NF-*kappa* B, IL-17, TNF, and cGMP-PKG signaling pathways to boost the immune system. Further, multiple pathways were also identified which are involved in the regulation of pathogenesis of the multiple infections and non-infectious diseases due to the lower immune system. Results indicated that **t**he recommended herbal formulation not only modulated the pathways involved in boosting the immunity but also modulated the multiple pathways that are contributing to the progression of multiple disease pathogenesis which would add the beneficial effect in the co-morbid patients of hypertension and diabetes. The study provides the scientific documentation of the role of the Ayurvedic formulation to combat COVID-19.

Kulkarni AV, Hanchanale P, Prakash V, Kalal C, Sharma M, Kumar K et al. Tinospora Cordifolia (Giloy)-Induced Liver Injury During the COVID-19 Pandemic-Multicenter Nationwide Study From India. Hepatol Commun. 2022 Jan 17. doi: 10.1002/hep4.1904. Online ahead of print. PMID: 35037744

Abstract:

Tinospora cordifolia (Giloy) is an herbal supplement commonly used in the Indian alternative medicine system Ayurveda. This herb has been promoted to the public in India as an immune booster to prevent novel coronavirus disease 2019. However, small reports have recently shown an association between Giloy use and the development of herb-induced liver injury (HILI) with autoimmune features in some patients. This large retrospective Indian multicenter study spanning 13 centers at nine locations was designed to identify features and outcomes of HILI temporally associated with Giloy use. Chemical and toxicological analyses of retrieved Giloy samples using state-of-the-art methods were also performed. We report 43 patients, of whom more than half were female, with a median time from initial Giloy consumption to symptom onset of 46 days. Patients presented with acute hepatitis, acute worsening of chronic liver disease (CLD, the most common clinical presentation), or acute liver failure. Causality assessment revealed probable liver injury in 67.4%. The most common autoantibody detected was anti-nuclear antibody. Liver biopsy in a subset revealed HILI associated with autoimmune features and hepatocyte and canalicular cholestasis and neutrophilic and eosinophilic infiltration.

Conclusion: Giloy is associated with acute hepatitis with autoimmune features and can unmask autoimmune hepatitis (AIH) in people with silent AIH-related CLD. Further studies on the safety (and efficacy) of untested but heavily promoted herbals in alternative systems of medicine are an unmet need in the interests of public health and are especially important during this global health emergency.

Kumar Singh S, Rajoria K, Sanjeev Sharma. Principles of Rajayakshma management for COVID-19. J Ayurveda Integr Med. 2022 Jan-Mar;13(1):100349. doi: 10.1016/j.jaim.2020.08.002. Epub 2020 Aug 24. PMID: 32863675

Kuttikrishnan M, Sridhar R, Varghese E. Jatharagni and Prakriti of young Indian adult population: A descriptive cross-sectional study. J Ayurveda Integr Med. 2022 Jan 28:100438. doi: 10.1016/j.jaim.2021.04.008. Online ahead of print. PMID: 35101333

Abstract:

Agni has an important role to play in the physiological functioning of the body. It varies with the bodily constitution of individuals, season, age, and other factors. The uniqueness of each individual is determined by the Prakriti which deals with somatic and psychic development. The Prakriti directly impacts Jatharagni and determines the type of Jatharagni. A descriptive cross-sectional survey was conducted among healthy students from both genders aged between 18 and 30 years. Jatharagni and Prakriti were evaluated using the Jatharagni Assessment Questionnaire (JAQ) and a 62-item self-assessment questionnaire validated in previous study. The results indicate that there is a significant association between the types of Prakriti and the types of Jatharagni $x2$ (6) = 155.14, (p = .001). The post-hoc analysis revealed

that Vatapitta is associated with the dominance of Teekshnagni, Vatakapha is associated with the dominance of Mandagni, and Kaphapitta is associated with the dominance of Vishamagni. The result indicates a statistically significant association between types of Prakriti and Jarana Shakthi (Likelihood Ratio (4) = 27.010, p = .001). The study establishes a significant association between Agni and Dvandvaja Prakriti. Vatapitta Prakriti individuals had Teekshnagni, Vatakapha Prakriti individuals had Mandagni and Kaphapitta Prakriti had Vishamagni. Though the results were promising, the analysis should be done with a larger sample size in different populations.

Li C, Li Z, Wu H, Tang S, Zhang Y, Yang B et al. Therapeutic effect of Moringa oleifera leaves on constipation mice based on pharmacodynamics and serum metabonomics. J Ethnopharmacol. 2022 Jan 10;282:114644. doi: 10.1016/j.jep.2021.114644. Epub 2021 Sep 14. PMID: 34534599

Abstract:

Ethnopharmacological relevance: Moringa oleifera is native to India, and has been introduced to China in recent years. Moringa oleifera leaves (MOL), as Ayurvedic medicine, has efficacy of Pachana karma (digestive) and Virechana karma (purgative). Folium Sennae (FS), Rhubarb (RB), Aloe vera (AV), Hemp seed (HS) are commonly used as laxatives in Traditional Chinese Medicine (TCM), which have different characteristics. However, the intensity of the diarrheal effect of MOL and its mechanism of action are unclear.

Aim of the study: The methods of pharmacology and omics were used to compare the purgative effects of MOL and FS, RB, AV, HS, and their effects on metabolomics, to analyze the purgative characteristics and related mechanisms of MOL.

Materials and methods: C57BL/6J mouse model of constipation was established by feeding low-fiber food. Feces parameters and colon pathology were used to evaluate the effect of FS, RB, AV, HS and MOL. And mass spectrometry-based serum metabolomics was performed. The differential metabolites of these herbs in the treatment of constipation were obtained by OPLS-DA analysis. Furthermore, pathway analysis was conducted based on different metabolites.

Results: Moringa leaves can adjust the stool number, wet fecal weight and fecal water content to varying degrees to achieve laxative effects, and recover colon muscle thickness and mucus. Analysis of metabolomics results showed that 71 metabolites from LC-MS datasets between model group and control group were obtained. 29, 12, 44, 29 and 20 metabolites were significantly reversed by FS, RB, AV, HS, MOL compared with model group respectively. According to the metabolic pathways, RB and AV may be clustered into a similar category, and MOL, FS and HS showed similarity of metabolic characteristics.

Conclusion: The purgative effect of MOL is inferior to that of FS, and stronger than that of AV, RB and HS. The metabolic pathway for constipation is more similar to that of FS. MOL has a long-lasting and mild effect of laxative, increasing defecation volume and water content of feces, and may become a fewer side effects medicine to treat constipation.

Lum Nde A, Chukwuma CI, Erukainure OL, Chukwuma MS, Matsabisa MG. Ethnobotanical, phytochemical, toxicology and anti-diabetic potential of Senna occidentalis (L.) link; A review. J Ethnopharmacol. 2022 Jan 30;283:114663. doi: 10.1016/j.jep.2021.114663. Epub 2021 Sep 21. PMID: 34560215

Abstract:
Ethnopharmacological relevance: Senna occidentalis (L.) Link is a plant that has been used in medicine in some African countries, Asia and America. It is mainly used in Ayurvedic medicine in India. Several parts of this plant are used for preventing or treating diabetes, haematuria, rheumatism, typhoid, asthma, hepatotoxicity, disorders of haemoglobin and leprosy.

Aim of the study: This review outlines the pharmacological evidence supporting the potential of S. occidentalis to control or compensate for diabetes and associated complications, with intentions to sensitize the scientific community for future research on this promising plant.

Materials and methods: Information on the anti-diabetic pharmacological studies of Senna occidentalis was collected from various scientific databases including Scopus, PubMed, ScienceDirect and Google Scholar. The studies were analyzed for the toxicological, phytochemical, anti-diabetic, hypoglycemic, anti-hyperlipidemia and antioxidative aspects of the different parts of S. occidentalis.

Results: Numerous phytochemical constituents (flavonoids, saponins, alkaloids, tannins, terpenes and glycosides) are present in this plant and are responsible for their anti-diabetic, hypoglycemic, anti-hyperlipidemic and antioxidative effects. The different plant parts appears to exert anti-diabetic effects by direct regulation of blood glucose, modulation of lipid profile and improving of antioxidant status and islet function.

Conclusion: Senna occidentalis is rich in phytochemicals. The crude extracts of the different parts have valuable bioactive properties with potential ethnopharmacological relevance for diabetes management and treatment. Further bioassay guided phytochemical analyses of this plant are recommended to explore its therapeutic bioactive principles.

Madival AS, Doreswamy D, Handady SA, Hebbar KR, Lakshminarayana SK. Investigation of the Mechanical and Liquid Absorption Properties of a Rice Straw-Based Composite for Ayurvedic Treatment Tables. Materials (Basel). 2022 Jan 14;15(2):606. doi: 10.3390/ma15020606. PMID: 35057325

Abstract:

Managing rice crop stubble is one of the major challenges witnessed in the agricultural sector. This work attempts to investigate the physical, mechanical, and liquid absorption properties of rice straw (RS)-reinforced polymer composite for assessing its suitability to use as an ayurvedic treatment table. This material is expected to be an alternative for wooden-based ayurvedic treatment tables. The results showed that the addition of rice straw particles (RS_p) up to 60% volume in epoxy reduced the density of the composite material by 46.20% and the hardness by 15.69%. The maximum tensile and flexural strength of the RS_p composite was 17.53 MPa and 43.23 MPa, respectively. The scanning electron microscopy (SEM) analysis showed deposits of silica in the form of phytoliths in various size and shapes on the outer surface of RS. The study also revealed that the water absorption rate (WA) was less than 7.8% for the test samples with 45% volume of RS_p. Interestingly the test samples showed greater resistance to the absorption of Kottakal Dhanvantaram Thailam (<2%). In addition, the developed samples showed resistance towards bacterial and fungal growth under the exposure of treatment oils and water.

Mathpati MM, Payyappallimana U, Shankar D, Porter JD. 'Population self-reliance in health' and COVID-19: The need for a 4th tier in the health system. J Ayurveda Integr Med. 2022 Jan-Mar;13(1):100354. doi: 10.1016/j.jaim.2020.09.003. Epub 2020 Sep 21. PMID: 32982108

Abstract:

The COVID-19 pandemic is straining health systems globally. The current international biomedical focus for disease control and policies fails to include the resource of a population's capacity to be self-reliant in its health care practices. The ancient wisdom of Ayurveda ('the knowledge of life') and Local Health Traditions (LHTs) in India understand that health is about *Svasthya*, 'being rooted within'; a concept that includes the relationship and balance between the individual, their families, communities and the environment in creating and maintaining their own health. This 'population self-reliance in health' is the focus of the 4th tier in the health system which honours and respects an individual's capacity for self-care and their inherent responsibility to the health system and its values. It encourages the inclusion of this knowledge in the creation of health systems and in the policies that direct them. Research and practice into the 4th tier will provide health systems and policy information into how communities are managing the COVID-19 epidemic. These insights will help in the creation of future health systems that are better aligned to the 'self-reliance in health' of individuals and their communities.

Mishra P, Tripathi YB. Impact of Nano Preparation of Phytoconstituents in Medulloblastoma. Methods Mol Biol. 2022;2423:115-122. doi: 10.1007/978-1-0716-1952-0_12. PMID: 34978694

Abstract:

The conventional cancer treatment strategies from chemotherapy to surgery often lead to inadequate results which in some cases lead to relapsing of the tumor being treated. Medulloblastoma witness 30% relapse rate which is universally fatal among children. Although the treatment of primary medulloblastoma is well established including surgical excision, postsurgical irradiation, and, more recently, chemotherapy, there is no established treatment for its recurrence. Despite efforts to improve its therapy, frequent long-haul survivors have been recorded in the world's medical literature. In this book chapter, we have attempted to focus light on the nano preparation of phytoconstituents as an alternative approach as it has advantage of providing better bioavailability of the compound in terms of crossing the blood-brain barrier and an additional benefit in terms of limited adverse effects of the natural product over the traditional chemotherapeutic approaches. In recent times, biological methods or green approaches in the case of plants have received immense attention due to its safety and lack of contamination in the process. In this chapter, we will explore some plant products that have been incorporated into nanocarriers to improve their bioavailability in this tumor treatment.

Mukherjee PK, Singha S, Kar A, Chanda J, Banerjee S, Dasgupta B et al. Therapeutic importance of Cucurbitaceae: A medicinally important family. J Ethnopharmacol. 2022 Jan 10;282:114599. doi: 10.1016/j.jep.2021.114599. Epub 2021 Sep 4. PMID: 34487849

Abstract:

Ethnopharmacological relevance: Medicinal plants of Cucurbitaceae family consist of several edible fruits and vegetables consumed worldwide since ancient times. The plants of this family have played an essential role in the ethnopharmacological as well as traditional medicinal system globally and their evidence is well established in several traditional literatures. Various plant parts have been used to treat several human ailments viz. Pandu (anemia), Pliharoga (splenomegaly), Sopha (inflammation), Gulma (tumor growth), Adhmana (indigestion. acidity), Garavisa (poisoning) etc. AIM OF THE REVIEW: This review article aims to systematically document and bridge scientific evidences with the ethnopharmacological, ethnoveterinary and folklore claims along with the therapeutic efficacy with mechanism of action found in different literature, books, and scientific articles belonging to the Cucurbitaceae family.

Materials and methods: To construct the manuscript a comprehensive literature review was done based on the information collected from Ayurvedic Pharmacopoeia of India; books, research articles and databases such as ScienceDirect, Wiley Online Library, SciFinder, Scopus, Springer, Google Scholar, Web of Science, ACS Publications and PubMed.

Results: The plants of Cucurbitaceae family are rich in phytochemicals like terpenoids, glycosides, alkaloids, saponins, tannins, steroids, etc., responsible for the therapeutic effect. Various parts of these plants such as leaves, stems, flowers, fruits, seeds, roots etc. exhibit a plethora of pharmacological activity viz. hypolipidemic, antihyperglycemic, anticancer, antimicrobial, analgesic, anti-inflammatory, anti-stress and immunomodulatory activities. Also, in-vitro and in-vivo reports suggest strong inhibitory potential against α-glucosidase, α-amylase, lipase, carbonic anhydrase enzyme along with antioxidant, anti-inflammatory, antidiabetic, anti-tumor, antifungal, etc. Furthermore many reports suggest these plants are beneficial for nutritional, economical and ethnoveterinary uses.

Conclusions: The current review enlightens the therapeutic potential of the gourd family, comprising of the geographical origins, morphology, phytochemistry, ethnopharmacology, ethnoveterinary, nutritional importance, therapeutic benefits, safety, efficacy and related aspects. The phytochemical and pharmacological potential indicated will popularize this family as a potential source of novel therapeutic agents and functional foods. This study will help to validate the therapeutic claims of several ethnomedicinal uses of this plant family. Furthermore the Cucurbitaceae family needs to be evaluated based on the combine approaches of chemoprofiling and bioexploration to develop the concept of food as medicine for the development of new generation therapeutics leading to the human wellness.

Nakanekar A, Khobarkar P. Ayurveda treatment can be helpful in management of snoring, obesity and type 2 Diabetes Mellitus: A case report. J Ayurveda Integr Med. 2022 Jan 20;13(1):100506. doi: 10.1016/j.jaim.2021.08.001. Online ahead of print. PMID: 35065847

Abstract:

Sleep is responsible for proper metabolic balance. Disturbances in sleep causes insulin resistance, beta cell dysfunction and obesity through various pathways. Snoring is one of the important indicative symptoms of sleep apnoea that leads to disturbances in sleep. A 54-years old male patient was presented to Kayachikitsa casualty Government Ayurveda College Nagpur with complaints of snoring, difficulty in breathing while climbing stairs since 10 years. After evaluation he was diagnosed as obese with type 2 Diabetes mellitus (DM). Sleep study revealed presence of sleep apnoea. We treated this patient following the principle of VyadhiHetuSankar (one cause for many diseases). In such a case treatment of Hetu (cause of disease) can be principle of treatment. Snoring was subsided in patient after one -month of treatment. Significant reduction in HbA1c, fasting and post prandial blood glucose level were observed along with reduction in Lipid levels and BMI in three months. Ayurveda concepts can bring major breakthrough in treatment of metabolic disorders. Various Ayurvedic concepts of gut, lung endocrinal pathways and Agni (metabolic power) can generate future studies in this direction.

