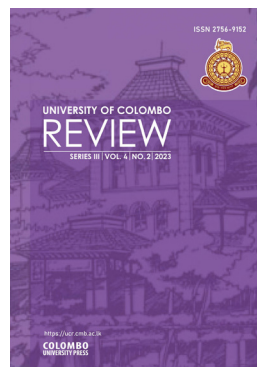


<https://doi.org/10.4038/ucr.v4i2.162>

University of Colombo Review (Series III),
Vol.4, No.2, 2023



Evaluating attitudes towards Ayurveda and Sri Lankan Indigenous Medicine (Deshiya Chikitsa) among working adults

F.R. Fyzer¹ & W.A.S.S Weerakoon²

1. Faculty of Medicine, University of Colombo

2. Faculty of Indigenous Medicine, University of Colombo

ABSTRACT

Sri Lanka has a pluralistic healthcare system. Allopathic medicine (synonym for the conventional, modern, or western medicine) currently dominates the Sri Lankan healthcare system. Ayurveda and indigenous Sri Lankan medicines (Deshiya Chikitsa) have been employed as complementary medicines. This descriptive cross-sectional article evaluates the level of awareness, utilization, and preference for Ayurveda and Sri Lankan indigenous medicine among an adult working population in the Colombo district. The sample consisted of 154 individuals aged 20 to 59 years old selected from two Colombo workplaces. The participants completed a self-administered questionnaire that asked about their awareness, utilization, and preference for Ayurveda and Sri Lankan indigenous medicine. The outcomes were assessed using the criterion of demographic analysis. According to the findings of this article, the majority of participants (98.05%) are aware that Sri Lanka possesses alternative medical systems such as Ayurveda and Sri Lankan indigenous medicine, and that the source of such awareness is their parents. However, knowledge about the medicine's use and effectiveness is limited. Despite this, 88.07% of participants have received Ayurvedic treatment or indigenous medicine from a qualified practitioner at least once in their lives, 60.93% would prefer to utilize them, and 87.42% would suggest Ayurveda and Sri Lankan indigenous medicines. This article also identifies and provides reasons for the lack of preference for Ayurveda and Sri Lankan indigenous medicine over conventional medicine, along with suggestions to enhance preference for Ayurveda and Sri Lankan indigenous medicine over conventional medicine.


KEYWORDS:

Ayurveda; Deshiya Chikitsa; Indigenous Medicine; Attitude; Awareness; Utilization; Preference

Suggested Citation: Fyzer, F.R. & Weerakoon, W.A.S.S. (2023). Evaluating attitudes towards Ayurveda and Sri Lankan Indigenous Medicine (Deshiya Chikitsa) among working adults. *University of Colombo Review* (New Series III), 4(2), 3-26

© 2023 The Authors. This work is licenced under a Creative Commons Attribution 4.0 International Licence which permits unrestricted use, distribution, and reproduction in any medium, provided the original work is properly cited.

✉ Corresponding author: rizwanafyzer@gmail.com

 <https://orcid.org/0009-0008-3526-7430>

Background

Ayurveda and Sri Lankan indigenous medicine are the oldest medical systems in Sri Lanka. These have been dated back to before Christ, and communities have benefited from the medicine for many centuries. Ayurveda and Sri Lankan indigenous medicine have been practiced in Sri Lanka for 3000 years, and 60-70% of the rural population in Sri Lanka meets their primary healthcare needs through Ayurveda or Sri Lankan indigenous medicine (Perera, 2012). Ayurveda and Sri Lankan indigenous medicine have mainly been utilized as closely related complementary medicines. Ayurvedic medicine has Indian origins, whereas Sri Lankan indigenous medicine began in Sri Lanka and was later influenced by Indian Ayurveda (Uragoda, 1987). Other names for Deshiya Chikitsa include Paramparika Wedakama, Hela Wedakama, and Deshiya Wedakama (Uragoda, 1987). According to the Sri Lankan Ayurveda Act (No.31 of 1961) the traditional medicine term is used for all forms of complementary medicines in Sri Lanka (*World Health Organization, Regional Office for Southeast Asia*, 2021). Ayurveda, Unani (Greco-Arabic medicine), Siddha (medical systems originating from Tamil traditions in India), and Deshiya Chikitsa (indigenous medicine originating from Sri Lanka) are the main types of complementary medicines in Sri Lanka (Jayasinghe et al., 2017). All complementary medicines in Sri Lanka influence one another. As a result, in Sri Lanka, the terms traditional medicine, indigenous medicine, and Ayurveda are used interchangeably to describe all complementary medicines.

