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International prevalence of consultation with a naturopathic practitioner: a systematic review and meta-analysis

Journal:	*BMJ Open*
Manuscript ID	bmjopen-2021-056075
Article Type:	Original research
Date Submitted by the Author:	09-Aug-2021
Complete List of Authors:	Steel, Amie; University of Technology Sydney, Australian Research Centre in Complementary and Integrative Medicine (ARCCIM) Redmond, Rebecca; University of Technology Sydney Schloss, Janet ; Southern Cross University Cramer, Holger; University of Duisburg-Essen, Department of Internal and Integrative Medicine, Kliniken Essen-Mitte, Faculty of Medicine Goldenberg, Joshua; National University of Natural Medicine Leach, Matthew; Southern Cross University, National Centre for Naturopathic Medicine Harnett, Joanna; The University of Sydney, School of Pharmacy, Faculty of Medicine and Health Van de Venter, Claudine; University of Technology Sydney McLintock, Andy; University of Technology Sydney, Australian Research Centre in Complementary and Integrative Medicine (ARCCIM) Bradley, Ryan; National University of Natural Medicine; National University of Natural Medicine Hawrelak, Jason; University of Tasmania Cooley, Kieran; Canadian College of Naturopathic Medicine, Research Leung, Brenda; University of Lethbridge Adams, Jon; University of Technology Sydney, Faculty of Health Wardle, Jon; Southern Cross University
Keywords:	COMPLEMENTARY MEDICINE, PRIMARY CARE, Human resource management < HEALTH SERVICES ADMINISTRATION & MANAGEMENT

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INTERNATIONAL PREVALENCE OF CONSULTATION WITH A NATUROPATHIC PRACTITIONER: A SYSTEMATIC REVIEW AND META-ANALYSIS

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ABSTRACT (300 words)

Objectives: Naturopathy is a traditional medicine system informed by codified philosophies and principles, and an emphasis on non-pharmacologic therapeutic interventions. While naturopathy is practiced by approximately 75 000 to 100 000 naturopathic practitioners in at least 98 countries, little is known about the international prevalence of history of consultation with a naturopathic practitioner. This study reports a systematic review and meta-analysis of studies describing the global prevalence of history of consultation with a naturopathic practitioner by the general population.

Setting: The included literature was identified through a systematic search of eight databases between September and October 2019, as well as the grey literature.

Participants: Studies were included if they reported the prevalence rate of consultations with a naturopathic practitioner by the general population

Interventions: Survey items needed to report consultations with a naturopathic practitioner as defined in the country where data was collected, and not combine naturopathic consultations with other health services or only report consulations for illness populations.

Primary and secondary outcome measures: Primary measures used for the analysis was consultations in the previous 12-months. Other prevalence timeframes were reported as secondary measures.

Methods: Meta-analysis of prevalence data was conducted using random effects models based on individual countries and World Health Organisation (WHO) world regions.

Results: The literature search identified eight manuscripts summarizing 13 studies reporting prevalence for inclusion in the review. All included studies had a low risk of bias. Meta-analysis of the included studies by world region found the 12-month prevalence of history of naturopathy consultations ranged from 1% in the Region of the Americas to 6% in the European and Western Pacific Regions.

Conclusions: There are up to 6-fold differences in the prevalence of naturopathy consults over 12-months between and within world regions, which may be driven by a range of policy, legislative and social factors.

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STRENGTHS AND LIMITATIONS OF THIS STUDY

- Naturopathy is one of the most commonly used traditional and complementary medicines in the Western world and this is the first systematic review and meta-analysis reporting the prevalence of consutations with a naturopathic practitioner.
- This study includes only includes data published after 2010 to ensure the results are contemporary, however this may have excluded some studies in countries with older data.
- The results are limited by the poor availability of data reporting consultations with a naturopathic practitioner, including in countries where a large number of naturopathic practitioners are known to provide care.

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Introduction

Naturopathy is a traditional medicine system underpinned by six philosophical principles (see Table 1), which were codified by the profession in the 20th century [1]. These philosophical principles characterize naturopathic practice and are globally accepted by the profession [2]. Other defining tenets of naturopathic practice are patient-centeredness and individualization, with naturopaths typically drawing upon a range of therapeutic interventions (e.g., diet and lifestyle counselling, herbal medicine, nutritional supplementation, manual therapies, and mind-body practices) to best meet the health care needs and preferences of the patient [3]. Globally, naturopathy is practiced in at least 98 countries with representation in every world region [4]. Naturopathy is practiced widely in Europe (n=54 practicing countries), followed by Latin America (n=51), Africa (n=47), and the Western Pacific (n=37) [5]. Estimates from the World Naturopathic Federation suggest there are between 75,000 and 100,000 naturopaths currently in clinical practice across the world [5].

Training of the naturopathic workforce is currently provided by an estimated 90 education institutions globally, with entry-level qualifications ranging from technical diploma to clinical doctorate [3]. The curriculum of these naturopathic programs typically includes content in health sciences (e.g., anatomy, physiology, chemistry, and biochemistry), clinical sciences (e.g. clinical examination, differential diagnosis), social sciences (e.g. psychology, counselling), and naturopathic sciences (e.g. nutritional medicine, herbal medicine, lifestyle medicine, dietary modification, homeopathy, and manual therapies) [4]. Despite similarities in the content of these training programs, naturopathic scope of practice varies considerably across jurisdictions due to differences in regulation and legislative requirements [6].

In response to an increase in the use of traditional and complementary medicine (including the utilization of naturopathic health services), the World Health Organisation has developed global strategies to ensure access to safe and effective healthcare, which include promoting the integration of traditional and complementary therapies (including naturopathy) into healthcare systems [7]. Several international research studies suggest the demand for naturopathic services may be attributed to personal healthcare beliefs, dissatisfaction with biomedical care, increased disease severity, and unmet healthcare needs [8-15]. Nevertheless, the global use of naturopathic services is not well understood. Therefore the aim of this study was to describe the prevalance of a history of consultations with naturopathic practitioners globally, including potential differences across world regions.

Methods

Aim

This study aims to describe the global prevalence of a history of consultation with a naturopathic practitioner by the general population.

Study Design

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A systematic review and meta-analysis of prevalence studies were undertaken in accordance with the AMSTAR 2 guidelines [16]. The protocol for this review was submitted to PROSPERO on the 2nd September, 2019 and was registered on the 28th April, 2020 [CRD42020145529].

Inclusion and exclusion criteria

Articles were included that reported original data from cohort studies, cross-sectional studies, survey research, case-control studies, prevalence studies, or epidemiologic studies. Studies reporting on the general population prevalence of consultations with a naturopathic practitioner either in the previous 12 months or over the user's lifetime were considered for inclusion. All relevant papers were included irrespective of language of publication or risk of bias score. Articles were excluded that presented results from specific sub-patient populations (e.g. children, female or male specific, age limitations, illness populations). Studies were also excluded if they only presented the prevalence of consultations with other health professionals that may use treatments commonly associated with naturopathy (e.g. herbal medicine, hydrotherapy, yoga, etc) but were not explicitly named as naturopathic practitioners, or where naturopathic consultation rates were conflated with a cumulative group of health services (such as complementary and alternative medicine [CAM]). To ensure the analysis reflected contemporary patterns of use, studies were excluded if they were published before 2010.

Search Strategy

A systematic electronic search of the following databases was conducted between 6th September and 2nd October 2019: MEDLINE, AMED, EMBASE, CINAHL, Global Health, WHO Iris, PROQUEST dissertations database, and Lilac. The complete search strategy for MEDLINE is presented in Table 2. A search for grey literature was also performed. The search targeted countries where, according to the WHO Global Report on Traditional and Complementary Medicine (2019) [20], naturopathic practitioners provide care to the community. The search was performed using the Google search engine and the terms *prevalence, use, naturopathy, report,* and the country name.

Article identification and selection

A list of all citations identified through the search were exported from each database by AM and uploaded to Covidence [17] for filtering and selection. Initial screening of title and abstracts against the inclusion/exclusion criteria was conducted by AM. Two members of the authorship team (AM and AS) then independently reviewed the full text of the remaining citations to determine their suitability against the same criteria. Any differences were resolved through discussion between both reviewing authors. The list of bibliographic references and subsequent citations (identified through Google Scholar) of included papers were also checked by AS to identify additional articles otherwise missed through the database search. JHar and JS extracted data from the included papers. AS and JS assessed the papers for quality of reporting against the STROBE checklist [18]; risk of bias was assessed using the tool developed by Hoy et al [19] by JG and JAH. Differences in scoring for both tools were resolved through discussion until consensus was achieved.

Analysis

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The results were grouped for narrative presentation of results in accordance with the World Health Organisation (WHO) world regions [21]. Where studies reported the results of more than one year, these were treated as different studies in the analysis. Articles with unclear numerators or denominators were calculated by the research team where the necessary information was provided or checked against source documents for the same study. Authors were contacted to verify information not able to be determined through these other methods.

Prevalence rates and standard errors were calculated using a standardized Microsoft Excel (version 12.3.5, Microsoft, Redmond, USA) spreadsheet [22]. Review Manager software (version 5.3, Nordic Cochrane Centre, Copenhagen, Denmark) was used to conduct the meta-analysis, using random effects models by the Generic Inverse Variance method. Weighted prevalence rates with 95% confidence intervals (95% CI) were calculated for 12-month prevalence and lifetime prevalence separately. Separate analyses were conducted for a) country of origin and b) WHO world regions.

Heterogeneity between studies was estimated on the basis of the raw proportions, by using the I^2 statistic. Intervals were defined as per published guidance [23, 24]: low heterogeneity (I^2 of 0–24%); moderate heterogeneity (I^2 of 25–49%); substantial heterogeneity (I^2 of 50–74%); relevant heterogeneity (I^2 of 75–100%). In order to assess heterogeneity, χ^2 tests were conducted with $p \leq 0.10$ [24]. We intended to perform sensitivity analyses to compare differences between outcomes on all studies to studies with low risk of bias only (defined as <4 items recorded as 'no' on the Hoy et al tool). However, as all studies were classified as low risk of bias, this was not possible.

Ethics Approval

As this study presents a review and synthesis of published research and does not engage with data collection of human or animal subjects, it is deemed negligible risk and no ethics approval was required.

Results

Search characteristics

The article selection process is presented in Figure 1. The database search identified 13,968 citations including 2,509 duplicates. Of these, 11,374 were excluded through title and abstract screening. The full text of the remaining 85 articles were assessed for eligibility, of which 78 were excluded for the following reasons: not reporting naturopathic consultations (n=54), conference abstract only (n=9), not original research (n=7), wrong outcomes reported (n=5), overlooked duplicate (n=2), and wrong study design (n=1) (full list of excluded studies available in Supplementary File 1). This resulted in seven articles being retained. A search for grey literature using the Google search engine was also performed, and targeted countries where, according to the WHO Global Report on Traditional and Complementary Medicine (2019) [6], naturopaths/naturopathic doctors are providing care to the community. The reference lists and subsequent citations of the remaining articles were checked and when combined with the results of the Google Search, resulted in identification of an additional 19 articles (3

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references and 16 citations), of which one report was found to meet the inclusion criteria for this review. This yielded a total of eight included studies, one of which was published in a report.

Study characteristics

The included studies reporting 12-month prevalence of naturopathy use in a national population were represented across four of the six WHO world regions: European (n=2) [25, 26], Eastern Mediterranean (n=1) [27], Region of the Americas (n=3) [28-30], and the Western Pacific (n=1) [31] (see Table 3). One of the studies from Canada presented the lifetime prevalence of naturopathy use [30], and an additional study from India (South East Asian World region) did not specify the time period during which naturopathy was used [21] (see Table 4).

All included studies sampled the general adult population and reported data from a nationally representative sample or demonstrated a distribution of economic categories, except for one study from Israel whereby the majority of participants' subjective economic status was rated as 'very good' or 'good' [27]. Four studies included prevalence data from more than one time point [26-28, 30], with the earliest data collected in 1993 [27]. Two papers reported data from the same national cohort study, but from different time points [28, 29]. All studies included participants from both urban and rural locations.

Risk of Bias

Critical appraisal of the included studies is presented in Table 5. All studies were determined to have a low risk of bias, except for one study that was suspected of having non-response bias [27]. All but one study [31] had problematic reporting of the numerator and denominator, however, this was able to be addressed by the research team by interrogating the provided data or checking source documents from the primary cohort studies. One study was identified as not having an acceptable case definition [21] as it did not specify the period of time covering naturopathy use (e.g. previous 12 months or users' lifetime).

Assessent of the reporting quality of included studies identified several issues. More than one-half of studies did not clearly identify the study design in the title [21, 27-31]. None of the included studies provided reasons for non-participation or provided information about missing data. Four of the included studies did not acknowledge the limitations of their research. In one case, some of the omissions in reporting may be explained by the nature of the publication (i.e. grey-literature report rather than a peer-reviewed journal article) [30].

Summary of Findings

The 12-month prevalence reported in studies from the European region ranged between 2% in the UK [25] to 7.7% in Switzerland [26]. One study from the Eastern Mediterranean region (i.e. Israel) [27] reported multiple prevalence rates ranging from 20% in 1993 through to 18% in 2007. Three studies from the Region of the Americas reported 12-month prevalence rates of naturopathy use between 3% (in 1997) and 5% (in 2016) in Canada [30], and between 0.25% (in 2002) and 0.4% (in 2015) in the United States [28, 29]. One study from the Western Pacific region (i.e. Australia) reported a 6.2% prevalence rate [31].

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Two studies reported prevalence of naturopathy use over other time periods. One study from the Region of the Americas (Canada) indicated 6% of the general population in 1997, 9% in 2006, and 11% in 2016 used naturopathy at some point in the user's lifetime [30]. A study from the South-East Asian world region indicated 10% of the population had used naturopathy and yoga, but the timeframe of use was not specified [21].

META-ANALYSIS RESULTS

The estimated 12-month prevalence rates of naturopathy use for different countries are shown in Figure 2. Prevalence rates significantly differed between countries ($p<0.001$) and ranged from less than 1% of the population in the USA to 8% in Switzerland. While the primary studies were subject to wide heterogeneity, significant heterogeneity was only found for Canada ($p=0.01$) and the USA ($p<0.001$).

Regarding WHO world regions, 12-month prevalence of naturopathy use ranged from 1% in the Region of the Americas to 6% in European and Western Pacific Regions, again with significant differences between regions ($p<0.001$; Figure 3). Relevant and statistically significant heterogeneity was present in studies involving the European Region ($p<0.001$), and Region of the Americas ($p<0.001$).

Since all studies were classified as having low risk of bias, no sensitivity analyses were conducted. No meta-analysis could be perfomed on studies reporting prevalence of naturopathy use over other time periods due to the paucity and heterogeneity ofstudies reporting this outcome.

DISCUSSION

This review presents the most recent synthesis of evidence of the global prevalence of consultations with naturopaths/naturopathic doctors. The prevalence of naturopathy/naturopathic medicine use was reported in seven countries, across five WHO designated regions of the world. Of the regions reporting 12-month prevalence rates, the highest was in the Eastern Mediterranean region (Israel), with 18% (2007) to 20% (1993) of the general population seeking the services of a naturopath/naturopathic doctor. The lowest reported 12-month prevalence of naturopathy use was observed in the Americas (USA), with a rate of 0.4% (2012). Lifetime prevalence of use was reported in two countries: Canada (6% in 1997 to 11% in 2016); and India (7% rural, 12% urban in 2011/12). Where more than one timeframe of data was available, there was a relative amount of consistency across time suggesting naturopathy/naturopathic medicine use is temporally stable in these countries.

The wide range in the rates of consultation with a naturopath/naturopathic doctor may reflect differences in the perception and availability of naturopathy in specific countries. For example, while national prevalence of consultations with naturopaths in the USA is relatively low, this may obscure significant heterogeneity within that region. For example, insurance data from Washington state shows prevalence of naturopathic consultation to be four times higher than the national prevalence (1.6% v 0.4%) [32]. Such heterogeneity may be similarly observed in other regions and may be due to several factors. In the USA recognition of the naturopathic profession through licensure is not uniformly applied across that nation [33], and distribution of the naturopathic workforce has historically been determined by the proximity to naturopathic educational institutions [34]. Insurance coverage is also known to be a significant driver of naturopathic use [32], and variable

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insurance coverage arrangements for naturopathy – as observed in the USA [35] – may also result in regional differences. Further attention towards regional variations and heterogeneity, particularly as it relates to specific barriers and facilitators to appropriate utilization of naturopathic services - is warranted.

The wide range in rates of naturopathy use may also reflect differences in scope of practice in each world region. For example, in the USA, naturopathic physicians are considered to bridge conventional medicine and CAM modalities [36], while in Germany, naturopathic practitioners known as “Heilpraktiker” are a distinct category and reportedly have inconsistent training and clinical abilities [37]. As such, the term naturopathy may be differentially classifying practitioners due to professionalization, resulting in an underestimate of use in some countries and overestimate in others. Further consideration of the implications associated with the inconsistent ‘protection’ of professional titles and defined scopes of practice for naturopaths/naturopathic doctors by country is likely to influence the prevalence of use by the public [2].

Prevalence data from some countries may also be impacted by definitional difficulties or confusion around the term ‘naturopathy’. For example, naturopathy is often grouped under a broader nomenclature as one of the many modalities or therapies considered ‘complementary approaches to healthcare’ [38] or "integrative medicine" and thus may not be individually represented in the publications included in our analysis. Multiple practitioner types may also present difficulties for data collection. For example, a review of CAM services in Europe, of the (22,300) practitioners of naturopathy, 15,000 were identified as (mostly German) medical doctors [39]. Thus, patients may not identify obtaining naturopathy as a service per se, but as part of the standard care they receive from a medical doctor who integrates naturopathic principles or modalities into their practice. This may be one reason why three of the largest European countries by naturopathic workforce (Germany, Portugal and Spain [2]) were not represented in this review. Thus, the true prevalence of naturopathic consultations is likely under-reported. Further, an examination of government administered national health surveys of the general population in the countries represented by WNF member organisations, found only Switzerland, Northern Ireland, USA, Mexico and India currently included items that specifically measured consultations with a naturopath/naturopathic doctor (see Supplementary File 2). To evaluate the potential role of naturopaths in care delivery, it is imperative that naturopathic health services and workforce research data is captured in all countries where there is a significant naturopathic presence.

Furthermore, although naturopathic practice is relatively consistent globally, local, and regional variations in preferred therapies may result in point-of-service differences that may impact prevalence of naturopathic consultations in those countries. For example, in the United Kingdom, historical connections between osteopathy and naturopathy may drive naturopathic use for musculoskeletal conditions in that country more than in countries like Australia, where naturopathy and herbalism have had a larger shared history and connection [40]. Some studies in this review explicitly combined queries about naturopathic utilization with other CAM practices – for example, herbalism and naturopathy in the Australian study. Thus, it is important that a reliable validated instrument is developed for collecting more specific data about naturopathic service utilization within and across countries to establish ‘true’ prevalence of use information.

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While prevalence data provides a snapshot of a given populations' use of naturopathy, less is known about the factors associated with that use. For example, factors that have previously been raised as impacting the use of naturopathy/naturopathic medicine, include licensure and regulation, scope of practice, training of new students and therefore number of naturopaths/naturopathic doctors in the workforce, or country specific health systems that influence the support and reimbursements of naturopathic services (e.g. insurance vs out of pocket) [41]. By focusing on general population utilization, this study may also not reflect differences in prevalence of use for different clinical conditions. For example, Australian studies published before 2010 show a self-reported prevalence of naturopathic use among the general population of mid-aged women to be 8.7%, while rates for cancer (15.7%) and depression (22.2%) were significantly higher [9]. Similar variations were seen in insurance data from Washington state in the US, where 7.1% of insured cancer patients made claims for naturopathic treatment, compared to 1.6% of general enrollees [32].

One of the limitations of prevalence studies in the context of naturopathy, is they fail to capture the breadth of treatments that is unique to naturopathy and they do not capture data associated with the quality of care, role within healthcare systems, nor the efficacy and safety of naturopathic approaches to the management of specific conditions [42]. Thus, research into the quality, safety, efficacy, and cost effectiveness of naturopathy/naturopathic medicine would provide pragmatic understanding about the contribution of naturopathy to healthcare within populations and more broadly across the world. Additionally, although limiting data collection to studies published after 2010 helps to ensure prevalence data most accurately reflects contemporary utilization, such time limits may have excluded some studies in regions that were missing from the review. Additionally, observing changes in prevalence of naturopathic consultations over time may also be able to offer insights into the changing role of naturopathy/naturopathic medicine in relation to health systems changes or generational health needs [43].

CONCLUSION

Although the naturopathic workforce has a significant presence globally, there is limited detailed data on the prevalence of naturopathic consultations. As such, there is a need for a reliable validated instrument to be developed for collecting more specific data about naturopathic service utilization within and across countries. Nevertheless, current evidence reports a 12-month prevalence of naturopathy use ranging from 1% in the Region of the Americas to 6% in European and Western Pacific Regions, though there are significant differences between and within world regions. Differences in naturopathic utilization in these regions may be indicative of a range of policy, legislative and social factors impacting the naturopathic profession. Despite these ongoing factors, further research attention is warranted to support the integration of naturopathic services into healthcare systems to ensure consumers have access to safe and effective multi-disciplinary care.

References

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1. Snider, P. and J. Zeff, *Unifying Principles of Naturopathic Medicine Origins and Definitions.* Integrative Medicine: A Clinician's Journal, 2019. **18**(4): p. 36.
2. World Naturopathic Federation Roots Committee, *WNF - Naturopathic Roots Report*. 2016, World Naturopathic Federation,: Toronto, Canada.
3. Dunn, J., et al., *Characteristics of global naturopathic education, regulation, and practice frameworks: results from an international survey.* BMC complementary medicine and therapies, 2021. **21**(1): p. 1-19.
4. Steel, A., et al., *Overview of international naturopathic practice and patient characteristics: results from a cross-sectional study in 14 countries.* BMC Complementary Medicine and Therapies, 2020. **20**(1): p. 59.
5. World Naturopathic Federation, *2016 Naturopathic Numbers Report*. 2016, World Naturopathic Federation: Canada.
6. World Naturopathic Federation, *Global Naturopathic Regulation*. 2018, World Naturopathic Federation: Toronto, Ontario.
7. Smith, M., A. Burton, and T. Falkenberg, *World Health Organization Traditional Medicine Strategy 2014–2023.* New strategy for traditional and complementary medicine includes the development and use of herbal medicinal preparations. HerbalEGram, 2014. **11**(5).
8. Leach, M.J., *Profile of the complementary and alternative medicine workforce across Australia, New Zealand, Canada, United States and United Kingdom.* Complementary therapies in medicine, 2013. **21**(4): p. 364-378.
9. Reid, R., et al., *Complementary medicine use by the Australian population: a critical mixed studies systematic review of utilisation, perceptions and factors associated with use.* BMC Complementary and Alternative Medicine, 2016. **16**(1): p. 176.
10. Leach, M.J., *Determinants of Complementary Medicine Service Utilization in a Regional South Australian Population: A Cross-Sectional Study.* The Journal of Rural Health, 2021. **37**(1): p. 69-80.
11. Bradley, R., et al., *Survey of CAM interest, self-care, and satisfaction with health care for type 2 diabetes at group health cooperative.* BMC complementary and alternative medicine, 2011. **11**(1): p. 121.
12. Foley, H. and A. Steel, *Patient perceptions of clinical care in complementary medicine: A systematic review of the consultation experience.* Patient Educ Couns, 2016. **100**: p. 212-23.
13. Foley, H., A. Steel, and J. Adams, *Perceptions of Person-Centred Care Amongst Individuals with Chronic Conditions who Consult Complementary Medicine Practitioners.* Complementary Therapies in Medicine, 2020: p. 102518.
14. Foley, H., A. Steel, and J. Adams, *Consultation with complementary medicine practitioners by individuals with chronic conditions: Characteristics and reasons for consultation in Australian clinical settings.* Health & social care in the community, 2020.
15. Legenne, M., et al., *Perception of naturopathy for female patients with metastatic gynecological cancer: A qualitative study.* Palliative & supportive care, 2015. **13**(6): p. 1663-1668.
16. Shea, B.J., et al., *AMSTAR 2: a critical appraisal tool for systematic reviews that include randomised or non-randomised studies of healthcare interventions, or both.* bmj, 2017. **358**.
17. Innovation, V.H., *Covidence systematic review software*. Melbourne, Australia.
18. Knottnerus, A. and P. Tugwell, *STROBE--a checklist to Strengthen the Reporting of Observational Studies in Epidemiology.* Journal of clinical epidemiology, 2008. **61**(4): p. 323.
19. Hsu, C., et al., *New perspectives on patient expectations of treatment outcomes: results from qualitative interviews with patients seeking complementary and alternative medicine treatments for chronic low back pain.* BMC Complementary Alternative Medicine, 2014. **14**(1): p. 276.
20. Organization, W.H., *WHO global report on traditional and complementary medicine 2019*, in *WHO global report on traditional and complementary medicine 2019*. 2019.
21. Srinivasan, R. and V.R. Sugumar, *Spread of traditional medicines in India: Results of national sample survey organization's perception survey on use of Ayush.* Journal of evidence-based complementary & alternative medicine, 2017. **22**(2): p. 194-204.
22. Neyeloff, J.L., S.C. Fuchs, and L.B. Moreira, *Meta-analyses and Forest plots using a microsoft excel spreadsheet: step-by-step guide focusing on descriptive data analysis.* BMC research notes, 2012. **5**(1): p. 1-6.
23. Higgins, J.P., et al., *Measuring inconsistency in meta-analyses.* Bmj, 2003. **327**(7414): p. 557-560.
24. Higgins, J.P., et al., *Cochrane handbook for systematic reviews of interventions*. 2019: John Wiley & Sons.
25. Hunt, K.J., et al., *Complementary and alternative medicine use in England: Results from a national survey.* International Journal of Clinical Practice, 2010. **64**(11): p. 1496-1502.