Nakanekar A, Kulkarni S, Khobarkar P, Belsare M. Integrative management of critical case of Covid 19 with Ayurveda and modern medicine: A case report. J Ayurveda Integr Med. 2022 Jan-Mar;13(1):100496. doi: 10.1016/j.jaim.2021.07.012. Epub 2021 Jul 28. PMID: 34334979

Abstract:

Covid 19 pandemic has placed challenges in front of medical health fraternity in terms of management, prevention and immunity building. Effectiveness of any medication has not conclusively proven; hence there is need for integrative management of Covid 19. We have managed a critical case of Covid-19 having history of thalassemia, hypothyroidism with integrative management of *Ayurveda* and modern medicine. A male patient (59 years of age) with history of thalassemia had complaints of cough and breathlessness since 4 days. He performed RT PCR because of his exposure to a Covid positive cases in immediate family. He was treated with Favipiravir at home for 5 days. He deteriorated on 6th day with SPO_2 dropped to 75%, temp raised to 101 F and respiratory rate (RR) raised to 45/min. He was admitted in Yogeshwari Hospital Daund, Maharashtra; treated with oxygen inhalation, Remdesvir and *Ayurveda* medicines in intensive care unit (ICU). *Ayurveda* treatment protocol was advised through telemedicine. Significant improvement in clinical symptoms and normal HRCT was observed at completion of treatment. This case report provides further directions for integrative management in cases of Covid 19. Further clinical research studies in this direction are warranted.

Panda AK, Kar S, Rai AK, Rao BCS, Srikanth N. AYUSH- 64: A Potential Therapeutic Agent in COVID-19. J Ayurveda Integr Med. 2022 Jan 4:100538. doi: 10.1016/j.jaim.2021.100538. Online ahead of print. PMID: 35002178

Abstract:

Corona Virus disease (COVID-19) has become a global pandemic resulting in large scale morbidity and mortality worldwide. The causative agent SARS-CoV-2 is easily subject to repeated mutation with swift spread of infection. The management of COVID-19 has been a big challenge on account of non-availability of specific therapeutic agents. The complex and multifactorial pathophysiology of COVID-19 requires therapeutic agents with anti-viral properties against SARS-CoV-2 as well as immunomodulatory properties that have a broad-spectrum effectiveness covering the disease in totality. AYUSH-64, a poly-herbal formulation developed by CCRAS, Ministry of AYUSH, Govt. of India through extensive pharmacological, toxicological and clinical studies has proven efficacy in infective febrile conditions such as malaria, micro filaremia, chikungunya and influenza with no safety issues observed in published clinical studies. Based on the empirical evidence, it has been repurposed as an adjuvant to standard care or standalone therapy for asymptomatic and mild to moderate cases of COVID- 19 by the Ministry of AYUSH at a time when India is experiencing wave after wave of COVID-19

variants causing mass distress to the healthcare delivery systems. AYUSH- 64 has four ingredients having immune-modulator, anti-inflammatory, antipyretic, antioxidant and anti-viral activities. These effects could arrest the extreme inflammatory responses in COVID-19 that causes progression to significant morbidity. Several clinical studies on AYUSH-64 in asymptomatic and mild to moderate cases of COVID-19 have been undertaken at reputed medical institutions across the country. The evidence generated through these studies is promising. AYUSH-64 has also been incorporated in the National COVID management protocol based on Ayurveda and Yoga by Government of India for asymptomatic and mild cases of COVID-19. Further, on the basis of tangible evidence generated through robust clinical and experimental studies on AYUSH-64, the Ministry of AYUSH has launched nation-wide campaign for mass distribution of *AYUSH-64* to asymptomatic, mild to moderate COVID-19 patients in home isolation to reduce the burden on the hospital-based health care delivery system. This review will highlight about the specifications of AYUSH-64, its probable mechanism of action, its repurposing for COVID-19, various clinical and experimental studies undertaken during the COVID-19 pandemic and the initiatives taken to translate the outcomes of these studies on AYUSH-64**.**

Pandey N, Tripathi YB. Role of Ayurvedic Plants as Anticancer Agents. Methods Mol Biol. 2022;2423:141-150. doi: 10.1007/978-1-0716-1952-0_14. PMID: 34978696

Abstract:

The use of natural products has been increasing at a rapid pace, worldwide, with the aim to maintain a healthy lifestyle and to modify one's dietary habits. Ayurveda is a domain that has numerous wealth of information concerning medicinal plants and its part in controlling numerous ailments, such as neoplastic, cardiovascular, neurological plus immunological ailments. The use of such medicinal plants is important for preventing such diseases, especially "cancer" which is the succeeding foremost cause of mortality collectively. Even though abundant developments have been made in the management and control of cancer progression, substantial deficits and scope for advancement still continue to be unchanged. Several lethal adjacent consequences occur throughout the course of chemotherapy. Natural treatments, such as the use of plant-derived products in the treatment of cancer, might reduce the hostile side effects. Presently, a few plant-based products and its phytoconstituents are being utilized for the management of cancer. Here we have focused on numerous plant-derived phytochemicals and promising compounds from these plants to act as anticancer agents, along with their mechanisms of action.

Pandkar PD, Sachdeva V. Pathophysiology of Covid-19 and host centric approaches in Ayurveda. J Ayurveda Integr Med. 2022 Jan-Mar;13(1):100380. doi: 10.1016/j.jaim.2020.11.010. Epub 2020 Dec 2. PMID: 33519134

Abstract:

The world is facing a global crisis and health emergency of COVID-19. Understanding of COVID-19 pathophysiology in ayurvedic host centric framework is prerequisite for apt use of *Ayurveda*. This paper reviews COVID-19 pathophysiology, clinical presentations and prognosis in ayurvedic perspective. Concept of exogenous pathogenic diseases can be traced in fever, microbes, toxins, epidemics and seasonal regimens chapters of *Ayurveda.* Such exogenous diseases later manifest multi-system presentation according to involvement of different '*Dosha'* and derangement of '*Agni'*. The pathology of COVID-19 is primarily that of *Sannipata Jwara* (fever) with involvement of respiratory system. Secondary manifestations include coagulopathies, cardiovascular, neural, and renal complications. Gastrointestinal system is closely associated with respiratory mechanism in *ayurvedic* pathophysiological conceptualization of *Srotas*. Abnormal immune responses in COVID-19 are result of abnormalities of *Tridosha*, *Rakta* (blood) and *Ojus* (Vital nectar). The initial phase is *Vata-Kapha* dominant whereas later stage of aggravated immune response is *Vata-Pitta* dominant. Alveolar damage, coagulopathies indicate *Rakta dhatu* vitiation. With this integrative understanding of COVID-19, we propose novel strategies for therapeutics and prophylaxis. Measures for 'Conservation of *Agni-bala'*, 'Attainment of *Rakta- Pitta-Prana* homeostasis and 'Protection of *Tri-Marma* i.e. vital organs' can be important Host based strategies for reduction in the mortality in COVID-19 and for better clinical outcomes. This host centric approach can make paradigm shift in management of this epidemic.

Ram TS, Munikumar M, Raju VN, Devaraj P, Boiroju NK, Hemalatha R et al. Silico evaluation of the compounds of the ayurvedic drug, AYUSH-64, for the action against the SARS-CoV-2 main protease. J Ayurveda Integr Med. 2022 Jan-Mar;13(1):100413. doi: 10.1016/j.jaim.2021.02.004. Epub 2021 Feb 25. PMID: 33654345

Abstract:

Background: Outbreak of Corona Virus Disease in late 2019 (COVID-19) has become a pandemic global Public health emergency. Since there is no approved anti-viral drug or vaccine declared for the disease and investigating existing drugs against the COVID-19.

Objective: AYUSH-64 is an Ayurvedic formulation, developed and patented by Central Council of Research in Ayurvedic Sciences, India, has been in clinical use as anti-malarial, anti-inflammatory, anti-pyretic drug for few decades. Thus, the present study was undertaken to evaluate AYUSH-64 compounds available in this drug against Severe Acute Respiratory Syndrome-Corona Virus (SARS-CoV-2) Main Protease (Mpro; PDB ID: 6LU7) via in silico techniques.

Materials and methods: Different molecular docking software's of Discovery studio and Auto Dock Vina were used for drugs from selected AYUSH-64 compounds against SARS-CoV-2. We also conducted 100 ns period of molecular dynamics simulations with Desmond and further MM/GBSA for the best complex of AYUSH-64 with Mpro of SARS-CoV-2.

Results: Among 36 compounds of four ingredients of AYUSH-64 screened, 35 observed to exhibits good binding energies than the published positive co-crystal compound of N3 pepetide. The best affinity and interactions of Akuammicine N-Oxide (from Alstonia scholaris) towards the Mpro with binding energy (AutoDock Vina) of -8.4 kcal/mol and Discovery studio of Libdock score of 147.92 kcal/mol. Further, molecular dynamics simulations with MM-GBSA were also performed for Mpro- Akuammicine N-Oxide docked complex to identify the stability, specific interaction between the enzyme and the ligand. Akuammicine N-Oxide is strongly formed h-bonds with crucial Mpro residues, Cys145, and His164.
Conclusion: The results provide lead that, the presence of Mpro-Akuammicine N-Oxide with highest Mpro binding energy along with other 34 chemical compounds having similar activity as part of AYUSH-64 make it a suitable candidate for repurposing to management of COVID-19 by further validating through experimental, clinical studies.

Rastogi S, Pandey DN, Singh RH. COVID-19 pandemic: A pragmatic plan for ayurveda intervention. J Ayurveda Integr Med. 2022 Jan-Mar;13(1):100312. doi: 10.1016/j.jaim.2020.04.002. Epub 2020 Apr 23. PMID: 32382220

Abstract:

World community is facing an unprecedented pandemic of novel corona virus disease (COVID-19) caused by Severe Acute Respiratory Syndrome Corona virus 2 (SARS-CoV- 2). The disease has spread globally with more than 1.43 million confirmed cases and 82,100 deaths as of April 8, 2020. Despite worldwide efforts to contain it, the pandemic is continuing to spread for want of a clinically-proven prophylaxis and therapeutic strategy. The dimensions of pandemic require an urgent harnessing of all knowledge systems available globally. Utilization of Traditional Chinese Medicine in Wuhan to treat COVID-19 cases sets the example demonstrating that traditional health care can contribute to treatment of these patients successfully. Drawing on the Ayurveda classics, contemporary scientific studies, and experiential knowledge on similar clinical settings, here we propose a pragmatic plan for intervention in India. We provide a plan for graded response, depending on the stage of infection among individuals, in a population. Notwithstanding the fact that no system of medicine has any evidence-based treatment for COVID-19 as yet, clinical interventions are required to be put in place. Therefore, pragmatic strategy proposed here for Ayurveda system of medicine requires immediate implementation. It will facilitate learning, generate evidence and shall be a way forward.

Rastogi S, Rastogi R, Kharbanda A. Time when a physician turned out to be a patient: A case study on how an Ayurvedic physician cured himself from COVID-19. J Ayurveda Integr Med. 2022 Jan-Mar;13(1):100411. doi: 10.1016/j.jaim.2021.02.002. Epub 2021 Feb 25. PMID: 33654346

Abstract:

Medical literature continues to get enriched through various researches and observations related to SARS-CoV-2 infection leading to COVID-19. Case reports play crucially to understand a novel clinical condition where much is yet to be known. Current pandemic is unique for the reason that its impacts upon front line health care workers (HCWs) are much higher than general population. In this situation, how an Ayurvedic physician has handled his own case leading to a cure from COVID-19 may furnish important information regarding mitigation and cure from the disease. This is also an unprecedented writing in medical literature as a physician reporting his own case is a rare phenomenon in medical history. This case report puts strongly the prophylactic and disease modifying potential of Ayurvedic interventions in COVID-19.

Rastogi S, Singh N, Pandey P. Telemedicine for Ayurveda consultation: Devising collateral methods during the COVID-19 lockdown impasse. J Ayurveda Integr Med. 2022 Jan-Mar;13(1):100316. doi: 10.1016/j.jaim.2020.05.001. Epub 2020 May 8. PMID: 32390696

Abstract:

COVID-19 pandemic and subsequent measures to mitigate it have presented the world with certain unprecedented situations. Lockdown with effective closure of all services including routine health care services has tested the nerves of health care providers for finding novel ways of providing services without getting into the risk of exposure. Telemedicine had been an ideal option for such situations allowing all channels of communication that leverage Information Technology platforms, including voice, audio, text and digital data exchange as a help to diagnosis, prescription and follow up evaluation. Unfortunately this versatility of Telemedicine as a patient - physician interface could not be harnessed well for its technical complexities and unpreparedness of institutions and individuals. Smartphone based video calling using whatsapp messenger has been proposed as a feasible Telemedicine application to provide outpatient services in this scenario. A pilot run of outpatient services during lockdown period through whatsapp facilitated video calling at Ayurveda Gathiya Clinic, State Ayurvedic College and Hospital, Lucknow has shown a way forward of running such services with a mass appeal, ease of operation and high interface gratification among users and service providers. Within its limitations related to the quality and quantity of information sought, this comes as a viable method of patient -physician interfacing during the phase of lockdown.

Rastogi S, Tiwari V, Jatav SP, Singh N, Verma S, Verma S et al. Survey of patients visiting an Ayurvedic teaching hospital for factors influencing the decision to choose ayurveda as a health care provider. J Ayurveda Integr Med. 2022 Jan 22:100539. doi: 10.1016/j.jaim.2021.100539. Online ahead of print. PMID: 35078695

Abstract:

Study background: In a pluralistic health care delivery model, it is important to assess whether the individual's health care choices are based upon evidences of efficacy and safety. Since the essence of medical pluralism lies in the fact that all such systems are equally accessible to a seeker, in such situation, it is highly relevant to check what defines such choices in real life.

Objective: To identify the factors influencing the health care choices in a subpopulation seeking Ayurveda health care in an Ayurvedic teaching hospital.

Materials and method: The study was an all-inclusive cross sectional survey, done on randomly selected out patients visiting an Ayurveda teaching hospital. The data was collected using a 21 items questionnaire refined through pilot testing from 7.9.2017 to 30.9.2017.

Results: The data of 289 respondents who have given their consent were included in statistical analysis. Out of 21 variables studied for their agreement or disagreement in the study population 8 were found to have a significant proportion in favour of agreement. Among these relative safety (Item 9); disease eradicating potential (Item 14); belief (Item 3) and indirect evidences of efficacy (Item 4) were found to have high significance ($p < 0.001$).

Conclusion: Participants chose Ayurveda treatment due to its perceived safety and probability of helping in a particular clinical condition. Contrary to the common perception, enabling factors like availability, accessibility and affordability were given less importance by the participants in making health care choices related to Ayurveda.

RR. GC-MS Analysis of Bioactive Compounds in Ethanolic Leaf Extract of Hellenia speciosa (J.Koenig) S.R. Dutta. Appl Biochem Biotechnol. 2022 Jan;194(1):176-186. doi: 10.1007/s12010-021-03742-2. Epub 2021 Nov 11. PMID: 34762268

Abstract:

Hellenia speciosa (J.Koenig) S.R. Dutta is a plant species belonging to the family Costaceae. It is widely distributed in China, India, Malaysia, Indonesia, tropical, and subtropical Asia. In Ayurveda, the rhizome of this plant has been extensively used to treat fever, rash, asthma, bronchitis, and intestinal worms. The objective of the present study was to investigate the phytochemical constituents of the leaf of Hellenia speciosa using gas chromatography and

mass spectroscopy analysis (GC-MS). The GC-MS analysis revealed the presence of 17 phytochemical components in the ethanolic leaf extract of Hellenia speciosa. The prevailing bioactive compounds present in Hellenia speciosa were thymol (RT-10.019; 3.59%), caryophyllene (RT-11.854; 0.62%), caryophyllene oxide (RT-13.919; 1.34%), artumerone (RT-14.795; 1.35%), hexadecanoic acid methyl ester (RT-17.536; 2.77%), 9,12-octadecanoic acid methyl ester (RT-19.163; 1.35%), squalene (RT-24.980; 1.19%), piperine (RT-25.745; 3.11%), beta tocopherol (RT-26.681; 2.88%), vitamin E (RT-27.290; 2.64%), progesterone (RT-29.608; 3.18%), caparratriene (RT-29.861; 9.72%), and testosterone (RT-30.73; 5.81%). The compounds were identified by comparing their retention time and peak area with that of the literature and by interpretation of mass spectra. The results and findings of the present study suggest that the plant leaf can be used as a valuable source in the field of herbal drug discovery. The presence of bioactive compounds justifies the use of plant leaves for treating various diseases with fewer side effects and recommended the plant of pharmaceutical importance. However, further studies are needed to undertake its bioactivity and toxicity profile.