Despite the fact that complementary medicines have affected one another, they are distinct. As a result, Ayurveda and Sri Lankan indigenous medicine are referred to in this article as two separate complementary medicinal systems in Sri Lanka. There are a number of synonyms used by scholars in the field for traditional medicine, ranging from complementary medicine, native medicine, supplementary medicine, indigenous medicine and local medicine. In most cases, however, the term “indigenous medicine” refers primarily to Deshiya Chikitsa (Abeyrathne, 2019). Therefore, in this article the ‘Sri Lankan indigenous medicine’ term refers to Deshiya Chikitsa alone. Ayurveda is widely utilized by a large proportion of the population out of traditional medicine in Sri Lanka (Perera, 2012). This article focuses only on Ayurveda and Sri Lankan indigenous medicine.

Ayurveda and Sri Lankan indigenous medicine were the most common medical systems in Sri Lanka during colonial and pre-colonial period (Liyanage & Ekanayaka, 2018). However, even though they are the oldest and the most common medical systems, due to various reasons a gradual decrease in the knowledge and practice of Ayurveda and indigenous medicine has been noticed compared to the modern medical system in the post-colonial period in Sri Lanka (Liyanage & Ekanayaka, 2018; Kankanamalage et al., 2014). Nevertheless, according to recent WHO estimates, there is more developing interest worldwide in obtaining herbal

and traditional treatment in the present time compared to the previous decade (*World Health Organization, Regional Office for Southeast Asia*, 2020). Traditional medicine is used by more than three-quarters of the people in the South-East Asian region for health treatment. In addition, traditional medicine is used by 70-90% of the population in industrial countries such as Canada, Italy, France, and Germany. According to a recent WHO worldwide report, 88% of WHO member states, or 170 member states, recognize the practice of traditional medicine. It further suggested that the true number of countries practicing traditional medicine is even higher (*World Health Organization. Regional Office for Southeast Asia*. 2020). Sri Lanka, too, as a South Asian country has shown developing interest in traditional medicine in the present time.

The Ayurveda medicine available in Sri Lanka is a combination of both Sri Lankan indigenous medicine (Deshiya Chikitsa) and Ayurveda medicine, which originated in India. As a result, Sri Lanka possesses a unique Ayurveda and Deshiya Chikitsa practice (Jones & Liyanage, 2018). Ayurvedic medicine focuses on two medical aspects: health promotion through disease prevention and disease treatment. These two points are well addressed in Ayurvedic classics, such as Caraka samhita, Susruthsamhita, and Ashtanga hridayam. (Sharma et al., 2007).

Deshiya Chikitsa focuses on treating illness (Jones & Liyanage, 2018). Classics of indigenous medicine such as Deshiya Chikitsa Sangrahaya, Vatika Prakranaya, Sarartha Sangragaya, Bhesajja Manjusa, and Sara Sankshepaare some of the main compilations of indigenous knowledge regarding treatments. These contain thousands of poems and stanzas on commonly identified diseases in several generations in Sri Lanka and the treatments that have been practiced. Deshiya Chikitsa is popular for treating orthopedic conditions, paralysis, snake bites, wounds and ulcers, ophthalmic conditions, and mental ailments. Certain families or traditions, people, and folk communities continue to uphold the country's indigenous medical knowledge system. The 'Horivila' tradition, for example, is well-known for orthopedic treatment, whereas the 'Yatiana' tradition is known for treating paralysis. This expertise is passed down within families or to apprentices via traditional means (Padmasiri, 2018). The families, individuals or folk communities that maintain indigenous medical systems in Sri Lanka are knowledgeable about the diverse relevant herbs in the country (Wasana et al., 2022).

