

# Sámi traditional medicine: practices, usage, benefit, accessibility and relation to conventional medicine, a scoping review study

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## ABSTRACT

The Sámi Indigenous populations, who live in the arctic Sápmi area across four countries – Norway, Sweden, Finland and the Kola Peninsula of Russia – have practiced traditional medicine (TM) for millennia. However, today Sámi TM is unknown within the Swedish health care services (HCS). The aim of this study is to describe the nature and scope of research conducted on Sámi TM among the four Sápmi countries. This study covers peer-reviewed research published in the English language up to 8 April 2020. From 15 databases, 240 abstracts were identified, and 19 publications met the inclusion criteria for full review. Seventeen studies were conducted in Norway, one in Finland and one in Sweden, none in Russia. In northern Norway, Sámi TM is actively used by the local communities, and is claimed to be effective, but is not accessible within HCS. Holistic worldviews, including spirituality, prevail in Sámi TM from practitioners' selection criteria to health care practices to illness responsibilities. An integration of Sámi TM into HCS is clearly the desire of local communities. Comparisons were made between Sámi TM and conventional medicine on worldviews, on perspectives towards each other, and on integration. More studies are needed in Sweden, Finland and Russia.

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## KEYWORDS

Sámi; traditional healing; arctic indigenous people; worldview; spirituality; medical pluralism; integration

## Introduction

The Sámi Indigenous populations live across four countries in the Arctic Sápmi region: Norway, Sweden, Finland and the Kola Peninsula of Russia. The Sámi population is estimated to be around 80,000, with approximately 50,000 in Norway, 20,000 in Sweden, 8,000 in Finland and 2,000 in Russia [1]. Sámi traditional indigenous knowledge, such as traditional knowledge on health and wellbeing or traditional medicine (TM), has for millennia supported the survival and resilience of the Sámi Indigenous populations in the cold and harsh Arctic environment. However, today Sámi TM is often ignored and is not recognised within the conventional health care system [2,3]. In some other countries, TM is recognised officially. For example, in China, India, Tanzania and South Africa, people are free to choose from either, or a combination of TM and conventional medicine [4–7]. In some countries up to 80% of the population are dependent on traditional medicine as their primary health service [5].

## Conventional and traditional medicine – definition and concept

The term *conventional medicine* used in this study refers to the official medical practice in most countries of the



world, especially in the Western world. It is based on scientific knowledge which is from the Western worldview. Some studies called it *biomedically based medicine* [7]. Other names have also been used in the literatures: *allopathic*, *Western*, *conventional* or *modern medicine*. In this review, we use the term *Western conventional medicine* (WCM) and *conventional medicine* interchangeably.

The term traditional medicine is often used interchangeably with “alternative medicine” and/or “complementary medicine”. The World Health Organization (WHO) defines these terms in the following way:

*Traditional medicine has a long history. It is the sum total of the knowledge, skill, and practices based on the theories, beliefs, and experiences indigenous to different cultures, whether explicable or not, used in the maintenance of health as well as in the prevention, diagnosis, improvement or treatment of physical and mental illness.*

*The terms “complementary medicine” or “alternative medicine” refer to a broad set of health care practices that are not part of that country's own tradition or conventional medicine and are not fully integrated into the dominant health-care system. They are used interchangeably with traditional medicine in some countries [5]. (p15)*

Based on this definition, TM is the knowledge system that is native to the country or region, such as Sámi TM

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in Sápmi. When both TM and complementary and alternative medicine (CAM) are practiced in a country/region, the combination is often termed in literature as T&CM [5], to distinguish it from TCM – traditional Chinese medicine.

### **Research centres in Sápmi and research on Sámi TM**

Within the four countries where Sámi Indigenous populations live, this study found two centres for research on TM and/or CAM, one in Norway and one in Sweden. In Norway, the *National Research Center in Complementary and Alternative Medicine* (NAFKAM) has been an official research and information institution under the Norwegian Directorate of Health since 2000, located at UiT The Arctic University of Norway [8]. It is one of the two WHO Collaborating Centres for TM in the European region. Many research publications have been produced by this Centre, including a number on Sámi TM. The Swedish centre for integrative medicine 2005 – the *Osher Center for Integrative Medicine* (OCIM) [9] – has been established in the Karolinska Institutet since 2005. It is one of the seven academic centres in the world funded by The Bernard Osher Foundation to study, teach, and practice integrative medicine. On the basis of reading through the research projects and publications currently listed in OCIM, this study notes the absence of Sámi TM.

In Sweden, Johan Turi, the first Sámi author and a healer wrote two books giving a comprehensive description of practices of Sámi TM over one century ago [10,11]. A PhD thesis (in Swedish) by Carola Skott [12], a nurse and social anthropologist, gives a more updated summary of Sámi healing practices in Sápmi, including Sweden. However, our study has not found current research in Sweden in the English scientific literature on Sámi TM, nor on the practices of TM in the health care services (HCS) in northern Sweden where the Sámi people live. According to WHO: “Traditional medicine (TM) is an important and often underestimated part of health services. TM has a long history of use in health maintenance and in disease prevention and treatment, particularly for chronic disease.” [5](p11). Evidently, it is important to understand the status and the usage of Sámi TM and its relation to the conventional HCS in Sweden as well as the other countries in the Sápmi region.

### **Research questions and aim**

This study aims to describe the nature and scope of research conducted on Sámi TM in Sápmi. Specifically, it aims to identify the available evidence on and the knowledge gap in Sámi TM regarding its practices, providers, worldviews, benefits, usage, accessibility, as well as its relation to official health care services. Our study tries to answer the following questions:

- How is Sámi TM practiced?
- Who is delivering it and how did healers get their skills?
- Why are people using it and what are the benefits?
- What are Sámi Indigenous Peoples’ beliefs and worldview on TM?
- When are people using it?
- Who is using it (prevalence)?
- Has Sámi TM changed over time and how?
- Is Sámi TM available and how is it accessed?
- How do Sámi patients view HCS?
- How do HCS personnel view Sámi TM?
- Is there a desire for integration of the two types of medicine?

### **Method**

#### **Study design**

A literature review study is used. Among the many different types of literature review methodologies, a scoping review is found to be suitable to identify the available evidence, key factors and the knowledge gap, in view of the relatively small body of literature on Sámi TM and the fact that no comprehensive review has been done before [13]. The procedures are described by the Joanna Briggs Institute Reviewers’ Manual for scoping reviews [14]. The essential steps in a scoping review are illustrated schematically very clearly by Jong et al. [15]. Results of the scoping review are reported following the *Preferred Reporting Items for Systematic review and Meta-Analyses extension for Scoping Reviews* (PRISMA-ScR) [16].

#### **Inclusion criteria**

The inclusion and exclusion criteria are listed in [Table 1](#). It has been modified after testing on different databases with help from Umeå University librarians. In

**Table 1.** Inclusion and exclusion criteria used to determine applicable studies to review.

Inclusion criteria	Exclusion criteria
<b>English</b> – language source	Non-English-language source
<b>Peer-reviewed</b> scientific journal articles (empirical or theoretical, qualitative or quantitative, review) and book chapters	Non-peer-reviewed studies – books/book chapters, editorials, conference proceedings, commentaries, thesis, magazine articles and government reports
Scientific publications up to <b>8 April 2020</b>	N/A
Focus on (or distinction of) <b>Sámi</b> Indigenous populations	Population is not Sámi or no clear distinction between Sámi and non-Sámi populations
All types of healing methods/materials used traditionally by Sámi for <b>health</b> and ridding off <b>diseases</b> – physical, mental or spiritual	Sámi traditional knowledge used for purpose other than directly healing sickness or Sámi healing methods that are only briefly mentioned or not clearly distinguished from other complementary and alternative medicine
Health or diseases or health care services, that are related to Sámi	Health, diseases, health care services that are not related to Sámi health
Study site: <b>Sápmi</b> region/countries only ( <b>Sweden, Norway, Finland, Russia</b> )	Non-Sápmi countries
Databases – <b>PubMed, Scopus, Web of Science and EBSCO</b>	Databases that are inefficient in finding the peer-reviewed articles in this area (e.g. DIVA, Google scholar)
N/A	Duplicates of previously found articles and articles that are not accessible

the beginning of the selection process, no limitation for language was set. Besides English, only the Norwegian language has many hits. Only one Finnish study was found, and it is remotely related to Sámi TM. After reviewing abstracts, we found that the Norwegian researchers who published studies in Norwegian published also in English. Thus, including Norwegian-language studies would not seem to add more new information, but would only consume more time. The search in PubMed for Russian language studies resulted in many hits, but these were found to be irrelevant after reading the abstracts. So, we limit our review to English peer-reviewed scientific literature, as has been done in other review studies [17].

To identify search terms, we followed the guideline from Joanna Briggs Institute Reviewers' Manual for scoping review [14] – Participants, Concept and Context. The Participants are Sámi people – patients and healers. The Concept is Sámi TM, which covers two categories in Medline Subject Headings (MeSH): complementary therapies and religion. The Context is the Sápmi region, including Sweden, Norway, Finland and Russian.