Ruknuddin G, Narayanam S, Nesari TM. Do Tinospora cordifolia Cause Hepatic Damage? J Clin Exp Hepatol. 2022 Jan-Feb;12(1):244. doi: 10.1016/j.jceh.2021.09.006. Epub 2022 Jan 12. PMID: 35068810

Saini R, Sharma N, Oladeji OS, Sourirajan A, Dev K, Zengin G et al. Traditional uses, bioactive composition, pharmacology, and toxicology of Phyllanthus emblica fruits: A comprehensive review. J Ethnopharmacol. 2022 Jan 10;282:114570. doi: 10.1016/j.jep.2021.114570. Epub 2021 Sep 2. PMID: 34480995

Abstract:

Ethnopharmacological relevance: The fruits of Phyllanthus emblica Linn or Emblica officinalis Gaertn (Phyllanthaceae), (FPE) commonly known as Indian gooseberry or Amla, gained immense importance in indigenous traditional medicinal systems, including Ayurveda, for its medicinal and nutritional benefits. It is used to cure several diseases such as common cold, fever, cough, asthma, bronchitis, diabetes, cephalalgia, ophthalmopathy, dyspepsia, colic, flatulence, hyperacidity, peptic ulcer, erysipelas, skin diseases, leprosy, hematogenesis, inflammation, anemia, emaciation, hepatopathy, jaundice, diarrhea, dysentery, hemorrhages, leucorrhea, menorrhagia, cardiac disorders, and premature greying of hair.

Aim of the study: In the present review, we presented a comprehensive analysis of the ethnopharmacology, bioactive composition, and toxicity of P. emblica to identify the gap between research and the current applications and to help explore the trends and perspectives for future studies.

Materials and methods: We collected the literature published before April 2021 on the phytochemistry, pharmacology, and toxicity of FPE. Literature in English from scientific databases such as PubMed, ScienceDirect, Wiley,

Springer, and Google Scholar, books. These reports were analyzed and summarized to prepare this review. The plant taxonomy was verified by "The Plant List" database (http://www.theplantlist.org).

Results and conclusion: s: FPE have been used as a rich source of vitamin C, minerals, and amino acids. Several bioactive molecules were isolated and identified from FPE such as tannins, flavonoids, saponins, terpenoids, alkaloids, ascorbic acid etc. The in vitro and in vivo pharmacological studies on FPE revealed its antimicrobial, antioxidant, anti-inflammatory, anti-diabetic, anticancer, radioprotective, hepatoprotective, immunomodulatory, hypolipidemic, anti-venom, wound healing, HIV-reverse transcriptase effect. Toxicological studies on fruits indicated the absence of any adverse effect even at a high dose after oral administration.

Conclusions: Although FPE showed remarkable therapeutic activities against several diseases such as diabetes, cancer, inflammation, hepatitis B virus, and malaria, there were several drawbacks in some previous reports including the lack of information on the drug dose, standards, controls, and mechanism of action of the extract. Further in-depth studies are required to explain the mechanism of action of the extracts to reveal the role of the bioactive compounds in the reported activities.

Sankaramourthy D, Sankaranarayanan L, Subramanian K, Sadras SR. Neuroprotective potential of Celastrus paniculatus seeds against common neurological ailments: A narrative review. J Complement Integr Med. 2022 Jan 10. doi: 10.1515/jcim-2021-0448. Online ahead of print. PMID: 35005853

Abstract:

The most common human neurodegenerative diseases like Alzheimer's disease (AD), Parkinson's disease (PD), Huntington's disease (HD) etc. have been recognized to result from a complex interplay between genetic predisposition and defective cellular dynamics such as inappropriate accumulation of unfolded proteins, oxygen free radicals and mitochondrial dysfunction. The treatment strategies available today for these neurodegenerative ailments are only palliative and are incapable of restraining the progression of the disease. Hence, there is an immense requirement for identification of drug candidates with the ability to alleviate neuronal damage along with controlling progression of the disease. From time immemorial mankind has been relying on plants for treating varied types of dreadful diseases. Among the various medicinal plants used for treating various neurological ailments, Celastrus paniculatus (CP) popularly known as Jyotishmati or Malkangni is well known in the Ayurveda system of Indian Traditional Medicine whose seeds and seed oil have been used for centuries in treating epilepsy, dementia, facial paralysis, amnesia, anxiety, sciatica, cognitive dysfunctions etc. This review apart from specifying the phytochemical characteristics and traditional uses of C. paniculatus seeds and seed oil also exemplify the comprehensive data derived from various research

reports on their therapeutic potential against some common neurological disorders.

Sharma M, Sharma C, Mandal SK, Nesari TM, Kumar A. Immune status determined as per guidelines of Ayurveda found associated with clinical outcomes of COVID-19 disease: Results of a cross-sectional pilot study. J Ayurveda Integr Med. 2022 Jan-Mar;13(1):100425. doi: 10.1016/j.jaim.2021.03.007. Epub 2021 May 24. PMID: 34054247

Abstract:

Background: A key public health priority during the emergence of a novel pathogen is probing the factors contributing in clinical severity of the disease COVID-19. Moreover, analysis of the determined clinical outcomes is required and thus, modifiable predictor values need to identified. In Ayurveda, outcome of a disease is a multivariate function and this exploratory work is an attempt to identify one such factor "Vyadhiksamatwa" (immune status).

Materials and methods: A questionnaire-based, cross-sectional study was conducted in fifty diagnosed cases of COVID-19. Study participants were subjected to a questionnaire to assess relationship between the three determinants of the disease - exposure, clinical severity, and Vyadhiksamatwa.

Results: Clinical severity was found strongly correlated with Vyadhiksmatwa with the value of Pearson Correlation - 0.740 significant at the 0.01 level (2-tailed).

Conclusion: In the determination of clinical severity of disease, there are two epidemiological factors responsible - extrinsic (exposure) and intrinsic (Vyadhiksamatwa). It has been observed that higher the value of Vyadhiksamatwa of an individual, lesser will be the clinical severity of the disease in that individual. Vyadhiksamatwa can alter the host response to infections.

Sharma V, Singh AP, Singh AP. Therapeutic approaches in COVID-19 followed before arrival of any vaccine. Mater Today Proc. 2022;48:1258-1264. doi: 10.1016/j.matpr.2021.08.265. Epub 2021 Sep 3. PMID: 34493973

Abstract:

In present times covid-19 is spreading and is showing very destructive effects. It does not only affected the physical health but mental health as well as the economy of the major affected countries. **C**orona viruses are group of related RNA viruses. The first case of this virus was observed in China and then this virus got spread in the many countries and different strategies were made to stop the spread of this virus. Since no particular vaccine was available to cure this so different strategies were made. Due to the emergence of pandemic diseases, drug development and control strategies have been re-examined. One

of the most important factors that scientists have to consider is the effectiveness of their drugs. This virus causes the respiratory tract infections which can range from mild to lethal. COVID-19 is a major cause of death in advanced countries. It is due to the absence of any particular vaccine that can effectively treat this condition. So in this review we will discuss about the therapeutic approaches followed to combat this deadly virus. Ayurveda, nitric oxide, nanoparticles and enzymes played a very important role in boosting the immunity and treatment of corona. Many herbs and some tips of using a combination of herbs proved to be very efficient while facing problems in breathing. Giving the dose of nitric oxide at some particular level and chloroquine the drug showed the antiviral activity against the virus. Developing methods to identify and contain COVID-19 is essential to successfully manage the virus. Various strains of the SARS-COV-2 were detected and were found more dangerous. The therapeutic approaches followed actually were efficient and can be used to combat the other variants also. This review focuses on the latest developments in the field of therapeutics and the strategies which were followed before any vaccine.

Shirkande A, Shirkande A. Ayurvedic evaluation and treatment of Covid 19: A case report. J Ayurveda Integr Med. 2022 Jan-Mar;13(1):100489. doi: 10.1016/j.jaim.2021.07.005. Epub 2021 Jul 14. PMID: 34276164

Abstract:

COVID-19 patients, with underlying comorbidities are observed to develop complications. Studies have shown that hypertension (one of the comorbidities) is a risk factor for patients with severe COVID-19. There have been more patients with hypertension among those who succumbed to COVID-19 compared to the survivors. There is no proven treatment of COVID-19 as of now. Ministry of AYUSH, Government of India, has permitted use of traditional systems of medicine for treating mild to moderate cases of COVID-19. In line with this, there are few case reports which reported promising results for treatment of COVID-19 with Ayurveda. These treatment reports highlighted subdued COVID-19 infections without developing serious complications. The present case is of a young hypertensive female patient who was diagnosed with COVID-19. Ayurvedic assessment for this was Kaphavataj jwara. The patient sought Ayurvedic treatment. She was advised the treatment module including medicines, diet and behavioral interventions. Though patient was having comorbid hypertension with major COVID-19 symptoms, she recovered with exclusive Ayurvedic treatment both physically as well as psychologically with no post COVID-19 complications till date. Ayurvedic treatment module appears to be safe and efficacious with early recovery and better outcomes.

Shree P, Mishra P, Selvaraj C, Singh SK, Chaube R, Garg N et al. Targeting COVID-19 (SARS-CoV-2) main protease through active phytochemicals of ayurvedic medicinal plants - Withania somnifera (Ashwagandha), Tinospora cordifolia (Giloy) and Ocimum sanctum (Tulsi) : A molecular

docking study. J Biomol Struct Dyn. 2022 Jan;40(1):190-203. doi: 10.1080/07391102.2020.1810778. Epub 2020 Aug 27. PMID: 32851919

Abstract:

COVID-19 (Coronavirus disease 2019) is a transmissible disease initiated and propagated through a new virus strain SARS-CoV-2 (Severe Acute Respiratory Syndrome Coronavirus-2) since 31st December 2019 in Wuhan city of China and the infection has outspread globally influencing millions of people. Here, an attempt was made to recognize natural phytochemicals from medicinal plants, in order to reutilize them against COVID-19 by the virtue of molecular docking and molecular dynamics (MD) simulation study. Molecular docking study showed six probable inhibitors against SARS-CoV-2 Mpro (Main protease), two from Withania somnifera (Ashwagandha) (Withanoside V [10.32 kcal/mol] and Somniferine [9.62 kcal/mol]), one from Tinospora cordifolia (Giloy) (Tinocordiside [8.10 kcal/mol]) and three from Ocimum sanctum (Tulsi) (Vicenin [8.97 kcal/mol], Isorientin 4'-O-glucoside 2″-O-p-hydroxybenzoagte [8.55 kcal/mol] and Ursolic acid [8.52 kcal/mol]). ADMET profile prediction showed that the best docked phytochemicals from present work were safe and possesses drug-like properties. Further MD simulation study was performed to assess the constancy of docked complexes and found stable. Hence from present study it could be suggested that active phytochemicals from medicinal plants could potentially inhibit Mpro of SARS-CoV-2 and further equip the management strategy against COVID-19-a global contagion. HighlightsHolistic approach of Ayurvedic medicinal plants to avenge against COVID-19 pandemic.Active phytoconstituents of Ayurvedic medicinal plants Withania somnifera (Ashwagandha), Tinospora cordifolia (Giloy) and Ocimum sanctum (Tulsi) predicted to significantly hinder main protease (Mpro or 3Clpro) of SARS-CoV-2.Through molecular docking and molecular dynamic simulation study, Withanoside V, Somniferine, Tinocordiside, Vicenin, Ursolic acid and Isorientin 4'-O-glucoside 2″-O-p-hydroxybenzoagte were anticipated to impede the activity of SARS-CoV-2 Mpro.Drug-likeness and ADMET profile prediction of best docked compounds from present study were predicted to be safe, drug-like compounds with no toxicity.Communicated by Ramaswamy H. Sarma.

Singh A, Singh V, Ananthan R, Kumar BD. Evaluation of immunomodulatory and antioxidants properties of Kwath, conventional extracts in plants Cocculus hirsutus and Cuscuta reflexa - in vitro &ex vivo studies. J Ayurveda Integr Med. 2022 Jan 10;13(1):100537. doi: 10.1016/j.jaim.2021.100537. Online ahead of print. PMID: 35026525

Abstract:

Introduction: The consumption of 'Patalagarudi' (Cocculus hirsutus 'CHP') and 'Amarbel' (Cuscuta reflexa 'CRA') as ethnic plants for health promotions rarely validated. The limited literature reported these plants as antioxidant and immunomodulators.

Objective: To evaluate the biodynamic properties of CHP and CRA extracts.

Methodology: The traditional formulation, 'Kwath' (K) and conventional extracts were prepared with CRA and CHP. The total phenolic content (TPC) was estimated. Various polyphenol compounds in the extracts were eluted on UHPLC. The biodynamic activities; i. Free radical scavenging (FRS-DPPH and ABTS), ii. Intracellular ROS scavenging activity in RAW 264.7 cell line iii. Spleenocytes proliferation assay for Th1/Th2 Immunomodulatory potential by flow-cytometer were assessed.

Results: The TPC in CRA (105-159 µg GAE/mg) and CHP (35-48 µg GAE/mg) recorded. The chromatographic peaks confirmed the presence of polyphenols in CRA and CHP extracts. UV spectra of the extracts to the extent possible have been correlated with certain polyphenols. The FRS (IC50) was significantly low in CRA-K (DPPH = 22.7; ABTS = 12.0 µg/ml) than CHP-K (DPPH = 70.4; ABTS = 50.2 µg/ml). Similarly, intracellular ROS scavenging activity with CRA-K (84%) showed the highest inhibitory potential compared to CHP-K (50%) and LPS control. The immunomodulatory activity of CRA-K significantly upregulated TH1 cytokines (TNFα and IFN-γ). The downregulation of Th2 cytokines (IL-4 and IL-10) was in all CRA and CHP extracts as compared to Con A.

Conclusion: The current study confirms the immunomodulatory and antioxidant properties of CRA and CHP along with the presence of polyphenols.

Singh T, Nigam A, Kapila R. Analyzing the Use of Medicinal Herbs During the First Wave and Second Wave of COVID-19. Proc Natl Acad Sci India Sect B Biol Sci. 2022 Jan 12:1-4. doi: 10.1007/s40011-021-01303-5. Online ahead of print. PMID: 35035036

Abstract:

India has confronted the COVID-19 pandemic in 2020, in the form of first wave and again in first half of 2021 in the form of second wave. To combat the persistent transmission of the coronavirus, Indian Government has started the vaccination in the country since January 2021. The immunity conferred by the vaccine can be more effective with sound immune health. In India, medicinal herbs are preferred dietary habits to enhance the immunity intrinsically. A web-based survey of herbal medicinal plants was carried out to identify the consumption trend of the medicinal herbs as an effective immune booster to reduce the spread of COVID-19. The selected herbs are ingredients of regular Indian cuisine and practiced under Ayurveda. The present study revealed that people are aware of selected medicinal herbs and consumed intentionally to boost their immunity. This type of study can be helpful in retaining the local people's knowledge on traditional medicine practices which has been vanishing.

Singh D, Asokan V, Bhat Nv G, Jain P, HI K. Effects of Bilwa-Lajadi syrup in emesis gravidarum - an exploratory single arm open labeled trial. J

Ayurveda Integr Med. 2022 Jan 13;13(2):100522. doi: 10.1016/j.jaim.2021.08.015. Online ahead of print. PMID: 35033423

Abstract:

Background: Emesis gravidarum is a common obstetrical problem affecting 50-80% of pregnant women during their first trimester which begins in the morning and frequently continues throughout the day; considered as one of the Vyakta Garbha Lakshana in Ayurveda. If it is not treated effectively in time; it may lead to complications in pregnancy affecting the quality of life and thus the pregnancy outcome.

Objective: To evaluate the clinical effectiveness of Bilwa-Lajadi syrup in emesis gravidarum.