For peer review only

26. Klein, S.D., et al., *Usage of complementary medicine in Switzerland: Results of the Swiss health survey 2012 and development since 2007.* PLoS ONE, 2015. **10**(10): p. no pagination.
27. Shmueli, A., I. Igudin, and J. Shuval, *Change and stability: use of complementary and alternative medicine in Israel: 1993, 2000 and 2007.* European Journal of Public Health, 2011. **21**(2): p. 254-259.
28. Su, D. and L. Li, *Trends in the use of complementary and alternative medicine in the United States: 2002-2007.* Journal of Health Care for the Poor and Underserved, 2011. **22**(1): p. 296-310.
29. Clarke, T.C., et al., *Trends in the use of complementary health approaches among adults: United States, 2002-2012.* National health statistics reports, 2015(79): p. 1-16.
30. Esmail, N., *Complementary and Alternative Medicine*. 2017: Fraser Institute.
31. McIntyre, E., et al., *Consultations with Naturopaths and Western Herbalists: Prevalence of Use and Characteristics of Users in Australia.* The Journal of Alternative Complementary Medicine, 2019. **25**(2).
32. Lafferty, W.E., et al., *The use of complementary and alternative medical providers by insured cancer patients in Washington State.* Cancer, 2004. **100**(7): p. 1522-30.
33. Fleming, S.A. and N.C. Gutknecht, *Naturopathy and the primary care practice.* Primary Care: Clinics in Office Practice, 2010. **37**(1): p. 119-136.
34. Albert, D.P. and F.B. Butar, *Distribution, concentration, and health care implications of naturopathic physicians in the United States.* Complementary health practice review, 2004. **9**(2): p. 103-117.
35. Whedon, J., et al., *Insurance reimbursement for complementary healthcare services.* The Journal of Alternative and Complementary Medicine, 2017. **23**(4): p. 264-267.
36. Litchy, A.P., *Naturopathic physicians: holistic primary care and integrative medicine specialists.* Journal of dietary supplements, 2011. **8**(4): p. 369-377.
37. Heudorf, U., A. Carstens, and M. Exner, *Naturopathic practitioners and the public health system. Legal principles as well as experience from naturopathic practitioner candidate tests and hygiene inspections of naturopathic practitioner's practices in the Rhine-Main area in 2004-2007.* Bundesgesundheitsblatt, Gesundheitsforschung, Gesundheitsschutz, 2010. **53**(2): p. 245-257.
38. National Center for Complementary and Integrative Health. *Are You Considering a Complementary Health Approach?* 2016 [cited 2021 30 June]; Available from: https://www.nccih.nih.gov/health/are-you-considering-a-complementary-health-approach.
39. von Ammon, K., et al., *Complementary and alternative medicine provision in Europe–first results approaching reality in an unclear field of practices.* Complementary Medicine Research, 2012. **19**(Suppl. 2): p. 37-43.
40. World Naturopathic Federation, *World Naturopathic Federation Report*. 2015, World Naturopathic Federation: Ontario, Canada.
41. Ooi, S.L., L. McLean, and S.C. Pak, *Naturopathy in Australia: Where are we now? Where are we heading?* Complementary therapies in clinical practice, 2018. **33**: p. 27-35.
42. Myers, S. and V. Vigar, *The State of the Evidence for Whole-System Multi-Modality Naturopathic Medicine: A Systematic Scoping Review.* The Journal of Alternative & Complementary Medicine, 2019. **25**(2).
43. Steel, A., et al., *Generational differences in complementary medicine use in young Australian women: Repeated cross-sectional dataset analysis from the Australian longitudinal study on women's health.* Complementary therapies in medicine, 2019. **43**: p. 66-72.

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AUTHOR CONTRIBUTIONS

AS devised the project, the main conceptual idea and drafted the review protocol. All authors reviewed and edited the protocol prior to registration. Literature searching, removal of duplicates and filtering of citations by title and abstract was undertaken by AM. Full text retrieval and assessment of articles against eligibility criteria was undertaken by AM and AS. Data extraction was completed by JHar. STROBE assessment was completed by CVV, JS and AS. Risk of bias assessment was completed by JG, JHaw and AS. Meta-analysis was completed by JG, KC and HC. The method section of the manuscript was drafted by HC, AS, JS and JHaw. The results were drafted by AS and HC. The discussion was drafted by JHar, JW, JA and BL. The introduction was drafted by RR, ML, and RB. All authors reviewed and edited the full draft of the manuscript prior to submission.

COMPETING INTERESTS

The authors have no competing interests to declare.

FUNDING

This research received no specific grant from any funding agency in the public, commercial or not-for-profit sectors.

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Table 1. Philosophical principles of naturopathy [3]

- First do no harm
- Healing power of nature
- Treat the cause
- Treat the whole person
- Disease prevention and health promotion
- Naturopathic practitioner as teacher

Table 2: Example search terms applied to database searches

1. EXP COMPLEMENTARY THERAPIES/
2.((ALTERNATIVE OR COMPLEMENTARY OR INTEGRATIVE) ADJ (MEDICINE OR THERAPY OR THERAPIES)).TW,KW. 3. NATUROPATHY/
4. NATUROPAT$.AF.
5. HEILPRAKTIKER.AF.
6. 1 OR 2 OR 3 OR 4 OR 5
7. COHORT STUDIES/ OR LONGITUDINAL STUDIES/ OR FOLLOW-UP STUDIES/ OR PROSPECTIVE STUDIES/ OR RETROSPECTIVE STUDIES/ OR COHORT.TI,AB. OR LONGITUDINAL.TI,AB. OR PROSPECTIVE.TI,AB. OR RETROSPECTIVE.TI,AB.
8. CROSS-SECTIONAL STUDIES/ OR PREVALENCE/ OR (CROSS-SECTIONAL OR PREVALENCE OR TRANSVERSAL).TI,AB,KW.
9. (OBSERVATIONAL ADJ (STUDY OR STUDIES)).TW.
10. SURVEY$.TW.
11. 7 OR 8 OR 9 OR 10
12. 6 AND 11

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Figure 1: Flow chart representing article selection method in line with PRISMA protocol

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TABLE 3: SUMMARY INFORMATION OF INCLUDED STUDIES REPORTING PREVALENCE OF USE OF NATUROPATHY IN THE PREVIOUS 12 MONTHS

WHO Region	Country (WHO Region)	Author	Economic status	Design (measure)	Year data collected	Population	Naturopathy descriptor	Setting (e.g. urban, rural)	N	Duration of exposure	Overall use (%)
European	England	Hunt et al (2010)	Nationally representative	National Cohort (survey)	2005	General population	Naturopathy	Both	7630	Previous 12 months	2%*
	Switzerland	Klein et al. (2015)	Nationally representative	National Cohort (survey)	2007, 2012	General population	Naturopathy	Both	*2007*: 14,432 *2012*: 18,357	Previous 12 months	*2007:* n=1185; 7.7% *2012:* n=1597; 7.7%
Eastern Mediterranean	Israel	Shmueli, et al (2010)	Subjective economic status 'very good' or 'good' range from M=0,49 to M=0.58	cross-sectional (survey)	1993, 2000, 2007	General population	Naturopathy	Urban	*1993*: 2003 *2000*: 2505 *2007*: 752	Previous 12 months	*1993:* n=400; 20% *2000:* n=425; 17% *2007:* n=135; 18%
Region of the Americas	Canada	Esmail (2017)	Evenly distributed (<$20 000 - >$79 999)	Cross-sectional (structured telephone interviews)	1997, 2006, 2016	General population	Naturopathy	National	*1997*: 1500 *2006*: 2000 *2016*: 2000	Previous 12 months	*1997: n=45; 3%* *2006: n=80; 4%* *2016: N=100; 5%*
	USA	Su and Li (2011)	Nationally representative	cross-sectional survey (survey)	2002, 2007	General population	Naturopathy	National	*2002*: 30267 *2007*: 20769	Previous 12 months	*2002:* n=76; 0.25% *2007: n=71;* 0.34%
		Clarke et al (2015)	Nationally representative	Cross-sectional (survey)	2012	General population	Naturopathy	National	38280	Previous 12 months	n=153; 0.4%
Western Pacific	Australia	McIntyre et al. (2019)	Manageability on household income; impossible, difficult all/some of time (58.6%), not too bad / easy (41.4%)	National Cross-sectional (survey)	2017	General population	Naturopathy and western herbal medicine	Both Urban: 72.6% Inner regional: 18.7% Outer reg/remote: 8.7%	2019	Previous 12 months	n=126; 6.2%

* Estimated figure based on interpretation of the chart included in the article.

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TABLE 4: SUMMARY INFORMATION OF INCLUDED STUDIES REPORTING PREVALENCE OF USE OF NATUROPATHY OVER OTHER TIME PERIODS

WHO Region	Country (WHO Region)	Author	Economic status	Design (measure)	Year data collected	Population	Naturopathy descriptor	Setting (e.g. urban, rural)	*N*	Duration of exposure	Overall use (%)
Region of the Americas	Canada	Esmail (2017)	Evenly distributed (<$20 000 - >$79 999)	Cross-sectional survey	1997, 2006, 2016	General population	Naturopathy	Both	1500 (1997); 2000 (2006); 2000 (2016)	Ever used	*1997: 6% 2006: 9% 2016: 11%*
South-East Asian	India	Srinivasan and Raji Sugumar (2017)	Diversity of occupation, social group, education, and religion	Cross-sectional (survey)	2011-2012	Households in the general population	Naturopathy and yoga	Both	*Total: 65507 Urban: 26996 Rural: 38511*	*Not specified*	Total: n=6616 (10%) *Urban:* n=3227 (12%) *Rural:* n=2607 (7%)

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TABLE 5: ASSESSMENT OF RISK OF BIAS AND REPORTING QUALITY FOR INCLUDED STUDIES

Criteria	Manuscript							
	Hunt et al (2010)	Klein et al (2015)	Shmueli et al (2010)	Esmail (2017)	Su and Li (2011)	Clarke et al (2015)	McIntyre et al (2019)	Srinivasan and Raji Sugumar (2017)
Risk of Bias								
1 – representativeness of target population	Y	Y	Y	Y	Y	Y	Y	Y
2 – representativeness of sample population	Y	Y	Y	Y	Y	Y	Y	Y
3 – random selection or census	Y	Y	Y	Y	Y	Y	N	Y
4 – non-response bias minimal	Y	Y	N	Y	Y	Y	N	Y
5 – data direct from participants	Y	Y	Y	Y	Y	Y	Y	Y
6 – acceptable case definition	Y	Y	Y	Y	Y	Y	Y	N
7 – reliability and validity of instrument	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
8 – same mode of data for all subjects	Y	Y	Y	Y	Y	Y	Y	Y
9 – appropriate length of shortest prevalence period	Y	Y	Y	Y	Y	Y	Y	N
10 – numerator and denominator appropriate	N	N	N	N	N	N	Y	Y
11 - Summary	Low	Low	Low	Low	Low	Low	Low	Low
Reporting Quality								
Title and abstract								
1a – Title	Y	Y	N	N	N	N	N	Y
1b - Abstract	Y	Y	Y	Y	N	N	Y	N
Introduction								
2 - Background/rationale	Y	Y	Y	Y	Y	Y	Y	Y
3 - Objectives	Y	Y	Y	Y	Y	Y	Y	Y
Methods								
4 - Study design	Y	Y	Y	Y	Y	Y	Y	Y
5 - Setting	Y	Y	Y	Y	Y	Y	Y	Y
6 - Participants	Y	Y	Y	Y	Y	Y	Y	Y
7 - Variables	Y	Y	Y	N	N	Y	Y	N
8 - Data sources/measurement	Y	Y	Y	N	Y	Y	Y	Y
9 - Bias	Y	Y	Y	Y	Y	Y	Y	N
10 - Study size	Y	Y	Y	Y	N	N	Y	Y
11 - Quantitative variables	Y	Y	Y	N	N	Y	Y	N
12a – All statistical methods	Y	Y	N	N	Y	Y	Y	N
12b – Subgroups and interactions	N/A	N/A	N/A	Y	Y	Y	Y	Y
12c – Missing data	N	Y	N	N	N	N	N	N

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12d – Analysis accounting for sampling	N/A	N/A	Y	N	Y	Y	Y	N
12e – Any sensitivity analysis	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Results								
13a – Numbers of participants	Y	Y	Y	Y	N	N	Y	N
13b – Reasons for nonparticipation	N	N	N	N	N	N	N	N
13c – flow diagram	N	N	N	N	N	N	N	N
14a – Characteristics of study participants	Y	Y	N	Y	N	Y	Y	Y
14b – Participants with missing data	N	N	N	N	N	N	N	N
15 - Outcome data	N	Y	Y	Y	Y	Y	Y	Y
16a – Unadjusted and applicable adjusted estimates	Y	Y	Y	Y	Y	Y	Y	Y
16b – Report category boundaries	?	Y	N/A	N	N/A	N/A	Y	N/A
16c –Estimates of absolute risk	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
17 - Other analyses	N/A	N/A	N/A	Y	Y	Y	Y	Y
Discussion								
18 - Key results	Y	Y	Y	Y	Y	Y	Y	N
19 - Limitations	Y	Y	Y	N	N	N	Y	N
20 - Interpretation	Y	Y	Y	N	Y	Y	Y	N
21 - Generalisability	Y	Y	Y	Y	Y	Y	Y	N
Other information								
22 - Funding	Y	Y	Y	Y	N	N	Y	Y

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Figure 2: 12-month prevalence of naturopathy use in different countries.

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Figure 3: 12-month prevalence of naturopathy use in different WHO world regions.

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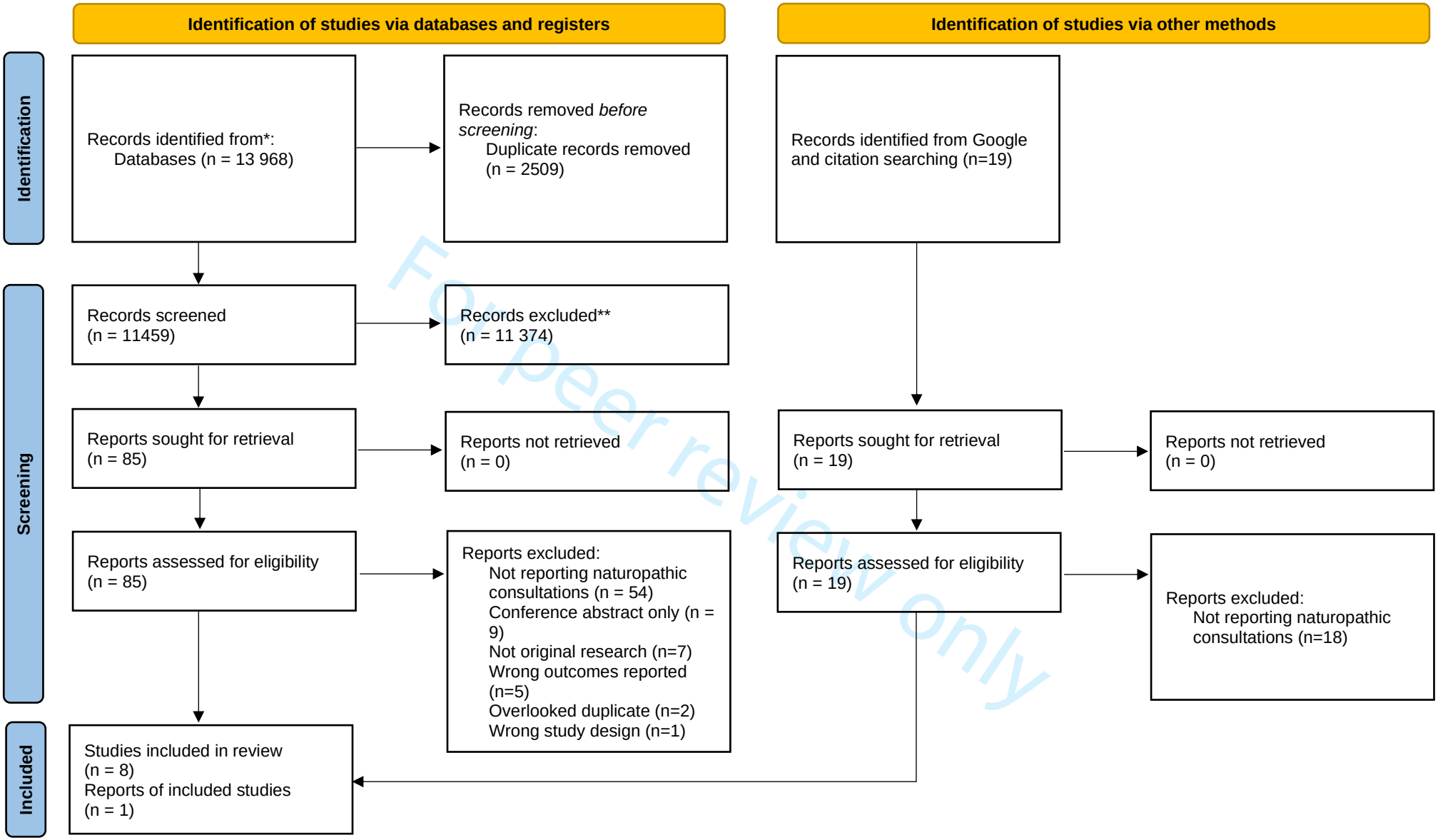

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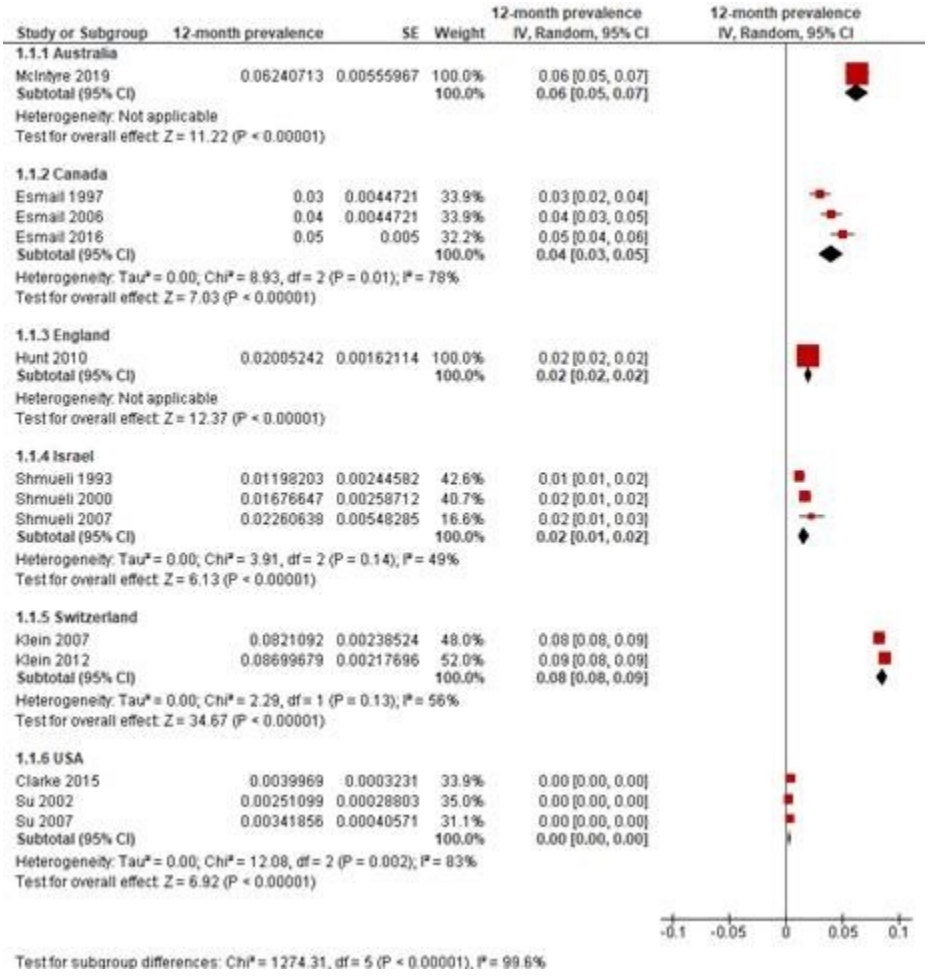

Figure 2: 12-month prevalence of naturopathy use in different countries.