After repeatedly testing in PubMed, and consultation with medical librarians, the final search equation used (version 18) contains 36 terms – mixed MeSH (bold face) and non-MeSH terms (Figure 1). Colours represent categories within MeSH: black refers to Participants, green to Concept, and blue to Context, the geographical locations. During revision, two more terms in the Concept were also tested, “Medicinal Plants” or “Ethnobotany”, which did not add any new relevant record.

Through testing and the help of Umeå University librarians, four electronic database groups were

chosen, containing a total of 15 databases – **PubMed, Scopus, Web of Science** (All 5 Databases: *Web of Science Core Collection, KCI-Korean Journal Database, MEDLINE<sup>®</sup>, Russian Science Citation Index, SciELO Citation Index*), and **EBSCO** (8 databases: *Academic Search Premier, AMED-The Allied and Complementary Medicine Database, APA PsycInfo, APA PsycTherapy, CINAHL with full text, ERIC, MEDLINE, SocINDEX*). The same search equation was used for all the databases.

All identified abstracts and titles were uploaded to EndNote X9<sup>®</sup>, a reference management software programme, where duplicates were removed. A two-step screening process were used to identify the eligible studies for full review: 1) screening titles and abstracts, 2) reading full study. If studies did not meet one or more inclusion criteria, they were removed. For example, studies focused on Sámi but not on health, Sámi health/traditional knowledge but not TM or Sámi TM but not peer reviewed, such as books or theses [18]. However, some of the excluded records were helpful in providing context and background information for this study.

Full texts of the accepted studies were read in detail and information were extracted based on predefined categories (Table 2). The data extraction includes both general information about the study (Article information, study location, main outcomes and methodology) and specific information (worldviews, basic knowledge and practices of, and accessibility to Sámi TM, HCS's perspectives on Sámi TM, etc.), weaknesses/bias and quality, and any relevant references from the study that needs to be added in the screening list, that is, citation mapping. The analysis of the studies was

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(Sámi OR Sami OR Saami)
AND
(Complementary Therapies OR Holistic Health OR Wholistic health OR Holistic medicine OR
Traditional Medicine OR "Folk Medicine" OR "Indigenous Medicine" OR Ethnomedicine OR
Shamanism OR "Traditional Healing" OR healer* OR ("Traditional Knowledge" AND
"Health") OR Spiritual Therapies OR Faith healing OR "Prayer Healing" OR Magic OR
"spiritual healing*" OR Mind-Body Therapies OR Therapeutic touch OR Hypnosis OR
Mental healing OR Imagery OR Meditation OR Psychotherapy OR Prayer* OR Spirituality
OR Spiritualism OR Religion and Medicine OR "Medical Pluralism")
AND
(Sweden OR Norway OR Finland OR Russia)

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**Figure 1.** Search equation used. Bold face was MeSH terms from MeSH database, where colours represent categories within MeSH: black = **Participants**, green = **Concept**, and blue = **Context** – Geographical locations.

qualitative due to the small size of the studies included for final analysis [17,19].

### Studies/records selection process

Out of the 15 electronic databases searched, 240 records were found from 12 databases: PubMed = 39, Scopus = 26, Web of Science = 37 from its four databases (WS core collection 33, MEDLINE 20, Russian Science Citation Index 2, SciELO Citation Index 1, excluding books, conference proceedings, and abstracts. Duplications are removed); and EBSCO = 138 from its six databases (Academic Search Premier 69, MEDLINE 33, APA PsycInfo 21, SocINDEX 3, CINAHL with full text 11, ERIC 1). After exclusion of 98 duplicates, 142 unique records were identified for screening. A flowchart illustrates details of the selection process (Figure 2).

Following the first step of reading the title and abstracts, 115 records were excluded for reasons listed in the box on the right of the flowchart. From the second step of reading the full texts of the remaining 27 records, 14 records were identified as meeting the inclusion criteria. In addition, 10 more records were identified as relevant from the citation mapping. The two screening steps were repeated again. By this repetition, four records were excluded from the screening of titles and abstracts (see the number in the parenthesis after the plus sign in the flowchart), and six records were chosen for full-text screening, of which one was excluded. So, in total, 19 studies were found to meet the inclusion criteria for full review.

## Results

The overview of the included studies is described in Table 3. Majority (17) of the research on Sámi TM is

from Norway [3,20–35], one from Finland [36] and one from Sweden [37]. No studies were found from Russia within the English scientific literature that met our inclusion criteria.

The subject area of information extracted ranges from the basic knowledge about Sámi TM (healers, their practices, and access to Sámi TM), to different views on Sámi TM, on HCS and on the need for integration. The methods and designs of the studies consist of quantitative surveys with questionnaires; qualitative studies including interviews, narratives and observation; and literature reviews. Five studies are quantitative; all use cross-sectional design, and all were carried out in Norway. Eleven qualitative studies range from short narrative interviews to ethnographic field work. Three literature reviews consist of one book and one narrative review, and one review that did not specify the type.

The informants range from the general population, to patients with specific diseases (cancer, psychiatric and pain problems), to healers and health-care personnel. The comparison between different ethnic groups is limited to Sámi vs. Norwegian, since those studies were carried out in Norway. Some cross-sectional studies put Sámi and Kven (Finnish origin) together to increase sample size for statistical analysis. Some studies compare Sámi and non-Sámi which can be a mixture of Norwegian, Kven, Finnish and other nationalities in Norway [21].

Further summary of the included studies is shown in Table 4, where quantitative studies (Table 4a) and qualitative/reviews (Table 4b) studies are summarised in different tables. These tables include study design and time, data collection, sample size, age, ethnicity, and main outcomes.

The quantitative studies cover the time span 2003–2016. The data collection ranges from the general population in Tromsø, Norway (the 7<sup>th</sup>-survey-Tromsø study), to the SAMINOR 1 (the Survey in regions with Sámi and Norwegian populations), to the psychiatric

**Table 2.** Information to be extracted from studies – general information and specific questions.

Data extraction categories	Questions asked	Article #
<b>Article information</b>	First author Year Journal Aims Main outcome	
<b>Geographic location</b>	Study site – Country, community/county/town	
<b>Methodology</b>	Study design – quantitative, qualitative, review etc. Measure used Timeframe Study population: Sami groups, size, age, gender etc. Ethical approaches	
<b>Theoretical bases of Sámi TM</b>	Beliefs, world view, culture and traditions regarding diseases and health	
<b>Basic knowledge</b>	The methods and materials used in ridding diseases or promoting health How has it been practiced? Any changes over time? How did one become a healer – chosen, gifted/inherited or trained? What kind of diseases/prevention or well-being promotion that Sámi TM deal with? Who were the patients?	
<b>Effectiveness</b>	Is the Sámi TM effective in treating diseases? Any evidences – statistics, laboratory or interviews?	
<b>Necessity of TM, Sámi patients' perspectives on HCS</b>	Is there any need to have Sámi TM for today's Sámi or non-Sámi population? Are Sámi patients satisfied with the HCS? Sámi's perception/attitude towards HCS	
<b>Accessibility to Sámi TM</b>	How do patients access Sámi TM? – Secret? Network? Advertised or referred?	
<b>Health care system's perspectives</b>	Are people in HCS aware the existence of Sámi TM and its function? What is the knowledge, attitude and perception within HCS towards Sámi TM? Do people in HCS know the need of Sámi TM among some of their patients? Is there any Sámi TM used to complement conventional medicine within HCS? Any need for integration of Sámi TM into the health care service?	
<b>Comparison between countries</b>	Are there any differences between the four countries in Sápmi region regarding above questions?	
<b>Other</b>	Background information useful to give the context Weaknesses – what was not included? Quality of the paper (1–10) Any articles to be added from citation mapping?	

patients in Finnmark and Nord-Trom in nine mental health service clinics. The sample sizes range from 186 (psychiatric patients) to 21,083 (general population) in cross-sectional studies. The informants' ages range from 30 to 79 in those studies where age is mentioned. The main outcomes from all five quantitative studies were prevalence of visiting TM and its association with demographic and socioeconomic factors. Four studies focused on the use of Sámi TM and one on the desire for integration of Sámi TM and HCS. The time frame for use of Sámi TM varies from study to study – either over the past one year or over one's entire lifetime.