Ayurveda and Deshiya Chikitsa have different types of classical dosage forms of internal medicine such as Kashaya (herbal decoctions), Guli (herbal pills), Kalka (herbal paste), Arishta/Asava (herbal fermented liquid preparations), and Choorna (herbal powders) mainly (*Sri Lankan Ayurveda pharmacopeia*, 1970; Abeyrathne, 2019). Presently, in addition to the standard classical Ayurveda and indigenous medical dosage forms, novel dosage forms such as tablets, capsules, syrups, etc., are emerging to increase palatability (Zaigham et al., 2019). Ready-to-use freeze-dried

powder (reconstituted powder) is also a recently explored novel dosage form tested for its safety and efficacy (Dahanayake et al., 2020).

An article on the use of traditional, complementary, and alternative medicine (TCAM) in Sri Lankan cancer care showed that 67.4% of survey participants had used one or more TCAM in combination with biomedicine for cancer treatment (Broom et al., 2010). In rural Sri Lanka, 18% of the population uses both Ayurveda and indigenous medicine to treat oral conditions, and of these, 72% and 25% use Ayurveda and other forms of traditional medicine respectively (Nanayakkara & Ekanayake, 2008).

Ayurveda and indigenous medicine consist of treatment modalities for all physical and mental ailments (Tripathi 2012). More than treating diseases, Ayurvedic medicine encourages healthy living and maintaining longevity (Jones & Liyanage, 2018). It emphasizes two outcomes: disease prevention and treatment using herbal remedies and lifestyle changes (Sharma, Caraka Samhita, 2014). Its function is similar to that of immune modulators, and it rejuvenates and nourishes the body during the convalescence stage (Niraj & Varsha, 2020).

It is worthwhile to assess the attitudes towards Ayurveda and Sri Lankan indigenous medicine held by the general public at present. Printed sources such as classics (primary sources or textbooks written by sages by the time of the origin of Ayurveda medicine and *Deshiya Chikitsa*), modern publications (secondary sources written by Ayurvedic medical scholars related to Ayurveda medicine based on classics), grey research resources (research works done but not yet published from the hospitals and institutions that practice and teach traditional medicine), and approved research works found using search engines such as Google Scholar and PubMed have been reviewed under the relevant study area of the article to gather background information on previous studies. The studies reviewed were limited to those that inform our understanding of Sri Lankan perceptions regarding Ayurveda and Sri Lankan indigenous medicine. There have been a few publications written about attitudes towards traditional medicine in Sri Lanka, but none of them have addressed awareness, utilization, and preference among working adults in Colombo. An article published on the use and attitudes towards complementary medicine among allied science students at the University of Peradeniya (Dayarathana et al., 2022) demonstrated that 70% of students had used complementary medicine and that more than one-third of students had a positive attitude toward complementary medicine, but it did not discuss the rates of preference among students to intake or recommend others. A research article published in the United States in 2004 stated that 62% of 31,044 participants in the study of 18 years and over had used some form of complementary therapy for the last 12 months when seeking health benefits to treat backache, neck pain, joint disorders, and some mental conditions. More than half (54.9%) of them believed that complementary medicine with conventional

medicine would help treat diseases (Patricia et al, 2004). In addition to the article published in 2004 another article published in 2015 was conducted in the USA by using combined data from 88,962 adults aged 18 and over collected as part of the 2002, 2007, and 2012 National Health Interview Survey. When these were analyzed, it was found that trends in the use of complementary health approaches among adults in the USA have been increasing from 2002 to 2012 (Clarke et al., 2015).

A comparative study (Imran et al., 2017) conducted to evaluate the utilization of Ayurveda compared the use of modern medication by adults older than 18 (mean age 20+-2.33) of rural North India, and revealed that there was utilization of Ayurveda (62%) and traditional therapies (76%) for various afflictions. Further, it mentioned that 60% of the respondents preferred to take complementary medicine and that 71% considered complementary medicine more effective than conventional treatments, while 83% would like to recommend complementary medicine to their family and friends (Imran et al., 2017).

The main aim of the study in this article on evaluating attitudes towards Ayurveda and Sri Lankan indigenous medicine was to evaluate the awareness, utilization, and preference regarding Ayurveda and Sri Lankan indigenous medicine among the working adult population aged between 20 and 59 years old, working at a government sector and non-government (private) sector institution in the Colombo district. The specific objectives were to determine separately the awareness, utilization, and preference regarding Ayurveda and Sri Lankan indigenous medicine and to discuss these in relation to demographic characteristics within the same sample. The results of this article will be useful in the future to improve and develop the Ayurveda and Sri Lankan indigenous medicinal sectors in order to increase public positive attitudes. For example, effective awareness programs related to Ayurveda and Sri Lankan indigenous medicine can be introduced. The results of this article also provide information for planning and evaluating preventive and curative services. The results could be utilized to generate hypotheses to be tested by analytical studies, although the study sample of working adults in the Colombo district is a limitation. Further studies will be needed island-wide.