121x127mm (96 x 96 DPI)

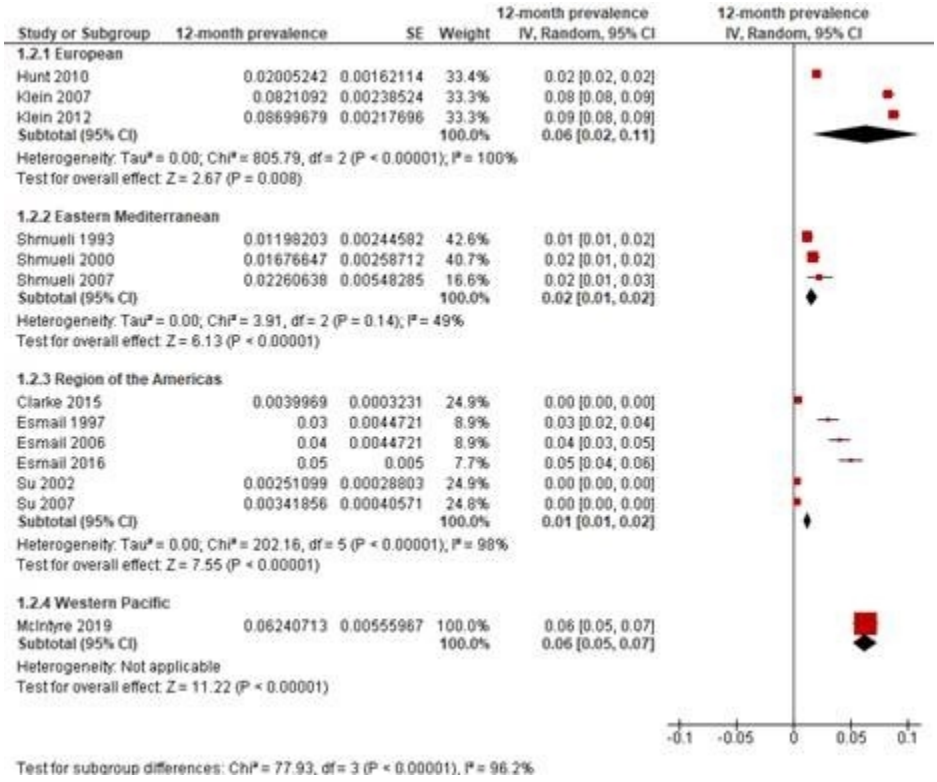

Figure 3: 12-month prevalence of naturopathy use in different WHO world regions.

123x102mm (96 x 96 DPI)

Supplementary File 1: List of Excluded articles and reasons for exclusion

Title	Authors	Published Year	Journal	Volume	Issue	Pages	Notes	Tags
Trends in the use of complementary health approaches among adults: United States, 2002-2012	Clarke, T. C.; Black, L. I.; Stussman, B. J.; Barnes, P. M.; Nahin, R. L.	2015	National health statistics reports		79	Jan-16	Exclusion reason: Does not report naturopathic consultations	
The prevalence and experience of Australian naturopaths and Western herbalists working within community pharmacies		2011	Journal of the Australian Traditional-Medicine Society	17	4	240-240	Exclusion reason: Duplicate	
Why seek complementary medicine? An observational study in homeopathic, acupunctural, naturopathic and mainstream medical practice	Van Dulmen, S.; De Groot, J.; Koster, D.; Heiligers, P. J. M.	2010	Journal of Complementary and Integrative Medicine	7	1	20	Exclusion reason: Does not report naturopathic consultations;	
The Australian Complementary Medicine Workforce: A Profile of 1,306 Practitioners from the PRACI Study	Steel, A.; Leach, M.; Wardle, J.; Sibbritt, D.; Schloss, J.; D. Iezel H; Adams, J.	2018	Journal of Alternative and Complementary Medicine	24	4	385-394	Exclusion reason: Does not report naturopathic consultations;	
Primary Care in Oregon: The Naturopathic Physician's Perspective	Linn, Brooke L.; Metcalf, Gary	2018			10979746	231	Exclusion reason: Not original research;	
Characteristics of the Australian complementary and alternative medicine (CAM) workforce	Leach, Matthew J.; McIntyre, Erica; Frawley, Jane	2014	Australian Journal of Herbal Medicine	26	2	58-65	Exclusion reason: Does not report naturopathic consultations;	
[Which complementary and alternative medicine modalities are integrated within Israeli healthcare organizations and do they match the public's preferences?]	Keshet, Y.; Ben-Arye, E.	2011	Harefuah	150	8	635-689	Exclusion reason: Does not report naturopathic consultations;	
Complementary medical health services: a cross sectional descriptive analysis of a Canadian naturopathic teaching clinic	Kennedy, Deborah A.; Bernhardt, Bob; Snyder, Tara; Bancu, Viviana; Cooley, Kieran	2015	BMC Complementary & Alternative Medicine	15	1	1-Oct	Exclusion reason: Wrong outcomes;	
Characteristics and job satisfaction of general practitioners using complementary and alternative medicine in Germany--is there a pattern?	Joos, Stefanie; Musselmann, Berthold; Szecsenyi, Joachim; Goetz, Katja	2011	BMC Complementary and Alternative Medicine	11		131	Exclusion reason: Wrong outcomes;	
Naturopathic practice at North American academic institutions: Description of 300,483 visits and comparison to conventional primary care	Chamberlin, S. R.; Oberg, E.; Hanes, D. A.; Calabrese, C.	2014	Integrative Medicine Insights		9	Jul-15	Exclusion reason: Wrong outcomes;	
Complementary and alternative medicine among Filipinos: Prevalence, costs and patterns of use	Morfe, J. H. D.; Lim, V. S.	2013	Phillippine Journal of Internal Medicine	51	4		Exclusion reason: Wrong study design;	

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The prevalence and experience of Australian naturopaths and Western herbalists working within community pharmacies	Braun, L. A.; Spitzer, O.; Tiralongo, E.; Wilkinson, J. M.; Bailey, M.; Poole, S.; Dooley, M.	2011	BMC Complementary and Alternative Medicine	11	41	(23 May 2011)	Exclusion reason: Wrong outcomes;
Integration of complementary and alternative medicine into family practices in Germany: Results of a national survey	Joos, S.; Musselmann, B.; Szecsenyi, J.	2011	Evidence-based Complementary and Alternative Medicine	2011		495813	Exclusion reason: Wrong outcomes;
USE OF COMPLEMENTARY AND ALTERNATIVE MEDICINE IN GEORGIA	Nadareishvili, I.; Lunze, K.; Tabagari, N.; Beraia, A.; Pkhakadze, G.	2017	Georgian Medical News		272	157-164	Exclusion reason: Does not report naturopathic consultations;
Complementary and alternative health care in Israel	Shuval, J. T.; Averbuch, E.	2012	Israel Journal of Health Policy Research	1	1	7	Exclusion reason: Does not report naturopathic consultations;
WHO global report on traditional and complementary medicine 2019	World Health Organisation	2019					Exclusion reason: Does not report naturopathic consultations;
TRADITIONAL AND COMPLEMENTARY MEDICINE IN PRIMARY HEALTH CARE	World Health Organisation	2018			WHO/HIS/SDS/2018.37		Exclusion reason: Does not report naturopathic consultations;
The Philippines Health System Review	World Health Organisation	2018	Health Systems in Transition	8	2	352	Exclusion reason: Does not report naturopathic consultations;
SURGICAL WORKFORCE IN INDIA	World Health Organisation	2015					Exclusion reason: Does not report naturopathic consultations;
The prevalence and experience of Australian naturopaths and Western herbalists working within community pharmacies. B		2011	Journal of the Australian Traditional-Medicine Society	17	3	167-168	Exclusion reason: Duplicate;
Use of traditional medicine and complementary and alternative medicine in Taiwan: a multilevel analysis	Yeh, Mei-Ling; Lin, Kuan-Chia; Chen, Hsing-Hsia; Wang, Yu-Jen; Huang, Yu-Chiao	2015	Holistic Nursing Practice	29	2	87-95	Exclusion reason: Does not report naturopathic consultations;
Benchmarks for training in traditional /complementary and alternative medicine: benchmarks for training in naturopathy	World Health Organisation	2010					Exclusion reason: Not original research;
Malaysia health system review	World Health Organisation	2012	Health Systems in Transition	2	ISBN 978 92 9061 584 2	122	Exclusion reason: Not original research;

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New Zealand health system review	World Health Organisation	2014	Health Systems in Transition	4		272	Exclusion reason: Not original research;
The Regional Strategy for Traditional Medicine in the Western Pacific (2011â€“2020)	World Health Organisation	2012			ISBN 978 92 9061 559 0	71	Exclusion reason: Not original research;
WHO traditional medicine strategy: 2014-2023.	World Health Organisation	2013				78	Exclusion reason: Not original research;
Two-Thirds of Survey Respondents in Southern Sweden Used Complementary or Alternative Medicine in 2015	Wemrell, M.; Merlo, J.; Mulinari, S.; Hornborg, A. C.	2017	Complementary medicine research	24	5	302-309	Exclusion reason: Does not report naturopathic consultations;
Determinants for the Use of Complementary and Alternative Medicine: Results from a National Study	Watts, Kristen Allen; Turner, Lori W.	2018			10934635	307	Exclusion reason: Does not report naturopathic consultations;
Distribution of complementary and alternative medicine (CAM) providers in rural New South Wales, Australia: a step towards explaining high CAM use in rural health?	Wardle, Jon; Adams, Jon; Magalhaes, Ricardo J. Soares; Sibbritt, David	2011	The Australian journal of rural health	19	4	197-204	Exclusion reason: Does not report naturopathic consultations;
The interface with naturopathy in rural primary health care: A survey of referral practices of general practitioners in rural and regional New South Wales, Australia	Wardle, J. L.; Sibbritt, D. W.; Adams, J.	2014	BMC Complementary and Alternative Medicine	14		238	Exclusion reason: Does not report naturopathic consultations;
Mapping the natural health landscape: New Zealand-based CAM professionals survey	Vempati, R.; Dunn, J.; Cottingham, P.; Sibbritt, D.; Adams, J.	2012	BMC Complementary and Alternative Medicine	12	SUPPL. 1		Exclusion reason: Conference abstract only;
Use of Complementary and Alternative Medicine in Bayamon, Puerto Rico	Torres-Zeno, R. E.; Rios-Motta, R.; Rodriguez-Sanchez, Y.; Miranda-Massari, J. R.; Marin-Centeno, H.	2016	Puerto Rico Health Sciences Journal	35	2	69-75	Exclusion reason: Does not report naturopathic consultations;
Attitude of Conventional and CAM Physicians Toward CAM in India	Telles, Shirley; Gaur, Vaishali; Sharma, Sachin; Balkrishna, Acharya	2011	Journal of Alternative & Complementary Medicine	17	11	1069-1073	Exclusion reason: Does not report naturopathic consultations;
Wellness versus treatment? Complementary and integrative healthcare (CIH) in the 2007 national health interview survey (NHIS)	Stussman, B.; Alekel, L.; Nahin, R.; Edwards, E.; Barnes, P.	2012	BMC Complementary and Alternative Medicine	12	SUPPL. 1		Exclusion reason: Conference abstract only;
Generational differences in complementary medicine use in young Australian women: Repeated cross-sectional dataset analysis from the Australian longitudinal study on women's health	Steel, A.; Munk, N.; Wardle, J.; Adams, J.; Sibbritt, D.; Lauche, R.	2019	Complementary Therapies in Medicine	43		66-72	Exclusion reason: Does not report naturopathic consultations;
Complementary and alternative medicine: attitudes, knowledge and use among surgeons and anaesthesiologists in Hungary	Soos, Sandor Arpad; Jeszenoi, Norbert; Darvas, Katalin; Harsanyi, Laszlo	2016	BMC Complementary and Alternative Medicine	16	1	443	Exclusion reason: Does not report

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							naturopathic consultations;
Complementary and alternative medicine: contemporary trends and issues	Smith, Joanna M.; John Sullivan, S.; David Baxter, G.	2011	Physical Therapy Reviews	16	2	91-95	Exclusion reason: Not original research;
Use of complementary and alternative medicine in the population of Kedah Darul Aman, Malaysia	Sivadasan, S.; Ali, A. N.; Lin, L. W.; Balakrishnan, D.; Ramachandran, S.; Dhanaraj, S. A.	2014	International Journal of Pharmaceutical Sciences and Research	5	4	1263-1273	Exclusion reason: Does not report naturopathic consultations;
Epidemiology of the use of complementary and alternative medicine in central area of Sao Paulo	Simoes, O.; Castro, B.	2013	European Journal of Epidemiology	28	1 SUPPL. 1	S219	Exclusion reason: Conference abstract only;
[Complementary and alternative medicine services in Colombia]	Rojas-Rojas, Alejandra	2012	Servicios de medicina alternativa en Colombia.	14	3	470-7	Exclusion reason: Does not report naturopathic consultations;
Composition and distribution of the health workforce in India: estimates based on data from the National Sample Survey	Rao, K. D.; Shahrawat, R.; Bhatnagar, A.	2016	WHO South-East Asia journal of public health	5	2	133-140	Exclusion reason: Does not report naturopathic consultations;
Prevalence of Complementary and Alternative Medicine Use in the General Population in the Czech Republic	Pokladnikova, J.; Selke-Krulichova, I.	2016	Forschende Komplementarmedizin (2006)	23	1	22-28	Exclusion reason: Does not report naturopathic consultations;
Regional variation in use of complementary health approaches by U.S. adults	Peregoy, J. A.; Clarke, T. C.; Jones, L. I.; Stussman, B. J.; Nahin, R. L.	2014	NCHS Data Brief		146	1-Aug	Exclusion reason: Does not report naturopathic consultations;
Utilization of traditional and complementary medicine in Indonesia: Results of a national survey in 2014-15	Pengpid, S.; Peltzer, K.	2018	Complementary Therapies in Clinical Practice	33		156-163	Exclusion reason: Does not report naturopathic consultations;
Complementary and alternative medicine (CAM) utilization in Texas hospices	Olotu, B.; Brown, C. M.; Lawson, K.; Barner, J. C.	2012	Value in Health	15	4	A25	Exclusion reason: Conference abstract only;
Complementary and alternative medicine utilization in Texas hospices: Prevalence and challenges	Olotu, B.; Brown, C.; Barner, J.; Lawson, K.	2012	Journal of the American Pharmacists Association	52	2	215-216	Exclusion reason: Conference abstract only;
Experiences and meanings of integration of TCAM (Traditional, Complementary and Alternative Medical) providers in three Indian states: results from a cross-sectional, qualitative implementation research study	Nambiar, D.; Narayan, V. V.; Josyula, L. K.; Porter, J. D. H.; Sathyanarayana, T. N.; Sheikh, K.	2014	BMJ Open	4	11	e005203	Exclusion reason: Does not report naturopathic consultations;
Naturopaths in Ontario, Canada: Geographic patterns in intermediately-sized metropolitan areas and integration implications	Meyer, S. P.	2017	Journal of Complementary and Integrative Medicine	14	1	92	Exclusion reason: Does not report

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							naturopathic consultations;
An investigation into the use of complementary and alternative medicine in an urban general practice	McKenna, F.; Killoury, F.	2010	Irish Medical Journal	103	7		Exclusion reason: Does not report naturopathic consultations;
A survey to explore the views and practices of CAM practitioners in the UK	Majumdar, A.; Williams, S.; Adams, N.	2012	BMC Complementary and Alternative Medicine	12	SUPPL. 1		Exclusion reason: Conference abstract only;
The prevalence of traditional and complementary medicine in the general population in Kashan, Iran, 2014	Lotfi, M. S.; Adib-Hajbaghery, M.; Shahsavarloo, Z. R.; Gandomani, H. S.	2016	European Journal of Integrative Medicine	8	5	661-669	Exclusion reason: Does not report naturopathic consultations;
Examining costs, utilization, and driving factors of complementary and alternative medicine (CAM) services	Lewing, B.; Sansgiry, S. S.	2018	Value in Health	21	Supplement 1	S97	Exclusion reason: Conference abstract only;
Profiling the Australian Consumer of Complementary and Alternative Medicine: A Secondary Analysis of National Health Survey Data	Leach, M. J.	2016	Alternative therapies in health and medicine	22	4	64-72	Exclusion reason: Does not report naturopathic consultations;
Complementary and alternative medicine (CAM) as part of primary health care in Germany-comparison of patients consulting general practitioners and CAM practitioners: A cross-sectional study	Krug, K.; Kraus, K. I.; Herrmann, K.; Joos, S.	2016	BMC Complementary and Alternative Medicine	16	1	409	Exclusion reason: Does not report naturopathic consultations;
Understanding CAM use in Lebanon: Findings from a national survey	Kharroubi, S.; Chehab, R. F.; El-Baba, C.; Alameddine, M.; Naja, F.	2018	Evidence-based Complementary and Alternative Medicine	2018		4169159	Exclusion reason: Does not report naturopathic consultations;
Use of complementary and alternative medicine in Europe: Health-related and sociodemographic determinants	Kemppainen, Laura M.; Kemppainen, Teemu T.; Reippainen, Jutta A.; Salmenniemi, Suvi T.; Vuolanto, Pia H.	2018	Scandinavian Journal of Public Health	46	4	448-455	Exclusion reason: Does not report naturopathic consultations;
Complementary and alternative medicine usage in patients for different ailments in rural region of malwa area of punjab: A cross-sectional study	Kaur, K.; Singh, B.; Kaur, G.	2016	National Journal of Physiology, Pharmacy and Pharmacology	6	5	394-398	Exclusion reason: Does not report naturopathic consultations;
Determinants of patients preferring Complementary and Alternative medicine attending public hospitals in Lahore, Pakistan	Hussain, A.; Ayesha,; Mufti, R. K.; Shahid, M.; Hassan, M. N.; Sultan, T.; Zahid, M. N.; Ali, I.; Iqbal, H.	2018	Journal of the Pakistan Medical Association	68	6	914-918	Exclusion reason: Does not report naturopathic consultations;
State and Regional Comparisons of the Use of Complementary Health Approaches: National Health Interview Survey, 2012	Jones, Lindsey; Peregoy, Jennifer; Stussman, Barbara; Nahin, Richard	2014	Journal of Alternative & Complementary Medicine	20	5	A143-A143	Exclusion reason: Conference abstract only;

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Knowledge, attitude and practice of complementary and alternative medicine: A patient's perspective	Jaiswal, K. M.; Bajait, C. S.; Pimpalkhute, S. A.; Dakhle, G. N.; Sontakke, S. D.; Magdum, A.	2013	Indian Journal of Pharmacology	45	SUPPL. 1	S221	Exclusion reason: Does not report naturopathic consultations;
Use of complementary and alternative medicine within Norwegian hospitals	Jacobsen, R.; FÃ¸nebÃ¸, V. M.; Foss, N.; Kristoffersen, A. E.	2015	BMC Complementary & Alternative Medicine	15	1	1-Jun	Exclusion reason: Does not report naturopathic consultations;
Association between belief and attitude toward preference of complementary alternative medicine use	Islahudin, F.; Shahdan, I. A.; Mohamad-Samuri, S.	2017	Patient Preference and Adherence	11		913-918	Exclusion reason: Does not report naturopathic consultations;
Patients' use of CAM: Results from the Health Survey for England 2005	Hunt, K. J.; Ernst, E.	2010	Focus on Alternative and Complementary Therapies	15	2	101-103	Exclusion reason: Does not report naturopathic consultations;
The utilization of complementary and alternative medicine in Taiwan: An internet survey using an adapted version of the international questionnaire (I-CAM-Q)	Huang, C. W.; Tran, D. N. H.; Li, T. F.; Sasaki, Y.; Lee, J. A.; Lee, M. S.; Arai, I.; Motoo, Y.; Yukawa, K.; Tsutani, K.; Ko, S. G.; Hwang, S. J.; Chen, F. P.	2019	Journal of the Chinese Medical Association	82	8	665-671	Exclusion reason: Does not report naturopathic consultations;
Utilization of complimentary and alternative health services in Iceland	Helgadottir, B.; Vilhjalmsson, R.; Gunnarsdottir, T. J.	2010	Laeknabladid	96	4	267-273	Exclusion reason: Does not report naturopathic consultations;
The use of complementary and alternative medicine in Iceland: Results from a national health survey	Gunnarsdottir, T. J.; Orlygsdottir, B.; Vilhjalmsson, R.	2019	Scandinavian Journal of Public Health			1.40E+15	Exclusion reason: Does not report naturopathic consultations;
The Natural Medicine Workforce in Australia: A National Survey Part 1	Grace, S.; Rogers, S.; Eddey, S.	2013	Journal of the Australian Traditional-Medicine Society	19	1	13-18	Exclusion reason: Does not report naturopathic consultations;
The natural medicine workforce in Australia: A national survey Part 2	Grace, S.; Rogers, S.; Eddey, S.	2013	Journal of the Australian Traditional-Medicine Society	19	2	79-86	Exclusion reason: Does not report naturopathic consultations;
Complementary alternative medicine (CAM) use in Ireland: A secondary analysis of SLAN data	Fox, P.; Coughlan, B.; Butler, M.; Kelleher, C.	2010	Complementary Therapies in Medicine	18	2	95-103	Exclusion reason: Does not report naturopathic consultations;
Who uses complementary and alternative therapies in regional South Australia? Evidence from the Whyalla Intergenerational Study of Health	D'Onise, K.; Haren, M. T.; Misan, G. M. H.; McDermott, R. A.	2013	Australian Health Review	37	1	104-111	Exclusion reason: Does not report naturopathic consultations;

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The characteristics, experiences and perceptions of naturopathic and herbal medicine practitioners: results from a national survey in New Zealand	Cottingham, P.; Adams, J.; Vempati, R.; Dunn, J.; Sibbritt, D.	2015	Journal of the Australian Traditional-Medicine Society	21	2	130-130	Exclusion reason: Does not report naturopathic consultations;
Integration of complementary and alternative medicine into medical schools in Austria, Germany and Switzerland - Results of a cross-sectional study	Brinkhaus, B.; Witt, C. M.; Jena, S.; Bockelbrink, A.; Ortiz, M.; Willich, S. N.	2011	Wiener Medizinische Wochenschrift	161	1-Feb	32-43	Exclusion reason: Does not report naturopathic consultations;
The use of complementary therapies in Chile: Results from the national health survey 2010-2011	Bedregal, P.; Passi, A.; Guerra, X.; Chang, M.	2016	Journal of Alternative and Complementary Medicine	22	6	A103-A104	Exclusion reason: Conference abstract only;
Complementary and Alternative Medicine (CAM) among adults in Italy: Use and related satisfaction	Barbadoro, P.; Chiatti, C.; D'Errico, M. M.; Minelli, A.; Pennacchietti, L.; Ponzio, E.; Prospero, E.	2011	European Journal of Integrative Medicine	3	4	e319-e326	Exclusion reason: Does not report naturopathic consultations;
A preliminary study of complementary and alternative medicine (CAM) practitioners in Singapore	Ang, S. C.; Wilkinson, J. M.	2013	Complementary Therapies in Medicine	21	1	42-49	Exclusion reason: Does not report naturopathic consultations;
Use of complementary and alternative medicine among asthmatic patients in primary care clinics in Malaysia	Alshagga, M. A.; Al-Dubai, S. A.; Muhamad Faiq, S. S.; Yusuf, A. A.	2011	Annals of Thoracic Medicine	6	3	115-119	Exclusion reason: Does not report naturopathic consultations;
Knowledge, attitude and practice toward complementary and traditional medicine among Kashan health care staff, 2012	Adib-Hajbaghery, M.; Hoseinian, M.	2014	Complementary Therapies in Medicine	22	1	126-132	Exclusion reason: Does not report naturopathic consultations;
A survey of complementary and alternative medicine in Iran	Abolhassani, Hassan; Naseri, Mohsen; Mahmoudzadeh, Sanam	2012	Chinese Journal of Integrative Medicine	18	6	409-416	Exclusion reason: Does not report naturopathic consultations;

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Supplementary File 2: List of national surveys from WNF member countries, with reference to inclusion of items examining naturopathy use

Country	Report/survey identified/ located	Inclusion of naturopathy-specific item	Prevalence timeframe	Date last collected	Other dates collected	Item/s	Data accessibility
FULL MEMBERS							
Australia	National Health Survey	Absent		2021			
Belgium	Health Interview Survey https://his.wiv-isp.be/fr/Documents%20partages/Summ_HC_FR_2018.pdf	Absent		2018	Every 2 years from 1997		
Brazil	National Health Survey - PNS Table 3.21 https://www.ibge.gov.br/en/statistics/social/health/16840-national-survey-of-health.html?=&t=downloads	Absent		2019	2013		Appears to be available at link https://www.ibge.gov.br/en/statistics/social/health/16840-national-survey-of-health.html?=&t=downloads
Canada	Canadian Health Measures Survey	Absent		2019	Every 2 years since 2011	-	
Canada	Canadian National Health Survey	Absent	-	2016		-	CNHS: https://www.statcan.gc.ca/eng/surveys?MM=1