The Sámi informants are entirely limited to those living in Norway, mostly in northern Norway. Norway's lack of ethnic registry means that Sámi ethnicity needs to be identified indirectly from the survey questions answered, such as self-identification, or the languages spoken by the informant, or by his/her parents or grandparents. So the Sámi ethnic group was often divided into two: one of individuals who identified strongly as Sámi, having Sámi-speaking grandparents on both sides of the family, and the other of individuals associated with Sámi by self-defined cultural affiliation or by meeting only part of the criteria predefined as

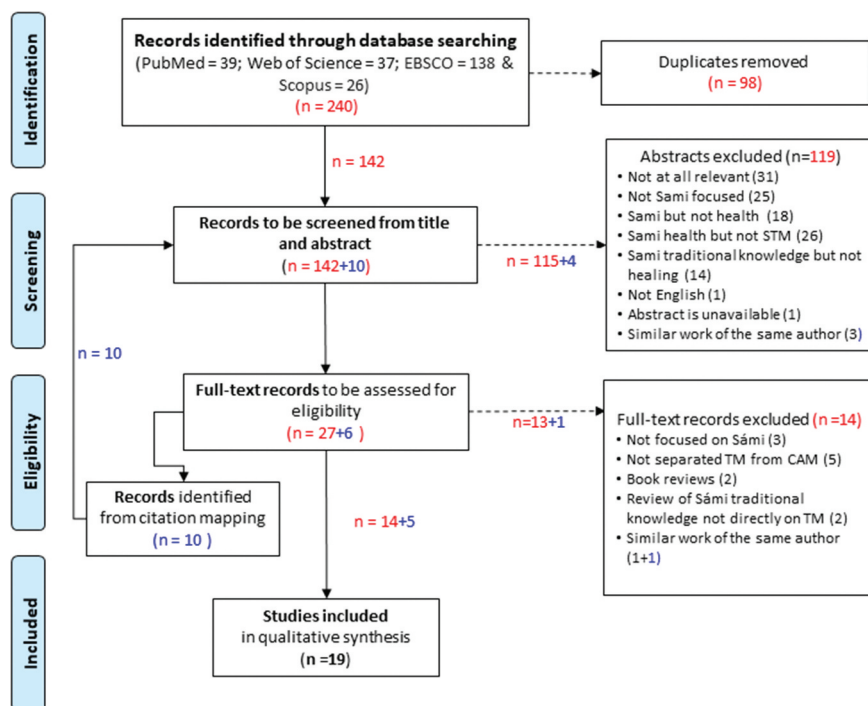
Sámi, the Sámi affiliation group. Thus, the Sámi sample sizes in the reviewed quantitative studies were identified from 43 to about 4000, or nearly 6000 if one includes the Sámi affiliation group.

The qualitative studies (Table 4b) include data collection from participant observations and different interviews: explorative, focus group, in-depth, and semi-structured. Respondents include patients who used the outpatient mental-health-care clinics of northern Troms in Norway, HCS personnel, Sámi traditional healers, communities in northern Norway familiar with TM, and an entire village of Sámi adults in Finland (500 adults).

The sample sizes range from a few to 500 in qualitative interview and observational studies. The ages range from 22 to 80 in those studies that mentioned age. The main outcomes of qualitative studies include: the experiences, feelings and perceptions of Sámi patients towards TM [2,32,38] and HCS [31], the change of one Sámi TM practice over time [36], and perceptions and worldview(s) on health and wellbeing in process and practice [24,27,28,30–32,35].

The studies unveil health and wellbeing-promoting effects by sociocultural networks [25] and yoik – the Sámi singing traditions [20]. In addition, they highlight





**Figure 2.** Flowchart of studies selection process. The totals records found in each of the four stages are listed in parentheses, where the first number in red refers to identified records from databases and the second number in blue after “+” to the records from citation mapping. Dashed lines indicate records that are removed.

the attitudes, knowledge and experiences of healers [26,32,35], communities and HCS personnel in their clinical practice [23,24,28]. Transformation of Sámi TM over time in northern Norway is discussed [26,28,29,36].

All the studies explain the practices of Sámi TM, but to different degrees. As shown in Table 5 Sámi TM, the materials used, as described by Turi one century ago, can be from animals, plants, minerals and chemicals. The methods can be herbal remedies to drink or to be burned in moxibustion, physical therapy, or magic rituals. They heal both acute ailments and chronic conditions.

In studies from Norway, reading a prayer and laying on of hands are the two most frequently mentioned methods used in Sámi TM practice. Reading can be done either face-to-face or at a distance from the patient [23]. Other modalities include blowing, curing, cupping, moxibustion, yoik, affirmations, movement and body therapy, drum journeying which can be done on an individual or a group. Materials/tools include both the invisible and the visible, such as words, prayers or singing, natural elements (plants, stones, water, wool and soil, etc.) and man-made objects (steel knives, scissors, prayer cloths, a piece of paper, or drums), or just healers’ hands. Treatment can be performed in person or over a distance for various health issues: from acute problems (e.g. bleeding,

toothache, and heart infarction) [28, 31, 36], to chronic diseases (e.g. multiple sclerosis, ulcerous colitis, pain, diabetes, and cancer) [21, 26, 28], to mental problems (e.g., anxiety, depression, stress, nervous breakdown, sleeplessness, and “processing negative emotions and inducing positive ones”)[20, 24, 28], and to life’s difficulties (e.g., out of work, quarrels between couples, lost or stolen articles) [11, 28, 29]

## Discussion

From the qualitative analysis of the 19 included studies, Norway clearly leads the world in the study of Sámi TM, especially *The Arctic University of Norway* and *University Hospital of North Norway Tromsø*. Most of the Sámi Indigenous populations live in Norway (50,000). However, the proportion of research in Sweden (only one study) on Sámi TM is well under the proportion of Sámi population (20,000) within the four arctic countries of Sápmi.

Comparing the 19 included studies, we notice the following differences (Tables 3–4):

- 1) study design/methods used – qualitative interviews/observations, quantitative cross-sectional surveys, and literature reviews,
- 2) study focus

**Table 3.** Description of studies included in this review: topics, number of studies, relative percentage to the total, and references. The topics comprise location, subject area, design, methodology, informants, and ethnicity comparison. (TM – traditional medicine. HCS – health care services.)

Topics	Number Studies	% studies	References
<b>Location</b>			
Norway	17	89	Hämäläinen et al. 2017, 2018; Haetta 2015; Kiil 2015; Kristoffersen et al. 2017, 2019a,b; Langås-Larsen et al. 2017, 2018a,b; Mathisen 1989; Myrvoll 2015; Rountree & Smith 2016; Sande & Winterfeldt 1993; Sexton & Stabbursvik 2010; Sexton & Sørli 2008, 2009
Sweden	1	5	DuBois & Lang 2013
Finland	1	5	Seitamo 1991
<b>Subject</b>			
Visits of Sámi TM	14	74	Haetta 2015; Kiil 2015; Kristoffersen et al. 2017, 2019a,b; Langås-Larsen et al. 2017, 2018a,b; Mathisen 1989; Myrvoll 2015; Sande & Winterfeldt 1993; Seitamo 1991; Sexton & Stabbursvik 2010; Sexton & Sørli 2008,
Sámi healers & TM practices	11	58	DuBois & Lang 2013; Haetta 2015; Kiil 2015; Langås-Larsen et al. 2017, 2018a,b; Mathisen 1989; Myrvoll 2015; Sande & Winterfeldt 1993; Seitamo 1991; Sexton & Stabbursvik 2010
Sámi patients' view on HCS	12	63	Hämäläinen et al. 2017, 2018; Kiil 2015; Langås-Larsen et al. 2017, 2018a,b; Mathisen 1989; Myrvoll 2015; Rountree & Smith 2016; Sande & Winterfeldt 1993; Sexton & Stabbursvik 2010; Sexton & Sørli 2008
HCS' awareness/view on Sámi TM	8	42	Hämäläinen et al. 2017, 2018; Kiil 2015; Kristoffersen et al. 2019b; Langås-Larsen et al. 2017; Rountree & Smith 2016; Sexton & Sørli 2008, 2009
Need for integration	5	26	Hämäläinen et al. 2017, 2018; Langås-Larsen et al. 2017, 2018a; Sexton & Sørli 2009
<b>Design</b>			
Quantitative cross-sectional	5	26	Kristoffersen et al. 2017, 2019a,b; Sexton & Sørli 2008, 2009
Qualitative	11	58	Haetta 2015; Hämäläinen et al. 2017; Kiil 2015; Langås-Larsen et al. 2017, 2018a,b; Mathisen 1989; Myrvoll 2015; Sande & Winterfeldt 1993; Seitamo 1991; Sexton & Stabbursvik 2010
Reviews	3	16	Hämäläinen et al. 2018; DuBois & Lang 2013; Rountree & Smith 2016
<b>Methodology</b>			
Questionnaire	6	32	Kristoffersen et al. 2017, 2019a,b; Sande & Winterfeldt 1993; Sexton & Sørli 2008, 2009
Interviews	9	47	Haetta 2015; Hämäläinen et al. 2017; Kiil 2015; Langås-Larsen et al. 2017, 2018a,b; Mathisen 1989; Myrvoll 2015; Seitamo 1991
Narratives & Observations	2	11	Myrvoll 2015; Sexton & Stabbursvik 2010
Book Review	1	5	DuBois & Lang 2013
Literature Reviews	2	11	Hämäläinen et al. 2018; Rountree & Smith 2016
<b>Informants</b>			
General population	3	16	Haetta 2015; Kristoffersen et al. 2017, 2019a
Cancer patients	1	5	Kristoffersen et al. 2019b
Psychiatric patients	3	16	Sexton & Sørli 2008; Kiil 2015
Adults in a village, &/or patients & healers	4	21	Haetta 2015; Mathisen 1989; Myrvoll 2015; Seitamo 1991
Mixed group HCS Personnel	1	5	Langås-Larsen et al. 2017
Traditional Healers	6	32	DuBois & Lang 2013; Haetta 2015; Langås-Larsen et al. 2018a; Mathisen 1989; Myrvoll 2015; Sande & Winterfeldt 1993
<b>Comparison of ethnicity</b>			
Sámi vs Norwegian	3	19	Sande & Winterfeldt 1993; Sexton & Sørli 2008, 2009
Sámi vs non-Sámi, 4 regions in Norway	2	13	Kristoffersen et al. 2017
Sámi/Kven vs Norwegian	6	13	Kristoffersen et al. 2019a, 2019b; Langås-Larsen et al. 2017, 2018a, 2018b; Sexton & Stabbursvik 2010