Materials and methods

This article based on a descriptive cross-sectional study. The primary data were collected using a 30-minute self-administered questionnaire with 154 working adults attached to two workplaces in the Colombo district. The data collection was done among working adult participants only from the Colombo district, therefore, the results of the article cannot be generalized island-wide which is a limitation of the study. Further, out of the varieties of traditional medicine in Sri Lanka, this article focused only on attitudes towards Ayurveda and Sri Lankan Indigenous Medicine specifically.

The sample based in the article has been stratified by age, gender, marital status and income. The survey was conducted in September 2020. The formulation used by Lwanga and Lemeshaw, 1991 ($N = Z^2 P (1-P) / D^2$) (Lwanga & Lemeshaw, 1991) was used for sample size calculation with a 95% confidence interval. The response rate was 98%. Cluster sampling was used. The sample comprised equal numbers representing both the government sector and the non-government (private) sector. Inclusion criteria for recruitment were working adults aged between 20 and 59 years old in two workplaces in the Colombo district. Workers who were already suffering from some chronic diseases (non-communicable diseases such as diabetes, cardiovascular diseases, strokes and cancers) were excluded. Ethical clearance was obtained from the Ethical Review Committee of the Faculty of Medicine, University of Colombo, 28th May 2020 (ERC Reference No PGDHD/18/24). Informed written consent was obtained from all the participants. Only those who consented were included. Procedures for maintaining respondents' anonymity and data confidentiality were followed.

A validated questionnaire was used. The questionnaire included questions about Ayurveda and Sri Lankan indigenous medicine in relation to demographic characteristics, and evaluated the level of awareness, utilization, and preference regarding the medical practice. This is a quantitative study. The MS Excel 2010 software was used for statistical analysis. The data were entered into a systematic arrangement in an MS Excel spreadsheet, averages and percentages were calculated and data were interpreted after analysis.

The results of the article included data on awareness, utilization, and preference regarding the use of Ayurveda and Sri Lankan indigenous medicine among the working population in the sample. Demographic characteristics have been tabulated with descriptions below.

Results

Respondent characteristics

Out of a total of 154 respondents aged between 20 and 59 years old, the majority (59.09%) were 20-29 years old. The sample consisted of both males and females with a majority of male working adults (52.60%). Ethnically the majority was Sinhalese (64.29%), and out of the sample, 50.65% were married and 49.35% were unmarried. Income level was considered in the study because it has an impact on utilization and preference. It was identified that the majority of participants had an income of above Rs. 40,000 per month during the time of data collection (Tables 1.1, 1.2, 1.3, 1.4, 1.5).

Demographic characteristics of participants (n=154)**Table 1.1: Age wise distribution (n=154)**

Age (years)	Numbers	Percentage (%)
20-29	91	59.09
30-39	38	24.68
40-49	11	7.14
50-59	14	9.09
Total	154	100

Table 1.2: Sex wise distribution (n=154)

Sex	Numbers	Percentage (%)
Male	81	52.60
Female	73	47.40
Total	154	100

Table 1.3: Ethnicity wise distribution (n=154)

Ethnicity	Numbers	Percentage (%)
Sinhala	99	64.29
Tamil	9	5.84
Muslim	45	29.22
Burgher	1	0.65
Total	154	100

Table 1.4: Marital state wise distribution (n=154)

Marital state	Numbers	Percentage (%)
Unmarried	76	49.35
Married	78	50.65
Total	154	100

Table 1.5- Monthly income wise distribution (n=154)

Monthly income (Rs)	Numbers	Percentage (%)
<20,000	21	13.64
20,000-39,000	38	24.67
40,000-59,000	46	29.87
60,000-79,000	34	22.08
>80,000	15	9.74
Total	154	100

The assessment of awareness of Ayurveda and Sri Lankan indigenous medicine

Table 02 indicates the respondents’ awareness of Ayurveda and Sri Lankan indigenous medicine. Only three (1.95%) individuals, all between 20-29 years old, were not aware of the availability of Ayurveda and indigenous medicine in Sri Lanka. As they had never heard about these medicines, they could not respond to the questions on awareness in the questionnaire. The rest of the individuals (151 participants) were able to respond to all the questions.