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Canada	National Population Health Survey	Present but combined with other health service (homeopathy)	12 month use	2010/11	Every 2 years since 1992	A) People may also use alternative or complementary medicine. In the past 12 months, [have/has] [you/FNAME] seen or talked on the telephone to an alternative health care provider such as an acupuncturist, homeopath or massage therapist about [your/his/her] physical, emotional or mental health? B) Who did you speak to (answer option is "homeopath or naturopath"	https://crdcn.org/datasets/nphs-national-population-health-survey https://crdcn.org/research Application process for academic researchers Researchers wishing to access the RDC should create an account on the Statistics Canada Microdata Access Platform and follow the steps to create a new proposal. The proposal is evaluated by Statistics Canada for feasibility before access can be granted. In addition, if you are a student, your thesis supervisor must write a letter in support of your RDC application and join the application as a co-investigator. For other academic users, a completed peer-review may be required. The review must be conducted by a tenured faculty-member at an accredited Canadian university. Researchers who are required to submit such a peer review can source their own peer reviewer, or contact CRDCN for assistance if they are unable to find a suitable candidate. Access fees for certains users Fees can apply to certain research projects conducted in the RDCs. Consult the Access & Fee-For-Service Policy to learn more.
Chile	National Health Survey	Absent		Unclear - maybe 2016/17	Every 4 years	Appears to exist, but cannot locate a recent copy of the survey or results. An earlier version (2009-10) suggests use of CAM was assessed, but all CAM were grouped together as one variable. https://www.who.int/fctc/reporting/party_reports/chile_annex1_national_health_survey_2010.pdf	Maybe somewhere on this site (might need a Spanish-speaker): https://deis.minsal.cl/#estadisticas
Cyprus	"State of health" survey	Absent		2019			https://ec.europa.eu/health/sites/health/files/state/docs/2019_chp_cyprus_english.pdf https://www.euro.who.int/__data/assets/pdf_file/0007/355975/Health-Profile-Cyprus-Eng.pdf

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Democratic Republic of Congo	DHS Demographic and Health Survey	Absent		2013-2014			https://www.dhsprogram.com/pubs/pdf/FR300/FR300.pdf
Ecuador	Health survey	Absent		2017			https://www.ecuadorencifras.gob.ec/documentos/web-inec/Estadisticas_Sociales/Recursos_Actividades_de_Salud/RAS_2017/Principales_Resultados_%28RAS%29.pdf
Egypt	DHS Demographic and Health survey	Absent		2015	2014, 2008, 2005		https://dhsprogram.com/pubs/pdf/FR313/FR313.pdf
El Salvador	National Family Health Survey	Absent		2008			file:///C:/Users/User/AppData/Local/Temp/Cuestionario_El%20Salvador%202008_Nombre%20de%20variables.pdf
France	National Health and Nutrition Survey	Absent		2006			file:///C:/Users/User/AppData/Local/Temp/26327_7069-rapp-inst-enns-web.pdf
Greece	Hellenic National Nutrition and Health Survey	Absent		2013-2015			
Greece	World Health Survey	Absent		2003			
Greece	Greek National Survey on Health and Nutrition (the HYDRIA Proejct)	Absent		2009-2011			
Hong Kong	Population Health Survey and Health Behaviour Survey	Absent		2018/19 (report not yet released)	2014/15, 2003/04		
India	DHS Demographic and Health survey	Absent		2019-20	2015-16, 2005-06, 1998-99, 1992-93		

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India	NFHS - National Family Health Survey	Present but combined with other health service (yoga)	Generally used when sick (household questionnaire) Men's and women's questionnaires also asks about places to receive family planning, where they take children when sick, and a number of other specific details relating to health care utilisation around family planning.	2019-20	2015-16 2005-06 1998-99 1992-93	Q. When members of your household get sick, where do they generally go for treatment? A. (option) Yoga and Naturopathy [also separates into public and private]	Process is unclear? http://rchiips.org/nfhs/data1.shtml
India	AHS - Annual Health Survey	Absent					
Italy	ISSP - International Social Survey Programme: Health and Health Care	Absent	12 month use	2011		During the past 12 months, how often did you visit or were visited by... an [alternative/traditional /folk]health care practitioner?	https://search.gesis.org/research_data/ZA5800
Italy	Italy National Healthy Survey	**Unknown due to survey availability**					

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Italy	EHIS - European Health Interview Survey	Absent		2019	2015		https://www.istat.it/en/archivio/210553
Japan	The Japan National Health and Nutrition Survey (NHNS)	Absent					
Malaysia	National Health and Morbidity Survey	Absent					https://iptk.moh.gov.my/images/technical_report/2020/FactSheet_BI_AUG2020.pdf
Mexico	National Health Survey (ENSA)	Present (as 'Naturista')	Unclear	2018-19	2016 2012 2006	Q4.8: https://en.www.inegi.org.mx/contenidos/programas/ensanut/2018/doc/ensanut_2018_cuestionario_hogar.pdf	https://en.www.inegi.org.mx/programas/ensanut/2018/
Nepal	DHS Demographic and Health survey	Absent					
Nepal	Noncommunicable Disease Risk Factors: STEPS Survey Nepal 2019	Present but combined with other health services (traditional medicine)	For specific health conditions - Normal source of treatment For smoking cessation - 12 month use	2019		"During the past 12 months, what did you do to try and stop smoking?" "Where do you usually go for treatment or advice for you >condition<?" "Where do you usually get your drugs for >condition<?"	https://www.who.int/docs/default-source/nepal-documents/ncds/ncd-steps-survey-2019-compressed.pdf?sfvrsn=807bc4c6_2
New Zealand	New Zealand Health Survey	Absent					https://www.health.govt.nz/publication/questionnaires-and-content-guide-2019-20-new-zealand-health-survey
Nigeria	DHS Demographic and Health survey	Absent					
Peru	ENCUESTA DEMOGRÁFICA Y DE SALUD FAMILIAR (ENDES)	Absent					http://iinei.inei.gob.pe/microdatos/
Portugal	National Health Survey	Absent		2019	2018 2017 2016 etc. annually		https://www.ine.pt/xportal/xmain?PORTLET_ID=JSP&xpgid=ine_publicacoes&xpid=INE&PORTLET_NAME=ine_cont_header_pub_en&PORTLET_UID=%23JSP%3Aine_cont_header_pub_en%23&PUBLICACOESTema=00&PUBLICACOESdata_inicial=01-07-2014&PUBLICACOESdata_final=13-07-2021&x=14&y=10&PUBLICACOESfreeText=health

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Puerto Rico	Unknown						
Russia	Longitudinal Monitoring Survey of HSE (health service questions in Adult survey)	Absent		2019	1994 onward		https://rlms-hse.cpc.unc.edu/
Russia	Kantar National Health and Wellness Survey	Unknown due to survey availability		2011			https://www.kantar.com/expertise/health/da---real-world-data-pros-claims-and-health-records/national-health-and-wellness-survey-nhws
Saudi Arabia	World Health Survey Saudi Arabia (KSAWHS)	Absent		2019			https://www.moh.gov.sa/en/Ministry/Statistics/Population-Health-Indicators/Documents/World-Health-Survey-Saudi-Arabia.pdf
Saudi Arabia	Saudi Health Interview Survey	Absent		2013			http://www.healthdata.org/sites/default/files/files/Projects/KSA/Saudi-Health-Interview-Survey-Results.pdf
Saudi Arabia	Saudi Health Interview Census	Unknown due to survey availability		2015			
Slovenia	World Health Survey	Absent					
Slovenia	European Health Interview Survey	Absent		2007			https://www.stat.si/doc/pub/IVZ-angl.pdf https://ec.europa.eu/eurostat/web/microdata/european-health-interview-survey
South Africa	South Africa Demographic and Health Survey (DHS)	Absent		2016	2003		https://dhsprogram.com/pubs/pdf/FR337/FR337.pdf
South Africa	South African Health and Nutrition Examination Survey (SANHANES-1)	Absent		2012			file:///C:/Users/User/AppData/Local/Temp/7844.pdf
Spain	National Health Survey	Absent		2017	2011-12 2006 2003		

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Switzerland	Swiss Health Survey	**Present**	12 month use	2017	2012 2007	How often have you been to one of the following specialists in the last 12 months: Naturopath	Available from the Swiss Federal Statistical Office http://www.bfs.admin.ch/bfs/portal/de/index/infothek/erhebungen__quellen/blank/blank/ess/04.html 2012 and 2007 data reported here: https://journals.plos.org/plosone/article?id=10.1371/journal.pone.0141985
United Kingdom - England	Health Survey for England (HSE)	Absent		2019	Annually		https://digital.nhs.uk/data-and-information/publications/statistical/health-survey-for-england/2019
United Kingdom - Scotland	Scottish Health Survey	Absent	By health condition, 12 month use	2020	Annually	Have you received any treatment advice for >insert condition< from any of the people on this card: Other alternative medicine professional	https://beta.ukdataservice.ac.uk/datacatalogue/studies/study?id=8737#!/documentation
United Kingdom - Wales	National Survey for Wales	Absent	By health condition, 12 month use Non-GP primary care, 12 month use	Rolling (monthly interviews)		In the last 12 months, which of these kinds of treatment or management have you had for >insert condition<: Complementary therapies (e.g. acupuncture, massage) In the last 12 months, which of these services have you used for yourself: Osteopath	https://gov.wales/national-survey-wales-questionnaires
United Kingdom - Northern Ireland	Health Survey Northern Ireland	Absent		2019-20	Annually		https://www.data-archive.ac.uk/home

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United Kingdom - Northern Ireland	Northern Ireland Life and Times Survey (I don't think this is actually a government survey - run by Queen's University Belfast and Ulster University)	**Present** - but only in 2005	Use ever	2005	Annually, but CAM only covered in 2005	Have you ever used naturpathy?	https://www.ark.ac.uk/nilt/datasets/ https://www.ark.ac.uk/nilt/2005/Complementary_Medicine/COMTH8.html
Uruguay	Uruguay Continuous Household Survey	Absent		2020	Annually		https://www.ine.gub.uy/encuesta-continua-de-hogares1
USA	National Health Interview Survey - CAM Supplement	**Present**	12 month use	2012	2007 2002		https://www.cdc.gov/nchs/nhis/data-questionnaires-documentation.htm https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4573565/
Zambia	DHS Demographic and Health Survey	Absent		2018-19			https://microdata.worldbank.org/index.php/catalog/3597
ASSOCIATE MEMBERS							
Ireland	SLÁN - Survey of Lifestyle, Attitudes and Nutrition	Absent	Use ever and 12 month use	2007	2002 1998	Have you ever attended an alternative/complementary practitioner? (e.g. acupuncturist, homeopath, reflexologist)	https://www.ucd.ie/issda/data/surveyonlifestyleandattitudestonutritionslan/
Ireland	Healthy Ireland	Absent		2018	2017 2016 2015		https://www.ucd.ie/issda/data/healthyireland/

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Norway	HUNT - The Trondelag Health Study (Norway also has research centre - NAFKAM - which conducts national surveys on CAM, but they don't cover naturopathy in their list of professions https://nafkam.no/en/report-use-complementary-and-alternative-medicine-cam-norway-2018)	Absent	12 month use			HUNT 2 - During the last 12 months, have you visited any of the following: Other treatment provider (naturopath, reflexologist….) HUNT 3, CAM suppl - How many times in the last 12 months have you been to an alternative practitioner? Which type of alternative treatment did you receive and who did you receive the treatment from?: Other type of alternative treatment	https://www.ntnu.edu/hunt/research https://www.ntnu.edu/hunt/data/que
Singapore	National Population Health Survey	Absent		2018-19	2016-17		https://www.moh.gov.sg/docs/librariesprovider5/default-document-library/nphs-2019-survey-report.pdf
Singapore	National Health Surveillance Survey	Absent		2007	2001		https://www.singstat.gov.sg/find-data/search-by-theme/society/health/latest-data
Singapore	Singapore National Health Survey	Absent		2010	2004 1998		https://www.singstat.gov.sg/find-data/search-by-theme/society/health/latest-data
EDUCATIONAL MEMBERS							
Czech Republic	HELEN (Health, Lifestyle and Environment) Study	Absent		2014	Annually since 2003		http://www.szu.cz/publikace/studie-helen?lang=1
Czech Republic	World Health Survey	Absent		2003			https://microdata.worldbank.org/index.php/catalog/1703
Ghana	DHS Demographic and Health Survey	Absent		2017	2014		https://dhsprogram.com/methodology/survey/survey-display-506.cfm

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PRISMA 2020 Checklist

Section and Topic	Item #	Checklist item	Location where item is reported
TITLE			
Title	1	Identify the report as a systematic review.	P1
ABSTRACT			
Abstract	2	See the PRISMA 2020 for Abstracts checklist.	P2 (compliant)
INTRODUCTION			
Rationale	3	Describe the rationale for the review in the context of existing knowledge.	P3
Objectives	4	Provide an explicit statement of the objective(s) or question(s) the review addresses.	P3
METHODS			
Eligibility criteria	5	Specify the inclusion and exclusion criteria for the review and how studies were grouped for the syntheses.	P4
Information sources	6	Specify all databases, registers, websites, organisations, reference lists and other sources searched or consulted to identify studies. Specify the date when each source was last searched or consulted.	P4
Search strategy	7	Present the full search strategies for all databases, registers and websites, including any filters and limits used.	Table 2
Selection process	8	Specify the methods used to decide whether a study met the inclusion criteria of the review, including how many reviewers screened each record and each report retrieved, whether they worked independently, and if applicable, details of automation tools used in the process.	P4
Data collection process	9	Specify the methods used to collect data from reports, including how many reviewers collected data from each report, whether they worked independently, any processes for obtaining or confirming data from study investigators, and if applicable, details of automation tools used in the process.	P4
Data items	10a	List and define all outcomes for which data were sought. Specify whether all results that were compatible with each outcome domain in each study were sought (e.g. for all measures, time points, analyses), and if not, the methods used to decide which results to collect.	P4
	10b	List and define all other variables for which data were sought (e.g. participant and intervention characteristics, funding sources). Describe any assumptions made about any missing or unclear information.	P4
Study risk of bias assessment	11	Specify the methods used to assess risk of bias in the included studies, including details of the tool(s) used, how many reviewers assessed each study and whether they worked independently, and if applicable, details of automation tools used in the process.	P4-5
Effect measures	12	Specify for each outcome the effect measure(s) (e.g. risk ratio, mean difference) used in the synthesis or presentation of results.	P4-5
Synthesis methods	13a	Describe the processes used to decide which studies were eligible for each synthesis (e.g. tabulating the study intervention characteristics and comparing against the planned groups for each synthesis (item #5)).	P4-5
	13b	Describe any methods required to prepare the data for presentation or synthesis, such as handling of missing summary statistics, or data conversions.	P4-5
	13c	Describe any methods used to tabulate or visually display results of individual studies and syntheses.	P4-5
	13d	Describe any methods used to synthesize results and provide a rationale for the choice(s). If meta-analysis was performed, describe the model(s), method(s) to identify the presence and extent of statistical heterogeneity, and software package(s) used.	P4-5
	13e	Describe any methods used to explore possible causes of heterogeneity among study results (e.g. subgroup analysis, meta-regression).	P4-5
	13f	Describe any sensitivity analyses conducted to assess robustness of the synthesized results.	P4-5
Reporting bias assessment	14	Describe any methods used to assess risk of bias due to missing results in a synthesis (arising from reporting biases).	P4
Certainty assessment	15	Describe any methods used to assess certainty (or confidence) in the body of evidence for an outcome.	P4-5

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PRISMA 2020 Checklist

Section and Topic	Item #	Checklist item	Location where item is reported
RESULTS			
Study selection	16a	Describe the results of the search and selection process, from the number of records identified in the search to the number of studies included in the review, ideally using a flow diagram.	P5
	16b	Cite studies that might appear to meet the inclusion criteria, but which were excluded, and explain why they were excluded.	Supplementary File 1
Study characteristics	17	Cite each included study and present its characteristics.	P5-6 & Tables 3&4
Risk of bias in studies	18	Present assessments of risk of bias for each included study.	P6 & Table 5
Results of individual studies	19	For all outcomes, present, for each study: (a) summary statistics for each group (where appropriate) and (b) an effect estimate and its precision (e.g. confidence/credible interval), ideally using structured tables or plots.	Table 3 & 4
Results of syntheses	20a	For each synthesis, briefly summarise the characteristics and risk of bias among contributing studies.	P6-7
	20b	Present results of all statistical syntheses conducted. If meta-analysis was done, present for each the summary estimate and its precision (e.g. confidence/credible interval) and measures of statistical heterogeneity. If comparing groups, describe the direction of the effect.	P6-7
	20c	Present results of all investigations of possible causes of heterogeneity among study results.	P6-7
	20d	Present results of all sensitivity analyses conducted to assess the robustness of the synthesized results.	n/a
Reporting biases	21	Present assessments of risk of bias due to missing results (arising from reporting biases) for each synthesis assessed.	P7
Certainty of evidence	22	Present assessments of certainty (or confidence) in the body of evidence for each outcome assessed.	n/a
DISCUSSION			
Discussion	23a	Provide a general interpretation of the results in the context of other evidence.	P7-9
	23b	Discuss any limitations of the evidence included in the review.	P9
	23c	Discuss any limitations of the review processes used.	P9
	23d	Discuss implications of the results for practice, policy, and future research.	P7-9
OTHER INFORMATION			
Registration and protocol	24a	Provide registration information for the review, including register name and registration number, or state that the review was not registered.	P4
	24b	Indicate where the review protocol can be accessed, or state that a protocol was not prepared.	P4
	24c	Describe and explain any amendments to information provided at registration or in the protocol.	n/a
Support	25	Describe sources of financial or non-financial support for the review, and the role of the funders or sponsors in the review.	n/a
Competing interests	26	Declare any competing interests of review authors.	n/a
Availability of data, code and other materials	27	Report which of the following are publicly available and where they can be found: template data collection forms; data extracted from included studies; data used for all analyses; analytic code; any other materials used in the review.	n/a

From: Page MJ, McKenzie JE, Bossuyt PM, Boutron I, Hoffmann TC, Mulrow CD, et al. The PRISMA 2020 statement: an updated guideline for reporting systematic reviews. BMJ 2021;372:n71. doi: 10.1136/bmj.n71

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International prevalence of consultation with a naturopathic practitioner: a systematic review and meta-analysis

Journal:	*BMJ Open*
Manuscript ID	bmjopen-2021-056075.R1
Article Type:	Original research
Date Submitted by the Author:	04-Apr-2022
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Primary Subject Heading:	Complementary medicine
Secondary Subject Heading:	Health services research
Keywords:	COMPLEMENTARY MEDICINE, PRIMARY CARE, Human resource management < HEALTH SERVICES ADMINISTRATION & MANAGEMENT, EPIDEMIOLOGY

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INTERNATIONAL PREVALENCE OF CONSULTATION WITH A NATUROPATHIC PRACTITIONER: A SYSTEMATIC REVIEW AND META-ANALYSIS

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ABSTRACT (300 words)

Objectives: Naturopathy is a traditional medicine system informed by codified philosophies and principles, and an emphasis on non-pharmacologic therapeutic interventions. While naturopathy is practiced by approximately 75 000 to 100 000 naturopathic practitioners in at least 98 countries, little is known about the international prevalence of history of consultation with a naturopathic practitioner. This study reports a systematic review and meta-analysis of studies describing the global prevalence of history of consultation with a naturopathic practitioner by the general population.

Setting: The included literature was identified through a systematic search of eight databases between September and October 2019, as well as the grey literature.

Participants: Studies were included if they reported the prevalence rate of consultations with a naturopathic practitioner by the general population

Interventions: Survey items needed to report consultations with a naturopathic practitioner as defined in the country where data was collected, and not combine naturopathic consultations with other health services or only report consulations for illness populations.

Primary and secondary outcome measures: Primary measures used for the analysis was consultations in the previous 12-months. Other prevalence timeframes were reported as secondary measures.

Methods: Meta-analysis of prevalence data was conducted using random effects models based on individual countries and World Health Organisation (WHO) world regions.

Results: The literature search identified eight manuscripts summarizing 14 studies reporting prevalence for inclusion in the review. All included studies had a low risk of bias. Meta-analysis of the included studies by world region found the 12-month prevalence of history of naturopathy consultations ranged from 1% in the Region of the Americas to 6% in the European and Western Pacific Regions.

Conclusions: There are up to 6-fold differences in the prevalence of naturopathy consults over 12-months between and within world regions, which may be driven by a range of policy, legislative and social factors.

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STRENGTHS AND LIMITATIONS OF THIS STUDY

- Naturopathy is one of the most commonly used traditional and complementary medicines in the Western world and this is the first systematic review and meta-analysis reporting the prevalence of consutations with a naturopathic practitioner.
- This study only includes data published after 2010 to ensure the results are contemporary, however this may have excluded some studies in countries with older data.
- The included studies were all determined to have a low risk of bias
- The results are limited by the poor availability of data reporting consultations with a naturopathic practitioner, including in countries where a large number of naturopathic practitioners are known to provide care.

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Introduction

Naturopathy is a traditional medicine system underpinned by six philosophical principles (see Table 1), which were codified by the profession in the 20th century [1]. These philosophical principles characterize naturopathic practice and are globally accepted by the profession [2]. Other defining tenets of naturopathic practice are patient-centeredness and individualization, with naturopaths typically drawing upon a range of therapeutic interventions (e.g., diet and lifestyle counselling, herbal medicine, nutritional supplementation, manual therapies, and mind-body practices) to best meet the health care needs and preferences of the patient [3]. Globally, naturopathy is practiced in at least 98 countries with representation in every world region [4]. Naturopathy is practiced widely in Europe (n=54 practicing countries), followed by Latin America (n=51), Africa (n=47), and the Western Pacific (n=37) [4]. Estimates from the World Naturopathic Federation suggest there are between 75,000 and 100,000 naturopaths currently in clinical practice across the world [5].

Training of the naturopathic workforce is currently provided by an estimated 90 education institutions globally, with entry-level qualifications ranging from technical diploma to clinical doctorate [3]. The curriculum of these naturopathic programs typically includes content in health sciences (e.g., anatomy, physiology, chemistry, and biochemistry), clinical sciences (e.g. clinical examination, differential diagnosis), social sciences (e.g. psychology, counselling), and naturopathic sciences (e.g. nutritional medicine, herbal medicine, lifestyle medicine, dietary modification, homeopathy, and manual therapies) [2]. Despite similarities in the content of these training programs, naturopathic scope of practice varies considerably across jurisdictions due to differences in regulation and legislative requirements ranging from voluntary certification, co-regulation, negative licensing, and statutory registration/occupational licensing, as seen in Table 2 [6].

In response to an increase in the use of traditional and complementary medicine (including the utilization of naturopathic health services), the World Health Organisation has developed global strategies to ensure access to safe and effective healthcare, which include promoting the integration of traditional and complementary therapies (including naturopathy) into healthcare systems [7]. Several international research studies suggest the demand for naturopathic services may be attributed to personal healthcare beliefs, dissatisfaction with biomedical care, increased disease severity, and unmet healthcare needs [8-15]. Nevertheless, the global use of naturopathic services is not well understood. Therefore the aim of this study was to describe the prevalance of a history of consultations with naturopathic practitioners globally, including potential differences across world regions.

Methods

Aim

This study aims to describe the global prevalence of a history of consultation with a naturopathic practitioner by the general population.

Study Design

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A systematic review and meta-analysis of prevalence studies were undertaken in accordance with the AMSTAR 2 guidelines [16]. The protocol for this review was submitted to PROSPERO on the 2nd September, 2019 and was registered on the 28th April, 2020 [CRD42020145529].