- Quantitative studies: prevalence of visits to TM, and the need for integration,
- Qualitative studies: culture, experiences, and worldviews on health/illness, accessibility to Sámi TM, patients' view on HCS, and awareness/view of HCS on Sámi TM,
- Review studies: practices, methods, and worldview of Sámi TM.

Among the topics, what stand out most is the Sámi's Indigenous relational worldview, and the role of spirituality used in Sámi TM which affects practices ranging from the cost, range of diseases/problems that can be treated to the physical distances that the healers can cover (Table 5). Qualitative studies focus more on cultural, experiential, and worldview

aspects, while the quantitative studies focus more on patient visits to TM and the relation of TM to HCS.

Compared to conventional medicine, Sámi TM seems quite simple in practice and in the materials/tools used. However, these studies demonstrate that Sámi TM covers a variety of areas and issues: physical, mental, emotional and life situations. The last are normally considered outside the areas of conventional medicine. However, public health studies increasingly attribute the causes of diseases to social determinants of health. As stated by WHO, social determinants of health cause premature mortality and health inequities [39,40]. Scott-Samuel et al state, "There is persuasive evidence that the reduction of health inequalities can only be achieved by addressing their fundamental causes as

**Table 4a.** Summary of quantitative studies (N = 5) included in this study. (CS = Cross-sectional, CM = Complementary medicine.).

Reference & country	Study design and time	Data collection	Sample size	age	Ethnicity	Main outcomes
Kristoffersen et al. (2019a), Norway	CS, 2015–2016	7th survey, Tromsø study	21,083	≥40	Sámi/Kven 4.2%, Norwegian 92.4%, other 3.4%	Prevalence of use of TM & CM over the past year
Kristoffersen et al. (2019b), Norway	CS, 2015–2016	7th survey, Tromsø study	20,428	≥40	Sámi/Kven 4.0%, Norwegian 90.4%, other 3.4%	Prevalence of use of TM & CM over the past year among cancer patients
Kristoffersen et al. (2017), Norway	CS, 2003–2004	SAMINOR 1 Survey in regions with Sámi and Norwegian population	16,544	30, 36–78/79	Sámi = 3946, Sámi affiliation 1885, non-Sámi 10,649	Prevalence of those in general population who have ever used TM
Sexton and Sørliie (2008), Norway	CS, 2006	Questionnaire among psychiatric patients in Finnmark and Nord-Trom (9 mental health services)	186	Not stated	Sámi 43, Norwegian 109	Prevalence of and reasons for ever use of TM & CM among psychiatric patients in North Norway
Sexton and Sørliie (2009), Norway	CS, 2006	Same as above	186	Not stated	48 Sámi-speaking grandparents on both sides of family, 72 any Sámi affiliation, Norwegian 106	Prevalence on desire for an integration of TM into HCS

opposed to the diseases through which they are expressed, or the immediate precursors of those diseases." [41]. An awareness of this seems to exist within Sámi TM, whereby both the cause(s) and symptoms of diseases are addressed simultaneously in the practices.

One question arises naturally: How effective is Sámi TM in treating these widely diverse health and life problems? Among the 19 studies, effectiveness was mentioned only in qualitative interview studies with positive comments by informants: "If they (readers) are good, it always helps." [31] (p145). "They are also commonly referred to as 'miracle doctors' or 'wonder doctors' " [35] (p41). Several studies similarly state: "I see the doctor to find out what is wrong with me, and then I see a healer to get well." [32](p64) [26,31]. This may imply that patients in northern Norway who used both types of medicine perceive Sámi TM to be more effective than conventional medicine in treating their mental and general health problems.

Given the above-mentioned claims, we reflect on how using simple practices like reading and laying on of hands and/or using simple materials work to treat such a complex variety of health and life problems. Careful reading and detailed analysis revealed that prayer and faith in God's healing power seems to be the cornerstone of Norwegian Sámi healing traditions. A healer is able to practice TM in person or at a distance, which explains the large number of consultations that one Sámi healer had over a 4-week period: 473 patients (419 telephone consultation plus 54 personal consultations) [28]; another, 80 per day and 8000 annually, a third 25 per day over a 35 year career [35]

(p41, 46). This is a number that few medical doctors can match, neither a primary health care physician in the USA, nor physicians in Sweden, since Sweden is the country having the longest consultation time among 67 countries, based on a recent systematic review [42].

Prayer and faith may explain why the simple materials/tools used in TM have achieved the better results claimed than medical drugs among those patients interviewed. However, one may also question if these positive results are from the healing treatment or from a placebo effect. As one informant stated "the healer must really believe in what he/she is doing, otherwise the technique will be without effect" [36](p324). However, another study suggests that faith is not needed, through examples of how a healer was effective in healing the sickness of a cow and of one non-believer, but failed to heal a religious man [35] (p49). Secrecy seems important in Sámi TM: "There is a firm belief that a reader will lose his power if he is too public about his abilities or skills" [31,32]. If Sámi TM truly works as well as conventional medicine, why the secrecy approach?

One may wonder who and how many use TM. Is it mostly certain groups of the population who have non-curable diseases and are desperate to try anything? Among the recent studies (2016), we find that Sámi TM was still actively used by the population in northern Norway, by both Sámi and non-Sámi: among cancer patients (6.4% of 404 during past year or 33% of 252 over 5 years) and among the general population (13.8% of 16,544 over lifetime) [21,23,24,43]. The prevalence of individuals using Sámi TM is higher among the



**Table 4b.** Summary of qualitative (N = 11) and literature review (N = 3) studies included in this study. (BR = book review, EI = Explorative Interviews, EF = Ethnographic fieldwork, FGI = Focus Group Interviews, II = In-depth interview, NA = not available, NR = Narrative Review, PO = Participant Observations, SSI = Semi-structured interview.)

Reference & country	Study design and time	Data collection	Sample size	age	Ethnicity	Main outcomes or focus
Hämäläinen et al. (2017), Norway	EI 2016-2017	Explorative, qualitative interviews	13	27-77	Sámi in Northern Norway	Yoik's effect in emotion management and positive relation to health
Haetta (2015) Norway	SSI 2009-2010	Interviews of 3 healers & other Sámi TM knowledge holders	15	NA	S.Troms & N. Nordland, Norway	Secrecy in Sámi Traditional Healing
Kiil (2015), Norway	EF, II & SSI 2011 – 2012	Repeated (17) in-depth interviews and participant observation among patients who used the out-patient mental-health-care clinic for northern Troms	12	22-74	Sámi, Kven and Norwegian	Story of one informant and conceptualization of home to understanding healing of mental disorders
Langås-Larsen et al. (2017), Norway	SSI & FGI 2017	Individual interviews (n=32) and FGI (n=2) among HCS personnel	32	Average 46	Norwegian; Sámi; Kven; mix of Sámi, Kven & Norwegian; European	HCS personnel's knowledge, attitudes and experiences of TM & effects on their clinical practice
Langås-Larsen et al. (2018a), Norway	SSI&FGI 2017-2018	Individual interviews (n= 13) and FGI (n=4) in two communities in Northern Norway	24	Average 55	Sámi; mix of Sámi, Kven & Norwegian; Norwegian	The extended family networks' function and responsibility in dealing with illness
Langås-Larsen et al. (2018b), Norway	SSI&FGI 2017-2018	Individual interviews (n=15) and FGI (n=1) among TM healers in Northern Norway	20	30-70	Sámi; mix of Sámi, Kven & Norwegian	Healers' understanding of TM - process & practice
Mathisen (1989)	II 1984	Interviews people about a famous Sámi healer, Johannes Brateng (1890-1967), from Leivset, Fauske in Nordland, Norway	NA	NA	Sámi in Northern Sweden	The faith healing traditions in Salten region, the local people's evaluation of the treatment they were given, worldview on sickness and healing, and relation to Christianity and other forms of folk medicine
Myrvoll (2015)	EF 1999	Interviews and participant observation in Måsske, a village in Northern Norway	<90	NA	Sámi in Northern Norway	STM as being understood and practiced in Måsske both as a traditional medical system and in relation to other medical systems
Sande & Winterfeldt (1993), Norway	SSI 1992-1993	Interview 4 healers (1-4 sessions each) in Northern Norway by a medical doctor and a psychiatrist	4 healers & some patients	63-80	Sámi	Belief and practice of Healers in TM
Seitamo (1991), Finland	SSI 1967-74, 80-82, 86-90	Initial SSI (N=500, 1967-74), followed up interviews (N=10-20, 1980-82, 86-90) and observations	10-500	Adults	Skolt Sámi	Moxibustion use and change among the Skolt Sámi in Finland
Sexton & Stabbursvik (2010), Norway	SSI & PO 2003-2010	27 interviews among healers, patients and people who are familiar with TM	27	NA	Sámi; Mix of Sámi & Norwegian or Sámi Norwegian & Kven	TM transformations over time in Northern Norway
DuBois & Lang (2013)	BR 1910, 1918-1919	Authors' own experiences as a healer	137	NA	Sámi in Northern Sweden	Johan Turi's description of Sámi healing practices (animal, mineral, vegetable cures) one hundred years ago
Hämäläinen et al. (2018), Norway	NR 2017-2018	Literature review of Sámi public health & history from 5 databases	NA	NA	Sámi living in Norway	Suggests a two-stage model for the health promoting effects of yoik
Rountree & Smith (2016), Norway	NA 2010-2015	Literature review of studies conducted during 2010-2015	5 databases	NA	American Indians, Alaska Natives, First Nations, Native Hawaiians, Māori, Aboriginal Australians & Sámi	To identify child/youth well-being indicators that reflect the Indigenous worldview - strength-based indicators