Table 02: The assessment of awareness of Ayurveda and Sri Lankan indigenous medicine (n=154)

Age (years)	Participants unaware of the availability of Ayurveda and Sri Lankan indigenous medicine		Participants aware of the availability of Ayurveda and Sri Lankan indigenous medicine	
	Number	Percentage %	Number	Percentage %
20-29	3	1.95	88	57.14
30-39	0	0.00	38	24.68
40-49	0	0.00	11	7.14
50-60	0	0.00	14	9.09
Total	3	1.95	151	98.05

The source of awareness

Table 03 demonstrates that the majority of the participants (out of those who already knew about Ayurveda (n=151)) had been informed for the first time about Ayurveda and Sri Lankan indigenous medicine by their parents or grandparents (82.12%). Fewer participants were made aware of them via social media/internet (4.64%) and magazines (0.66%).

Table 03: Source of awareness (n=151)

Source of Awareness	Number	Percentage (%)
Parents/ grandparents	124	82.12
Friends	19	12.58
Magazine	1	0.66
Social media / Internet	7	4.64
Total	151	100

Awareness of the available dosage forms in Ayurveda and Sri Lankan indigenous medicine

The majority of participants (80.79%) knew of classical preparations (Kashaya, Kalka, Guli, Choorna, etc.) and commercial products such as Paspanguva (a commercial product made out of the dried form of five herbal ingredients) and teabags, but only 37.75% knew about the availability of novel forms (tablets, capsules, syrups, etc.) that have been developed to increase palatability. This awareness has been shown in Table 04.

Table 04: Awareness of available dosage forms in Ayurveda and Sri Lankan indigenous medicine (n=151)

Dosage form in Ayurveda and Sri Lankan indigenous medicine	Number	Percentage %
Classical preparations	122	80.79
Commercial products	122	80.79
Modified forms	57	37.75

(Participants were allowed to select multiple options)

Opinions on effectiveness/ineffectiveness on the purpose of Ayurveda and Sri Lankan indigenous medicine

Table 05 indicates that the majority (74.17%) of participants felt that Ayurveda and Sri Lankan indigenous medicine were effective for treatment for chronic disease conditions and promotion of health (54.97%). A few participants were felt that these medicines were also effective for acute conditions (23.84%).

Table 05: Opinions on effectiveness/ineffectiveness on the purpose of Ayurveda and Sri Lankan indigenous medicine (n=151)

Medical purpose	Number	Percentage %
Acute	36	23.84
Chronic	112	74.17
Health promotion	83	54.97

(Participants were allowed to select multiple options)

Awareness of common uses of Ayurveda and Sri Lankan indigenous medicine in practice

The majority of participants were aware that the use of Ayurveda and Sri Lankan indigenous medicine for orthopedic conditions (70.86%) was the most common use in this medical practice. A considerable proportion of participants (54.30%) were aware that the majority of common diseases can be treated with Ayurveda and Sri Lankan indigenous medicine. This has been shown in Table 06.

Table 06: Awareness of common use of Ayurveda and Sri Lankan indigenous medicine in the practice (n=151)

Indications	Number	Percentage%
Muscular skeletal and orthopedic	107	70.86
Neurological	54	35.76
Respiratory	49	32.45
Skin	58	38.41
Majority of common diseases	82	54.30

(Participants were allowed to select more than one options during the time of data collection)

Opinions on the awareness of use of Ayurveda and Sri Lankan indigenous medicine for children below five years of age

According to Table 07, some married (19.87%) and unmarried (17.88%) participants were unaware of the use of Ayurveda and Sri Lankan indigenous medicine for children under the age of five. However, the 26 numbers of individuals (17.22%) felt that Ayurveda and Sri Lankan indigenous medicine would be no harm for children below 5 years of age.