Inclusion and exclusion criteria

Articles were included that reported original data from cohort studies, cross-sectional studies, survey research, case-control studies, prevalence studies, or epidemiologic studies. Studies reporting on the general population prevalence of consultations with a naturopathic practitioner either in the previous 12 months or over the user's lifetime were considered for inclusion. All relevant papers were included irrespective of language of publication or risk of bias score. Articles were excluded that presented results from specific sub-patient populations (e.g. children, female or male specific, age limitations, illness populations). Studies were also excluded if they only presented the prevalence of consultations with other health professionals that may use treatments commonly associated with naturopathy (e.g. herbal medicine, hydrotherapy, yoga, etc) but were not explicitly named as naturopathic practitioners, or where naturopathic consultation rates were conflated with a cumulative group of health services (such as complementary and alternative medicine [CAM]). To ensure the analysis reflected contemporary patterns of use, studies were excluded if they were published before 2010.

Search Strategy

A systematic electronic search of the following databases was conducted between 6th September and 2nd October 2019: MEDLINE, AMED, EMBASE, CINAHL, Global Health, WHO Iris, PROQUEST dissertations database, and Lilac. The complete search strategy for MEDLINE, using Medical Subject Headings (MeSH) terms where appropriate, is presented in Table 3. A search for grey literature was also performed. The search targeted countries where, according to the WHO Global Report on Traditional and Complementary Medicine (2019) [17], naturopathic practitioners provide care to the community. The search was performed using the Google search engine and the terms *prevalence, use, naturopathy, report,* and the country name.

Article identification and selection

A list of all citations identified through the search were exported from each database by AM and uploaded to Covidence [18] for filtering and selection. Initial screening of title and abstracts against the inclusion/exclusion criteria was conducted by AM. Two members of the authorship team (AM and AS) then independently reviewed the full text of the remaining citations to determine their suitability against the same criteria. Any differences were resolved through discussion between both reviewing authors. The list of bibliographic references and subsequent citations (identified through Google Scholar) of included papers were also checked by AS to identify additional articles otherwise missed through the database search. JHar and JS extracted data from the included papers. AS and JS assessed the papers for quality of reporting against the STROBE checklist [19]; risk of bias was assessed using the tool developed by Hoy et al [20] by JG and JAH. Differences in scoring for both tools were resolved through discussion until consensus was achieved.

Analysis

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The results were grouped for narrative presentation of results in accordance with the World Health Organisation (WHO) world regions [21]. Where studies reported the results of more than one year, these were treated as different studies in the analysis. Articles with unclear numerators or denominators were calculated by the research team where the necessary information was provided or checked against source documents for the same study. Authors were contacted to verify information not able to be determined through these other methods.

Prevalence rates and standard errors were calculated using a standardized Microsoft Excel (version 12.3.5, Microsoft, Redmond, USA) spreadsheet [22]. Review Manager software (version 5.3, Nordic Cochrane Centre, Copenhagen, Denmark) was used to conduct the meta-analysis, using random effects models by the Generic Inverse Variance method. Weighted prevalence rates with 95% confidence intervals (95% CI) were calculated for 12-month prevalence and lifetime prevalence separately. Separate analyses were conducted for a) country of origin and b) WHO world regions.

Heterogeneity between studies was estimated on the basis of the raw proportions, by using the I^2 statistic. Intervals were defined as per published guidance [23, 24]: low heterogeneity (I^2 of 0–24%); moderate heterogeneity (I^2 of 25–49%); substantial heterogeneity (I^2 of 50–74%); relevant heterogeneity (I^2 of 75–100%). In order to assess heterogeneity, χ^2 tests were conducted with $p \leq 0.10$ [24]. We intended to perform sensitivity analyses to compare differences between outcomes on all studies to studies with low risk of bias only (defined as <4 items recorded as 'no' on the Hoy et al tool). However, as all studies were classified as low risk of bias, this was not possible.

Ethics Approval

As this study presents a review and synthesis of published research and does not engage with data collection of human or animal subjects, it is deemed negligible risk and no ethics approval was required.

Results

Search characteristics

The article selection process is presented in Figure 1. The database search identified 13,968 citations including 2,509 duplicates. Of these, 11,374 were excluded through title and abstract screening. The full text of the remaining 85 articles were assessed for eligibility, of which 78 were excluded for the following reasons: not reporting naturopathic consultations (n=54), conference abstract only (n=9), not original research (n=7), wrong outcomes reported (n=5), overlooked duplicate (n=2), and wrong study design (n=1) (full list of excluded studies available in Supplementary File 1). This resulted in seven articles being retained. A search for grey literature using the Google search engine was also performed, and targeted countries where, according to the WHO Global Report on Traditional and Complementary Medicine (2019) [4], naturopaths/naturopathic doctors are providing care to the community. The reference lists and subsequent citations of the remaining articles were checked and when combined with the results of the Google Search, resulted in identification of an additional 19 articles (3

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references and 16 citations), of which one report was found to meet the inclusion criteria for this review. This yielded a total of eight included studies, one of which was published in a report.

Study characteristics

The included studies reporting 12-month prevalence of naturopathy use in a national population were represented across four of the six WHO world regions: European (n=2) [25, 26], Eastern Mediterranean (n=1) [27], Region of the Americas (n=3) [28-30], and the Western Pacific (n=1) [31] (see Table 4). One of the studies from Canada presented the lifetime prevalence of naturopathy use [30], and an additional study from India (South East Asian World region) did not specify the time period during which naturopathy was used [21] (see Table 5).

All included studies sampled the general adult population and reported data from a nationally representative sample or demonstrated a distribution of economic categories, except for one study from Israel whereby the majority of participants' subjective economic status was rated as 'very good' or 'good' [27]. Four studies included prevalence data from more than one time point [26-28, 30], with the earliest data collected in 1993 [27]. Two papers reported data from the same national cohort study, but from different time points [28, 29]. All studies included participants from both urban and rural locations.

Risk of Bias

Critical appraisal of the included studies is presented in Table 6. All studies were determined to have a low risk of bias, except for one study that was suspected of having non-response bias [27]. All but one study [31] had problematic reporting of the numerator and denominator, however, this was able to be addressed by the research team by interrogating the provided data or checking source documents from the primary cohort studies. One study was identified as not having an acceptable case definition [21] as it did not specify the period of time covering naturopathy use (e.g. previous 12 months or users' lifetime).

Assessent of the reporting quality of included studies identified several issues. More than one-half of studies did not clearly identify the study design in the title [21, 27-31]. None of the included studies provided reasons for non-participation or provided information about missing data. Four of the included studies did not acknowledge the limitations of their research. In one case, some of the omissions in reporting may be explained by the nature of the publication (i.e. grey-literature report rather than a peer-reviewed journal article) [30].

Summary of Findings

The 12-month prevalence reported in studies from the European region ranged between 2% in the UK [25] to 7.7% in Switzerland [26]. One study from the Eastern Mediterranean region (i.e. Israel) [27] reported multiple prevalence rates ranging from 20% in 1993 through to 18% in 2007. Three studies from the Region of the Americas reported 12-month prevalence rates of naturopathy use between 3% (in 1997) and 5% (in 2016) in Canada [30], and between 0.25% (in 2002) and 0.4% (in 2015) in the United States [28, 29]. One study from the Western Pacific region (i.e. Australia) reported a 6.2% prevalence rate [31].

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Two studies reported prevalence of naturopathy use over other time periods. One study from the Region of the Americas (Canada) indicated 6% of the general population in 1997, 9% in 2006, and 11% in 2016 used naturopathy at some point in the user's lifetime [30]. A study from the South-East Asian world region indicated 10% of the population had used naturopathy and yoga, but the timeframe of use was not specified [32].

META-ANALYSIS RESULTS

The estimated 12-month prevalence rates of naturopathy use for different countries are shown in Figure 2. Prevalence rates significantly differed between countries ($p<0.001$) and ranged from less than 1% of the population in the USA to 8% in Switzerland. While the primary studies were subject to wide heterogeneity, significant heterogeneity was only found for Canada ($p=0.01$) and the USA ($p<0.001$).

Regarding WHO world regions, 12-month prevalence of naturopathy use ranged from 1% in the Region of the Americas to 6% in European and Western Pacific Regions, again with significant differences between regions ($p<0.001$; Figure 3). Relevant and statistically significant heterogeneity was present in studies involving the European Region ($p<0.001$), and Region of the Americas ($p<0.001$).

Since all studies were classified as having low risk of bias, no sensitivity analyses were conducted. No meta-analysis could be perfomed on studies reporting prevalence of naturopathy use over other time periods due to the paucity and heterogeneity ofstudies reporting this outcome.

DISCUSSION

This review presents the most recent synthesis of evidence of the global prevalence of consultations with naturopaths/naturopathic doctors. The prevalence of naturopathy/naturopathic medicine use was reported in seven countries, across five WHO designated regions of the world. However, it should also be acknowledged that data were only available for a small number of countries in each world region. Intra-region variability limits the overall generalisability of such findings to the relevant region and, as such, aggregate regional results should be interpreted with caution. Of the regions reporting 12-month prevalence rates, the highest was in the Eastern Mediterranean region (Israel), with 18% (2007) to 20% (1993) of the general population seeking the services of a naturopath/naturopathic doctor. The lowest reported 12-month prevalence of naturopathy use was observed in the Americas (USA), with a rate of 0.4% (2012). Lifetime prevalence of use was reported in two countries: Canada (6% in 1997 to 11% in 2016); and India (7% rural, 12% urban in 2011/12). Where more than one timeframe of data was available, there was a relative amount of consistency across time suggesting naturopathy/naturopathic medicine use is temporally stable in these countries.

The wide range in the rates of consultation with a naturopath/naturopathic doctor may reflect differences in the perception and availability of naturopathy in specific countries. For example, while national prevalence of consultations with naturopaths in the USA is relatively low, this may obscure significant heterogeneity within that region. For example, insurance data from Washington state shows prevalence of naturopathic consultation to be four times higher than the national prevalence (1.6% v 0.4%) [33]. Such heterogeneity may be similarly observed in other regions and may be due to several factors. In the USA recognition of the naturopathic

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profession through licensure is not uniformly applied across that nation [33], and distribution of the naturopathic workforce has historically been determined by the proximity to naturopathic educational institutions [34]. Insurance coverage is also known to be a significant driver of naturopathic use [35], and variable insurance coverage arrangements for naturopathy – as observed in the USA [36] – may also result in regional differences. Further attention towards regional variations and heterogeneity, particularly as it relates to specific barriers and facilitators to appropriate utilization of naturopathic services - is warranted.

The wide range in rates of naturopathy use may also reflect differences in scope of practice in each world region. For example, in the USA, naturopathic physicians are considered to bridge conventional medicine and CAM modalities [37], while in Germany, naturopathic practitioners known as “Heilpraktiker” are a distinct category and reportedly have inconsistent training and clinical abilities [38]. As such, the term naturopathy may be differentially classifying practitioners due to professionalization, resulting in an underestimate of use in some countries and overestimate in others. Further consideration of the implications associated with the inconsistent ‘protection’ of professional titles and defined scopes of practice for naturopaths/naturopathic doctors by country is likely to influence the prevalence of use by the public [2].

Prevalence data from some countries may also be impacted by definitional difficulties or confusion around the term ‘naturopathy’. For example, naturopathy is often grouped under a broader nomenclature as one of the many modalities or therapies considered ‘complementary approaches to healthcare’ [39] or "integrative medicine" and thus may not be individually represented in the publications included in our analysis. Multiple practitioner types may also present difficulties for data collection. For example, a review of CAM services in Europe, of the (22,300) practitioners of naturopathy, 15,000 were identified as (mostly German) medical doctors [40]. Thus, patients may not identify obtaining naturopathy as a service per se, but as part of the standard care they receive from a medical doctor who integrates naturopathic principles or modalities into their practice. This may be one reason why three of the largest European countries by naturopathic workforce (Germany, Portugal and Spain [2]) were not represented in this review. Thus, the true prevalence of naturopathic consultations is likely under-reported. Further, an examination of government administered national health surveys of the general population in the countries represented by WNF member organisations, found only Switzerland, Northern Ireland, USA, Mexico and India currently included items that specifically measured consultations with a naturopath/naturopathic doctor (see Supplementary File 2 and Figure 4). While some non-government research has undertaken to measure the prevalence of naturopathy use in additional countries, available data is not available in more than 90% of countries with WNF member organisations, and 95% of all countries reported by the WHO as having a naturopathic profession. To evaluate the potential role of naturopaths in care delivery, it is imperative that naturopathic health services and workforce research data is captured in all countries where there is a significant naturopathic presence.

Furthermore, although naturopathic practice is relatively consistent globally, local, and regional variations in preferred therapies may result in point-of-service differences that may impact prevalence of naturopathic consultations in those countries. For example, in the United Kingdom, historical connections between

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osteopathy and naturopathy may drive naturopathic use for musculoskeletal conditions in that country more than in countries like Australia, where naturopathy and herbalism have had a larger shared history and connection [41]. Some studies in this review explicitly combined queries about naturopathic utilization with other CAM practices – for example, herbalism and naturopathy in the Australian study. Thus, it is important that a reliable validated instrument is developed for collecting more specific data about naturopathic service utilization within and across countries to establish 'true' prevalence of use information.

While prevalence data provides a snapshot of a given populations' use of naturopathy, less is known about the factors associated with that use. For example, factors that have previously been raised as impacting the use of naturopathy/naturopathic medicine, include licensure and regulation, scope of practice, training of new students and therefore number of naturopaths/naturopathic doctors in the workforce, or country specific health systems that influence the support and reimbursements of naturopathic services (e.g. insurance vs out of pocket) [42]. By focusing on general population utilization, this study may also not reflect differences in prevalence of use for different clinical conditions. For example, Australian studies published before 2010 show a self-reported prevalence of naturopathic use among the general population of mid-aged women to be 8.7%, while rates for cancer (15.7%) and depression (22.2%) were significantly higher [9]. Similar variations were seen in insurance data from Washington state in the US, where 7.1% of insured cancer patients made claims for naturopathic treatment, compared to 1.6% of general enrollees [33]. With this in mind, future research should more closely examine the characteristics of users of naturopathy in different countries and world regions both for the general population and within subpopulations.

One of the limitations of prevalence studies in the context of naturopathy, is they fail to capture the breadth of treatments that is unique to naturopathy and they do not capture data associated with the quality of care, role within healthcare systems, nor the efficacy and safety of naturopathic approaches to the management of specific conditions [43]. Thus, research into the quality, safety, efficacy, and cost effectiveness of naturopathy/naturopathic medicine would provide pragmatic understanding about the contribution of naturopathy to healthcare within populations and more broadly across the world. Additionally, although limiting data collection to studies published after 2010 helps to ensure prevalence data most accurately reflects contemporary utilization, such time limits may have excluded some studies in regions that were missing from the review. Additionally, observing changes in prevalence of naturopathic consultations over time may also be able to offer insights into the changing role of naturopathy/naturopathic medicine in relation to health systems changes or generational health needs [44].

CONCLUSION

Although the naturopathic workforce has a significant presence globally, there is limited detailed data on the prevalence of naturopathic consultations. As such, there is a need for a reliable validated instrument to be developed for collecting more specific data about naturopathic service utilization within and across countries. Nevertheless, current evidence reports a 12-month prevalence of naturopathy use ranging from 1% in the Region of the Americas to 6% in European and Western Pacific Regions, though there are significant differences

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between and within world regions. Differences in naturopathic utilization in these regions may be indicative of a range of policy, legislative and social factors impacting the naturopathic profession. Despite these ongoing factors, further research attention is warranted to develop evidence-based responses to the World Health Organisation recommendation that naturopathy and other traditional medicines be integrated, where appropriate, into healthcare systems so that consumers have access to safe and effective multi-disciplinary care.

References

1. Snider, P. and J. Zeff, *Unifying Principles of Naturopathic Medicine Origins and Definitions.* Integrative Medicine: A Clinician's Journal, 2019. **18**(4): p. 36.
2. World Naturopathic Federation Roots Committee, *WNF - Naturopathic Roots Report*. 2016, World Naturopathic Federation,: Toronto, Canada.
3. Dunn, J., et al., *Characteristics of global naturopathic education, regulation, and practice frameworks: results from an international survey.* BMC complementary medicine and therapies, 2021. **21**(1): p. 1-19.
4. World Health Organisation. *WHO Global Report on Traditional and Complementary Medicine 2019*. 2019; Available from: https://bit.ly/3Ev6yPq.
5. World Naturopathic Federation, *2016 Naturopathic Numbers Report*. 2016, World Naturopathic Federation: Canada.
6. Lloyd, I., J. Dunn, and J. Wardle, *Regulation of the Naturopathic Workforce*, in *Naturopathy: Practice, Effectiveness, Economics, Safety*, I. Lloyd, A. Steel, and J. Wardle, Editors. 2021, World Naturopathic Federation: Toronto, Canada. p. 28-57.
7. Smith, M., A. Burton, and T. Falkenberg, *World Health Organization Traditional Medicine Strategy 2014–2023.* New strategy for traditional and complementary medicine includes the development and use of herbal medicinal preparations. HerbalEGram, 2014. **11**(5).
8. Leach, M.J., *Profile of the complementary and alternative medicine workforce across Australia, New Zealand, Canada, United States and United Kingdom.* Complementary therapies in medicine, 2013. **21**(4): p. 364-378.
9. Reid, R., et al., *Complementary medicine use by the Australian population: a critical mixed studies systematic review of utilisation, perceptions and factors associated with use.* BMC Complementary and Alternative Medicine, 2016. **16**(1): p. 176.
10. Leach, M.J., *Determinants of Complementary Medicine Service Utilization in a Regional South Australian Population: A Cross-Sectional Study.* The Journal of Rural Health, 2021. **37**(1): p. 69-80.
11. Bradley, R., et al., *Survey of CAM interest, self-care, and satisfaction with health care for type 2 diabetes at group health cooperative.* BMC complementary and alternative medicine, 2011. **11**(1): p. 121.
12. Foley, H. and A. Steel, *Patient perceptions of clinical care in complementary medicine: A systematic review of the consultation experience.* Patient Educ Couns, 2016. **100**: p. 212-23.
13. Foley, H., A. Steel, and J. Adams, *Perceptions of Person-Centred Care Amongst Individuals with Chronic Conditions who Consult Complementary Medicine Practitioners.* Complementary Therapies in Medicine, 2020: p. 102518.
14. Foley, H., A. Steel, and J. Adams, *Consultation with complementary medicine practitioners by individuals with chronic conditions: Characteristics and reasons for consultation in Australian clinical settings.* Health & social care in the community, 2020.
15. Legenne, M., et al., *Perception of naturopathy for female patients with metastatic gynecological cancer: A qualitative study.* Palliative & supportive care, 2015. **13**(6): p. 1663-1668.
16. Shea, B.J., et al., *AMSTAR 2: a critical appraisal tool for systematic reviews that include randomised or non-randomised studies of healthcare interventions, or both.* bmj, 2017. **358**.
17. World Health Organization, *WHO global report on traditional and complementary medicine 2019*, in *WHO global report on traditional and complementary medicine 2019*. 2019.
18. Veritas Health Innovation, *Covidence systematic review software*. Melbourne, Australia.

For peer review only

19. Knottnerus, A. and P. Tugwell, *STROBE--a checklist to Strengthen the Reporting of Observational Studies in Epidemiology.* Journal of clinical epidemiology, 2008. **61**(4): p. 323.
20. Hoy D, et al. A systematic review of the global prevalence of low back pain. Arthritis & Rheumatism, 2012. **64**(6): p. 2028-37.
21. World Health Organization. WHO Regional Offices Geneva, Switzerland, 2022 [Available from: https://www.who.int/about/who-we-are/regional-offices].
22. Neyeloff, J.L., S.C. Fuchs, and L.B. Moreira, *Meta-analyses and Forest plots using a microsoft excel spreadsheet: step-by-step guide focusing on descriptive data analysis.* BMC research notes, 2012. **5**(1): p. 1-6.
23. Higgins, J.P., et al., *Measuring inconsistency in meta-analyses.* Bmj, 2003. **327**(7414): p. 557-560.
24. Higgins, J.P., et al., *Cochrane handbook for systematic reviews of interventions*. 2019: John Wiley & Sons.
25. Hunt, K.J., et al., *Complementary and alternative medicine use in England: Results from a national survey.* International Journal of Clinical Practice, 2010. **64**(11): p. 1496-1502.
26. Klein, S.D., et al., *Usage of complementary medicine in Switzerland: Results of the Swiss health survey 2012 and development since 2007.* PLoS ONE, 2015. **10**(10): p. no pagination.
27. Shmueli, A., I. Igudin, and J. Shuval, *Change and stability: use of complementary and alternative medicine in Israel: 1993, 2000 and 2007.* European Journal of Public Health, 2011. **21**(2): p. 254-259.
28. Su, D. and L. Li, *Trends in the use of complementary and alternative medicine in the United States: 2002-2007.* Journal of Health Care for the Poor and Underserved, 2011. **22**(1): p. 296-310.
29. Clarke, T.C., et al., *Trends in the use of complementary health approaches among adults: United States, 2002-2012.* National health statistics reports, 2015(79): p. 1-16.
30. Esmail, N., *Complementary and Alternative Medicine*. 2017: Fraser Institute.
31. McIntyre, E., et al., *Consultations with Naturopaths and Western Herbalists: Prevalence of Use and Characteristics of Users in Australia.* The Journal of Alternative Complementary Medicine, 2019. **25**(2).
32. Srinivasan R., Sugumar V.R., Spread of traditional medicines in India: Results of national sample survey organization's perception survey on use of Ayush. Journal of Evidence-based Complementary & Alternative Medicine, 2017. **22**(2): p. 194-204.
33. Lafferty, W.E., et al., *The use of complementary and alternative medical providers by insured cancer patients in Washington State.* Cancer, 2004. **100**(7): p. 1522-30.
34. Fleming, S.A. and N.C. Gutknecht, *Naturopathy and the primary care practice.* Primary Care: Clinics in Office Practice, 2010. **37**(1): p. 119-136.
35. Albert, D.P. and F.B. Butar, *Distribution, concentration, and health care implications of naturopathic physicians in the United States.* Complementary health practice review, 2004. **9**(2): p. 103-117.
36. Whedon, J., et al., *Insurance reimbursement for complementary healthcare services.* The Journal of Alternative and Complementary Medicine, 2017. **23**(4): p. 264-267.
37. Litchy, A.P., *Naturopathic physicians: holistic primary care and integrative medicine specialists.* Journal of dietary supplements, 2011. **8**(4): p. 369-377.
38. Heudorf, U., A. Carstens, and M. Exner, *Naturopathic practitioners and the public health system. Legal principles as well as experience from naturopathic practitioner candidate tests and hygiene inspections of naturopathic practitioner's practices in the Rhine-Main area in 2004-2007.* Bundesgesundheitsblatt, Gesundheitsforschung, Gesundheitsschutz, 2010. **53**(2): p. 245-257.
39. National Center for Complementary and Integrative Health. *Are You Considering a Complementary Health Approach?* 2016 [cited 2021 30 June]; Available from: https://www.nccih.nih.gov/health/are-you-considering-a-complementary-health-approach.
40. von Ammon, K., et al., *Complementary and alternative medicine provision in Europe–first results approaching reality in an unclear field of practices.* Complementary Medicine Research, 2012. **19**(Suppl. 2): p. 37-43.
41. World Naturopathic Federation, *World Naturopathic Federation Report*. 2015, World Naturopathic Federation: Ontario, Canada.
42. Ooi, S.L., L. McLean, and S.C. Pak, *Naturopathy in Australia: Where are we now? Where are we heading?* Complementary therapies in clinical practice, 2018. **33**: p. 27-35.
43. Myers, S. and V. Vigar, *The State of the Evidence for Whole-System Multi-Modality Naturopathic Medicine: A Systematic Scoping Review.* The Journal of Alternative & Complementary Medicine, 2019. **25**(2).