following: Sámi, religious groups from the Laestadian church, those living in certain locations such as inner Finnmark, those having self-rated poor health, lower income, or more severe health complaints, those who are older, women, and those practicing medical pluralism [21,28]. Education and marriage do not influence TM usage.

This shows that prevalence of TM usage is not an insignificant matter that can be ignored. Then, one wonders why do people choose to use TM, including those who have higher education and have general health problems? We find a few factors that contribute to the choice of using TM. First, historically some remote parts of northern Norway have had an acute lack of conventional medical doctors until recent decades, so that TM was the only primary HCS, and this generated a tradition that continues today [26]. Second, Sámi TM is affordable to all since it is mainly provided for free [21–24,29,31,32]. This is important for the low-income group(s) of the population, which is similarly the case in countries such as South Africa, Tanzania, and Brazil [5]. Third, users of Sámi TM have cultural affinity. To some, Sámi TM is trustworthy, less stigmatising, and in line with the Sámi culture, particularly with regard to psychological problems [20–25,29]. To others, TM satisfies the need to deal with sickness holistically – including life’s events, relations with nature, social circles and spirits, especially facing crises such as cancer [3,24,30].

Sámi TM shows different beliefs and worldview from those of Western conventional medicine (WCM), especially with respect to spirituality and the view of the nature of health/diseases. Spirituality emerges from most (13 out of 19) of the studies. Sámi culture views the world as including both visible and invisible parts [30–32], while WCM accepts and acknowledges only the visible part of the world and human life. WCM focuses on disease/infirmity and its risk factors, sees disease as associated mainly with the physical body and pathogens. Pathogenesis, a framework pioneered and developed by Williamson and Pearse [44], is based on scientific and mechanical understanding of diseases – biomedical approach.

In contrast, we find that Sámi TM takes a holistic approach, of seeing disease as inseparable from its social, natural and supernatural/spiritual environment. TM is based on the belief that humans have body, mind and soul. Humans, nature and supernatural beings are all alive and strongly connected. “Health and healing were thus closely connected to religion and world view, affirming a holistic view in which health was a relation between the individual and the community.” [32](p56); “the illness is related to events and values which are central to the patient’s life.” [35] (p61). To achieve

health, one needs to be “in balance and harmony in human relations and the natural and spiritual world” [22,24,27,30]. This holistic view shares great similarity with Salutogenesis [45], which focuses on health and health-causing factors [46]. Table 6 displays the comparison of Sámi TM and WCM.

This difference in worldview takes the form of contested encounters between Sámi patients, Traditional healers and the HCS, as demonstrated from the interview of a Sámi psychiatric patient [31]. This patient who was struggling after her father’s death shared descriptions of seeing her deceased father in both dreams and in a waking state and received a comforting response from her Sámi Healer. However, she did not tell her therapist in the psychiatric clinic for fear of being diagnosed as “lunatic” and “using heavy drugs that you don’t really need.” The difference in worldview results in many Sámi patients not trusting their health providers in mental health clinics. This is an important motivation for Sámi patients to choose Sámi TM over HCS or in combination, while access to Sámi TM is shrouded in secrecy, as discussed extensively by Haetta [33] (p33).

In addition, we find that spirituality affects how medical practitioners were selected or trained. In WCM, everyone who is able to go to a medical school and complete the formal medical education and training can become a medical practitioner, for example, doctor, nurse, or psychologist. In Sámi TM, not everyone can be taught to be a healer. He or she must have a gift, a calling to be a healer. The older healers select the youth based on specific attributes and characteristics that can enable the acquisition of the knowledge and profession; it usually runs in the family line [21,30,32]. However, “To be a traditional healer is to receive both an inheritance from parents or another close relative, and the gift from God.” [32](p62). This is because the healer is “only a tool or a channel for some force outside of themselves” [29](p581); “healing takes place with the help from a higher power” [26](p3); “I have received my gifts from Heaven” [28](p47); “what was freely given to me, I freely give” [31]. This explains why healers from Sámi TM generally do not accept payment for their services. Similar cases are found in research on TM from other countries [6] (p198). The destiny of the healer is perceived to serve the common good and heal people in need. This kind of demand is not for everyone since it requires willingness to be a “tool”, “mentally strong”, “have high moral standards”, “inner desire to help others” in order to serve without payment. In addition, one needs to have the ability to keep the knowledge secret [26]: “one must be a reliable person with respect to both holding the knowledge esoteric and using the knowledge properly” [33] (p32). “I know of no

**Table 5.** Methods, materials and practices that include some treatment and healers' capacity in Sámi TM. The colours are used to label different categories: Red = method, Blue = materials, Green = illness, Pink = healers' capacity.