Table 07: Opinions on awareness of use of Ayurveda and Sri Lankan indigenous medicine for children below five years of age (n=151)

Opinion	Married		Single	
	Number	Percentage%	Number	Percentage %
Best method, no harm	14	9.27	12	7.95
Good, little harm	11	7.28	11	7.28
Better but with limited application	22	14.57	22	14.57
Harmful	1	0.66	1	0.66
Don't know	30	19.87	27	17.88
Total	78	51.66	73	48.34

An assessment of the use of Ayurvedic and Sri Lankan indigenous medicine

This section presents the results regarding utilization by the participants.

Utilization of Ayurveda and Sri Lankan indigenous medicine (categorized by age)

Out of the participants who were already aware of the medicine, the majority of participants (44.37%) had rarely used Ayurveda and Sri Lankan indigenous medicine. 51 (33.77%) of the participants often used Ayurveda and Sri Lankan indigenous medicine. A considerable proportion of participants (21.85%) were aware of Ayurveda and Sri Lankan indigenous medicine but had not utilized them (Table 08).

Table 08: Utilization of Ayurveda and Sri Lankan indigenous medicine (categorized by age) (n=151)

Frequency of utilization of Ayurveda and Sri Lankan indigenous medicine according to age	Number	Percentage %
Aware but not used		
20-29	22	14.57
30-39	9	5.96
40-49	1	0.66
50-59	1	0.66
Total	33	21.85
Rarely used		
20-29	38	25.17

30-39	19	12.58
40-49	4	2.65
50-59	6	3.97
Total	67	44.37
Often used		
20-29	28	18.54
30-39	10	6.62
40-49	6	3.97
50-59	7	5.30
Total	51	33.77

Consumption of Ayurveda and Sri Lankan indigenous medicine within the last year according to age

Out of the participants, the majority of individuals (82.12%) had utilized Ayurveda and Sri Lankan indigenous medicine within the last year (Table 09).

Table 09: Consumption of Ayurveda and Sri Lankan indigenous medicine within the last year according to age (n=151)

Age	Utilization of Ayurveda and Sri Lankan indigenous medicine within the last year		Non-utilization of Ayurveda and Sri Lankan indigenous medicine within the last year	
	Number	Percentage %	Number	Percentage %
20-29	75	49.67	13	8.61
30-39	27	17.88	11	7.28
40-49	10	6.62	1	0.66
50-60	12	7.95	2	1.32
Total	124	82.12	27	17.88

Utilization of Ayurveda and Sri Lankan indigenous medicine within the last year (month-wise distribution)

Most of the individuals had utilized the medicines within the last six months (63.71%). The results for utilization within the last one month (32.26%), within the last three months (15.32%), and within the last six months (16.13%) have been reported in Table10.

Table 10: Month-wise utilization of Ayurveda and Sri Lankan indigenous medicine within the last year (n=124)

Utilization of Ayurveda and Sri Lankan indigenous medicine month-wise.	Number	Percentage
Within the last one month	40	32.26
Within the last three months	19	15.32
Within the last six months	20	16.13
Within the last twelve months	45	36.29
Total	124	100

Purpose of utilization of Ayurveda and Sri Lankan indigenous medicine within the last year (treatment of acute conditions and chronic conditions prescribed by qualified practitioners and home remedies prescribed by individuals themselves for acute conditions and health promotion)

The majority had utilized Ayurveda and Sri Lankan indigenous medicine as home remedies prescribed by themselves for acute conditions (46%). A considerable proportion of participants had used self-prescribed Ayurveda and Sri Lankan indigenous medicine for the promotion of health (26.67%). Similar proportions of participants used Ayurveda and Sri Lankan indigenous medicines prescribed by qualified practitioner for treating chronic disease conditions (26.67%) and purpose of acute conditions (17.33%) (Table 11).