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44. Steel, A., et al., *Generational differences in complementary medicine use in young Australian women: Repeated cross-sectional dataset analysis from the Australian longitudinal study on women's health.* Complementary therapies in medicine, 2019. **43**: p. 66-72.

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AUTHOR CONTRIBUTIONS

AS devised the project, the main conceptual idea and drafted the review protocol. All authors reviewed and edited the protocol prior to registration. Literature searching, removal of duplicates and filtering of citations by title and abstract was undertaken by AM. Full text retrieval and assessment of articles against eligibility criteria was undertaken by AM and AS. Data extraction was completed by JHar. STROBE assessment was completed by CVV, JS and AS. Risk of bias assessment was completed by JG, JHaw and AS. Meta-analysis was completed by JG, KC and HC. The method section of the manuscript was drafted by HC, AS, JS and JHaw. The results were drafted by AS and HC. The discussion was drafted by JHar, JW, JA and BL. The introduction was drafted by RR, ML, and RB. All authors reviewed and edited the full draft of the manuscript prior to submission.

COMPETING INTERESTS

The authors have no competing interests to declare.

FUNDING

This research received no specific grant from any funding agency in the public, commercial or not-for-profit sectors.

PATIENT AND PUBLIC INVOLVEMENT

No patient involved

DATA AVAILABILITY

No additional data available

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Table 1. Philosophical principles of naturopathy [3]

- First do no harm
- Healing power of nature
- Treat the cause
- Treat the whole person
- Disease prevention and health promotion
- Naturopathic practitioner as teacher

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Table 2: Types of occupational regulation that apply to the naturopathy profession, by WHO Region and Member State (ref: Lloyd I, Dunn J, Wardle J. Regulation of the Naturopathic Workforce. In: Lloyd I, Steel A, Wardle J, editors. Naturopathy: Practice, Effectiveness, Economics, Safety. Toronto, Canada: World Naturopathic Federation; 2021. p. 28-57)

WHO Region	Type of occupational regulation				
	No occupational regulation, licensure or registration identified	**Voluntary Certification**	**Co-regulation**	**Negative licensing**	**Statutory registration/ occupational licensing**
African Region	Angola, Kenya, Mauritius Zambia	None identified	None identified	None identified	Botswana, Democratic Republic of the Congo, Ghana, Namibia, Nigeria, South Africa, Swaziland, Tanzania, Uganda, Zimbabwe
Region of the Americas	Antigua and Barbuda, Argentina, Bahamas, Barbados, Belize, Bolivia, British Virgin Islands, Costa Rica, Dominica Republic, El Salvador, Guatemala, Guyana, Haiti, Honduras, Jamaica, Mexico, Nicaragua, Panama, Paraguay, Saint Martin, Trinidad and Tobago, Venezuela, Virgin Islands	Bermuda, Brazil, Canada[1], United States of America[1], Uruguay	Brazil	None identified	Canada, Chile, Colombia, Cuba, Ecuador, Peru, Puerto Rico, Saint Lucia, United States of America
Eastern Mediterranean Region	Bahrain, Egypt, Iran, Kuwait, Morocco, Qatar	None identified	None identified	None identified	Saudi Arabia, United Arab Emirates
European Region	Austria, Bosnia and Herzegovina, Finland, Hungary, Israel, Luxembourg, Russia, Slovakia, Ukraine	Belgium, Czech Republic, Denmark, France, Greece, Ireland, Italy, Norway, Netherlands, Slovenia, Spain, Sweden, United Kingdom	Norway, United Kingdom	None identified	Albania, Cyprus, Germany, Iceland, Liechtenstein, Portugal, Romania, Switzerland
South-East Asia Region	Indonesia, Sri Lanka, Thailand	None identified	None identified	None identified	India, Nepal
Western Pacific Region	Cambodia, China, Fiji, Japan, Philippines, Republic of Korea, Singapore, Vanuatu, Viet Nam	Australia, Hong Kong, New Zealand	Australia	Australia	Cook Islands, Malaysia, Samoa

[1] Voluntary certification regimens are present in some provinces (Canada) and States (USA) when occupational licensing or statutory registration is absent.

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Table 3: Example search terms applied to database searches

1. EXP COMPLEMENTARY THERAPIES/
2.((ALTERNATIVE OR COMPLEMENTARY OR INTEGRATIVE) ADJ (MEDICINE OR THERAPY OR THERAPIES)).TW,KW. 3. NATUROPATHY/
4. NATUROPAT$.AF.
5. HEILPRAKTIKER.AF.
6. 1 OR 2 OR 3 OR 4 OR 5
7. COHORT STUDIES/ OR LONGITUDINAL STUDIES/ OR FOLLOW-UP STUDIES/ OR PROSPECTIVE STUDIES/ OR RETROSPECTIVE STUDIES/ OR COHORT.TI,AB. OR LONGITUDINAL.TI,AB. OR PROSPECTIVE.TI,AB. OR RETROSPECTIVE.TI,AB.
8. CROSS-SECTIONAL STUDIES/ OR PREVALENCE/ OR (CROSS-SECTIONAL OR PREVALENCE OR TRANSVERSAL).TI,AB,KW.
9. (OBSERVATIONAL ADJ (STUDY OR STUDIES)).TW.
10. SURVEY$.TW.
11. 7 OR 8 OR 9 OR 10
12. 6 AND 11

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Figure 1: Flow chart representing article selection method in line with PRISMA protocol

ATTACHED

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TABLE 4: SUMMARY INFORMATION OF INCLUDED STUDIES REPORTING PREVALENCE OF USE OF NATUROPATHY IN THE PREVIOUS 12 MONTHS

WHO Region	Country (WHO Region)	Author	Economic status	Design (measure)	Year data collected	Population	Naturopathy descriptor	Setting (e.g. urban, rural)	N	Duration of exposure	Overall use (%)
European	England	Hunt et al (2010)	Nationally representative	National Cohort (survey)	2005	General population	Naturopathy	Both	7630	Previous 12 months	2%*
	Switzerland	Klein et al. (2015)	Nationally representative	National Cohort (survey)	2007, 2012	General population	Naturopathy	Both	*2007*: 14,432 *2012*: 18,357	Previous 12 months	*2007:* n=1185; 7.7% *2012:* n=1597; 7.7%
Eastern Mediterranean	Israel	Shmueli, et al (2010)	Subjective economic status 'very good' or 'good' range from M=0,49 to M=0.58	cross-sectional (survey)	1993, 2000, 2007	General population	Naturopathy	Urban	*1993*: 2003 *2000*: 2505 *2007*: 752	Previous 12 months	*1993:* n=400; 20% *2000:* n=425; 17% *2007:* n=135; 18%
Region of the Americas	Canada	Esmail (2017)	Evenly distributed (<$20 000 - >$79 999)	Cross-sectional (structured telephone interviews)	1997, 2006, 2016	General population	Naturopathy	National	*1997*: 1500 *2006*: 2000 *2016*: 2000	Previous 12 months	*1997: n=45; 3%* *2006: n=80; 4%* *2016: N=100; 5%*
	USA	Su and Li (2011)	Nationally representative	cross-sectional survey (survey)	2002, 2007	General population	Naturopathy	National	*2002*: 30267 *2007*: 20769	Previous 12 months	*2002:* n=76; 0.25% *2007: n=71;* 0.34%
		Clarke et al (2015)	Nationally representative	Cross-sectional (survey)	2012	General population	Naturopathy	National	38280	Previous 12 months	n=153; 0.4%
Western Pacific	Australia	McIntyre et al. (2019)	Manageability on household income; impossible, difficult all/some of time (58.6%), not too bad / easy (41.4%)	National Cross-sectional (survey)	2017	General population	Naturopathy and western herbal medicine	Both Urban: 72.6% Inner regional: 18.7% Outer reg/remote: 8.7%	2019	Previous 12 months	n=126; 6.2%

* Estimated figure based on interpretation of the chart included in the article.

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TABLE 5: SUMMARY INFORMATION OF INCLUDED STUDIES REPORTING PREVALENCE OF USE OF NATUROPATHY OVER OTHER TIME PERIODS

WHO Region	Country (WHO Region)	Author	Economic status	Design (measure)	Year data collected	Population	Naturopathy descriptor	Setting (e.g. urban, rural)	*N*	Duration of exposure	Overall use (%)
Region of the Americas	Canada	Esmail (2017)	Evenly distributed (<$20 000 - >$79 999)	Cross-sectional survey	1997, 2006, 2016	General population	Naturopathy	Both	1500 (1997); 2000 (2006); 2000 (2016)	Ever used	*1997: 6% 2006: 9% 2016: 11%*
South-East Asian	India	Srinivasan and Raji Sugumar (2017)	Diversity of occupation, social group, education, and religion	Cross-sectional (survey)	2011-2012	Households in the general population	Naturopathy and yoga	Both	*Total: 65507 Urban: 26996 Rural: 38511*	*Not specified*	Total: n=6616 (10%) *Urban:* n=3227 (12%) *Rural:* n=2607 (7%)

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TABLE 6: ASSESSMENT OF RISK OF BIAS AND REPORTING QUALITY FOR INCLUDED STUDIES

Criteria	Manuscript							
	Hunt et al (2010)	Klein et al (2015)	Shmueli et al (2010)	Esmail (2017)	Su and Li (2011)	Clarke et al (2015)	McIntyre et al (2019)	Srinivasan and Raji Sugumar (2017)
Risk of Bias								
1 – representativeness of target population	Y	Y	Y	Y	Y	Y	Y	Y
2 – representativeness of sample population	Y	Y	Y	Y	Y	Y	Y	Y
3 – random selection or census	Y	Y	Y	Y	Y	Y	N	Y
4 – non-response bias minimal	Y	Y	N	Y	Y	Y	N	Y
5 – data direct from participants	Y	Y	Y	Y	Y	Y	Y	Y
6 – acceptable case definition	Y	Y	Y	Y	Y	Y	Y	N
7 – reliability and validity of instrument	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
8 – same mode of data for all subjects	Y	Y	Y	Y	Y	Y	Y	Y
9 – appropriate length of shortest prevalence period	Y	Y	Y	Y	Y	Y	Y	N
10 – numerator and denominator appropriate	N	N	N	N	N	N	Y	Y
11 - Summary	Low	Low	Low	Low	Low	Low	Low	Low
Reporting Quality								
Title and abstract								
1a – Title	Y	Y	N	N	N	N	N	Y
1b - Abstract	Y	Y	Y	Y	N	N	Y	N
Introduction								
2 - Background/rationale	Y	Y	Y	Y	Y	Y	Y	Y
3 - Objectives	Y	Y	Y	Y	Y	Y	Y	Y
Methods								
4 - Study design	Y	Y	Y	Y	Y	Y	Y	Y
5 - Setting	Y	Y	Y	Y	Y	Y	Y	Y
6 - Participants	Y	Y	Y	Y	Y	Y	Y	Y
7 - Variables	Y	Y	Y	N	N	Y	Y	N
8 - Data sources/measurement	Y	Y	Y	N	Y	Y	Y	Y
9 - Bias	Y	Y	Y	Y	Y	Y	Y	N
10 - Study size	Y	Y	Y	Y	N	N	Y	Y
11 - Quantitative variables	Y	Y	Y	N	N	Y	Y	N
12a – All statistical methods	Y	Y	N	N	Y	Y	Y	N
12b – Subgroups and interactions	N/A	N/A	N/A	Y	Y	Y	Y	Y
12c – Missing data	N	Y	N	N	N	N	N	N

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12d – Analysis accounting for sampling	N/A	N/A	Y	N	Y	Y	Y	N
12e – Any sensitivity analysis	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Results								
13a – Numbers of participants	Y	Y	Y	Y	N	N	Y	N
13b – Reasons for nonparticipation	N	N	N	N	N	N	N	N
13c – flow diagram	N	N	N	N	N	N	N	N
14a – Characteristics of study participants	Y	Y	N	Y	N	Y	Y	Y
14b – Participants with missing data	N	N	N	N	N	N	N	N
15 - Outcome data	N	Y	Y	Y	Y	Y	Y	Y
16a – Unadjusted and applicable adjusted estimates	Y	Y	Y	Y	Y	Y	Y	Y
16b – Report category boundaries	?	Y	N/A	N	N/A	N/A	Y	N/A
16c –Estimates of absolute risk	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
17 - Other analyses	N/A	N/A	N/A	Y	Y	Y	Y	Y
Discussion								
18 - Key results	Y	Y	Y	Y	Y	Y	Y	N
19 - Limitations	Y	Y	Y	N	N	N	Y	N
20 - Interpretation	Y	Y	Y	N	Y	Y	Y	N
21 - Generalisability	Y	Y	Y	Y	Y	Y	Y	N
Other information								
22 - Funding	Y	Y	Y	Y	N	N	Y	Y

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Figure 2: 12-month prevalence of naturopathy use in different countries.

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Figure 3: 12-month prevalence of naturopathy use in different WHO world regions.

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Figure 4: **AVAILABILITY OF NATIONAL DATA REPORTING PREVALENCE OF CONSULTATIONS WITH A NATUROPATHIC PRACTITIONER,** by countries with WNF member organisations or institutions

(0 = absent from national survey, 1 = present but aggregated with at least one other health profession, 2 = present as separate health profession; non-member countries are depicted in the lightest colour)

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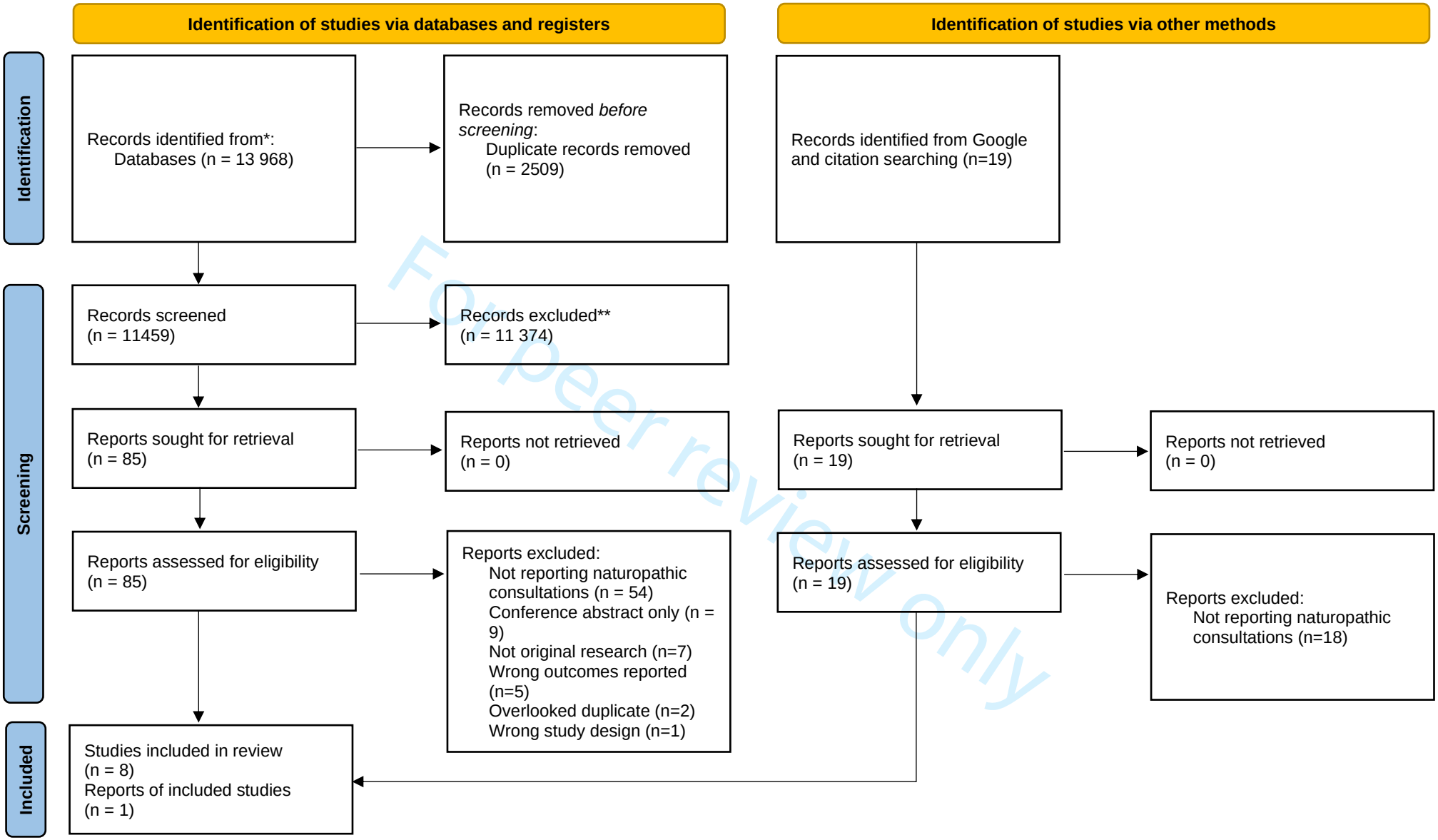

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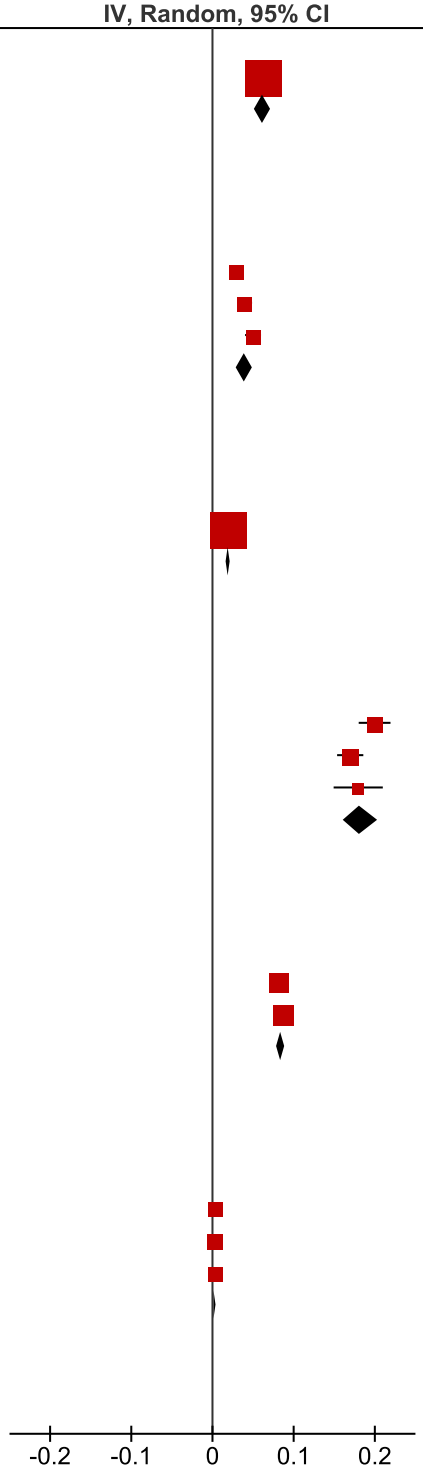
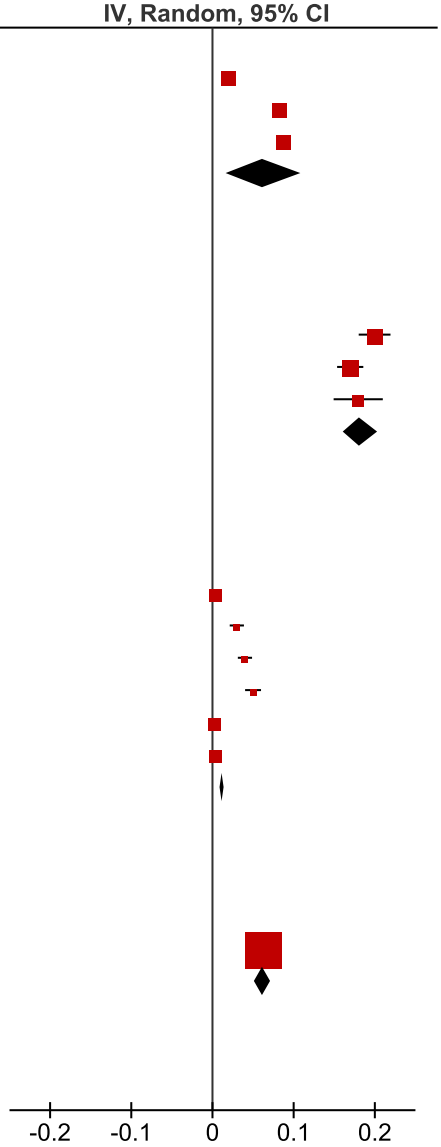
Study or Subgroup	12-month prevalence	SE	Weight	12-month prevalence IV, Random, 95% CI
1.1.1 Australia				
McIntyre 2019	0.06240713	0.00555967	100.0%	0.06 [0.05, 0.07]
Subtotal (95% CI)			**100.0%**	**0.06 [0.05, 0.07]**
Heterogeneity: Not applicable				
Test for overall effect: Z = 11.22 (P < 0.00001)				
1.1.2 Canada				
Esmail 1997	0.03	0.0044721	33.9%	0.03 [0.02, 0.04]
Esmail 2006	0.04	0.0044721	33.9%	0.04 [0.03, 0.05]
Esmail 2016	0.05	0.005	32.2%	0.05 [0.04, 0.06]
Subtotal (95% CI)			**100.0%**	**0.04 [0.03, 0.05]**
Heterogeneity: Tau² = 0.00; Chi² = 8.93, df = 2 (P = 0.01); I² = 78%				
Test for overall effect: Z = 7.03 (P < 0.00001)				
1.1.3 England				
Hunt 2010	0.02005242	0.00162114	100.0%	0.02 [0.02, 0.02]
Subtotal (95% CI)			**100.0%**	**0.02 [0.02, 0.02]**
Heterogeneity: Not applicable				
Test for overall effect: Z = 12.37 (P < 0.00001)				
1.1.4 Israel				
Shmueli 1993	0.1997004	0.009985	35.7%	0.20 [0.18, 0.22]
Shmueli 2000	0.1696607	0.0082298	40.0%	0.17 [0.15, 0.19]
Shmueli 2007	0.1795213	0.0154507	24.3%	0.18 [0.15, 0.21]
Subtotal (95% CI)			**100.0%**	**0.18 [0.16, 0.20]**
Heterogeneity: Tau² = 0.00; Chi² = 5.41, df = 2 (P = 0.07); I² = 63%				
Test for overall effect: Z = 17.79 (P < 0.00001)				
1.1.5 Switzerland				
Klein 2007	0.0821092	0.00238524	48.0%	0.08 [0.08, 0.09]
Klein 2012	0.08699679	0.00217696	52.0%	0.09 [0.08, 0.09]
Subtotal (95% CI)			**100.0%**	**0.08 [0.08, 0.09]**
Heterogeneity: Tau² = 0.00; Chi² = 2.29, df = 1 (P = 0.13); I² = 56%				
Test for overall effect: Z = 34.67 (P < 0.00001)				
1.1.6 USA				
Clarke 2015	0.0039969	0.0003231	33.9%	0.00 [0.00, 0.00]
Su 2002	0.00251099	0.00028803	35.0%	0.00 [0.00, 0.00]
Su 2007	0.00341856	0.00040571	31.1%	0.00 [0.00, 0.00]
Subtotal (95% CI)			**100.0%**	**0.00 [0.00, 0.00]**
Heterogeneity: Tau² = 0.00; Chi² = 12.08, df = 2 (P = 0.002); I² = 83%				
Test for overall effect: Z = 6.92 (P < 0.00001)				