Description of methods, materials and practices in Sámi TM	Authors
Turi's remedies consist of <b>zootherapeutics</b> (31%), <b>physical acts</b> ( <b>massage, moxibustion, or manipulation</b> , 22%), <b>ethnobotanical cures</b> (17%), <b>mineral and chemical cures</b> (12%), and <b>magic rituals (including incantations and ritual acts)</b> that could be used alone (17%) or in conjunction with other types of healing (38%). They heal both <b>acute ailments</b> (65%) and <b>chronic conditions</b> (35%).	DuBois & Lang 2013
"the most common methods... in the Marka villages today are <b>reading, the laying of hands, and blood stopping</b> . A <b>guvhllar</b> ...reading heals by <b>reading prayers or formulas</b> ." other methods include <b>massage, bloodletting, tinder burning and cupping</b> . <b>Materials:</b> Herbs, plants, wool, ash, bone, urine, alcohol, tobacco, blood, feces, hair & other parts of animals. <b>Curing infections, blood poisoning, toothache, pain.</b> "finding lost things or persons; or make thieves immobile...make them bring back what they have stolen. ... 'cleaning' houses... & situations that represent social & relational problems - indirectly physical and mental well-being".	Haetta (2015)
"Yoik may be considered a tool to express and process negative emotions, as well as expressing and inducing positive emotions" p5	Hämäläinen et al. 2017
"Yoik presents a means for a direct and noncognitive expression of emotions . It is thus different from talking about or discussing feelings" p4	Hämäläinen et al. 2018
<b>Reading</b> through speaking <b>Biblical words</b> with the intention to heal. "When performing reading, the reader often uses <b>tools</b> that have natural elements, such as <b>water, stones, soil, a knife, and paper.</b> " p137	Kiil 2015
"The healing rituals may include prayer and the use of tools such as <b>moss, water, stones, wool</b> and soil. Examples of TM modalities offered in Northern Norway is <b>cupping, blood-stemming, laying on of hands, healing prayers (called reading), and rituals.</b> " p2	Kristoffersen et al. 2017
"the TM providers gave the patients <b>prayer cloths</b> (pieces of fabric with printed prayers) to wear when they were seriously ill..." p8	Kristoffersen et al. 2019a
"...' <b>reading</b> ' where the healer <b>read a prayer</b> over the illness [15,16]. This ' <b>reading</b> ' is used <b>alone or together</b> with <b>elements from the nature</b> such as <b>rocks or water</b> , or other remedies like <b>steel or wool</b> . When steel is applied, a <b>knife</b> is often used [17,18]. <b>Cupping</b> therapy is also a part of the TM in Northern Norway [19] as well as use of <b>medical plants</b> [20,21] and <b>tare</b> [18]. One of the specialties of the traditional healers in Northern Norway is to <b>stop bleedings</b> . This is used when people injure themselves or when they are in hospitals suffering from <b>bleedings after childbirth or operations</b> [17,18]. The ' <b>reading</b> ' can be received as <b>distant healing</b> or by <b>visiting</b> a traditional healer who is mostly non-professional and a non-commercial." p2	Kristoffersen et al. 2019b
" <b>Curing</b> " is a concept in traditional healing that comprises both " <b>reading a prayer</b> " and <b>applying "tools"</b> during the healing ritual. <b>Steel</b> is a material which is often used, in the form of <b>knives or scissors</b> " p7	Langås-Larsen et al. 2017
"The network offers help with practical tasks and supports the closest relatives & they contact the healers. In cases of minor illness, only a few local healers are contacted. However, in cases of severe illness, local and more distant healers are contacted, phenomenon is called <b>collective reading.</b> " p6	Langås-Larsen et al. 2018a
" <b>Reading</b> is a ritual where the healer reads a prayer based on the <b>Bible</b> to relieve symptoms and complaints [15]. <b>Blowing</b> is a ritual where the healer blows three times after having read the healing prayer." p2. "We use Bible texts, and the <b>word of God, The Lord's Prayer, and the Trinity.</b> ... This is a kind of <b>secret</b> that I must preserve (Martin)." p7. Materials used can be natural elements: <b>earth, fire, water, moss, stone, wool and potatoes</b> , as well as man-made element: <b>steel knife</b> .	Langås-Larsen et al. 2018b
"They are also commonly referred to as ' <b>miracle doctors</b> ' or ' <b>wonder doctors</b> ' " (p41). "Brateng's career as a faith healer really started in his forties. The sick were treated with <b>prayer</b> and the <b>laying on of hands</b> . Brateng <b>never made use of medicines of any kind</b> . Within a short time, he became one of the best known folk healers in the area. He was sought out by people from' nearly every part of Northern Norway, as well as by people from Northern Sweden." (p42). He treated both <b>humans and animals with touch or prayers, in person or over distance</b> .	Mathisen 1989
"Healer may <b>heal all kinds of ailments and diseases</b> . It is most common to heal <b>pain and inflammation</b> , and also <b>stop blood and blood poisoning</b> ... mental disorders such as anxiety. A healer is able to <b>send away ghosts</b> if someone is bothered by them. The healer can also <b>heal a person's general life</b> , for example by giving protection or <b>sending away affliction or plagues</b> . ... Today it is common to contact a traditional healer before giving birth or taking an exam. ... to ' <b>ease</b> ' <b>forthcoming hardships</b> " p60	Myrvoll 2015
" <b>Empowerment</b> of the patient or client by focusing on inherent strengths, including both internal and external resources, rather than problems to be overcome". p217	Rountree & Smith 2016
"Healer A: 'I heal by <b>the words of the Lord</b> . I must press at the site of the pain, <b>my hand pulls out the pain</b> , and the patient can feel it happen. If I heal many patients suffering from pain per day, I turn very <b>weak myself</b> .' Healer B: 'There are three stages of the healing. When I put <b>my hand</b> on the patient he will become hot and sweaty, then cold. Then the patient feels drowsy, and some of them fall asleep. Finally, the patient wakes up, feeling fine. The disease leaves the body along with the drowsiness.' Healer C: ' <b>I am able to stop bleeding without being present</b> , and I can <b>heal by phone</b> if I am told where the person is and where the disease is located. Still people come to me, because it is difficult to heal by phone. Therefore I do that only in cases of <b>emergency</b> .'"p44. "The female healer ... cured people who were <b>insane</b> and had <b>visual hallucinations</b> - that is, saw ghosts and headless people..." I heal by the <b>words of God and by advice</b> ; I put <b>advising thoughts into the prayer, without saying it out loud...</b> " p45.	Sande & Winterfeldt 1993
" <b>Moxibustion</b> , 'toulmos', burning of the fungus growth from a birch gnarl close to a diseased organ or at points where <b>pain</b> was felt."	Seitamo 1991
"There are many ways a <b>helper</b> can work—through <b>conversation, the laying-on of hands or the use of plants</b> — they are commonly contacted by phone and <b>help or heal over a distance.</b> " p581. "He uses a variety of techniques, including the <b>laying-on of hands, prayer, affirmations, voice, movement and body therapy</b> , and as <b>drum journeying for individuals and groups</b> " p584.	Sexton & Stabbursvik 2010
<b>Laying on of hands, herbal remedies, reciting of special verses from bible, reading, distance healing or prayer.</b>	Sexton & Sørli 2008
<b>laying on of hands, distance healing or "reading"</b> where special verses from <b>sacred texts</b> are "read" for the patient, intuitive forms of knowledge and <b>clairvoyance</b> .	Sexton & Sørli 2009

*one who has become haughty or arrogant in their role as a traditional healer. If so, people will not use you anymore. It is in a way self-regulating.” [32] (p67).*

The Sámi worldview on health and disease reflects on how people perceive and act when facing illness or crisis. In WCM, illness is the problem of the patient or patient’s family alone and treating illness is the responsibility of medical professionals. Patients’ family and social circles are usually not involved directly. This is closely related to the WCM’s worldview on illnesses as physical problems. In Sámi TM and culture, illness is collectively “owned” by a large social circle, the extended family called Siida [25]. Siida’s approach involves visiting and supporting the individual who is ill and his/her family while contacting multiple healers to provide multiple readings, for example, from clairvoyance to see where the problem is and from a healer or healers as to what prayers(s) to use for treatment. This collective responsibility is consistent with their holistic worldview. Mutual respect and support by family and community in times of illness are perceived as paramount and as the core values of Siida. Fabrega [47] calls this approach to illness a social not just a personal concern. Swantz et al. [48] and Polanyi [49] discuss Traditional healers as having a profession defined in terms of a gift economy in which reciprocity and mutuality are paramount within a holistic worldview. This holistic or systemic worldview enables Sámi TM providers to treat life’s difficult situation(s), since all areas are connected in a human’s life – human relations, the natural and spiritual worlds. This supports the notion that “Healing – ‘recovery’ may be culturally determined.” [32](p64)

The Sámi Indigenous Peoples’ worldview(s) including spirituality in addressing illness, share similarities found within African, Oriental, Australasian and Indigenous American cultures, as discussed by Oguamanam (2006). A wealth of theoretical writings exists on comparative features of indigenous and western health systems [27,50]. Scholars argue that many individuals consult TM due to the widely held belief that good health, disease, success or misfortune are not chance occurrences but rather are due to the actions of individuals or ancestral spirits [51,52]. Agrawal uses a “systems knowledge” framework to present characteristics of indigenous knowledge [53]: 1) It is systematically embedded in a community; 2) it is contextually bound; 3) it involves non-belief in individualist values; 4) it does not create a subject/object dichotomy.

If Sámi TM is as effective as it is claimed by statements found in this study, the benefit of integration

into the HCS could be enormous. Since Sámi TM claims to be able to carry out consultations and treatment through telephone and over distance, TM can reach an unlimited physical distance. Since a healer can consult many patients in a week and charges no money or expects only a small gift, this means that sustainability of the universal health care [5] is no longer an issue, even if the government pays the healer’s salary like that of a regular medical doctor. Even if Sámi TM covers only some health areas, integration could solve many urgent problems currently facing the health care system, from budgets, to shortage of medical personnel, to rural coverage of HCS.

We note that currently no Sámi TM is provided within HCS, though patients access it through informal networks [22]. The awareness of Sámi TM among the conventional medical personnel is minimal to non-existent [22–24,30]. This could be due to the earlier discussed secrecy which surrounds Sámi TM in general and the communication between patient and HCS [28,31]. However, two studies on elderly, severely ill cancer patients’ visits and use of Sámi TM show positive attitudes and open-mindedness by health care providers in northern Norway, where HCS personnel, if requested, delivered TM [24,28]. This evolving change illustrates signs of an awareness shift within psychiatric, elderly and cancer care in northern Norway in some of the study areas. Regarding the health seeking pattern(s), the study reveals that it seems common in northern Norway for Sámi patients to use both types of medicine by obtaining a diagnosis from the conventional medicine and accessing treatment from Sámi TM [31,32]. From the qualitative studies, we therefore see the belief by Sámi patients that Sámi TM is more effective than the HCS in treating their health problems and/or has fewer side effects than WCM.