Material and methods: A single arm open labeled clinical trial was conducted on 30 participants fulfilling the inclusion criteria from OPD and IPD of Prasuti Tantra Evam StreeRoga, Sri Dharmasthala Manjunatheshwara College of Ayurveda and Hospital, Hassan and administered with Bilwa-Lajadi Syrup 20 ml per day in two divided doses, empty stomach before food for 30 days with followed up every 15 days during treatment and 15 days after completion of trial period.

Results: The drug showed statistically significant effect in reducing the frequency of vomiting per day, quantity of vomitus, aversion to smell, nausea and anorexia, altered content of vomitus, improved appetite, imparted lightness of body and increased haemoglobin gm%.

Conclusion: Thus, early medication with Bilwa-Lajadi syrup and following dietetic regimen played a vital role in relieving the symptoms of emesis gravidarum.

Taysi S, Algburi FS, Mohammed Z, Ali OA, Taysi ME. Thymoquinone: A Review of Pharmacological Importance, Oxidative Stress, COVID-19, and Radiotherapy. Mini Rev Med Chem. 2022 Jan 4. doi: 10.2174/1389557522666220104151225. Online ahead of print. PMID: 34983346

Abstract:

Widely consumed worldwide, Nigella sativa (NS) is a medicinal herb commonly used in various alternative medicine systems such as Unani and Tibb, Ayurveda, and Siddha. Recommended for regular use in Tibb-e-Nabwi (Prophetic Medicine), NS is considered one of the most notable forms of healing medicine in Islamic literature. Thymoquinone (TQ), the main component of the essential oil of NS, has been reported to have many properties such as antioxidant, anti-inflammatory, antiviral, and antineoplastic. Its chemical structure indicates antiviral potential against many viruses, including the hepatitis C virus, human immunodeficiency virus, and other coronavirus

diseases. Interestingly, molecular docking studies have demonstrated that TQ can potentially inhibit the development of the coronavirus disease 2019 (COVID-19) by binding to the receptor site on the transmembrane serine proteinase 2 (the activator enzyme that attaches the virus to the cell). In addition, TQ has been shown to be effective against cancer cells due to its inhibitory effect by binding to the different regions of MDM2, according to the proposed molecular docking study. Detailed in this review is the origin of TQ, its significance in alternative medicine, pharmacological value, potential as a cancer anti-proliferative agent, use against the coronavirus disease 2019 (COVID-19), and treatment of other diseases.

Tubaki BR, Gawas SC, Negi H. Effect of Ayurveda Management on Liver Cirrhosis with Ascites-A Retrospective Cohort Study. J Ayurveda Integr Med. 2022 Jan 5;13(2):100508. doi: 10.1016/j.jaim.2021.07.023. Online ahead of print. PMID: 34996679

Abstract:

Liver cirrhosis with ascites is a challenging medical condition. Ayurveda Clinical experiences suggest of a favourable role but lacks evidence. In a Retrospective cohort study, hospital records of patients with liver cirrhosis and ascites diagnosed though medical ultrasonography, treated at in patient division, department of Kayachikitsa, Medical Research Facility of KLE Ayurveda Hospital Belagavi were screened. Records with Nityavirechana procedure, minimum of 7 days of admission, proper documentation and meeting the other inclusion and exclusion criteria were selected for the study. Assessment were abdominal girth measurements at umbilicus, Xiphisternum to umbilicus measurement, Umbilicus to pubic symphysis measurement, weight, clinical global impression (CGI) scales (Severity, improvement and efficacy index), hemoglobin, liver function tests, Prothrombin time, INR and renal function tests. Fifty five case records met the methodological criteria of the study. Patients were suffering from stage 3, decompensated cirrhosis and Child-Turcotte-Pugh Score was in class C. Analysis of 15 days of interventions was carried out. Assessments were carried out at base line, 7th, 9th, 11th and 15th day of treatment. Interventions included nitya virechana, oral medicaments, diet, salt and fluid restrictions. Ayurveda interventions resulted in significant improvement ($p<0.001$) at all time points in various parameters of abdominal measurements, weight, CGI scales, hemoglobin, liver function tests, prothrombin time, INR and renal function tests. Study showed complex Ayurveda interventions through nitya virechana, oral medications, diet, fluid and salt restrictions improve the clinical profile, liver function, renal function, prothrombin time, INR parameters in patients of ascites with decompensated cirrhosis and warrants further studies.

Wanjarkhedkar P, Sarade G, Purandare B, Kelkar D. Prospective clinical study of an Ayurveda regimen in COVID 19 patients. J Ayurveda Integr Med. 2022 Jan-Mar;13(1):100365. doi: 10.1016/j.jaim.2020.10.008. Epub 2020 Oct 19. PMID: 33100779

Abstract:

The ancient Indian system of medicine, Ayurveda has a treatment for symptom complexes of a variety of diseases. One such combination of Ayurvedic medications has potential for use in COVID 19 infection, and hence a prospective study was conducted with this formulation as an add-on, in COVID positive patients in a dedicated COVID hospital. The objective of the study was to evaluate the additional benefit of an Ayurvedic regime in COVID positive patients on the basis of rate of clinical improvement. The Ayurvedic formulation was administered as an add-on to Standard of Care (SoC) in patients with mild to moderate symptoms, in this prospective, open-label, comparative study. Control group received SoC only. Patients receiving *Dasamoolkaduthrayam Kashaya* and *Guluchyadi Kwatham* in tablet form in addition to the SoC showed a faster recovery from breathlessness with reduced ageusia. Patients on the treatment group could be discharged earlier than those from the control group. Addition of *Dasamoolkaduthrayam Kashaya* and *Guluchyadi Kwatham* to SoC appeared to accelerate recovery of patients hospitalized for COVID 19 infection, in terms of reduction of symptoms and duration of hospital stay.

Yumnamcha T, Devi MD, Roy D, Nongthomba U. Evaluation of developmental toxicity and genotoxicity of aqueous seed extract of Croton tiglium L. using zebrafish. Drug Chem Toxicol. 2022 Jan;45(1):398-406. doi: 10.1080/01480545.2019.1708094. Epub 2020 Jan 6. PMID: 31902256

Abstract:

Croton tiglium L. has been used in Ayurvedic and Chinese herbal medicinal formulations from ancient times. Although its seeds are widely prescribed as traditional medicine, there is a dearth of information, regarding its toxic effects, and the mechanisms underlying its toxicity. This study aims to investigate the developmental toxicity and genotoxicity of the aqueous seed extract of *C. tiglium* L. (AECT) in zebrafish. We have examined the effects of AECT on the early embryonic development of zebrafish. Zebrafish embryos, treated with different concentrations of the AECT, suffered embryonic lethality and displayed various developmental defects. The 96 h-LC_{50} of AECT was found to be 162.78 µg/ml. Interestingly, the developmental abnormalities observed, such as pericardial edema (PE), yolk sac edema (YSE), spinal curvature (SC), and delayed hatching, varied in severity, in a dose-dependent manner. Zebrafish embryos, treated with different concentrations of AECT, exhibited exaggerated cell death in the anatomical regions of brain, heart, and trunk. Our data suggest that the phenomenon of apoptosis is probably responsible for both embryonic lethality and developmental toxicity in zebrafish embryos. Furthermore, the genotoxic potential of the AECT, *in vivo*, was evaluated using micronucleus assay and comet assay, on the peripheral blood of zebrafish. The results suggest that AECT has the potential to cause genotoxicity in the peripheral blood of zebrafish.

UNANI MEDICNE

Ain Q, Nawab M, Ahmed T, Kazmi MH, Naikodi MAR. Evaluating the safety and efficacy of a polyherbal Unani formulation in Dyslipidaemi: A prospective randomized controlled trial. J Ethnopharmacol. 2022 Jan 31:115036. doi: 10.1016/j.jep.2022.115036. Online ahead of print. PMID: 35114340

Abstract:

Ethnopharmacological relevance: Unani System of Medicine offers treatment for obesity and dyslipidaemia. Jawarish Falafili (JF) is a Unani polyherbal pharmacopoeial preparation. It has been used in the treatment of obesity for a long time. Dyslipidaemia is a recognised modifiable risk factor for hypertension, ischemic heart disease and stroke. Limitations of the current conventional therapy have provided scope for research of a potential drug in this medical condition. It was hypothesised that JF may ameliorate dyslipidaemia in human participants.

Aim of the study: The main objective of this study was to evaluate the safety and efficacy of the JF.

Materials and methods: This was a prospective randomized, active-controlled, open-label and parallel-group study. We randomized 74 participants of dyslipidaemia into treatment (n = 38) and control (n = 36) groups. Of them, 30 participants in each group completed the trial. The participants of any sex aged between 30 and 60 years, with serum total cholesterol (TC) ≥200 mg/dl and/or serum triglycerides (TG) ≥150 mg/dl and/or low-density lipoprotein cholesterol (LDL-C) level ≥130 mg/dl and/or high-density lipoprotein cholesterol (HDL-C) level <40 mg/dl were enrolled in this study. The participants of the treatment group were treated with JF (10 gm/day) once and atorvastatin (20 mg/day) was given to the control group for 90 days once at night daily.

Results: We observed a significant reduction (treatment group versus control group) in mean serum TC by 22.89% versus 19.36%, TG by 29.90% versus 23.26% and LDL-C by 29.16% versus 27.92% from baseline ($p < 0.05$). But the change in mean serum HDL-C levels post-treatment was insignificant in both groups ($p > 0.05$). On intergroup comparison, the magnitude of the difference of mean TC, TG, LDL-C and HDL-C levels between the groups was not statistically significant ($p > 0.00.05$).

Conclusions: This study concluded that JF and atorvastatin were equally effective in controlling dyslipidaemia. They were tolerated well by all participants and found safe during the course of treatment.

Fazil M, Nikhat S. Why the "sugars" in traditional Unani formulations are a pivotal component: A viewpoint perspective. J Integr Med. 2022 Jan 13:S2095-4964(22)00002-4. doi: 10.1016/j.joim.2022.01.002. Online ahead of print. PMID: 35078747

Abstract:

Traditional medicine systems around the globe, like Unani, Ayurveda and traditional Chinese medicine, include a number of sugar-based formulations, which contain a large amount of saccharide-containing sweetener, such as honey, sucrose or jaggery. With pervasive lifestyle disorders throughout the world, there have been discussions to consider alternative sweetening agents. Here, from the perspective of Unani medicine, we discuss how the saccharide-based sweeteners may be an essential component of these traditional preparations, like electuaries, which may be deprived of their bioactivities without these saccharides. With contemporary researches, it is known that apart from their own therapeutic effects, saccharides also form deep eutectic solvents which help in enhancing the bioactivity of other ingredients present in crude drugs. In addition, they provide energy for fermentation which is essential for biotransformation of compounds. Interestingly, the sugars also increase the shelf-life of these compound drugs and act as natural preservatives. On the basis of this review, we strongly believe that saccharide-based sweeteners are an essential component of traditional medicines and not merely an excipient.

Kumar A, Rai A, Khan MS, Kumar A, Haque ZU, Fazil M et al. Role of herbal medicines in the management of patients with COVID-19: A systematic review and meta-analysis of randomized controlled trials. J Tradit Complement Med. 2022 Jan 11. doi: 10.1016/j.jtcme.2022.01.002. Online ahead of print. PMID: 35036347

Abstract:

Background and aim: The management of the worldwide spreading COVID-19 consists of amelioration of its symptoms but no cure is yet available. Herbal medicines supplemented with the Western medicine have been applied for COVID-19 treatment in India, China, Iran, and other countries. This systematic review and meta-analysis of RCTs evaluates the effect and safety of herbal intervention in the management of COVID-19.

Experimental procedure: RCTs from databases like PubMed, Cochrane Library, ScienceDirect, Google Scholar, Science Direct, CTRI, AYUSH Research Portal, India, were reviewed and the data were extracted for study sample demographics, intervention details, clinical effect, inflammatory markers and safety monitoring. Outcomes were expressed as Risk-ratio (RR) with 95% CI for dichotomous data, and Mean-Difference (MD) with 95% CI for continuous data.
Result and conclusion: From the 32 eligible studies, a total of 3177 COVID-19 patients were included in the review. Herbal intervention as an adjuvant to

Western medicine causes significantly higher improvement compared to Western medicine alone [Fever (RR = 1.09 CI 1.03, 1.15), Cough (Risk-Ratio = 1.22 CI 1.08, 1.37), Fatigue (Risk-Ratio = 1.27 CI 1.11, 1.44), Chest CT Improvement (Risk-Ratio = 1.15 CI 1.08, 1.23)]. The laboratory parameters were also better in the herbal medicine group compared to standard care group only WBC (MD = 0.36 CI 0.16, 0.55), Lymphocyte percentage (MD = 5.48 CI 3.05, 7.92), Absolute lymphocyte count (MD = 0.23 CI 0.07, 0.39), CRP (MD = -5.66 CI -7.96, -3.37). However, duration of hospital stays (MD = -1.82 CI -3.84, 0.21); IL-6 (MD = -3.67 CI -8.76, 1.43), ESR Level (MD = -10.38 CI -25.96, 5.21) were statistically insignificant. No significant adverse events for herbal medications were noted in the included RCTs, during the time of the studies. (n = 665, RR 0.93; 95% CI 0.76, 1.14).

Nikhat S, Fazil M. History, phytochemistry, experimental pharmacology and clinical uses of honey: A comprehensive review with special reference to Unani medicine. J Ethnopharmacol. 2022 Jan 10;282:114614. doi: 10.1016/j.jep.2021.114614. Epub 2021 Sep 8. PMID: 34508800

Abstract:

Ethnopharmacological relevance: Honey is one of the most popular functional foods, speculated to be in use since the advent of human civilization. Its health-protective activity is endorsed by many religions and traditional medicines. In Unani medicine, honey is prescribed for many health conditions as wound-healing, anti-inflammatory, anti-diabetic, etc. In the present era, honey is gaining popularity over sugar for its myriad health benefits and low glycemic index. This review attempts to provide a comprehensive account of the biological activities and potential therapeutic uses of honey, with scientific evidence.

Methodology: In this paper, we have provided a comprehensive overview of historical uses, types, physical characteristics, bioactive constituents and pharmacological activities of honey. The information was gathered from Classical Unani textbooks and leading scientific databases. There is a plethora of information regarding various therapeutic activities of honey, and it is daunting to draw practical conclusions. Hence, in this paper, we have tried to summarize those aspects which are most relevant to clinical application.

Observations and conclusions: Many important bioactive constituents are identified in different honey types, e.g. phenolics, proteins, vitamins, carbohydrates, organic acids, etc., which exert important biological activities like anti-microbial, wound healing, immunomodulatory, anti-toxin, antioxidant, and many others. Honey has the potential to alleviate many lifestyle disorders, mitigate the adverse effects of drugs and toxins, and also provide healthy nutrition. Although conclusive clinical evidence is not available, yet honey may potentially be a safer alternative to sucrose for diabetic patients.

Nizamdeen FN, Quamri MA, Anzar Alam M. Efficacy of Habb-e-Asab in diabetic peripheral neuropathy: A randomized placebo control study. J Basic Clin Physiol Pharmacol. 2022 Jan 14. doi: 10.1515/jbcpp-2021-0330. Online ahead of print. PMID: 35026880

Abstract:

Objectives: Diabetic peripheral neuropathy (DPN) is a common diabetes complication. The prevalence of neuropathy is 55% for type 1 and 66% for type 2 diabetes. In Unani medicine neuropathy is known as Khidr (numbness). It is treated with drugs possessing hypoglycemic and analgesic properties, etc. Habb-e-Asab, a polyherbal Unani formulation used for the treatment of Waja-ul-Asab (neuralgia) is routinely used for its indications in neurological pain in Unani medicine. The aim of this study to investigate the efficacy of Habb-e-Asab in diabetic peripheral neuropathy.

Methods: Thirty patients with DPN were randomly assigned to test (n=20) and control (n=10) groups in a randomized single-blind placebo control study. For 45 days, the test group was given 250 mg Habb-e-Asab twice a day and the control group 250 mg placebo twice a day. The subjective parameters Pain in feet, burning in feet, and tingling in feet was assessed by the arbitrary scale and VAS fortnightly and objective parameters MNSI, and VPT was assessed in pre-post-treatment.