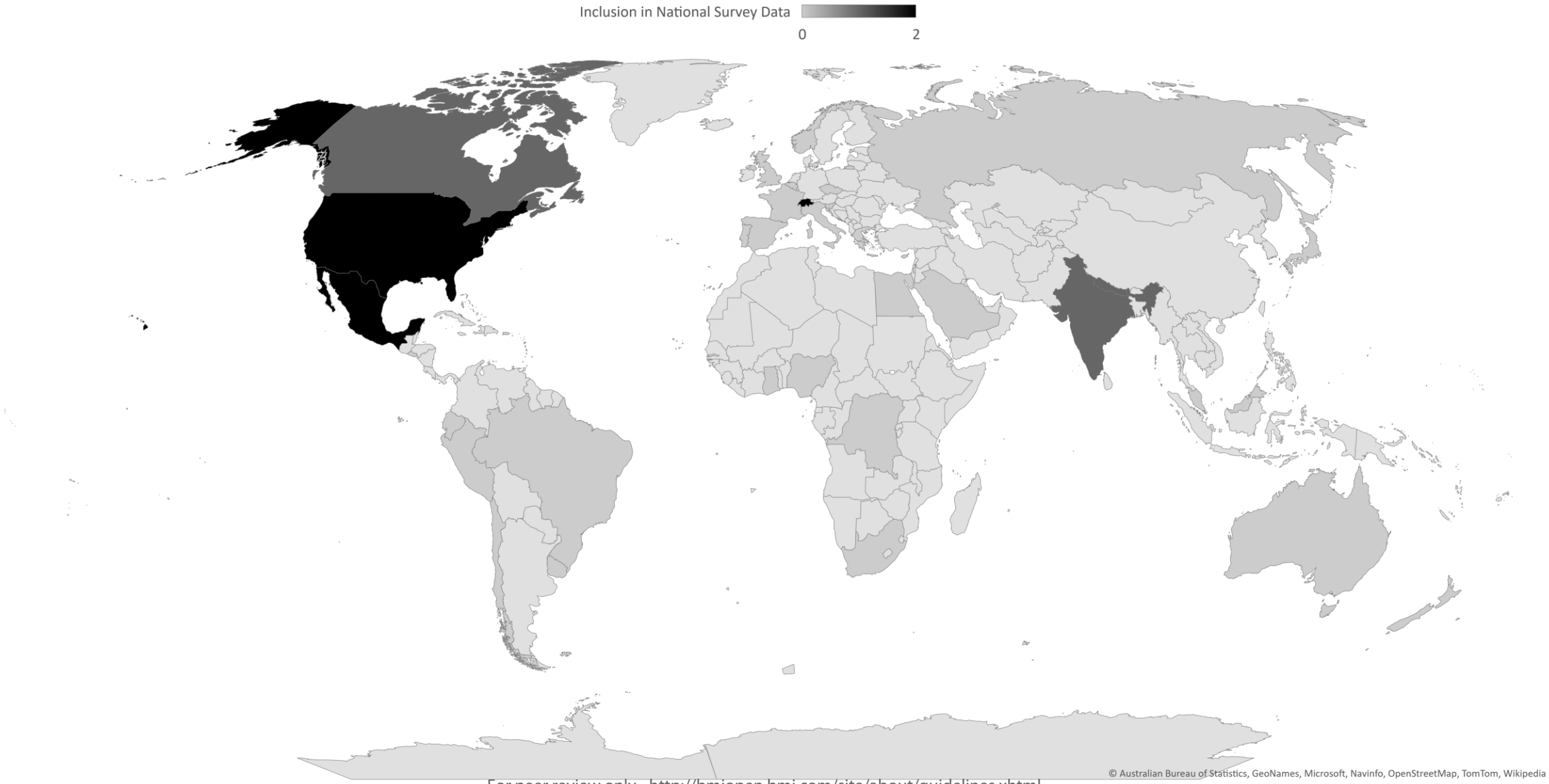


Test for subgroup differences: Chi² = 1554.47, df = 5 (P < 0.00001), I² = 99.7%

Study or Subgroup	12-month prevalence	SE	Weight	12-month prevalence IV, Random, 95% CI
1.2.1 European				
Hunt 2010	0.02005242	0.00162114	33.4%	0.02 [0.02, 0.02]
Klein 2007	0.0821092	0.00238524	33.3%	0.08 [0.08, 0.09]
Klein 2012	0.08699679	0.00217696	33.3%	0.09 [0.08, 0.09]
Subtotal (95% CI)			**100.0%**	**0.06 [0.02, 0.11]**
Heterogeneity: Tau² = 0.00; Chi² = 805.79, df = 2 (P < 0.00001); I² = 100%				
Test for overall effect: Z = 2.67 (P = 0.008)				
1.2.2 Eastern Mediterranean				
Shmueli 1993	0.1997004	0.009985	35.7%	0.20 [0.18, 0.22]
Shmueli 2000	0.1696607	0.0082298	40.0%	0.17 [0.15, 0.19]
Shmueli 2007	0.1795213	0.0154507	24.3%	0.18 [0.15, 0.21]
Subtotal (95% CI)			**100.0%**	**0.18 [0.16, 0.20]**
Heterogeneity: Tau² = 0.00; Chi² = 5.41, df = 2 (P = 0.07); I² = 63%				
Test for overall effect: Z = 17.79 (P < 0.00001)				
1.2.3 Region of the Americas				
Clarke 2015	0.0039969	0.0003231	24.9%	0.00 [0.00, 0.00]
Esmail 1997	0.03	0.0044721	8.9%	0.03 [0.02, 0.04]
Esmail 2006	0.04	0.0044721	8.9%	0.04 [0.03, 0.05]
Esmail 2016	0.05	0.005	7.7%	0.05 [0.04, 0.06]
Su 2002	0.00251099	0.00028803	24.9%	0.00 [0.00, 0.00]
Su 2007	0.00341856	0.00040571	24.8%	0.00 [0.00, 0.00]
Subtotal (95% CI)			**100.0%**	**0.01 [0.01, 0.02]**
Heterogeneity: Tau² = 0.00; Chi² = 202.16, df = 5 (P < 0.00001); I² = 98%				
Test for overall effect: Z = 7.55 (P < 0.00001)				
1.2.4 Western Pacific				
McIntyre 2019	0.06240713	0.00555967	100.0%	0.06 [0.05, 0.07]
Subtotal (95% CI)			**100.0%**	**0.06 [0.05, 0.07]**
Heterogeneity: Not applicable				
Test for overall effect: Z = 11.22 (P < 0.00001)				



Test for subgroup differences: Chi² = 332.68, df = 3 (P < 0.00001), I² = 99.1%



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Supplementary File 1: List of Excluded articles and reasons for exclusion

Title	Authors	Published Year	Journal	Volume	Issue	Pages	Notes	Tags
Trends in the use of complementary health approaches among adults: United States, 2002-2012	Clarke, T. C.; Black, L. I.; Stussman, B. J.; Barnes, P. M.; Nahin, R. L.	2015	National health statistics reports		79	Jan-16	Exclusion reason: Does not report naturopathic consultations	
The prevalence and experience of Australian naturopaths and Western herbalists working within community pharmacies		2011	Journal of the Australian Traditional-Medicine Society	17	4	240-240	Exclusion reason: Duplicate	
Why seek complementary medicine? An observational study in homeopathic, acupunctural, naturopathic and mainstream medical practice	Van Dulmen, S.; De Groot, J.; Koster, D.; Heiligers, P. J. M.	2010	Journal of Complementary and Integrative Medicine	7	1	20	Exclusion reason: Does not report naturopathic consultations;	
The Australian Complementary Medicine Workforce: A Profile of 1,306 Practitioners from the PRACI Study	Steel, A.; Leach, M.; Wardle, J.; Sibbritt, D.; Schloss, J.; D. Iezel H; Adams, J.	2018	Journal of Alternative and Complementary Medicine	24	4	385-394	Exclusion reason: Does not report naturopathic consultations;	
Primary Care in Oregon: The Naturopathic Physician's Perspective	Linn, Brooke L.; Metcalf, Gary	2018			10979746	231	Exclusion reason: Not original research;	
Characteristics of the Australian complementary and alternative medicine (CAM) workforce	Leach, Matthew J.; McIntyre, Erica; Frawley, Jane	2014	Australian Journal of Herbal Medicine	26	2	58-65	Exclusion reason: Does not report naturopathic consultations;	
[Which complementary and alternative medicine modalities are integrated within Israeli healthcare organizations and do they match the public's preferences?]	Keshet, Y.; Ben-Arye, E.	2011	Harefuah	150	8	635-689	Exclusion reason: Does not report naturopathic consultations;	
Complementary medical health services: a cross sectional descriptive analysis of a Canadian naturopathic teaching clinic	Kennedy, Deborah A.; Bernhardt, Bob; Snyder, Tara; Bancu, Viviana; Cooley, Kieran	2015	BMC Complementary & Alternative Medicine	15	1	1-Oct	Exclusion reason: Wrong outcomes;	
Characteristics and job satisfaction of general practitioners using complementary and alternative medicine in Germany--is there a pattern?	Joos, Stefanie; Musselmann, Berthold; Szecsenyi, Joachim; Goetz, Katja	2011	BMC Complementary and Alternative Medicine	11		131	Exclusion reason: Wrong outcomes;	
Naturopathic practice at North American academic institutions: Description of 300,483 visits and comparison to conventional primary care	Chamberlin, S. R.; Oberg, E.; Hanes, D. A.; Calabrese, C.	2014	Integrative Medicine Insights		9	Jul-15	Exclusion reason: Wrong outcomes;	
Complementary and alternative medicine among Filipinos: Prevalence, costs and patterns of use	Morfe, J. H. D.; Lim, V. S.	2013	Phillippine Journal of Internal Medicine	51	4		Exclusion reason: Wrong study design;	

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The prevalence and experience of Australian naturopaths and Western herbalists working within community pharmacies	Braun, L. A.; Spitzer, O.; Tiralongo, E.; Wilkinson, J. M.; Bailey, M.; Poole, S.; Dooley, M.	2011	BMC Complementary and Alternative Medicine	11	41	(23 May 2011)	Exclusion reason: Wrong outcomes;
Integration of complementary and alternative medicine into family practices in Germany: Results of a national survey	Joos, S.; Musselmann, B.; Szecsenyi, J.	2011	Evidence-based Complementary and Alternative Medicine	2011		495813	Exclusion reason: Wrong outcomes;
USE OF COMPLEMENTARY AND ALTERNATIVE MEDICINE IN GEORGIA	Nadareishvili, I.; Lunze, K.; Tabagari, N.; Beraia, A.; Pkhakadze, G.	2017	Georgian Medical News		272	157-164	Exclusion reason: Does not report naturopathic consultations;
Complementary and alternative health care in Israel	Shuval, J. T.; Averbuch, E.	2012	Israel Journal of Health Policy Research	1	1	7	Exclusion reason: Does not report naturopathic consultations;
WHO global report on traditional and complementary medicine 2019	World Health Organisation	2019					Exclusion reason: Does not report naturopathic consultations;
TRADITIONAL AND COMPLEMENTARY MEDICINE IN PRIMARY HEALTH CARE	World Health Organisation	2018			WHO/HIS/SDS/2018.37		Exclusion reason: Does not report naturopathic consultations;
The Philippines Health System Review	World Health Organisation	2018	Health Systems in Transition	8	2	352	Exclusion reason: Does not report naturopathic consultations;
SURGICAL WORKFORCE IN INDIA	World Health Organisation	2015					Exclusion reason: Does not report naturopathic consultations;
The prevalence and experience of Australian naturopaths and Western herbalists working within community pharmacies. B		2011	Journal of the Australian Traditional-Medicine Society	17	3	167-168	Exclusion reason: Duplicate;
Use of traditional medicine and complementary and alternative medicine in Taiwan: a multilevel analysis	Yeh, Mei-Ling; Lin, Kuan-Chia; Chen, Hsing-Hsia; Wang, Yu-Jen; Huang, Yu-Chiao	2015	Holistic Nursing Practice	29	2	87-95	Exclusion reason: Does not report naturopathic consultations;
Benchmarks for training in traditional /complementary and alternative medicine: benchmarks for training in naturopathy	World Health Organisation	2010					Exclusion reason: Not original research;
Malaysia health system review	World Health Organisation	2012	Health Systems in Transition	2	ISBN 978 92 9061 584 2	122	Exclusion reason: Not original research;

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New Zealand health system review	World Health Organisation	2014	Health Systems in Transition	4		272	Exclusion reason: Not original research;
The Regional Strategy for Traditional Medicine in the Western Pacific (2011â€“2020)	World Health Organisation	2012			ISBN 978 92 9061 559 0	71	Exclusion reason: Not original research;
WHO traditional medicine strategy: 2014-2023.	World Health Organisation	2013				78	Exclusion reason: Not original research;
Two-Thirds of Survey Respondents in Southern Sweden Used Complementary or Alternative Medicine in 2015	Wemrell, M.; Merlo, J.; Mulinari, S.; Hornborg, A. C.	2017	Complementary medicine research	24	5	302-309	Exclusion reason: Does not report naturopathic consultations;
Determinants for the Use of Complementary and Alternative Medicine: Results from a National Study	Watts, Kristen Allen; Turner, Lori W.	2018			10934635	307	Exclusion reason: Does not report naturopathic consultations;
Distribution of complementary and alternative medicine (CAM) providers in rural New South Wales, Australia: a step towards explaining high CAM use in rural health?	Wardle, Jon; Adams, Jon; Magalhaes, Ricardo J. Soares; Sibbritt, David	2011	The Australian journal of rural health	19	4	197-204	Exclusion reason: Does not report naturopathic consultations;
The interface with naturopathy in rural primary health care: A survey of referral practices of general practitioners in rural and regional New South Wales, Australia	Wardle, J. L.; Sibbritt, D. W.; Adams, J.	2014	BMC Complementary and Alternative Medicine	14		238	Exclusion reason: Does not report naturopathic consultations;
Mapping the natural health landscape: New Zealand-based CAM professionals survey	Vempati, R.; Dunn, J.; Cottingham, P.; Sibbritt, D.; Adams, J.	2012	BMC Complementary and Alternative Medicine	12	SUPPL. 1		Exclusion reason: Conference abstract only;
Use of Complementary and Alternative Medicine in Bayamon, Puerto Rico	Torres-Zeno, R. E.; Rios-Motta, R.; Rodriguez-Sanchez, Y.; Miranda-Massari, J. R.; Marin-Centeno, H.	2016	Puerto Rico Health Sciences Journal	35	2	69-75	Exclusion reason: Does not report naturopathic consultations;
Attitude of Conventional and CAM Physicians Toward CAM in India	Telles, Shirley; Gaur, Vaishali; Sharma, Sachin; Balkrishna, Acharya	2011	Journal of Alternative & Complementary Medicine	17	11	1069-1073	Exclusion reason: Does not report naturopathic consultations;
Wellness versus treatment? Complementary and integrative healthcare (CIH) in the 2007 national health interview survey (NHIS)	Stussman, B.; Alekel, L.; Nahin, R.; Edwards, E.; Barnes, P.	2012	BMC Complementary and Alternative Medicine	12	SUPPL. 1		Exclusion reason: Conference abstract only;
Generational differences in complementary medicine use in young Australian women: Repeated cross-sectional dataset analysis from the Australian longitudinal study on women's health	Steel, A.; Munk, N.; Wardle, J.; Adams, J.; Sibbritt, D.; Lauche, R.	2019	Complementary Therapies in Medicine	43		66-72	Exclusion reason: Does not report naturopathic consultations;
Complementary and alternative medicine: attitudes, knowledge and use among surgeons and anaesthesiologists in Hungary	Soos, Sandor Arpad; Jeszenoi, Norbert; Darvas, Katalin; Harsanyi, Laszlo	2016	BMC Complementary and Alternative Medicine	16	1	443	Exclusion reason: Does not report

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							naturopathic consultations;
Complementary and alternative medicine: contemporary trends and issues	Smith, Joanna M.; John Sullivan, S.; David Baxter, G.	2011	Physical Therapy Reviews	16	2	91-95	Exclusion reason: Not original research;
Use of complementary and alternative medicine in the population of Kedah Darul Aman, Malaysia	Sivadasan, S.; Ali, A. N.; Lin, L. W.; Balakrishnan, D.; Ramachandran, S.; Dhanaraj, S. A.	2014	International Journal of Pharmaceutical Sciences and Research	5	4	1263-1273	Exclusion reason: Does not report naturopathic consultations;
Epidemiology of the use of complementary and alternative medicine in central area of Sao Paulo	Simoes, O.; Castro, B.	2013	European Journal of Epidemiology	28	1 SUPPL. 1	S219	Exclusion reason: Conference abstract only;
[Complementary and alternative medicine services in Colombia]	Rojas-Rojas, Alejandra	2012	Servicios de medicina alternativa en Colombia.	14	3	470-7	Exclusion reason: Does not report naturopathic consultations;
Composition and distribution of the health workforce in India: estimates based on data from the National Sample Survey	Rao, K. D.; Shahrawat, R.; Bhatnagar, A.	2016	WHO South-East Asia journal of public health	5	2	133-140	Exclusion reason: Does not report naturopathic consultations;
Prevalence of Complementary and Alternative Medicine Use in the General Population in the Czech Republic	Pokladnikova, J.; Selke-Krulichova, I.	2016	Forschende Komplementarmedizin (2006)	23	1	22-28	Exclusion reason: Does not report naturopathic consultations;
Regional variation in use of complementary health approaches by U.S. adults	Peregoy, J. A.; Clarke, T. C.; Jones, L. I.; Stussman, B. J.; Nahin, R. L.	2014	NCHS Data Brief		146	1-Aug	Exclusion reason: Does not report naturopathic consultations;
Utilization of traditional and complementary medicine in Indonesia: Results of a national survey in 2014-15	Pengpid, S.; Peltzer, K.	2018	Complementary Therapies in Clinical Practice	33		156-163	Exclusion reason: Does not report naturopathic consultations;
Complementary and alternative medicine (CAM) utilization in Texas hospices	Olotu, B.; Brown, C. M.; Lawson, K.; Barner, J. C.	2012	Value in Health	15	4	A25	Exclusion reason: Conference abstract only;
Complementary and alternative medicine utilization in Texas hospices: Prevalence and challenges	Olotu, B.; Brown, C.; Barner, J.; Lawson, K.	2012	Journal of the American Pharmacists Association	52	2	215-216	Exclusion reason: Conference abstract only;
Experiences and meanings of integration of TCAM (Traditional, Complementary and Alternative Medical) providers in three Indian states: results from a cross-sectional, qualitative implementation research study	Nambiar, D.; Narayan, V. V.; Josyula, L. K.; Porter, J. D. H.; Sathyanarayana, T. N.; Sheikh, K.	2014	BMJ Open	4	11	e005203	Exclusion reason: Does not report naturopathic consultations;
Naturopaths in Ontario, Canada: Geographic patterns in intermediately-sized metropolitan areas and integration implications	Meyer, S. P.	2017	Journal of Complementary and Integrative Medicine	14	1	92	Exclusion reason: Does not report

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							naturopathic consultations;
An investigation into the use of complementary and alternative medicine in an urban general practice	McKenna, F.; Killoury, F.	2010	Irish Medical Journal	103	7		Exclusion reason: Does not report naturopathic consultations;
A survey to explore the views and practices of CAM practitioners in the UK	Majumdar, A.; Williams, S.; Adams, N.	2012	BMC Complementary and Alternative Medicine	12	SUPPL. 1		Exclusion reason: Conference abstract only;
The prevalence of traditional and complementary medicine in the general population in Kashan, Iran, 2014	Lotfi, M. S.; Adib-Hajbaghery, M.; Shahsavarloo, Z. R.; Gandomani, H. S.	2016	European Journal of Integrative Medicine	8	5	661-669	Exclusion reason: Does not report naturopathic consultations;
Examining costs, utilization, and driving factors of complementary and alternative medicine (CAM) services	Lewing, B.; Sansgiry, S. S.	2018	Value in Health	21	Supplement 1	S97	Exclusion reason: Conference abstract only;
Profiling the Australian Consumer of Complementary and Alternative Medicine: A Secondary Analysis of National Health Survey Data	Leach, M. J.	2016	Alternative therapies in health and medicine	22	4	64-72	Exclusion reason: Does not report naturopathic consultations;
Complementary and alternative medicine (CAM) as part of primary health care in Germany-comparison of patients consulting general practitioners and CAM practitioners: A cross-sectional study	Krug, K.; Kraus, K. I.; Herrmann, K.; Joos, S.	2016	BMC Complementary and Alternative Medicine	16	1	409	Exclusion reason: Does not report naturopathic consultations;
Understanding CAM use in Lebanon: Findings from a national survey	Kharroubi, S.; Chehab, R. F.; El-Baba, C.; Alameddine, M.; Naja, F.	2018	Evidence-based Complementary and Alternative Medicine	2018		4169159	Exclusion reason: Does not report naturopathic consultations;
Use of complementary and alternative medicine in Europe: Health-related and sociodemographic determinants	Kemppainen, Laura M.; Kemppainen, Teemu T.; Reippainen, Jutta A.; Salmenniemi, Suvi T.; Vuolanto, Pia H.	2018	Scandinavian Journal of Public Health	46	4	448-455	Exclusion reason: Does not report naturopathic consultations;
Complementary and alternative medicine usage in patients for different ailments in rural region of malwa area of punjab: A cross-sectional study	Kaur, K.; Singh, B.; Kaur, G.	2016	National Journal of Physiology, Pharmacy and Pharmacology	6	5	394-398	Exclusion reason: Does not report naturopathic consultations;
Determinants of patients preferring Complementary and Alternative medicine attending public hospitals in Lahore, Pakistan	Hussain, A.; Ayesha,; Mufti, R. K.; Shahid, M.; Hassan, M. N.; Sultan, T.; Zahid, M. N.; Ali, I.; Iqbal, H.	2018	Journal of the Pakistan Medical Association	68	6	914-918	Exclusion reason: Does not report naturopathic consultations;
State and Regional Comparisons of the Use of Complementary Health Approaches: National Health Interview Survey, 2012	Jones, Lindsey; Peregoy, Jennifer; Stussman, Barbara; Nahin, Richard	2014	Journal of Alternative & Complementary Medicine	20	5	A143-A143	Exclusion reason: Conference abstract only;