The health-seeking pattern(s) of Sámi patients in northern Norway also indicates the need for medical pluralism and integration. Although only one quantitative study has addressed this issue directly, the desire for integration of Sámi TM and conventional medicine is clearly voiced by the psychiatric patients in this study among the majority of the Sámi (81%) and even some Norwegians (31%) [3]. Sámi patients’ health-seeking behaviours and healers’ medical practices indicate that both types of medicine are already used informally. Table 7 shows the comparison of mutual perspectives towards each other and the desire for integration between Sámi TM and WCM. A few studies emphasize the ethical principles of patient-centred care, and how integration could provide mutual benefit(s) between HCS and Sámi TM [22,23]. One Traditional healer cited the TM way of self-protection from accumulating

**Table 6.** Comparison between Sámi TM and Western Conventional Medicine (WCM) on worldviews, health providers' selection & illness responsibility.

Dimension	Sámi Traditional Medicine	Western Conventional Medicine
Belief system & Worldview	<ul style="list-style-type: none"> <li>World: Both visible &amp; invisible; Nature is alive</li> <li>Human: body, mind &amp; spirit</li> <li>Health: affected by social, natural and supernatural/spiritual environment</li> <li>Principles: balance and harmony in human relationships, the natural and spiritual world</li> <li>Socio-cultural context is important</li> <li><b>Holistic view(s)</b> including spirituality</li> </ul>	<ul style="list-style-type: none"> <li>World: Only visible</li> <li>Human: body, mind</li> <li>Diseases: affected by pathogens, genetics, and personal lifestyle</li> <li>Principles: scientific knowledge and method, to get rid of pathogens &amp; help body to return to homeostasis</li> <li>Individual's lifestyle is important</li> <li><b>Linear view</b> without spirituality</li> </ul>
Health providers' selection /training	<p>Only selected few:</p> <ul style="list-style-type: none"> <li>has a gift, a calling &amp; destiny</li> <li>willing to be a channel and tool for a higher force</li> <li>mentally strong, able to keep secrets</li> <li>older healers select and train the new ones</li> </ul>	<p>Unlimited:</p> <ul style="list-style-type: none"> <li>anyone who completes medical training, gets license &amp; follows regulations</li> <li>training from medical school and in health clinics</li> </ul>
Illness responsibility	Collective responsibility of Siida – the patient's extended family & network. Mutual respect & support are paramount and core values of Siida	Medical professional's responsibility solely. Patients' family and social circles are not directly involved

negative energy as an example that could benefit health professionals in HCS [29]. We interpret this as a call to embrace a pluralistic way of addressing and working with health, illness and wellbeing in which it is possible to accommodate both WCM and Sámi TM rather than seeing them as antagonistic.

The WHO TM strategy [5] embraces a pluralistic theory of health that accommodates the western and non-western approaches to health and disease. WHO and extensive research describe contemporary increased international emphasis on rethinking health services in light of local (sometimes indigenous) practices, worldviews and understandings [54], with particular

emphasis on mental health services [29,55]. WHO strongly recommends mutual respect and co-operation between traditional and conventional health practitioners in an era where there is a growing focus on "whole person care" and patient-centred health care [5].

This study has its limitation in three areas: the study selection process (same searching formular for all different databases), the screening process (authors' bias), and the criteria used that excluded non-peer reviewed and non-English literatures. The last one may affect the study results about Sámi TM from Sweden, Finland and Russia more than Norway.

**Table 7.** Comparison between Sámi TM and WCM on perspectives and integration.

Dimension	Sámi Traditional Medicine	Western Conventional Medicine
Perspectives toward the other medicine	<ul style="list-style-type: none"> <li>Awareness: Yes</li> <li>Informal collaboration: Yes - Healers use diagnoses from HCS for treatment</li> <li>Accessibility: No WCM is provided</li> </ul>	<ul style="list-style-type: none"> <li>Awareness: largely no</li> <li>Informal collaboration: minimal to non-existent.</li> <li>Accessibility: No Sámi TM is formally provided</li> </ul> <p>Changes:</p> <ul style="list-style-type: none"> <li>An awareness shift among psychiatric, elderly and cancer care providers</li> <li>Some positive attitudes/open mindedness</li> <li>Delivery of TM to certain classes of patients: elderly, severely ill or cancer, if requested</li> </ul>
Evidence for desire on integration	<ul style="list-style-type: none"> <li>Survey: positive among 186 psychiatric patients - Sámi (81%) and Norwegians (31%)</li> <li>Practice: both types of medicines are used among TM patients – get diagnosis from HCS and treatment from TM</li> </ul>	<ul style="list-style-type: none"> <li>No studies on this</li> <li>Patients' access to TM is mainly unknown among doctors in WCM</li> </ul>



However, this exclusion of local languages does not change the main conclusion of this study – there are no scientific studies in Sweden of the current situation of Sámi TM among published English journals.

## Conclusion

This study finds that spirituality and a holistic or systemic worldview of health, wellbeing and life dominate the Sámi TM. They permeate all aspects of the Sámi TM, from how a health provider is selected, including what qualities he/she should have, to how health care is practiced, to who takes responsibility for an illness. Differences in health care practice between Sámi TM and Western conventional medicine are quite large. They range from tools and materials used, to the physical distance(s) over which a consultation and treatment can take place, to the healthcare areas and issues covered, to the number of patients that a health provider can consult and treat in a given week, to the cost. Although the number of studies on Sámi TM so far is still too limited to make a generalised conclusion, the differences in how health providers work within the two types of medicine may still lead us to reflect on how much the belief systems and worldviews have contributed to patient-centred care. In light of the huge medical care costs in Sweden and in the world, especially since the start of the COVID-19 pandemic, an integration of traditional medicine and conventional medicine maybe timely and beneficial to not just the Sámi Indigenous population but the whole society.

Regarding research on Sámi TM, our results show that Norway is well ahead of the other three countries in the Sápmi area – Sweden, Finland, and Russia. There were more qualitative than quantitative studies. All the quantitative studies focused on prevalence of usage of Sámi TM or the desire for integration, while not addressing effectiveness. More studies, both qualitative and quantitative, are needed to understand the Sámi TM situation in Sweden, Finland, and Russia.

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## References

- [1] Swedish\_Institute. Sami in Sweden [Official website]. 2020 [updated 2020 Feb 7; cited 2020 July 08]. Available from: <https://sweden.se/society/sami-in-sweden/>.
- [2] Larsen ALL. Mapping the experience and use of traditional healing in Northern Norway - among conventional health care providers, users and traditional healers. Tromsø: UiT The Arctic University of Norway; 2018.
- [3] Sexton R, Sørli T. Should traditional healing be integrated within the mental health services in Sámi areas of northern Norway? Patient views and related factors. *Int J Circumpolar Health*. 2009;68(5):488–497. Epub 2010/01/05. PubMed PMID: 20044966.
- [4] Xu J, Yang Y. Traditional Chinese medicine in the Chinese health care system. *Health Policy*. 2009;90(2–3):133–139.
- [5] WHO. WHO Traditional Medicine Strategy: 2014–2023. Geneva: World Health Organization; 2013 [cited 2020 07-22]. Available from: [https://apps.who.int/iris/bitstream/handle/10665/92455/9789241506090\\_eng.pdf?sequence=1](https://apps.who.int/iris/bitstream/handle/10665/92455/9789241506090_eng.pdf?sequence=1).
- [6] Ouma A. From rural gift to urban commodity: traditional medicinal knowledge and socio-spatial transformation in the Eastern Lake Victoria Region. Umeå university; 2013, Umeå, Sweden.
- [7] Moshabela M, Zuma T, Gaede B. Bridging the gap between biomedical and traditional health practitioners in South Africa. *South Afr Health Rev*. 2016;2016(1):83–92.
- [8] NAFKAM. Norway's national research center for complementary and alternative medicine - NAFKAM: NAFKAM; 2020 [updated 2020 May 05; cited 2020 07–23]. Available from: <https://nafkam.no/en>.
- [9] OCIM. Osher center for integrative medicine - OCIM: KI; 2020 [updated 2018 August 24; cited 2020 07–23]. Available from: <https://ki.se/en/research/about-osher-center-for-integrative-medicine>.
- [10] Turi J. En bok om samernas liv. Muittalus samid birra. Umeå: Två förläggare; 1917.
- [11] Turi J, Turi P. Lappish texts. Demant-Hatt E, editor. Copenhagen: Kbh; 1918–1919.
- [12] Skott C Boteberättelser i Sapmi: minnen och tankar om botande (In Swedish: healing narratives in Sápmi. Memories and thoughts about healing) PhD thesis. Brogat 4, S-413 17 Goteborge, Sweden: Goteborgs Universitet; 1996.
- [13] Peters MD, Godfrey CM, Khalil H, et al. Guidance for conducting systematic scoping reviews. *Int J Evid Based Healthc*. 2015;13(3):141–146.