Results: The research drug revealed highly statistically significant with $p<0.001$ on VAS score and MNSI whereas VPT is significant with $p<0.01$ on few points. But control group exhibits no significant effect in any of the parameters. No adverse effects had been reported in either group.

Conclusions: Our finding indicated that the Habb-e-Asab for 45 days improved and reduced the severity of DPN in a patient with diabetes (CTRI/2018/02/011725).

Siddique YH. Role of Unani Polyherbal Formulations in the Treatment of Diseases with Special Reference to Neurodegenerative Disorders.CNS Neurol Disord Drug Targets. 2022 Jan 27. doi: 10.2174/1871527321666220127141611. Online ahead of print. PMID: 35086462

Abstract:

Unani system of medicine is based on the use of natural plant products. Unani polyherbal formulations (UPFs) are being prescribed for the treatment of various ailments. The preparations of the UPFs also required the animal products such as honey and umber. UPFs have been reported to cure various diseases but still lack scientific credibility. The Unani system is based on the holistic approach; the synergistic role of the compounds has been suggested to play a protective role against the illness. The present review has compiled the studies carried out on UPFs used to treat various diseases with special

reference to neurodegenerative ailments. The exorbitant cost of conventional treatment has led the world to think towards alternative therapy with less cost and no or little side effects compared to conventional treatments. More research is required for UPFs on the experimental models along with the case controlled studies in order to establish UPFs in the mainstream of treatment.

Taysi S, Algburi FS, Mohammed Z, Ali OA, Taysi ME. Thymoquinone: A Review of Pharmacological Importance, Oxidative Stress, COVID-19, and Radiotherapy. Mini Rev Med Chem. 2022 Jan 4. doi: 10.2174/1389557522666220104151225. Online ahead of print. PMID: 34983346

Abstract:

Widely consumed worldwide, Nigella sativa (NS) is a medicinal herb commonly used in various alternative medicine systems such as Unani and Tibb, Ayurveda, and Siddha. Recommended for regular use in Tibb-e-Nabwi (Prophetic Medicine), NS is considered one of the most notable forms of healing medicine in Islamic literature. Thymoquinone (TQ), the main component of the essential oil of NS, has been reported to have many properties such as antioxidant, anti-inflammatory, antiviral, and antineoplastic. Its chemical structure indicates antiviral potential against many viruses, including the hepatitis C virus, human immunodeficiency virus, and other coronavirus diseases. Interestingly, molecular docking studies have demonstrated that TQ can potentially inhibit the development of the coronavirus disease 2019 (COVID-19) by binding to the receptor site on the transmembrane serine proteinase 2 (the activator enzyme that attaches the virus to the cell). In addition, TQ has been shown to be effective against cancer cells due to its inhibitory effect by binding to the different regions of MDM2, according to the proposed molecular docking study. Detailed in this review is the origin of TQ, its significance in alternative medicine, pharmacological value, potential as a cancer anti-proliferative agent, use against the coronavirus disease 2019 (COVID-19), and treatment of other diseases.

SIDDHA

Abass S, Parveen R, Irfan M, Jan B, Husain SA, Ahmad S. Synergy based extracts of medicinal plants: Future antimicrobials to combat multidrug resistance. Curr Pharm Biotechnol. 2022 Jan 26. doi: 10.2174/1389201023666220126115656. Online ahead of print. PMID: 35081888

Abstract:

The use of herbal medicines and supplements in the last thirty years has increased enormously. Herbal medication has demonstrated promising and effective potential against various diseases. Herbal and phytoconstituent medications are gaining popularity globally and many people are adopting herbal remedies to deal with different health issues. The indiscriminate use of antibiotics, due to the development of antimicrobial resistance, poses an unprecedented problem for human civilization. Bacterial infections are difficult to cure because of the propensity of microbes to acquire resistance to a wide range of antimicrobial drugs. New compounds are being explored and quantified for possible antibacterial activity with little or no side effects. Researchers are investigating the range of therapeutic plants mentioned in Unani, Ayurveda, and Siddha around the globe. Known and commonly acclaimed global databases such as PubMed, Research Gate, Science Direct, Google Scholar, were searched using different search strings such as Indian medicinal plants, multidrug resistance (MDR), thin layer chromatography (TLC), antimicrobials, and Synergism were used in diverse combinations to reclaim numerous citations associated with this area. Thus, the current review aims to shed a light on the information of medicinal plants as a potential foundation of herbal drugs and elucidate how synergism and TLC bioautography plays a crucial role in finding antimicrobial compounds.

Arunachalam K, Yang X, San TT. Tinospora cordifolia (Willd.) Miers: Protection mechanisms and strategies against oxidative stress-related diseases. J Ethnopharmacol. 2022 Jan 30;283:114540. doi: 10.1016/j.jep.2021.114540. Epub 2021 Sep 9. PMID: 34509604

Abstract:

Ethnopharmacological relevance: Tinospora cordifolia (Willd.) Miers (Menispermaceae) is a Mediterranean herb, used in Ayurvedic, Siddha, Unani, and folk medicines. The herb is also used in conventional medicine to treat oxidative stress-related diseases and conditions, including inflammation, pain, diarrhea, asthma, respiratory infections, cancer, diabetes, and gastrointestinal disorders.

Aim of the review: The taxonomy, botanical classification, geographical distribution, and ethnobotanical uses of T. cordifolia, as well as the phytochemical compounds found in the herb, the toxicology of and

pharmacological and clinical studies on the effects of T. cordifolia are all covered in this study.

Materials and methods: To gather information on T. cordifolia, we used a variety of scientific databases, including Scopus, Google Scholar, PubMed, and Science Direct. The information discussed focuses on biologically active compounds found in T. cordifolia, and common applications and pharmacological activity of the herb, as well as toxicological and clinical studies on its properties.

Results: The findings of this study reveal a connection between the use of T. cordifolia in conventional medicine and its antioxidant, anti-inflammatory, antihypertensive, antidiabetic, anticancer, immunomodulatory, and other biological effects. The entire plant, stem, leaves, root, and extracts of T. cordifolia have been shown to have a variety of biological activities, including antioxidant, antimicrobial, antiviral, antiparasitic, antidiabetic, anticancer, anti-inflammatory, analgesic and antipyretic, hepatoprotective, and cardioprotective impact. Toxicological testing demonstrated that this plant may have medicinal applications. T. cordifolia contains a variety of biologically active compounds from various chemical classes, including alkaloids, terpenoids, sitosterols, flavonoids, and phenolic acids. Based on the reports researched for this review, we believe that chemicals in T. cordifolia may activate Nrf2, which leads to the overexpression of antioxidant enzymes such as CAT, GPx, GST, and GR, and thereby induces the adaptive response to oxidative stress. T. cordifolia is also able to reduce NF-κB signalling by inhibiting PI3K/Akt, activating AMPK and sirtuins, and downregulating PI3K/Akt.

Conclusions: Our findings indicate that the pharmacological properties displayed by T. cordifolia back up its conventional uses. Antimicrobial, antiviral, antioxidant, anticancer, anti-inflammatory, antimutagenic, antidiabetic, nephroprotective, gastroprotective, hepatoprotective, and cardioprotective activities were all demonstrated in T. cordifolia stem extracts. To validate pharmacodynamic targets, further research is needed to evaluate the molecular mechanisms of the known compounds against gastrointestinal diseases, inflammatory processes, and microbial infections, as immunostimulants, and in chemotherapy. The T. cordifolia safety profile was confirmed in a toxicological analysis, which prompted pharmacokinetic assessment testing to confirm its bioavailability.

Balasubramanian C, Shenbagaraj S, Muthappan S, Alagusolaiyan L, Arumugam RK. Morbidity profile of patients attended Siddha Regional Research Institute, Puducherry in 2017-A cross-sectional study. J Ayurveda Integr Med. 2022 Jan 23;13(2):100507. doi: 10.1016/j.jaim.2021.07.022. Online ahead of print. PMID: 35082099

Abstract:

Background: In India, understanding the patterns of utilization of AYUSH care has been considered vital for increased focus on its mainstreaming and integration with prevailing biomedical systems. This paper aims to evaluate the morbidity profiling of the patients attended Siddha Regional Research Institute (SRRI), Puducherry in 2017.

Methods: A cross-sectional study in the patients conducted from January to December 2017. Data was collected for variables including age, gender, and clinical diagnosis from the records maintained in the unit. The data are presented as frequencies and proportions.

Results: We have collected 48,204 patients' data from the out-patient facility of SRRI from January to December 2017. The important patient were women (51.3%), 13 - 59 years of age (adults 75.5 %), and re-visitation cases (83.5 %). Osteoarthritis (15 %), sinusitis (6 %), respiratory illness (6 %), psoriasis (5 %), and diabetes (5 %) were the top reported diseases. According to the Siddha, Vatha diseases are reported higher than Pitha and Kabha diseases.

Conclusion: Overall, in the year 2017 the SRRI OPD has more revisited cases than new ones, and women were slightly higher in proportion compared to males. The most frequently treated disease in both adults and the geriatric population was the musculoskeletal diseases, precisely osteoarthritis. More respiratory diseases were treated in children. These data could be used to analyze the people's perspective in the effective management of certain diseases through Siddha. The establishment of an integrative health facility with a cross-referral system would fetch more credulous among the public.

Jose SP, MR, SS, Rajan S, Saji S, Narayanan V, SS. Anti-inflammatory effect of Kaba Sura Kudineer (AYUSH approved COVID-19 drug): A Siddha poly-herbal formulation against lipopolysaccharide induced inflammatory response in RAW-264.7 macrophages cells. J Ethnopharmacol. 2022 Jan 30;283:114738. doi: 10.1016/j.jep.2021.114738. Epub 2021 Oct 12.PMID: 34653521

Abstract:

Ethnopharmacological relevance: Medicinal importance and potential activity of Siddha herbal formulations have proved over several centuries against a wide range of causative agents as Influenza, Dengue, Chikungunya, and Tuberculosis. The traditional medicine system of Siddha is a valuable therapeutic approach for treating viral respiratory infections like Coronavirus disease 2019 (COVID-19) and can be effectively employed to target the host response and preventive care to boost the immune system. Kaba Sura Kudineer (KSK), an official polyherbal formulation has been used in Siddha traditional medicine for centuries. However, the role of KSK in regulating inflammation and the underlying molecular mechanisms has remained elusive.

Aim of the study: The goal of this study was to evaluate the anti-inflammatory effect of KSK using lipopolysaccharide (LPS) stimulated RAW 264.7 murine macrophage cells.

Materials and methods: Raw 264.7 murine macrophage cells were used for this study. The Inflammatory mediators and cytokines were measured by enzyme-linked immunosorbent assay (ELISA). The NF-κB nulcear translocation and protein expression of iNOS, COX-2 was analyzed with westernblot.

Results: KSK supplementation decreased LPS mediated TLR-4 production and secretion of pro-inflammatory mediators and cytokines including IL-6, TNF-α, COX-2 and PGE-2. Moreover, it inhibited the production of nitric oxide (NO) and thereby inhibited the expression of iNOS in the cell. The Western blot analysis further confirmed that KSK strongly prevented the LPS-induced degradation of IκB which is normally required for the activation of NF-κB and hereby suppressed nuclear translocation of NF-κB. The protein expression of iNOS, COX-2 was significantly decreased with the presence of KSK treatment. Results suggested that KSK manipulates its anti-inflammatory effects mainly through blocking the TLR mediated NF-κB signal transduction pathways.

Conclusions: Together, this study has proven that KSK could be a potential therapeutic drug for alleviating excessive inflammation in many inflammation-associated diseases like COVID-19.

Pushkala VP, Sulekha SMP, Mathukumar S, Ragavi B, Sowmiya U. Molecular Docking Analysis of Siddha Formulation Parangipattai Chooranam Against Vaginal Candidiasis. Appl Biochem Biotechnol. 2022 Jan 8. doi: 10.1007/s12010-022-03813-y. Online ahead of print. PMID: 34997904

Abstract:

Vulvovaginal candidiasis called by its name Vellai Noi as per Siddha terminology is considerably the second most common cause of vaginal inflammation in the women of middle-aged group. Candida albicans are prioritised top among other pathogens in mediating vaginal inflammation and its related symptoms. Candida albicans exerts its virulence by secreting the enzyme known as secreted aspartyl proteinases (SAP) which allows hassle-free adherence and growth of the opportunistic pathogen. Hence, drugs that selectively inhibit this enzyme may act as a novel candidate drug in halting the growth and invasion of Candida albicans. Siddha formulations have century's old credit of managing infectious pathogens. The greater ideology of siddha practice is to adequately strengthen the host immunity and resistance towards infections. In the present investigation, about twelve phytocompounds have been retrieved from the siddha formulation Parangipattai Chooranam and the same were subjected to molecular docking analysis against SAP enzyme target along with standard fluconazole. Results of the present in silico investigation signify that the compounds such as beta-sitosterol, afzelin, apigenin, quercetin

and rosmarinic acid ranked first by demonstrating potential binding affinity with active amino acid residues by occupying the respective binding sites (Asp 32, 83 Lys, Asp86, Gly220, Thr221 and Thr222) in comparison with standard drug fluconazole. Similar binding behaviour was exhibited by other compounds like kaempferol, carnosic acid and engeletin (Asp 32, Gly85, Asp86, Asp218, Gly220, Thr221 and Thr222) against the target amino acids. Vicenin exhibited best binding affinity of - 12.07 kcal/mol followed by beta-sitosterol (- 9.29 kcal/mol), engeletin (- 9.04 kcal/mol), afzelin (- 8.07 kcal/mol) and 4-O-caffeoylquinic acid (- 7.85 kcal/mol) in comparison with fluconazole (- 7.32 kcal/mol). From the results of the present study, it was concluded that the phytochemicals present in the siddha formulation Parangipattai Chooranam reveal significant antifungal activity by inhibiting the target enzyme (SAP) and thereby considered an excellent drug of choice for the clinical management of vaginal candidiasis.

Chitra SM, Mallika P, Anbu N, Narayanababu R, Sugunabai A, Raj RS David Paul et al. Open clinical evaluation of selected siddha regimen in expediting the management of COVID-19: A randomized controlled study. J Ayurveda Integr Med. 2022 Jan-Mar;13(1):100397. doi: 10.1016/j.jaim.2021.01.002. Epub 2021 Jan 21. PMID: 33519133

Abstract:

Background: The corona virus disease 2019 (COVID-19), an acute respiratory disease, caused by a novel corona virus (SARS-CoV-2, previously known as 2019-nCoV), obtained worldwide attention. In this review, we explored the potential siddha strategies for COVID -19 infections.

Objectives: To evaluate the additional benefits of siddha drugs Vasantha kusumakaram mathirai, Thippili rasayanam, Adathodai manapagu and Kabasura kudineer compared to the allopathic standard treatment of care alone in COVID-19 asymptomatic, mild - moderate cases.

Materials and methods: The present study was an open label Two arm - randomized controlled interventional clinical study. The Group I patients were assigned to Siddha add on treatment whereas Group II subjects were assigned with standard treatment alone. The sample size was 100 for each group.

Result: The average number of days taken for reduction of symptoms showed significant results ($P < 0.001$) in Siddha add on compared with standard treatment. The real - time polymerase chain reaction (RT-PCR) investigation turned negative for 78.33% in Siddha add on and 33.33% in standard treatment after 11-14 days. Similarly, CT chest, covid pattern lung involvement percentage showed highly significant reduction ($P < 0.0001$) in Siddha add on treatment. In addition, Neutrophil Lymphocyte Ratio (NLR) ratio, showed significant reduction ($P < 0.01$) when analyzed by Wilcoxon signed rank test, and Renal, Liver parameters were within the normal limits in Siddha add on Group for 25 samples in post treatment.

Conclusion: Finally, it was concluded that Siddha add on Group showed accelerated recovery for COVID - 19 patients compared to standard Group. The synergistic effect of Siddha add on with standard treatment gave more promising results in the current study of COVID -19.