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Knowledge, attitude and practice of complementary and alternative medicine: A patient's perspective	Jaiswal, K. M.; Bajait, C. S.; Pimpalkhute, S. A.; Dakhle, G. N.; Sontakke, S. D.; Magdum, A.	2013	Indian Journal of Pharmacology	45	SUPPL. 1	S221	Exclusion reason: Does not report naturopathic consultations;
Use of complementary and alternative medicine within Norwegian hospitals	Jacobsen, R.; FÃ¸nebÃ¸, V. M.; Foss, N.; Kristoffersen, A. E.	2015	BMC Complementary & Alternative Medicine	15	1	1-Jun	Exclusion reason: Does not report naturopathic consultations;
Association between belief and attitude toward preference of complementary alternative medicine use	Islahudin, F.; Shahdan, I. A.; Mohamad-Samuri, S.	2017	Patient Preference and Adherence	11		913-918	Exclusion reason: Does not report naturopathic consultations;
Patients' use of CAM: Results from the Health Survey for England 2005	Hunt, K. J.; Ernst, E.	2010	Focus on Alternative and Complementary Therapies	15	2	101-103	Exclusion reason: Does not report naturopathic consultations;
The utilization of complementary and alternative medicine in Taiwan: An internet survey using an adapted version of the international questionnaire (I-CAM-Q)	Huang, C. W.; Tran, D. N. H.; Li, T. F.; Sasaki, Y.; Lee, J. A.; Lee, M. S.; Arai, I.; Motoo, Y.; Yukawa, K.; Tsutani, K.; Ko, S. G.; Hwang, S. J.; Chen, F. P.	2019	Journal of the Chinese Medical Association	82	8	665-671	Exclusion reason: Does not report naturopathic consultations;
Utilization of complimentary and alternative health services in Iceland	Helgadottir, B.; Vilhjalmsson, R.; Gunnarsdottir, T. J.	2010	Laeknabladid	96	4	267-273	Exclusion reason: Does not report naturopathic consultations;
The use of complementary and alternative medicine in Iceland: Results from a national health survey	Gunnarsdottir, T. J.; Orlygsdottir, B.; Vilhjalmsson, R.	2019	Scandinavian Journal of Public Health			1.40E+15	Exclusion reason: Does not report naturopathic consultations;
The Natural Medicine Workforce in Australia: A National Survey Part 1	Grace, S.; Rogers, S.; Eddey, S.	2013	Journal of the Australian Traditional-Medicine Society	19	1	13-18	Exclusion reason: Does not report naturopathic consultations;
The natural medicine workforce in Australia: A national survey Part 2	Grace, S.; Rogers, S.; Eddey, S.	2013	Journal of the Australian Traditional-Medicine Society	19	2	79-86	Exclusion reason: Does not report naturopathic consultations;
Complementary alternative medicine (CAM) use in Ireland: A secondary analysis of SLAN data	Fox, P.; Coughlan, B.; Butler, M.; Kelleher, C.	2010	Complementary Therapies in Medicine	18	2	95-103	Exclusion reason: Does not report naturopathic consultations;
Who uses complementary and alternative therapies in regional South Australia? Evidence from the Whyalla Intergenerational Study of Health	D'Onise, K.; Haren, M. T.; Misan, G. M. H.; McDermott, R. A.	2013	Australian Health Review	37	1	104-111	Exclusion reason: Does not report naturopathic consultations;

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The characteristics, experiences and perceptions of naturopathic and herbal medicine practitioners: results from a national survey in New Zealand	Cottingham, P.; Adams, J.; Vempati, R.; Dunn, J.; Sibbritt, D.	2015	Journal of the Australian Traditional-Medicine Society	21	2	130-130	Exclusion reason: Does not report naturopathic consultations;
Integration of complementary and alternative medicine into medical schools in Austria, Germany and Switzerland - Results of a cross-sectional study	Brinkhaus, B.; Witt, C. M.; Jena, S.; Bockelbrink, A.; Ortiz, M.; Willich, S. N.	2011	Wiener Medizinische Wochenschrift	161	1-Feb	32-43	Exclusion reason: Does not report naturopathic consultations;
The use of complementary therapies in Chile: Results from the national health survey 2010-2011	Bedregal, P.; Passi, A.; Guerra, X.; Chang, M.	2016	Journal of Alternative and Complementary Medicine	22	6	A103-A104	Exclusion reason: Conference abstract only;
Complementary and Alternative Medicine (CAM) among adults in Italy: Use and related satisfaction	Barbadoro, P.; Chiatti, C.; D'Errico, M. M.; Minelli, A.; Pennacchietti, L.; Ponzio, E.; Prospero, E.	2011	European Journal of Integrative Medicine	3	4	e319-e326	Exclusion reason: Does not report naturopathic consultations;
A preliminary study of complementary and alternative medicine (CAM) practitioners in Singapore	Ang, S. C.; Wilkinson, J. M.	2013	Complementary Therapies in Medicine	21	1	42-49	Exclusion reason: Does not report naturopathic consultations;
Use of complementary and alternative medicine among asthmatic patients in primary care clinics in Malaysia	Alshagga, M. A.; Al-Dubai, S. A.; Muhamad Faiq, S. S.; Yusuf, A. A.	2011	Annals of Thoracic Medicine	6	3	115-119	Exclusion reason: Does not report naturopathic consultations;
Knowledge, attitude and practice toward complementary and traditional medicine among Kashan health care staff, 2012	Adib-Hajbaghery, M.; Hoseinian, M.	2014	Complementary Therapies in Medicine	22	1	126-132	Exclusion reason: Does not report naturopathic consultations;
A survey of complementary and alternative medicine in Iran	Abolhassani, Hassan; Naseri, Mohsen; Mahmoudzadeh, Sanam	2012	Chinese Journal of Integrative Medicine	18	6	409-416	Exclusion reason: Does not report naturopathic consultations;

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Supplementary File 2: List of national surveys from WNF member countries, with reference to inclusion of items examining naturopathy use

Country	Report/survey identified/ located	Inclusion of naturopathy-specific item	Prevalence timeframe	Date last collected	Other dates collected	Item/s	Data accessibility
FULL MEMBERS							
Australia	National Health Survey	Absent		2021			
Belgium	Health Interview Survey https://his.wiv-isp.be/fr/Documents%20partages/Summ_HC_FR_2018.pdf	Absent		2018	Every 2 years from 1997		
Brazil	National Health Survey - PNS Table 3.21 https://www.ibge.gov.br/en/statistics/social/health/16840-national-survey-of-health.html?=&t=downloads	Absent		2019	2013		Appears to be available at link https://www.ibge.gov.br/en/statistics/social/health/16840-national-survey-of-health.html?=&t=downloads
Canada	Canadian Health Measures Survey	Absent		2019	Every 2 years since 2011	-	
Canada	Canadian National Health Survey	Absent	-	2016		-	CNHS: https://www.statcan.gc.ca/eng/surveys?MM=1

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Canada	National Population Health Survey	Present but combined with other health service (homeopathy)	12 month use	2010/11	Every 2 years since 1992	A) People may also use alternative or complementary medicine. In the past 12 months, [have/has] [you/FNAME] seen or talked on the telephone to an alternative health care provider such as an acupuncturist, homeopath or massage therapist about [your/his/her] physical, emotional or mental health? B) Who did you speak to (answer option is "homeopath or naturopath"	https://crdcn.org/datasets/nphs-national-population-health-survey https://crdcn.org/research Application process for academic researchers Researchers wishing to access the RDC should create an account on the Statistics Canada Microdata Access Platform and follow the steps to create a new proposal. The proposal is evaluated by Statistics Canada for feasibility before access can be granted. In addition, if you are a student, your thesis supervisor must write a letter in support of your RDC application and join the application as a co-investigator. For other academic users, a completed peer-review may be required. The review must be conducted by a tenured faculty-member at an accredited Canadian university. Researchers who are required to submit such a peer review can source their own peer reviewer, or contact CRDCN for assistance if they are unable to find a suitable candidate. Access fees for certains users Fees can apply to certain research projects conducted in the RDCs. Consult the Access & Fee-For-Service Policy to learn more.
Chile	National Health Survey	Absent		Unclear - maybe 2016/17	Every 4 years	Appears to exist, but cannot locate a recent copy of the survey or results. An earlier version (2009-10) suggests use of CAM was assessed, but all CAM were grouped together as one variable. https://www.who.int/fctc/reporting/party_reports/chile_annex1_national_health_survey_2010.pdf	Maybe somewhere on this site (might need a Spanish-speaker): https://deis.minsal.cl/#estadisticas
Cyprus	"State of health" survey	Absent		2019			https://ec.europa.eu/health/sites/health/files/state/docs/2019_chp_cyprus_english.pdf https://www.euro.who.int/__data/assets/pdf_file/0007/355975/Health-Profile-Cyprus-Eng.pdf

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Democratic Republic of Congo	DHS Demographic and Health Survey	Absent		2013-2014			https://www.dhsprogram.com/pubs/pdf/FR300/FR300.pdf
Ecuador	Health survey	Absent		2017			https://www.ecuadorencifras.gob.ec/documentos/web-inec/Estadisticas_Sociales/Recursos_Actividades_de_Salud/RAS_2017/Principales_Resultados_%28RAS%29.pdf
Egypt	DHS Demographic and Health survey	Absent		2015	2014, 2008, 2005		https://dhsprogram.com/pubs/pdf/FR313/FR313.pdf
El Salvador	National Family Health Survey	Absent		2008			file:///C:/Users/User/AppData/Local/Temp/Cuestionario_El%20Salvador%202008_Nombre%20de%20variables.pdf
France	National Health and Nutrition Survey	Absent		2006			file:///C:/Users/User/AppData/Local/Temp/26327_7069-rapp-inst-enns-web.pdf
Greece	Hellenic National Nutrition and Health Survey	Absent		2013-2015			
Greece	World Health Survey	Absent		2003			
Greece	Greek National Survey on Health and Nutrition (the HYDRIA Proejct)	Absent		2009-2011			
Hong Kong	Population Health Survey and Health Behaviour Survey	Absent		2018/19 (report not yet released)	2014/15, 2003/04		
India	DHS Demographic and Health survey	Absent		2019-20	2015-16, 2005-06, 1998-99, 1992-93		

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India	NFHS - National Family Health Survey	Present but combined with other health service (yoga)	Generally used when sick (household questionnaire) Men's and women's questionnaires also asks about places to receive family planning, where they take children when sick, and a number of other specific details relating to health care utilisation around family planning.	2019-20	2015-16 2005-06 1998-99 1992-93	Q. When members of your household get sick, where do they generally go for treatment? A. (option) Yoga and Naturopathy [also separates into public and private]	Process is unclear? http://rchiips.org/nfhs/data1.shtml
India	AHS - Annual Health Survey	Absent					
Italy	ISSP - International Social Survey Programme: Health and Health Care	Absent	12 month use	2011		During the past 12 months, how often did you visit or were visited by... an [alternative/traditional /folk]health care practitioner?	https://search.gesis.org/research_data/ZA5800
Italy	Italy National Healthy Survey	**Unknown due to survey availability**					

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Italy	EHIS - European Health Interview Survey	Absent		2019	2015		https://www.istat.it/en/archivio/210553
Japan	The Japan National Health and Nutrition Survey (NHNS)	Absent					
Malaysia	National Health and Morbidity Survey	Absent					https://iptk.moh.gov.my/images/technical_report/2020/FactSheet_BI_AUG2020.pdf
Mexico	National Health Survey (ENSA)	Present (as 'Naturista')	Unclear	2018-19	2016 2012 2006	Q4.8: https://en.www.inegi.org.mx/contenidos/programas/ensanut/2018/doc/ensanut_2018_cuestionario_hogar.pdf	https://en.www.inegi.org.mx/programas/ensanut/2018/
Nepal	DHS Demographic and Health survey	Absent					
Nepal	Noncommunicable Disease Risk Factors: STEPS Survey Nepal 2019	Present but combined with other health services (traditional medicine)	For specific health conditions - Normal source of treatment For smoking cessation - 12 month use	2019		"During the past 12 months, what did you do to try and stop smoking?" "Where do you usually go for treatment or advice for you >condition<?" "Where do you usually get your drugs for >condition<?"	https://www.who.int/docs/default-source/nepal-documents/ncds/ncd-steps-survey-2019-compressed.pdf?sfvrsn=807bc4c6_2
New Zealand	New Zealand Health Survey	Absent					https://www.health.govt.nz/publication/questionnaires-and-content-guide-2019-20-new-zealand-health-survey
Nigeria	DHS Demographic and Health survey	Absent					
Peru	ENCUESTA DEMOGRÁFICA Y DE SALUD FAMILIAR (ENDES)	Absent					http://iinei.inei.gob.pe/microdatos/
Portugal	National Health Survey	Absent		2019	2018 2017 2016 etc. annually		https://www.ine.pt/xportal/xmain?PORTLET_ID=JSP&xpgid=ine_publicacoes&xpid=INE&PORTLET_NAME=ine_cont_header_pub_en&PORTLET_UID=%23JSP%3Aine_cont_header_pub_en%23&PUBLICACOESTema=00&PUBLICACOESdata_inicial=01-07-2014&PUBLICACOESdata_final=13-07-2021&x=14&y=10&PUBLICACOESfreeText=health

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Puerto Rico	Unknown						
Russia	Longitudinal Monitoring Survey of HSE (health service questions in Adult survey)	Absent		2019	1994 onward		https://rlms-hse.cpc.unc.edu/
Russia	Kantar National Health and Wellness Survey	Unknown due to survey availability		2011			https://www.kantar.com/expertise/health/da---real-world-data-pros-claims-and-health-records/national-health-and-wellness-survey-nhws
Saudi Arabia	World Health Survey Saudi Arabia (KSAWHS)	Absent		2019			https://www.moh.gov.sa/en/Ministry/Statistics/Population-Health-Indicators/Documents/World-Health-Survey-Saudi-Arabia.pdf
Saudi Arabia	Saudi Health Interview Survey	Absent		2013			http://www.healthdata.org/sites/default/files/files/Projects/KSA/Saudi-Health-Interview-Survey-Results.pdf
Saudi Arabia	Saudi Health Interview Census	Unknown due to survey availability		2015			
Slovenia	World Health Survey	Absent					
Slovenia	European Health Interview Survey	Absent		2007			https://www.stat.si/doc/pub/IVZ-angl.pdf https://ec.europa.eu/eurostat/web/microdata/european-health-interview-survey
South Africa	South Africa Demographic and Health Survey (DHS)	Absent		2016	2003		https://dhsprogram.com/pubs/pdf/FR337/FR337.pdf
South Africa	South African Health and Nutrition Examination Survey (SANHANES-1)	Absent		2012			file:///C:/Users/User/AppData/Local/Temp/7844.pdf
Spain	National Health Survey	Absent		2017	2011-12 2006 2003		

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Switzerland	Swiss Health Survey	**Present**	12 month use	2017	2012 2007	How often have you been to one of the following specialists in the last 12 months: Naturopath	Available from the Swiss Federal Statistical Office http://www.bfs.admin.ch/bfs/portal/de/index/infothek/erhebungen__quellen/blank/blank/ess/04.html 2012 and 2007 data reported here: https://journals.plos.org/plosone/article?id=10.1371/journal.pone.0141985
United Kingdom - England	Health Survey for England (HSE)	Absent		2019	Annually		https://digital.nhs.uk/data-and-information/publications/statistical/health-survey-for-england/2019
United Kingdom - Scotland	Scottish Health Survey	Absent	By health condition, 12 month use	2020	Annually	Have you received any treatment advice for >insert condition< from any of the people on this card: Other alternative medicine professional	https://beta.ukdataservice.ac.uk/datacatalogue/studies/study?id=8737#!/documentation
United Kingdom - Wales	National Survey for Wales	Absent	By health condition, 12 month use Non-GP primary care, 12 month use	Rolling (monthly interviews)		In the last 12 months, which of these kinds of treatment or management have you had for >insert condition<: Complementary therapies (e.g. acupuncture, massage) In the last 12 months, which of these services have you used for yourself: Osteopath	https://gov.wales/national-survey-wales-questionnaires
United Kingdom - Northern Ireland	Health Survey Northern Ireland	Absent		2019-20	Annually		https://www.data-archive.ac.uk/home

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United Kingdom - Northern Ireland	Northern Ireland Life and Times Survey (I don't think this is actually a government survey - run by Queen's University Belfast and Ulster University)	**Present** - but only in 2005	Use ever	2005	Annually, but CAM only covered in 2005	Have you ever used naturpathy?	https://www.ark.ac.uk/nilt/datasets/ https://www.ark.ac.uk/nilt/2005/Complementary_Medicine/COMTH8.html
Uruguay	Uruguay Continuous Household Survey	Absent		2020	Annually		https://www.ine.gub.uy/encuesta-continua-de-hogares1
USA	National Health Interview Survey - CAM Supplement	**Present**	12 month use	2012	2007 2002		https://www.cdc.gov/nchs/nhis/data-questionnaires-documentation.htm https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4573565/
Zambia	DHS Demographic and Health Survey	Absent		2018-19			https://microdata.worldbank.org/index.php/catalog/3597
ASSOCIATE MEMBERS							
Ireland	SLÁN - Survey of Lifestyle, Attitudes and Nutrition	Absent	Use ever and 12 month use	2007	2002 1998	Have you ever attended an alternative/complementary practitioner? (e.g. acupuncturist, homeopath, reflexologist)	https://www.ucd.ie/issda/data/surveyonlifestyleandattitudestonutritionslan/
Ireland	Healthy Ireland	Absent		2018	2017 2016 2015		https://www.ucd.ie/issda/data/healthyireland/

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Norway	HUNT - The Trondelag Health Study (Norway also has research centre - NAFKAM - which conducts national surveys on CAM, but they don't cover naturopathy in their list of professions https://nafkam.no/en/report-use-complementary-and-alternative-medicine-cam-norway-2018)	Absent	12 month use			HUNT 2 - During the last 12 months, have you visited any of the following: Other treatment provider (naturopath, reflexologist….) HUNT 3, CAM suppl - How many times in the last 12 months have you been to an alternative practitioner? Which type of alternative treatment did you receive and who did you receive the treatment from?: Other type of alternative treatment	https://www.ntnu.edu/hunt/research https://www.ntnu.edu/hunt/data/que
Singapore	National Population Health Survey	Absent		2018-19	2016-17		https://www.moh.gov.sg/docs/librariesprovider5/default-document-library/nphs-2019-survey-report.pdf
Singapore	National Health Surveillance Survey	Absent		2007	2001		https://www.singstat.gov.sg/find-data/search-by-theme/society/health/latest-data
Singapore	Singapore National Health Survey	Absent		2010	2004 1998		https://www.singstat.gov.sg/find-data/search-by-theme/society/health/latest-data
EDUCATIONAL MEMBERS							
Czech Republic	HELEN (Health, Lifestyle and Environment) Study	Absent		2014	Annually since 2003		http://www.szu.cz/publikace/studie-helen?lang=1
Czech Republic	World Health Survey	Absent		2003			https://microdata.worldbank.org/index.php/catalog/1703
Ghana	DHS Demographic and Health Survey	Absent		2017	2014		https://dhsprogram.com/methodology/survey/survey-display-506.cfm

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PRISMA 2020 Checklist

Section and Topic	Item #	Checklist item	Location where item is reported
TITLE			
Title	1	Identify the report as a systematic review.	P1
ABSTRACT			
Abstract	2	See the PRISMA 2020 for Abstracts checklist.	P2 (compliant)
INTRODUCTION			
Rationale	3	Describe the rationale for the review in the context of existing knowledge.	P3
Objectives	4	Provide an explicit statement of the objective(s) or question(s) the review addresses.	P3
METHODS			
Eligibility criteria	5	Specify the inclusion and exclusion criteria for the review and how studies were grouped for the syntheses.	P4
Information sources	6	Specify all databases, registers, websites, organisations, reference lists and other sources searched or consulted to identify studies. Specify the date when each source was last searched or consulted.	P4
Search strategy	7	Present the full search strategies for all databases, registers and websites, including any filters and limits used.	Table 2
Selection process	8	Specify the methods used to decide whether a study met the inclusion criteria of the review, including how many reviewers screened each record and each report retrieved, whether they worked independently, and if applicable, details of automation tools used in the process.	P4
Data collection process	9	Specify the methods used to collect data from reports, including how many reviewers collected data from each report, whether they worked independently, any processes for obtaining or confirming data from study investigators, and if applicable, details of automation tools used in the process.	P4
Data items	10a	List and define all outcomes for which data were sought. Specify whether all results that were compatible with each outcome domain in each study were sought (e.g. for all measures, time points, analyses), and if not, the methods used to decide which results to collect.	P4
	10b	List and define all other variables for which data were sought (e.g. participant and intervention characteristics, funding sources). Describe any assumptions made about any missing or unclear information.	P4
Study risk of bias assessment	11	Specify the methods used to assess risk of bias in the included studies, including details of the tool(s) used, how many reviewers assessed each study and whether they worked independently, and if applicable, details of automation tools used in the process.	P4-5
Effect measures	12	Specify for each outcome the effect measure(s) (e.g. risk ratio, mean difference) used in the synthesis or presentation of results.	P4-5
Synthesis methods	13a	Describe the processes used to decide which studies were eligible for each synthesis (e.g. tabulating the study intervention characteristics and comparing against the planned groups for each synthesis (item #5)).	P4-5
	13b	Describe any methods required to prepare the data for presentation or synthesis, such as handling of missing summary statistics, or data conversions.	P4-5
	13c	Describe any methods used to tabulate or visually display results of individual studies and syntheses.	P4-5
	13d	Describe any methods used to synthesize results and provide a rationale for the choice(s). If meta-analysis was performed, describe the model(s), method(s) to identify the presence and extent of statistical heterogeneity, and software package(s) used.	P4-5
	13e	Describe any methods used to explore possible causes of heterogeneity among study results (e.g. subgroup analysis, meta-regression).	P4-5
	13f	Describe any sensitivity analyses conducted to assess robustness of the synthesized results.	P4-5
Reporting bias assessment	14	Describe any methods used to assess risk of bias due to missing results in a synthesis (arising from reporting biases).	P4
Certainty assessment	15	Describe any methods used to assess certainty (or confidence) in the body of evidence for an outcome.	P4-5

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PRISMA 2020 Checklist

Section and Topic	Item #	Checklist item	Location where item is reported
RESULTS			
Study selection	16a	Describe the results of the search and selection process, from the number of records identified in the search to the number of studies included in the review, ideally using a flow diagram.	P5
	16b	Cite studies that might appear to meet the inclusion criteria, but which were excluded, and explain why they were excluded.	Supplementary File 1
Study characteristics	17	Cite each included study and present its characteristics.	P5-6 & Tables 3&4
Risk of bias in studies	18	Present assessments of risk of bias for each included study.	P6 & Table 5
Results of individual studies	19	For all outcomes, present, for each study: (a) summary statistics for each group (where appropriate) and (b) an effect estimate and its precision (e.g. confidence/credible interval), ideally using structured tables or plots.	Table 3 & 4
Results of syntheses	20a	For each synthesis, briefly summarise the characteristics and risk of bias among contributing studies.	P6-7
	20b	Present results of all statistical syntheses conducted. If meta-analysis was done, present for each the summary estimate and its precision (e.g. confidence/credible interval) and measures of statistical heterogeneity. If comparing groups, describe the direction of the effect.	P6-7
	20c	Present results of all investigations of possible causes of heterogeneity among study results.	P6-7
	20d	Present results of all sensitivity analyses conducted to assess the robustness of the synthesized results.	n/a
Reporting biases	21	Present assessments of risk of bias due to missing results (arising from reporting biases) for each synthesis assessed.	P7
Certainty of evidence	22	Present assessments of certainty (or confidence) in the body of evidence for each outcome assessed.	n/a
DISCUSSION			
Discussion	23a	Provide a general interpretation of the results in the context of other evidence.	P7-9
	23b	Discuss any limitations of the evidence included in the review.	P9
	23c	Discuss any limitations of the review processes used.	P9
	23d	Discuss implications of the results for practice, policy, and future research.	P7-9
OTHER INFORMATION			
Registration and protocol	24a	Provide registration information for the review, including register name and registration number, or state that the review was not registered.	P4
	24b	Indicate where the review protocol can be accessed, or state that a protocol was not prepared.	P4
	24c	Describe and explain any amendments to information provided at registration or in the protocol.	n/a
Support	25	Describe sources of financial or non-financial support for the review, and the role of the funders or sponsors in the review.	n/a
Competing interests	26	Declare any competing interests of review authors.	n/a
Availability of data, code and other materials	27	Report which of the following are publicly available and where they can be found: template data collection forms; data extracted from included studies; data used for all analyses; analytic code; any other materials used in the review.	n/a

From: Page MJ, McKenzie JE, Bossuyt PM, Boutron I, Hoffmann TC, Mulrow CD, et al. The PRISMA 2020 statement: an updated guideline for reporting systematic reviews. BMJ 2021;372:n71. doi: 10.1136/bmj.n71

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