- [14] The Joanna JBITJBI. Briggs institute reviewers' manual 2015: methodology for JBI scoping reviews. Australia: The Joanna Briggs Institute; 2015.
- [15] Jong MC, Lown A, Schats W, et al. Mapping the concept, content and outcome of wilderness therapy for childhood cancer survivors: protocol for a scoping review. *BMJ Open*. 2019;9(8):e030544.
- [16] Tricco AC, Lillie E, Zarin W, et al. PRISMA extension for scoping reviews (PRISMA-ScR): checklist and explanation. *Ann Intern Med*. 2018;169(7):467–473.
- [17] MacDonald JP, Ford JD, Willox AC, et al. A review of protective factors and causal mechanisms that enhance the mental health of indigenous circumpolar youth. *Int J Circumpolar Health*. 2013;72(1):21775. Epub 2013/12/19. PubMed PMID: 24350066; PubMed Central PMCID: PMC3860333.
- [18] Miller BH. Connecting and correcting: a case study of Sami healers in Porsanger. Leiden: CNWS Publications; 2007.
- [19] Lehti V, Niemelä S, Hoven C, et al. Mental health, substance use and suicidal behaviour among young indigenous people in the Arctic: a systematic review. *Soc Sci Med*. 2009;69(8):1194–1203.
- [20] Hämäläinen S, Musial F, Graff O, et al. Yoik experiences and possible positive health outcomes: an explorative pilot study. *Int J Circumpolar Health*. 2017;76(1):1271590.
- [21] Kristoffersen AE, Stub T, Melhus M, et al. Prevalence and associations for use of a traditional medicine provider in the SAMINOR 1 survey: a population-based study on health and living conditions in regions with Sami and Norwegian populations. *BMC Complement Altern Med*. 2017;17(1):530. Epub 2017/12/14. PubMed PMID: 29233186; PubMed Central PMCID: PMC5728044.
- [22] Kristoffersen AE, Broderstad AR, Musial F, et al. Prevalence, and health- and sociodemographic associations for visits to traditional and complementary medical providers in the seventh survey of the Tromsø study. *BMC Complement Altern Med*. 2019;19(1):305. Epub 2019/11/13. PubMed PMID: 31711478; PubMed Central PMCID: PMC6849167 board (Associate Editor) of *BMC Complementary and Alternative Medicine*.
- [23] Kristoffersen AE, Stub T, Broderstad AR, et al. Use of traditional and complementary medicine among Norwegian cancer patients in the seventh survey of the Tromsø study. *BMC Complement Altern Med*. 2019;19(1):341. Epub 2019/12/01. PubMed PMID: 31783842; PubMed Central PMCID: PMC6884826.
- [24] Langås-Larsen A, Salamonsen A, Kristoffersen AE, et al. "There are more things in heaven and earth!" How knowledge about traditional healing affects clinical practice: interviews with conventional health personnel. *Int J Circumpolar Health*. 2017;76(1):1398010. Epub 2017/11/14. PubMed PMID: 29130420; PubMed Central PMCID: PMC5700539.
- [25] Langås-Larsen A, Salamonsen A, Kristoffersen AE, et al. "We own the illness": a qualitative study of networks in two communities with mixed ethnicity in Northern Norway. *Int J Circumpolar Health*. 2018;77(1):1438572. Epub 2018/02/23. PubMed PMID: 29466927; PubMed Central PMCID: PMC5827718.
- [26] Langås-Larsen A, Salamonsen A, Kristoffersen AE, et al. "The prayer circles in the air": a qualitative study about traditional healer profiles and practice in Northern Norway. *Int J Circumpolar Health*. 2018;77(1):1476638.
- [27] Rountree R. Strength-based well-being indicators for indigenous children and families: a literature review of indigenous communities' identified well-being indicators. *Am Indian Alsk Native Ment Health Res*. 2016;23(3):206–220. Epub 2016/07/08. PubMed PMID: 27383093.
- [28] Sande H, Winterfeldt S. Four sami healers: a preliminary interview study. *Nord J Psychiatry*. 1993;47(1):41–51.
- [29] Sexton R, Stabbursvik EAB. Healing in the Sámi North. *Cult Med psychiatry*. 2010;34(4):571–589.
- [30] Sexton R, Sørli T. Use of traditional healing among Sámi psychiatric patients in the north of Norway. *Int J Circumpolar Health*. 2008;67(1):137–148. Epub 2008/05/13. PubMed PMID: 18468265.
- [31] Kiil MA. The paradox of home. In: Miller BH, editor. *Idioms of Sámi Health and Healing. Patterns of Northern Traditional Healing 2*. Alberta, Canada: The University of Alberta Press; 2015. p. 131–156.
- [32] Myrvoll M. Traditional Sámi healing - heritage and gifts of grace. In: Miller BH, editor. *Idioms of Sámi Health and Healing. Patterns of Northern Traditional Healing 2*. Alberta, Canada: The University of Alberta Press; 2015. p. 47–69.
- [33] Haetta AK, Andersen KB. Secrecy in Sámi traditional healing. In: Miller BH, editor. *Idioms of Sámi Health and Healing. Patterns of Northern Traditional Healing 2*. Alberta, Canada: The University of Alberta Press; 2015. p. 25–45.
- [34] Hämäläinen S, Musial F, Salamonsen A, et al. Sami yoik, Sami history, Sami health: a narrative review. *Int J Circumpolar Health*. 2018;77(1):1454784. Epub 2018/03/28. PubMed PMID: 29580190; PubMed Central PMCID: PMC5912196.
- [35] Mathisen SR. Faith healing and concept of illness: an example from Northern Norway. *Temenos-Nordic J Comparative Religion*. 1989;25:41–68.
- [36] Seitamo L. Cultural and psychological perspectives on moxibustion among the Skolt Sami under conditions of cultural change. *Arctic Med Res*. 1991;Suppl(Suppl): 323–324. PubMed Central PMCID: PMC1365141.
- [37] DuBois TA, Lang JF. Johan Turi's animal, mineral, vegetable cures and healing practices: an in-depth analysis of Sami (Saami) folk healing one hundred years ago. PubMed PMID: 23941666 *J Ethnobiol Ethnomed*. 2013;9(1):9–57.
- [38] Mathisen SR. Constituting scholarly versions of a "Sami Folk Medicine" - research practices in the colonial contact zone. In: Miller BH, editor. *Idioms of Sámi Health and Healing. Patterns of Northern Traditional Healing 2*. Alberta, Canada: The University of Alberta Press; 2015.
- [39] WHO. Closing the gap in a generation: health equity through action on the social determinants of health: commission on social determinants of health final report. Geneva: World Health Organization; 2008. World Health Organization, editor.
- [40] Marmot M, Friel S, Bell R, et al. Closing the gap in a generation: health equity through action on the social determinants of health. *Lancet*. 2008;372(9650):1661–1669.

- [41] Scott-Samuel A, Stanistreet D, Crawshaw P. Hegemonic masculinity, structural violence and health inequalities. *Critical Public Health*. 2009;19(3-4). p287-292.
- [42] Irving G, Neves AL, Dambha-Miller H, et al. International variations in primary care physician consultation time: a systematic review of 67 countries. *BMJ Open*. 2017;7(10):e017902.
- [43] Risberg T, Lund E, Wist E, et al. Cancer patients use of nonproven therapy: a 5-year follow-up study. *J Clin Oncol*. 1998;16(1):6-12. PubMed PMID: 9440716. Epub 1998/01/24.
- [44] Williamson GS. Science, synthesis, and sanity: an inquiry into the nature of living. Chicago: H Regnery Co.; 1966.
- [45] Antonovsky A. The salutogenic model as a theory to guide health promotion. *Health Promot Int*. 1996;11(1):11-18.
- [46] Becker CM, Glascoff MA, Felts WM. Salutogenesis 30 years later: where do we go from here? *Int Electron J Health Educ*. 2010;13:25-32.
- [47] Fabrega JH. Hispanic mental health research: a case for cultural psychiatry. *Hispanic J Behav Sci*. 1990;12(4):339-365.
- [48] Swantz ML, Tripp AM. What went right in Tanzania: people's response to directed development. Tanzania: Dar es Salaam University Press; 1996.
- [49] Polanyi M. The tacit dimension. Chicago and London: University of Chicago press; 2009.
- [50] Oguamanam C. International law and indigenous knowledge: intellectual property, plant biodiversity, and traditional medicine. Toronto: University of Toronto Press; 2006.
- [51] Cunningham A. An Africa-wide overview of medicinal plant harvesting, conservation and health care. medicinal plants for forests conservation and health care. Roma (Italia): FAO; 1997.
- [52] Teshome-Bahiru W. Impacts of urbanisation on the traditional medicine of Ethiopia. *Anthropologist*. 2006;8(1):43-52.
- [53] Agrawal A. Dismantling the divide between indigenous and scientific knowledge. *Dev change*. 1995;26(3):413-439.
- [54] WHO. WHO traditional medicine strategy 2002-2005. Geneva: World Health Organization; 2002.
- [55] Kirmayer LJ, Tait CL, Simpson C. The mental health of Aboriginal peoples in Canada: Transformations of identity and community. In: Kirmayer LJ, Valaskakis GG, editors. *Healing traditions: The mental health of Aboriginal peoples in Canada*. Vancouver Toronto: UBC Press; 2009. p. 3-35.