YOGA

Armat MR, Emami Zeydi A, Mokarami H, Nakhlband A, Hojjat SK. Impact of laughter yoga on depression and anxiety among retired women: A randomized controlled clinical trial. J Women Aging. 2022 Jan-Feb;34(1):31-42. doi: 10.1080/08952841.2020.1774225. Epub 2020 Jun 18. PMID: 32552530

Abstract:

Recently, laughter yoga (LY) has been introduced for managing depression and anxiety. This study aimed to investigate the impact of LY on depression and anxiety among retired women in city of Bojnurd, Iran, 2018. Sixty-six retired women were randomly assigned to intervention and control groups. Intervention group received LY twice weekly for 8 weeks; control group had their routine daily activities. Depression and anxiety levels were measured at study initiation, week 4, and week 8 in both groups. Results showed significant difference in the pattern of depression ($p < .001$) and anxiety ($p < .001$) scores within and between groups. LY could be an effective intervention in reducing depression and anxiety among retired women.

Bislick L, Dietz A, Duncan ES, Garza P, Gleason R, Harley D et al. Finding "Zen" in Aphasia: The Benefits of Yoga as Described by Key Stakeholders. Am J Speech Lang Pathol. 2022 Jan 18;31(1):133-147. doi: 10.1044/2021_AJSLP-20-00330. Epub 2021 Nov 19. PMID: 34797684

Abstract:

Purpose: Recently, the literature has witnessed a surging interest regarding the use of mind-body approaches with people who have aphasia, generating a plethora of possible outcome measures. During this same time, a core outcome set for aphasia has been recommended. The purpose of this clinical focus article is to give our survivor, co-survivor, and clinician stakeholder coauthors a platform to share their personal narrative regarding their yoga journey, with the goal of identifying primary outcome domains central to capturing the impact of yoga on the recovery process for people with poststroke aphasia. Ultimately, we hope this clinical focus article helps clinicians understand how yoga might benefit their patients and draws attention to potential outcome measures, while also highlighting the important fact that traditional aphasia assessments do not capture the improvements stakeholders pinpoint as crucial to the essence of mind-body interventions.

Method: This clinical focus article summarizes the case reports of Terri's and Chase's poststroke yoga journeys using the power of personal narrative and an adapted photovoice method. Additional stakeholders share in this storytelling process, using a variety of narrative tools. As this story is unveiled, several patient-identified outcome domains are highlighted as essential to document the impact of yoga on survivors.

Results: Terri's and Chase's yoga journeys revealed the multifaceted impact of yoga on five domains: (a) feelings of wholeness and "zen," (b) increased attentional capacity for language tasks, (c) increased verbal fluency, (d) decreased pain, and (e) relationship mutuality.

Conclusion: Team Yoga realized that the practice of yoga-whether as a stand-alone practice or integrated into therapy sessions-fosters feelings of wholeness or "zen," which likely correlates with decreased pain with a simultaneous increase in resilience and flexibility of coping strategies to manage the host of chronic poststroke challenges. Supplemental Material https://doi.org/10.23641/asha.17003464.

Boehnke KF, LaMore C, Hart P, Zick SM. Feasibility study of a modified yoga program for chronic pain among elderly adults in assisted and independent living. Explore (NY). 2022 Jan-Feb;18(1):104-107. doi: 10.1016/j.explore.2020.11.010. Epub 2020 Nov 23. PMID: 33257263

Abstract:

Context: Yoga improves quality of life in elders ≥65 years, but studies among elders with chronic pain are limited.

Objective: Conduct a feasibility study of gentle yoga among elders in assisted and independent living.

Design: Single arm pre/post clinical trial.

Subjects: Adults (≥65 years of age) with self-identified chronic pain (≥3 on a 10-point scale, lasting for ≥3 months) and no current yoga practice.

Intervention: Ten weekly 60-min gentle yoga classes tailored to elderly adults.

Outcome measures: At baseline, weeks 5, 10 (end of intervention), and 20 (follow-up), we collected data on feasibility (adherence, retention, safety), pain, anxiety, depression, fatigue, sleep disturbance, and physical function.

Results: Twenty-six participants enrolled (88% women, 77% white, 58% in assisted living) with average age of 86.6 ± 4.4 (Mean, STD). Twenty participants completed the intervention, with 90% adhering (completing ≥6 classes). Nine participants (45% of completers) experienced adverse events, which were non-serious and related to transient musculoskeletal pain. No adverse events resulted in study withdrawal. Participants reported being somewhat likely to recommend yoga to a friend, and quite a bit likely to do yoga again. At the end of the intervention, four of twenty participants reported practicing yoga outside of class. Anxiety significantly decreased from 5.80 (SE=0.90) to 4.44 (SE=0.74) ($p = 0.014$), but there were no changes in other measures.

Conclusions: Our pilot 10-week yoga study was generally safe for and suitable to assisted and independent living elderly adults. Future studies are needed to

examine other effects of yoga in assisted/independent living adults with chronic pain.

Bordman R, Meaney C, Telner D. Effects of Hot Yoga on Kidney Function: An Observational Pilot and Feasibility Study. Int J Yoga Therap. 2022 Jan 1;32(2022):Article 1. doi: 10.17761/2022-D-21-00001. PMID: 35100415

Abstract:

Yoga has been shown to have health benefits, whereas exercising in a hot environment has deleterious effects on kidney function. There are no long-term studies on the physiological effects of hot yoga. The purpose of this study was to investigate changes in renal function acutely and over time between practitioners of hot and non-hot yoga. Urine and capillary samples were collected for urinalysis, albumin-creatinine ratio, and serum creatinine at yoga studios preand postexercise over 1 year. Thirty-two participants in non-hot yoga and 19 participants in hot yoga were recruited. Difference in blood capillary creatinine (post-yoga minus pre-yoga) showed a 7.52 µmol/L (SD 11.46) increase for practitioners of hot yoga and a 4.07 µmol/L (SD 9.94) increase for practitioners of non-hot yoga, with a between-group difference of 3.45 µmol/L (95% CI -0.42, 7.32; p = 0.08). Over 1 year, the mean difference in blood capillary creatinine for the hot group increased by 0.91 µmol/L (SD 11.00) and by 3.08 µmol/L (SD 9.96) for the non-hot group, with a between-group difference of -2.17 µmol/L (95% CI -10.20, 5.86; p = 0.58). Over 1 year, the mean difference in albumin-creatinine ratio for the hot group was -0.16 mg/mmol creatinine (SD = 0.74); for the non-hot group the difference was -0.20 mg/µmol (SD = 0.80). The difference in difference between the hot and non-hot groups was 0.04 mg/µmol (95% CI -0.60, 0.68; p = 0.90). Urine collected for urinalysis could not be analyzed due to too many 0 values. This pragmatic observational study did not find a statistically significant change in renal function between participants in non-hot and hot yoga either acutely or over 1 year. A larger and longer study focusing on blood creatinine over time would help to inform the long-term effects of hot yoga on the kidneys.

Cagas JY, Biddle SJH, Vergeer I. For Exercise, Relaxation, or Spirituality: Exploring Participation Motives and Conformity to Masculine Norms among Male and Female Yoga Participants. Int J Environ Res Public Health. 2022 Jan 11;19(2):770. doi: 10.3390/ijerph19020770. PMID: 35055592

Abstract:

Yoga is a traditional practice from India with the potential to promote physical activity and health. Participation worldwide remains low, particularly among men. To better understand yoga participation parameters, with a special focus on what influences male participation, this study examined gender differences in participation motives and conformity to masculine norms. It also explored these factors across three participant subgroups who differed in their engagement with the physical and the more psycho-spiritual aspects of yoga.

A total of 546 yoga participants (138 males, 399 females, 9 others), 18-73 years old, completed an online survey that included an adapted version of the Exercise Motivation Inventory-2 and three subscales from the Conformity to Masculine Norms Inventory-46. Results showed significant gender differences in participation motives and conformity to masculine norms. Females were more motivated by positive affect, health/fitness, nimbleness, mind-body integration, and coping/stress management, whereas males were more motivated by supplementary activity and competition/social recognition. These differences should be considered in tailoring messages to promote uptake and continued participation. Furthermore, males were more likely than females to conform to emotional control and heterosexual self-presentation masculine norms. Future research may examine how differences in masculine norm adherence influences uptake, particularly among men.

Chang TFH, Ley BL, Ramburn TT, Srinivasan S, Hariri S, Purandare P et al. Online Isha Upa Yoga for student mental health and well-being during COVID-19: A randomized control trial. Appl Psychol Health Well Being. 2022 Jan 22. doi: 10.1111/aphw.12341. Online ahead of print. PMID: 35064741

Abstract:

College students experienced increased stress and anxiety during the COVID-19 pandemic. This study evaluated the effect of brief online Isha Upa Yoga modules on undergraduates' mental health and well-being. Randomized control trial (RCT) with waitlist control crossover (N = 679). The intervention group was instructed to learn and practice the modules daily for 12 weeks. At the end of the 4-week RCT, the control group was instructed to learn and practice the modules for the remaining 8 weeks. Primary outcomes included stress and well-being. Secondary outcomes included anxiety, depression, resilience, positive affect and negative affect. Linear mixed-effects models were used for analyses. Isha Upa Yoga significantly reduced stress (Group [intervention, control] × Time [baseline, Week 4] interaction, $p = .009$, $d = .27$) and increased well-being (Group × Time interaction $p = .002$, $d = .32$). By the study's end, the intervention and control groups experienced significant improvements in well-being ($p < .001$, $p < .001$), stress ($p < .001$, $p < .001$), anxiety ($p < .001$, $p < .001$), depression ($p < .001$, $p = .004$), positive affect ($p = .04$, $p < .001$), and negative affect ($p < .001$, $p < .001$). Online Isha Upa Yoga shows promise for mitigating the pandemic's negative impact on undergraduates' mental health and improving their well-being.

Dutta A, Aruchunan M, Mukherjee A, Metri KG, Ghosh K, Basu-Ray I. Comprehensive Review of Yoga Research in 2020. J Integr Complement Med. 2022 Jan 28. doi: 10.1089/jicm.2021.0420. Online ahead of print. PMID: 35099279
Abstract:

Objectives: Accumulated evidence garnered in the last few decades has highlighted the role of yoga in health and disease. The overwhelming mortality

and morbidity mediated by noncommunicable epidemics such as heart disease and cancer have fostered a search for mechanisms to attenuate them. Despite overwhelming success in acute care, the efficacy of modern medicines has been limited on this front. Yoga is one of the integrative therapies that has come to light as having a substantial role in preventing and mitigating such disorders. It thus seems trite to analyze and discuss the research advancements in yoga for 2020. The present review attempts to distill recent research highlights from voluminous literature generated in 2020.

Methods: This review was conducted on the articles published or assigned to an issue in 2020. The authors searched the PubMed database for clinical studies published in the English language, using yoga (including meditation) as the intervention, and having an adequate description of the intervention. Then, they extracted data from each study into a standardized Google sheet.

Results: A total of 1149 citations were retrieved in the initial search. Of these, 46 studies met eligibility criteria and were finally included. The studies were predominantly on mental health and neuropsychology, addressing various issues such as anxiety, postural balance, migraine, academic performance, and childhood neglect. Anxiety, stress, and depression were other common denominators. Eight studies were on cardiorespiratory systems, including exercise capacity, cardiac rehabilitation, myocardial infarction, and hypertension. Three studies were on diabetes, evaluating the effect of yoga. Five studies focused on cognition, health status, and autonomic regulation and few others included cancers, infertility, ulcerative colitis, urinary incontinence, restless leg syndrome, rheumatoid arthritis, chronic pain, and metabolic syndrome. Finally, most studies were on noncommunicable diseases with one exception, human immunodeficiency virus; two randomized controlled trials were dedicated to it.

Conclusions: Yoga has been studied under a wide variety of clinicopathological conditions in the year 2020. This landscape review intends to provide an idea of the role of yoga in various clinical conditions and its future therapeutic implications.

Fasczewski KS, Garner LM, Clark LA, Michels HS, Migliarese SJ. Medical Therapeutic Yoga for multiple sclerosis: Examining self-efficacy for physical activity, motivation for physical activity, and quality of life outcomes. Disabil Rehabil. 2022 Jan;44(1):106-113. doi: 10.1080/09638288.2020.1760364. Epub 2020 May 12. PMID: 32393075

Abstract:

Purpose: Multiple Sclerosis (MS) is an incurable neurodegenerative disease that results in deficits in physical and cognitive function, and often fosters low levels of self-efficacy for physical activity, motivation for physical activity, and quality of life [1]. Drug therapies, physical therapy rehabilitation, and lifestyle modifications such as increased physical activity are standard protocol for symptom management, yet persons with MS tend to be physically inactive

[2,3]. Additionally, single-modality interventions do not inherently address the challenges faced concurrently by individuals with MS [4,5].

Methods: This project examined the effects of a 5-week holistic biopsychosocial Medical Therapeutic Yoga program on physical activity behavior outcomes in individuals diagnosed with MS. A mixed-methods approach was used to examine self-efficacy for physical activity, motivation for physical activity, and quality of life outcomes in 15 participants.

Results: Quantitative measures demonstrated increased self-efficacy ($t(14) = -2.23$, $p = 0.042$), and emotional quality of life ($t(14) = -2.66$, $p = 0.019$). Responses to an open-ended written questionnaire and follow-up interviews indicated overall positive response to the program including increases in self-efficacy for physical activity, motivation for physical activity, and quality of life. These results may help future holistic programming for individuals with MS incorporate behavioral interventions with therapeutic rehabilitation to increase physical activity adherence.IMPLICATIONS FOR REHABILITATIONMultiple sclerosis is a neurological disease impacting physical and cognitive functioning that may be managed with a combination of drug therapies, rehabilitation, and physical activity.Individuals diagnosed with multiple sclerosis tend to be physically inactive and physical inactivity is a challenge for optimal disease management.Medical Therapeutic Yoga offers an interdisciplinary biopsychosocial framework to simultaneously address the behavioral challenges and physical impairments facing individuals diagnosed with multiple sclerosis.Health care providers should consider developing programs that use a biopsychosocial framework to aid in developing long-term adherence in health behaviors such as physical activity participation.

Forseth B, Hampl S, Dreyer Gillette M, Foright RM, Gibson M, Vandal J et al. Incorporating Yoga into a Pediatric Weight Management Program: A Pilot Study. Child Obes. 2022 Jan;18(1):67-71. doi: 10.1089/chi.2021.0114. Epub 2021 Sep 16. PMID: 34529498

Abstract:

Purpose: To assess the feasibility and acceptability of yoga incorporated into a pediatric weight management program (promoting health in teens; PHIT Yoga) to racially diverse caregivers and youth and to compare this program with a cohort that received a program that did not include yoga (PHIT Kids).

Methods: Thirty children with obesity were enrolled in a 12-week pediatric weight management intervention (PHIT Kids, n = 17; PHIT Yoga, n = 13). Weight, BMI z-score (BMIz), BMI percent of the 95th percentile, and health habits assessment were obtained from both cohorts pre- and post intervention. Acceptability was assessed in the yoga cohort.

Results: Fifty-four percent of children in the PHIT Yoga cohort and 65% of children in the PHIT Kids cohort attended ≥75% of the intervention sessions. Survey results support that the PHIT Yoga was acceptable to both caregivers

and children. Improvements in BMIz were observed in 50% of children in each cohort and both groups improved on five of seven health habits; cohorts overlapped on three habits (breakfast, screen time, and sugar-sweetened drinks).

Conclusion: Findings support that yoga classes added to a pediatric weight management program are feasible and acceptable in racially diverse children with severe obesity and their caregivers.

Hayes T, Sharma M, Hernandez Morales VLA, Brown L, Di W. Using the Multi-Theory Model (MTM) of Health Behavior Change to Explain Yoga Practice. Altern Ther Health Med. 2022 Jan;28(1):12-17. PMID: 32827406

Abstract:

Background: Diverse groups, including college students, are being encouraged to practice yoga. Research suggests that college students fail to attain the mental and physical benefits of yoga practice.

Objective: The purpose of this study was to utilize the fourth-generation, multi-theory model (MTM) of health behavior change to explain change regarding yoga practice of asanas, shava asana, pranayama, dhyana, yama and niyama among college students.

Method: This cross-sectional study relied on a quota sample of students 18 years and older attending Jackson State University, a historically black college in Jackson, Mississippi, United States.

Measures: A 36-item face and content valid instrument was used to collect data. Stepwise multiple regression was used to analyze the survey data for identifying the best possible predictors of yoga practice. A statistical significance level of 0.05 was set a priori.