**Table 11: Purpose of utilization of Ayurveda and Sri Lankan indigenous medicine within the last year
(treatment of acute conditions and chronic conditions prescribed by qualified practitioners and home remedies prescribed by individuals themselves for acute conditions and health promotion) (n=124)**

Purpose of utilization	Number	Percentage %
Acute(medicine prescribed by a qualified Ayurvedic physician)	26	17.33
Chronic(medicine prescribed by a qualified Ayurvedic physician)	40	26.67
Home remedies for acute disease conditions (self-prescribed)	60	46.00
Health Promotion(self-prescribed)	40	26.67

(Participants were allowed to select multiple options)

Opinions about Ayurveda and Sri Lankan indigenous medicine as a treatment option in relation to monthly income

The majority of individuals, irrespective of income, chose Ayurveda and Sri Lankan indigenous medicine as complementary treatment options (55.60%). In addition to that, individuals with an income below Rs. 20,000 have chosen Ayurveda and Sri Lankan indigenous medicine home remedies as their first treatment option (5.96%). The majority of individuals with an income over Rs. 80,000 (6.62%) chose the option of ‘when other medications are not effective’ (Table 12).

Table 12: Ayurveda and Sri Lankan indigenous medicine as a treatment option according to monthly income (n=151)

Ayurveda and Sri Lankan indigenous medicine as treatment option	Income									
	<20,000		20,000-39,000		40,000-59,000		60,000-79,000		>80,000	
	Number	Percentage%	Number	Percentage%	Number	Percentage%	Number	Percentage%	Number	Percentage%
First option	9	5.96	6	3.97	4	2.64	3	1.99	0	0.00
Complementary	7	4.63	21	13.91	30	19.86	24	15.89	2	1.32
When other medications are not effective	4	2.64	8	5.30	8	5.30	6	3.97	10	6.62
Never used	1	0.66	3	1.99	1	0.66	1	0.66	3	1.99
Total	21	13.91	38	25.17	43	28.48	34	22.52	15	9.92

Parents’ experiences on utilization of Ayurveda and Sri Lankan indigenous medicine for their children below five years of age

Among the parents in the study, an average proportion of participants (55.56%) reported that they have not utilized Ayurveda and Sri Lankan indigenous medicine for their children below five years of age. However, a considerable proportion of participants (44.44%) have utilized Ayurveda and Sri Lankan indigenous medicine for their children (Table 13).

Table 13: Parents’ experiences on utilization of Ayurveda and Sri Lankan indigenous medicine for their children below five years of age (n=78)

Parents opinion on utilization of Ayurveda and Sri Lankan indigenous medicine for children below five years	Total	Percentage %
Yes	32	44.44
No	40	55.56
Total	72	100

Whether the Ayurveda or Sri Lankan indigenous medicine utilized was prescribed by qualified medical practitioners or not

The majority of the participants (88.07%) have taken Ayurveda and Sri Lankan indigenous medicine prescribed by qualified Ayurveda or Sri Lankan indigenous practitioners at least once in their lifetime (Table 14).

Table 14: Was Ayurveda or Sri Lankan indigenous medicine prescribed by a qualified practitioner or not (n=151)

Whether the medicine was prescribed by qualified practitioners or not	Total	Percentage %
Yes	133	88.07
No	18	11.92
Total	151	100

Preferences regarding Ayurveda and Sri Lankan indigenous medicine

This section comprises the results obtained about preferences regarding Ayurveda and Sri Lankan indigenous medicine among the participants.

Rating the quality and effectiveness of utilized Ayurveda and Sri Lankan indigenous medicine prescribed by a qualified practitioner

The majority appraised the effectiveness of Ayurveda and Sri Lankan indigenous medicine as effective (39.10%). A considerable proportion of participants rated them as excellent (27.07%), and as satisfactory (26.32%). Very few individuals rated them as unsatisfactory (Table 15).

Table 15: Rating the quality and effectiveness of Ayurveda and Sri Lankan indigenous medicine prescribed by qualified practitioners (n=133)

Rating	Number	Percentage %
Excellent	36	27.07
Good	52	39.10
Satisfactory	35	26.32
unsatisfactory	10	7.51
Total	133	100

Rating the quality of Ayurveda and Sri Lankan indigenous medicine available in hospitals and traditional medicine pharmacy

The majority of participants were satisfied (43.71%) with the quality of medicines available at hospitals and traditional medicine pharmacy (Table 16).