Results: A total of 70 participants, mean age 28.62 years (SD, 6.11), predominately female (84%) and black (87%) completed the survey. The initiation model constructs- changes in the physical environment ($\beta = 3.99$, $P = .002$) and behavioral confidence ($\beta = 0.331$, $P = .008$)-were significant, explaining 40% of the variability in the dependent variable. Practice change was statistically significant ($F1,65 = 7.569$; $P = .0001$; adjusted $R2 = 0.460$) for the maintenance model, explaining 46% of the variability.

Conclusion: The MTM model of health behavior change is effective for explaining the intent to initiate and maintain yoga behavior among college students.

Helsel BC, Foster RNS, Sherman J, Steele R, Ptomey LT, Montgomery R et al. Family Nutrition and Physical Activity Survey: Comparisons with Obesity and Physical Activity in Adolescents with Autism Spectrum

Disorder. J Autism Dev Disord. 2022 Jan 4. doi: 10.1007/s10803-021-05415-9. Online ahead of print. PMID: 34982325

Abstract:

Adolescents with autism spectrum disorder (ASD) are at a heightened risk for obesity. Family-level measures of nutrition and physical activity may help explain factors contributing to disproportionate rates of weight gain. Twenty adolescents with ASD participated in baseline testing for a study to assess the feasibility of remotely-delivered yoga. Parents completed the Family Nutrition and Physical Activity (FNPA) survey and anthropometrics and physical activity were assessed in the adolescents. A median split was applied to the FNPA score to create high and low obesogenic environments and nonparametric O'Brien's multiple endpoint tests were used to evaluate the differences. Between-group differences were found in anthropometrics ($p = 0.01$) but not physical activity ($p = 0.72$). Implications for a multifaceted family-based approach to obesity prevention are discussed.

Jiwani S, Chagpar AB. Yoga Associated With Improved Sleep Amongst Breast Cancer Survivors? Am Surg. 2022 Jan 4:31348211047217. doi: 10.1177/00031348211047217. Online ahead of print. PMID: 34983197

Abstract:

Background: Breast cancer survivors may experience sleep disturbances that can affect their physical and mental well-being. We sought to determine the association, if any, between yoga and sleep among breast cancer survivors in a population-based cohort.

Methods: The National Health Interview Survey is designed to be representative of the US civilian non-institutionalized population. We evaluated breast cancer survivors in the 2017 cohort to determine the association between yoga and self-reported quality of sleep.

Results: Of the 25,905 people surveyed, representing 238,738,039 in the population, 1.59% reported a previous history of breast cancer. Breast cancer survivors were less likely to report having practiced yoga in the preceding 12 months, compared to those without a history of breast cancer (9.98% vs 13.78%, $P = .011$). In addition, they were more likely to report having had trouble falling asleep (44.64% vs 36.32%, $P = .002$), staying asleep (53.72% vs 39.43%, $P < .001$), and using sleep medication on at least 1 day within the previous week (23.80% vs 13.49%, $P < .001$) than those without breast cancer. Among breast cancer survivors, there were no significant differences in difficulty falling asleep (39.16% vs 44.98%, $P = .482$), difficulty staying asleep (61.17% vs 52.70%, $P = .305$), and needing sleep medication (19.03% vs 24.53%, $P = .395$) between those who practiced yoga and those who did not. Controlling for sociodemographic factors, there remained no association between yoga and difficulty falling or staying asleep among breast cancer survivors.

Conclusion: There is no direct association between yoga and sleep quality in breast cancer survivors.

Kavurmaci M, Tan M, Bahcecioglu Turan G. Determining the effect of yoga on job satisfaction and burnout of nurse academicians. Perspect Psychiatr Care. 2022 Jan;58(1):404-410. doi: 10.1111/ppc.12806. Epub 2021 Apr 30. PMID: 33931853

Abstract:

Purpose: This study was conducted to determine the effect of yoga on burnout and job satisfaction of nursing academicians.

Design and methods: The research is an experimental clinical trial conducted as pretest-posttest with control groups between March and August 2019 in a Nursing Faculty. Participants in the experimental group were given yoga practice (n = 33) twice a week for 8 weeks. Data were collected by using MBI and MSQ.

Findings: The experimental group's mean posttest Personal Achievement, Extrinsic Satisfaction and General Satisfaction scores were higher than that of control group participants, and a highly significant difference was found between the groups.

Practice implications: Yoga practice is effective in reducing the burnout and increasing job satisfaction of nursing academicians.

Kukihara H, Ando M, Yamawaki N. Effects of yoga and mindful meditation on elderly care worker's burnout: a CONSORT-compliant randomized controlled trial. J Rural Med. 2022 Jan;17(1):14-20. doi: 10.2185/jrm.2021-021. Epub 2022 Jan 12. PMID: 35047097

Abstract:

Objectives: This study aims to investigate the effects of mindful meditation and yoga on reducing burnout and stress in care workers who assist elderly individuals. Knowing how to reduce burnout is important because that of care workers is associated with the quality of client care, worker productivity, and job turnover.

Patients and Methods: The participants included 44 care workers who worked for elderly care facilities in rural Fukuoka. They were randomly assigned to one of three intervention groups: control, yoga, or mindfulness. In the yoga intervention group, a certified yoga instructor taught a 60-minute yoga session each week for six weeks. In the mindfulness group, an experienced medical doctor instructed a mindful meditation program for the same length. Participants were asked to complete the Japanese Burnout Scale

(JBS), and the research team collected the level of α-amylase in saliva using NIPRO: T-110-N pre- and post-interventions.

Results: MANOVA was performed with each intervention (control, yoga, mindfulness) as the independent variable on the three subscales of the JBS (emotional exhaustion, depersonalization, and personal achievement) and a biomarker of stress level (α-amylase). The results indicated a significant main effect of interventions, and a follow-up ANOVA showed a significant effect of interventions on emotional exhaustion and personal achievement.

Conclusion: The results indicate that practicing mindful meditation or yoga for 60 minutes once a week for six weeks can reduce care workers' burnout. This study was notable because the biomarker of stress also improved. It is strongly recommended and encouraged that institutions caring for the elderly population provide mindful meditation or yoga intervention to reduce burnout, which benefits not only care workers but also their clients.

Li Q. Effects of Yoga Exercise on Pelvic Floor Rehabilitation of Postpartum Women. J Healthc Eng. 2022 Jan 25;2022:1924232. doi: 10.1155/2022/1924232. eCollection 2022. PMID: 35126906

Abstract:

Rehabilitation of the pelvic floor after delivery is very important for women. Pelvic floor rehabilitation can speed up the recovery of the postpartum vagina and pelvic floor muscle tension and elasticity and have a good effect on the prevention and treatment of postpartum vaginal prolapse and relaxation, urinary incontinence and other pelvic floor disorders. Thus, this article focuses on yoga exercise to explore its impact on postpartum pelvic floor rehabilitation. This article uses electrical stimulation and the treatment of pelvic floor muscles combined with the posture recognition algorithm, the yoga rehabilitation training program that has the best effect on the parturient is obtained, and the yoga myoelectric stimulation combined method and the traditional myoelectric stimulation method are designed for comparison experiments. The experimental results show that the parturients who have undergone the combined method of yoga myoelectric stimulation, in the resting state, contraction state, and Valsalva state, the position of the bladder meridian, the position of the uterus, and the position of the rectal ampulla of the parturient have a significant recovery compared those who have undergone the traditional electromyography treatment. In addition, the average area of hiatus in the pelvic floor ultrasound examination in the control group 42 days postpartum was 12.2605 cm^2, while the average area of the hiatus in the pelvic floor ultrasound examination in the experimental group 42 days postpartum was 10.788 cm^2; the average area of hiatus in the pelvic floor ultrasound examination in the control group at 3 months postpartum was 11.4805 cm^2, and the average area of hiatus in the pelvic floor ultrasound examination in the experimental group at 3 months postpartum was 8.9475 cm^2. To sum up, yoga had a very significant improvement on the physical indicators and mental health of postpartum women.

Mangala Gowri M, Rajendran J, Srinivasan AR, Bhavanani AB, Meena R. Impact of an Integrated Yoga Therapy Protocol on Insulin Resistance and Glycemic Control in Patients with Type 2 Diabetes Mellitus. Rambam Maimonides Med J. 2022 Jan 27;13(1):e0005. doi: 10.5041/RMMJ.10462. PMID: 35089124

Abstract:

Objective: Diabetes mellitus (DM), characterized by chronic hyperglycemia, is attributed to relative insulin deficiency or resistance, or both. Studies have shown that yoga can modulate parameters of insulin resistance. The present study explored the possible beneficial effects of integrated yoga therapy with reference to glycemic control and insulin resistance (IR) in individuals with diabetes maintained on standard oral medical care with yoga therapy, compared to those on standard oral medical care alone.

Methods: In this study, the subjects on yoga intervention comprised 35 type 2 diabetics, and an equal number of volunteers constituted the control group. Subjects ranged in age from 30 to 70 years, with hemoglobin A1c (HbA1c) test more than 7%, and were maintained on diabetic diet and oral hypoglycemic agents. Blood samples were drawn prior to and after 120 days of integrated yoga therapy intervention. Fasting blood glucose (FBG), post-prandial blood glucose (PPBG), HbA1c, insulin, and lipid profile were assessed in both the intervention and control groups.

Results: The intervention group revealed significant improvements in body mass index (BMI) (0.7 kg/m2 median decrease; P=0.001), FBG (20 mg/dL median decrease; P<0.001), PPBG (33 mg/dL median decrease; P<0.001), HbA1c (0.4% median decrease; P<0.001), homeostatic model assessment for insulin resistance (HOMA-IR) (1.2 median decrease; P<0.001), cholesterol (13 mg/dL median decrease, P=0.006), triacylglycerol (22 mg/dL median decrease; P=0.027), low-density lipoprotein (6 mg/dL median decrease; P=0.004), and very-low-density lipoprotein levels (4 mg/dL median decrease; P=0.032). Increases in high-density lipoprotein after 120 days were not significant (6 mg/dL median increase; P=0.15). However, when compared to changes observed in patients in the control group, all these improvements proved to be significant.

Conclusion: Administration of integrated yoga therapy to individuals with diabetes leads to a significant improvement in glycemic control, insulin resistance, and key biochemical parameters.

Morrison K, Dwarika V. Trauma Survivors' Experiences of Kundalini Yoga in Fostering Posttraumatic Growth. J Child Adolesc Trauma. 2022 Jan 29:1-11. doi: 10.1007/s40653-022-00441-w. Online ahead of print. PMID: 35126802

Abstract:

The prevalence of traumatic events in South Africa is considerably high due to a history of political violence and the ongoing cycle of interpersonal, community-based, and socioeconomic violence. While conventional therapeutic techniques have been found to support trauma survivors in the local context, alternative approaches that focus on the mind-body connection have become increasingly popular. However, studies reporting on the use of these approaches remain scarce. This study aimed to add to the body of knowledge on yoga as a non-conventional therapy to support trauma survivors and foster posttraumatic growth. Semi-structured interviews were conducted with a sample of seven Kundalini yoga practitioners who had been exposed to trauma. A thematic analysis confirmed that Kundalini yoga was beneficial in fostering posttraumatic growth. Overall, the study findings, evidence a pocket of success in relation to value of such an intervention within a low socio economic black South African context.

Pasieka JL. Shinrin-yoku, yoga and other strategies in the fight against COVID-19. Surgery. 2022 Jan;171(1):94-95. doi: 10.1016/j.surg.2021.07.044. Epub 2021 Aug 31. PMID: 34548159

Penrod NM, Moore JH. Antihypertensive effects of yoga in a general patient population: real-world evidence from electronic health records, a retrospective case-control study. BMC Public Health. 2022 Jan 27;22(1):186. doi: 10.1186/s12889-022-12569-3. PMID: 35086500

Abstract:

Background: Despite decades of research and established treatment strategies, hypertension remains a prevalent and intractable problem at the population level. Yoga, a lifestyle-based practice, has demonstrated antihypertensive effects in clinical trial settings, but little is known about its effectiveness in the real world. Here, we use electronic health records to investigate the antihypertensive effects of yoga as used by patients in their daily lives.

Methods: A retrospective, observational case-control study of 1815 records among 1355 yoga exposed patients and 40,326 records among 8682 yoga non-exposed patients collected between 2006 and 2016 from a regional academic health system. Linear mixed-effects models were used to estimate the average treatment effect of yoga on systolic and diastolic blood pressures. Mixed effects logistic regression models were used to calculate odds ratios for yoga use and four blood pressure categories: normal, elevated, stage I, and stage II hypertension.

Results: Yoga patients are predominantly white (88.0%) and female (87.8%) with median age 46 years (IQR 32-57) who use yoga one time per week (62.3%). Yoga is associated with lower systolic (- 2.8 mmHg, standard error 0.6; $p < .001$) and diastolic (- 1.5 mmHg, standard error 0.5; $p = 0.001$) blood pressures. Patients using yoga have 85% increased odds (OR 1.85, 95% CI 1.39-2.46) of having normal blood pressure relative to yoga non-exposed

patients. Patients aged 40-59 years have 67% decreased odds (0.33, 95% CI 0.14-0.75) of having stage II hypertension. All effect sizes are age-dependent.

Conclusions: Yoga, as used by patients in their daily lives, may be an effective strategy for blood pressure control and the prevention of hypertension at the population level.

Prasad K, Prasad A, George M, Sandhu GS, Inojosa JRM, Bhagra A et al. Temporal Trends in Use of Complementary Therapies Among Patients With Cardiovascular Disorders. Am J Cardiol. 2022 Jan 11:S0002-9149(21)01203-0. doi: 10.1016/j.amjcard.2021.11.050. Online ahead of print. PMID: 35031110

Abstract:

This study aimed to evaluate the use and frequency of complementary and integrative medicine (CIM) therapies in an outpatient cohort with cardiovascular disease (CVD) and compare trends over time. This cross-sectional point-of-care prospective study assessed patients attending a cardiology outpatient clinic. As in our 2009 cohort, data were collected with a 17-question survey on demographic characteristics, CVD history, current use and future interest in CIM. In total, 964 patients completed the survey. CIM use continues to be high (2009 vs 2018, 83.4% vs 81.8%) (p = 0.34), with dietary supplements the most common therapy (75% in both studies). We observed increased use of mind-body therapies (28.5% vs 23.9%, p = 0.02), especially meditation, yoga, and tai chi. Of the patients receiving CIM therapies, 41.9% reported using CIM for heart-related symptoms. Relaxation, stress management, and meditation were the top three mind-body therapies for CVD-related symptoms in both cohorts. Reporting of CIM use to clinicians is low (15%) and interest on future use is high (47%). In conclusion, CIM is highly used in cardiology patients-4 of 10 patients use CIM for CVD-related symptoms. Most take dietary supplements, with an increased use of mind-body therapies. Our data highlight the importance of documenting CIM use in practice and the need for research to document efficacy.

Rovira Garcia A, Da Cuna-Carrera I. Effects of physical therapy by means of exercise therapy on schizophrenia patients. A systematic review. Rev Esp Salud Publica. 2022 Jan 12;96:e202201002. PMID: 35017461

Abstract:

Background: Schizophrenia is a chronic mental illness that, in addition to its own psychopathology, causes cognitive, physical, metabolic, affective and social deterioration. The aim of this systematic review was to set up the effects on the bio-psycho-social state of exercise therapy in patients with schizophrenia.

Methods: A systematic review was carried out in January 2021, based on a search strategy in the databases PubMed, Scopus, Medline, Cinhal and

SportsDiscus. Moreover, bibliographies of articles and reviews related to the topic under study were consulted. Studies published in the last 5 years were identified, randomized clinical trials, with full access in English, which included interventions with therapeutic exercise and the evaluation of the effects they produce in patients with schizophrenia.

Results: From 125 articles identified, 13 that fitted the criteria and the topic under study were finally included. In these cases, the most commonly used exercise therapy intervention is aerobic exercise, as well as yoga and tai chi. As aerobic exercise alternatives, pilates, stretching, toning and balance exercises have also been used. Studies showed effects of this type of exercise therapy, on a specific duration and frequency, with improvements in psychopathology, physical status, cognitive status, social functioning and functional capacity.

Conclusions: Exercise therapy, mainly aerobic exercise, benefits patients with schizophrenia as a complement to pharmacological treatment by producing beneficial effects at the physical, cognitive, psychopathological and social levels.

Sefat O, Salehinejad MA, Danilewitz M, Shalbaf R, Vila-Rodriguez F. Combined Yoga and Transcranial Direct Current Stimulation Increase Functional Connectivity and Synchronization in the Frontal Areas. Brain Topogr. 2022 Jan 29. doi: 10.1007/s10548-022-00887-z. Online ahead of print. PMID: 35092544

Abstract:

Transcranial direct current stimulation (tDCS) is a non-invasive neuro-stimulation technique that can modulate cortical excitability. Similarly, yoga is shown to affect the brain's neural activity and networks. Here, we aimed to investigate the effect of combined yoga and tDCS on brain oscillations and networks using resting-state electroencephalography recordings. In a randomized, cross-over, double-blind design, twenty-two healthy subjects participated in a yoga/active tDCS session (2 mA; 20 min; anode-F3, cathode F4) or yoga/sham tDCS on 2 separate days. Resting-state EEG data were collected before and after each intervention. Power spectral density (PSD) and functional connectivity, measured by a synchronization measure, phase-locking value, were computed for each condition. There were no significant differences in PSD values among the two interventions. The network-based statistic method was employed for detecting functional connectivity differences between yoga/active and yoga/sham tDCS interventions. Results show that the addition of active tDCS to yoga is associated with increased functional connectivity of the scalp and source EEG data in the frontal area. The changes were widespread, intra-hemispheric, and inter-hemispheric connections, which were mainly between the frontal area to other regions. At the source level, most of the connectivity changes were found in the fronto-parietal network. These findings suggest that combining yoga with tDCS might lead to brain network changes related to the executive and attentional functions.

Shanker S, Pradhan B. Effect of Yoga on the Motor Proficiency of Children with Autism Spectrum Disorder and the Feasibility of its Inclusion in Special School Environments. Adapt Phys Activ Q. 2022 Jan 19:1-21. doi: 10.1123/apaq.2021-0108. Online ahead of print. PMID: 35045396

Abstract:

Yoga as a movement-based intervention is increasingly considered to improve the motor skills of children with autism spectrum disorder (ASD). However, there is little evidence of the effect of yoga on their motor skills. The current study aims to explore the effect of group yoga program on motor proficiency of children with ASD and feasibility of its inclusion in special schools. Forty-three children with ASD from four special schools were randomized into yoga (n = 23) and control (n = 20) group. A structured yoga program of 45 min for 12 weeks was delivered by trained yoga teachers who also tracked their daily responses. The Bruininks-Oseretsky Test of Motor Proficiency. Second Edition was used to assess both the groups pre- and postintervention. In conclusion, the study highlighted that yoga appears to have a positive impact on the gross motor rather than fine motor proficiency of children with ASD and is feasible to be delivered as group intervention in special schools.

Sohl SJ, Tooze JA, Johnson EN, Ridner SH, Rothman RL, Lima CR et al. Randomized Controlled Pilot Study of Yoga Skills Training Versus an Attention Control Delivered During Chemotherapy Administration. J Pain Symptom Manage. 2022 Jan;63(1):23-32. doi: 10.1016/j.jpainsymman.2021.07.022. Epub 2021 Jul 31. PMID: 34343620

Abstract:

Context: It is important to address fatigue and co-occurring symptoms during chemotherapy to preserve quality of life in patients with gastrointestinal (GI) cancer.

Objective: To conduct a randomized controlled pilot study of a Yoga Skills Training (YST) intervention compared to an attention control (AC) among adults diagnosed with GI cancer.

Methods: YST consisted of four 30-minute sessions delivered individually during chemotherapy plus home practice. AC provided empathic attention plus home diaries. Patient-reported (PROMIS T-score) assessments of fatigue, depressive symptoms, sleep disturbances, and psychological stress (Perceived Stress Scale) were collected at chemotherapy visits: baseline, Week 8, Week 10 and Week 14, and analyzed using a mixed effects model. Inflammatory cytokines were assessed at baseline and Week 10.

Results: Forty-four of 77 adults approached agreed to participate (57%; YST n = 23; AC n = 21). Participants' mean age was 58 years and 48% were men.

Participants randomized to YST reported a larger decline in fatigue (-2.4 difference, d = 0.30) and depressive symptoms (-2.5 difference, d = 0.30) than AC participants from baseline to Week 10 and sleep disturbances at Week 8 (-3.9 difference, d = 0.50). Differences in magnitude of change in symptoms were consistent with or exceeded a minimally important difference. Psychological stress decreased more in the AC at Week 10 (d = 0.30). Reductions in inflammatory cytokines (IL-6, sTNF R1) were larger in the YST group than AC.

Conclusion: YST showed promise for improving fatigue, depressive symptoms, sleep disturbances, and inflammation. YST is also feasible and reaches patients underrepresented in yoga research (i.e., GI cancer, men), thus warranting further examination.

Souza LACE, Reis IA, Lima AA. Climacteric symptoms and quality of life in yoga practitioners. Explore (NY). 2022 Jan-Feb;18(1):70-75. doi: 10.1016/j.explore.2020.09.005. Epub 2020 Sep 25. PMID: 33036931

Abstract:

Background: Yoga is among the most commonly studied complementary therapies for managing climacteric symptoms. However, it is unclear whether yoga practices in premenopause can affect the occurrence of symptoms when women reach menopause.

Objective: To assess climacteric symptoms and quality of life in regular yoga practitioners and to determine whether yoga practices before menopause may avoid or mitigate climacteric-related symptoms.

Design: This study of 108 women between 40 and 65 years old included 28 women who started to practice yoga in premenopause and had already practiced for at least five years, and as controls 30 physical activity practitioners (PA) who had practiced for at least five years, and 50 sedentary women.

Main outcome measures: Climacteric symptoms were evaluated with the Kupperman Menopausal Index (KMI) and the Women's Health Questionnaire (WHQ). Moreover, we measured the quality of life with the WHQ.

Results: The KMI showed that 39.3% of yoga practitioners had no menopausal symptoms, and none reported severe symptoms. The WHQ indicated a few symptoms and a good quality of life for yoga practitioners (3.56; 3.35-3.80). In addition, we found that the yoga group had significantly less moderate and severe symptoms ($p = 0.002$) compared with the sedentary group. We also observed that yoga practitioners had less vasomotor symptoms and memory/concentration disorders than PA practitioners ($p = 0.010$ and $p = 0.047$) and sedentary women ($p = 0.001$ and $p = 0.001$) and also used fewer drugs than the PA ($p < 0.001$) and the sedentary groups ($p = 0.001$).

Conclusions: Yoga practitioners who started to practice in premenopause had satisfactory results on the frequency and intensity of climacteric symptoms and quality of life. Although further research is required to support our findings, we conclude that yoga practice may represent an efficient non-pharmacological approach to manage and prevent climacteric symptoms.

Vogel EA, Zhang JS, Peng K, Heaney CA, Lu Y, Lounsbury D et al. Physical activity and stress management during COVID-19: a longitudinal survey study. Psychol Health. 2022 Jan;37(1):51-61. doi: 10.1080/08870446.2020.1869740. Epub 2021 Jan 6. PMID: 33405969

Abstract:

Objective: Physical activity (PA) during COVID-19 shelter-in-place (SIP) may offset stress. This study examined associations between PA, stress and stress management strategies during SIP.

Design and main outcome measures: Participants (N = 990) from a cohort of Northern California adults completed surveys during early SIP (3/23/20-4/2/20) and mid-SIP (4/24/20-5/8/20). Participants self-reported past-month PA (meeting vs. not meeting guidelines), changes in stress (decreased/unchanged vs. increased) and use (yes/no) of 10 stress management strategies. We tested differences in mid-SIP stress and stress management strategies by PA, and differences in mid-SIP stress by stress management strategies.

Results: Compared to participants inactive at mid-SIP, active participants reported less stress (AOR = 0.60 [0.45, 0.81]). Active participants were more likely to manage stress using outdoor PA, indoor PA, yoga/meditation/prayer, gardening, and reading (AORs > 1.42), and less likely to sleep (AOR = 0.65 [0.48, 0.89]) or eat ([AOR = 0.48 [0.35, 0.66]) more. Managing stress using outdoor PA, indoor PA or reading was associated with lower stress; managing stress using TV/movies, sleeping or eating was associated with increased stress (ps < 0.05).

Conclusions: Meeting PA guidelines during SIP was associated with less stress. Inactive participants reported greater sleeping and eating to cope; active participants used active stress management strategies. Engagement in physically active stress management was associated with lower stress.

Ward L, Nault D, Cramer H, Moonaz S. Development of the CLARIFY (CheckList stAndardising the Reporting of Interventions For Yoga) guidelines: A Delphi study. BMJ Open. 2022 Jan 31;12(1):e054585. doi: 10.1136/bmjopen-2021-054585. PMID: 35105638

Abstract:

Background: The use of yoga as a therapeutic modality is increasing; however, a lack of transparent intervention reporting is restricting the dissemination

and implementation of yoga research into clinical and community practice. The aim of this study was to develop a yoga-specific reporting guideline as an extension to existing reporting guidelines for randomised controlled trials, observational studies and case reports.

Methods: Recognised international stakeholders in the design and conduct of yoga research were invited to contribute to the electronic Delphi survey. A four-round Delphi was conducted, whereby panellists rated selected items for their importance in the inclusion of yoga reporting guidelines, according to a 5-step Likert scale. A priori consensus for item inclusion was agreement of items as 'Very important' or 'Extremely important' by ≥80% of panellists. Non-consensus items were forwarded to subsequent rounds for re-rating.

Results: 53 experts in yoga research from 11 countries, primarily identifying as researchers (50%), allied health professionals (18.8%) and yoga professionals (12.5%), consented to participate in the Delphi. Of these, 48 completed Round 1 (91%), 43 completed Round 2 (81%), 39 completed Round 3 (74%) and 32 completed Round 4 (60%). Panellists reached consensus for inclusion on 21 items, grouped under 10 domains reflective of more generic intervention-based guidelines.

Conclusions: The consensus-based 21-item CLARIFY (CheckList stAndardising the Reporting of Interventions For Yoga) checklist provides a minimum reporting template for researchers across a range of methodology designs. Use of these yoga-specific guidelines, in conjunction with the CLARIFY explanation and elaboration guidelines, will standardise the minimum level of detail required for transparent yoga intervention, facilitating the replication, dissemination and implementation of yoga research. Ongoing research will assess the uptake and impact of CLARIFY, to ensure these guidelines retain their relevance to the internationally growing field of yoga research.

Wen PS, Herrin I, Pittman A. Feasibility of Yoga to Improve Symptoms in Individuals With Severe, Chronic Traumatic Brain Injury: A Mixed-Methods Case Series. Altern Ther Health Med. 2022 Jan;28(1):32-37. PMID: 33421043

Abstract:

Context: People with severe traumatic brain injury (TBI) experience lifelong sequelae that affect physical, cognitive, and mental health. In other populations, yoga has shown potential to alleviate insomnia, pain, and depression and to improve cognition.

Objective: The study intended to investigate the feasibility of a six-week, group-yoga intervention for adults with severe chronic TBI, focusing on sleep, pain, mood, and executive function.

Design: The research team performed a feasibility study using a mixed-methods, case-series design.

Setting: The study recruited participants by distributing flyers to local communities and TBI support groups.

Participants: Participants were two people with severe, chronic, TBI.

Intervention: The intervention was a six-week course of group yoga, with 70-minute classes twice a week.

Outcome measures: The study assessed outcomes at baseline and postintervention using validated measures to assess executive function, mood, sleep, and pain: the Behavior Rating Inventory of Executive Function-Adult Version (BRIEF-A), Beck Depression Inventory (BDI), Pittsburgh Sleep Quality Index (PSQI), and Neuropathic Pain Scale (NPS). A semistructured interview was conducted during the week postintervention to obtain qualitative data.

Results: The study had a 100% retention rate, a 91.67% attendance rate, and high satisfaction. One participant demonstrated improvement in all outcomes, while the other showed mixed results. Depression showed the most consistent improvement, 47.2% on average. For insomnia, one participant showed improved sleep at 14.29%. The qualitative data demonstrated positive changes in cognition, mood, sleep, and pain.

Conclusions: A six-week group yoga intervention is feasible and appears to be beneficial in alleviating symptoms, especially depression and insomnia, in people with severe chronic TBI. A longer intervention period was suggested by the participants.

Yildirim P, Gultekin A. Effect of a Stretch and Strength-Based Yoga Exercise Program on Patients with Neuropathic Pain due to Lumbar Disc Herniation. Spine (Phila Pa 1976). 2022 Jan 11. doi: 10.1097/BRS.0000000000004316. Online ahead of print. PMID: 35019882

Abstract:

Study design: Randomized controlled trial study.

Objective: To investigate the effect of a stretch and strength-based yoga exercise program on neuropathic pain due to lumbar disc herniation (LDH).

Summary of background data: LDH with neuropathic pain influences treatment outcomes negatively. Most yoga poses include the parameters of spinal training and help reduce pain and disability in patients with low back injuries. We hypothesized that yoga positively affects both LDH and neuropathic pain by increasing mobilization, core muscle strength, and spinal and hamstring flexibility.

Methods: In total, 48 patients with neuropathic pain due to LDH were randomly assigned to a control group and a yoga group. All patients underwent a patient education program. In addition, the selected yoga exercise was taught and performed to the yoga group for 1 hour twice weekly for 12 weeks. Neuropathic pain (DN4 for diagnosis; LANSS for severity), low back pain (LBP) (the short-form of McGill Pain Questionnaire), disability (Oswestry Disability Index), and function (modified Schober and passive knee extension test) were measured blind before and at the 1-, 3-, and 6-month follow-ups. The patient global assessment was applied at the 6-month follow-up. The intention-to-treat (ITT) analysis was performed in this study.

Results: The ITT analysis showed a statistically significant difference in neuropathic pain, patient global assessment, LBP, disability, and function in favor of the yoga group at post-treatment. The between-group effect sizes were moderate at 6-months follow-up.

Conclusion: It was determined that the selected stretch and strength-based yoga exercise could be a promising treatment option for neuropathic pain due to LDH.Level of Evidence: 2.

Zhu Z, Yan W, Yu Q, Wu P, Bigambo FM, Chen J. Association between Exercise and Blood Pressure in Hypertensive Residents: A Meta-Analysis. Evid Based Complement Alternat Med. 2022 Jan 11;2022:2453805. doi: 10.1155/2022/2453805. eCollection 2022. PMID: 35069755

Abstract:

Background: Exercise is recommended as an effective lifestyle behaviour for adults to prevent and treat hypertension. In this study, a randomized-effect meta-analysis was used to analyse the influence of exercise interventions on blood pressure in patients with hypertension.

Methods: Candidate papers were retrieved from PubMed, Web of Science, Embase, and Cochrane Library electronic databases, and 46 studies were finally included and analysed.

Results: It was shown that preplanned walking (systolic blood pressure (SBP): WMD (weighted mean difference) = -5.94, 95% CI: -8.57, -3.30; diastolic blood pressure (DBP): WMD = -2.66, 95% CI: -3.66, -1.67), yoga (SBP: WMD = -5.09, 95% CI: -9.28, -0.89; DBP: WMD = -3.06, 95% CI: -5.16, -0.96), aquatic sports (SBP WMD = -7.53, 95% CI: -11.40, -3.65; DBP: WMD = -5.35, 95% CI: -9.00, -1.69), and football (SBP: WMD = -6.06, 95% CI: -9.30, -2.82; DBP: WMD = -5.55, 95% CI: -8.98, -2.13) had significant effects on blood pressure reduction. However, Tai Chi (SBP: WMD = -8.31, 95% CI: -20.39, 3.77; DBP: WMD = -3.05, 95% CI: -6.96, 0.87) and Qigong (SBP: WMD = -4.34, 95% CI: -13.5, 4.82; DBP: WMD = -3.44, 95% CI: -7.89, 1.01) did not significantly reduce blood pressure. The heterogeneity of the meta-analysis was high.

Conclusion: Walking, yoga, aquatic sports, and football were feasible and independent lifestyle interventions, and they were effective options for treating hypertension. More scientifically designed randomized controlled trials are needed in the future to further compare different forms of exercise for the treatment of hypertension.