Table 16: Rating the quality of Ayurveda and Sri Lankan indigenous medicine available in hospitals and traditional medicine pharmacy (n=151)

Rating	Number	Percentage %
Excellent	12	7.95
Good	48	31.78
Satisfactory	66	43.71
Poor	13	8.61
Very poor	12	7.95
Total	151	100

Preference to take Ayurveda and Sri Lankan indigenous medicine in the future

The majority of individuals stated that they are very likely to take Ayurveda and Sri Lankan indigenous medicine (31.79%) in the future. A similar proportion of participants (29.14%) would be likely to do so in the future. A considerable proportion of participants (25.83%) had no clear idea about their preference. Some were unlikely (8.61%). The lowest proportion of participants stated that they would be very unlikely (4.64%) to use Ayurveda and Sri Lankan indigenous medicine in the future (Table 17).

Table 17: Preference to take Ayurveda and Sri Lankan indigenous medicine in the future (n=151)

Rating	Number	Percentage %
Very Likely	48	31.78
Likely	44	29.14
No idea	39	25.83
Unlikely	13	8.61
Very unlikely	7	4.64
Total	151	100

Willingness to recommend Ayurveda and Sri Lankan indigenous medicine

The majority of participants across all age groups were willing to recommend Ayurveda and Sri Lankan indigenous medicine (87.42%) (Table 18).

Table 18: Willing to recommend Ayurveda and Sri Lankan indigenous medicine according to age (n=151)

Age	Yes		No	
	Number	Percentage %	Number	Percentage %
20-29	76	50.33	12	7.94
30-39	33	21.85	5	3.31
40-49	11	7.28	0	0.00
50-60	12	7.94	2	1.32
Total	132	87.42	19	12.58

Reasons for lack of preference for Ayurveda and Sri Lankan indigenous medicine over conventional medicine

The major cause for low preference is difficulty in self-preparing Ayurveda and Sri Lankan indigenous medicine regularly with participants' busy lifestyles (75.50%). Low palatability was also an issue (32.45%). Another reason was the time taken to achieve the desired outcome (29.14%) (Table 19).

Table 19: Reasons for lack of preference for Ayurveda and Sri Lankan indigenous medicine (n=151)

Reasons	Number	Percentage %
Difficult to prepare	114	75.50
Not palatable	49	32.45
Expensive	21	13.91
Not achieving the desired outcome in time	44	29.14
Producing side effects	13	8.61

(Participants were allowed to select multiple options)

Suggestions to improve Ayurveda and Sri Lankan indigenous medicine

Suggestions for improvements in Ayurveda and Sri Lankan indigenous medicine in the future are detailed in Table 20.

Table 20: Suggestions to improve Ayurveda and Sri Lankan indigenous medicine (n=71)

Suggestions	Number	Percentage %
Introduce modified form of medicine with better palatability	28	39.43
Increase awareness	16	22.54
Need government recognition	3	4.23
Need research studies	6	8.45
Standardization of medicines	8	11.27
Availability and accessibility	10	14.08
Total	71	100

Discussion

This article is based on a study of 154 people working in public and private sector institutions in the Colombo district to assess their level of awareness, utilization, and preference regarding Ayurveda and Sri Lankan indigenous medicine. Tables 1.1, 1.2, 1.3, 1.4, and 1.5 demonstrate the breakdown of the sample in this article by age, gender, ethnicity, marital status, and income. Individuals’ attitudes towards Ayurveda and Sri Lankan indigenous medicine were analyzed and discussed in relation to demographic factors. The study sample includes individuals aged between 20 and 59 years old, with the majority of responses obtained from the 20–29-year-old age group. The sample contained both males and females with a greater number of

participants being male. The distribution was multiethnic with a greater proportion of Sinhalese. When comparing the results of this article with a previously published article (Nasmeer et al., 2018), there are similarities in that both studies demonstrated that participants have limited awareness about Ayurveda and Sri Lankan indigenous medicine. The awareness of Ayurveda and Sri Lankan indigenous medicine is not only restricted to the availability of the medicines, but also to medicinal forms, the effectiveness of treatments, and knowledge about application in different age groups, especially children (Tables 02-07). This contrasts with the awareness of Ayurveda and Sri Lankan indigenous medicine in previous generations, which was relatively high (Liyanage & Ekanayaka 2018). According to the current article, the majority of participants learned about Ayurveda and Sri Lankan indigenous medicine from their parents or grandparents (Table 03). This is due to prior generations' use and reliance on Ayurveda Sri Lankan indigenous medicine, and information passed down (Jones & Liyanage 2018). Furthermore, the present generation is more adapted to the modern medical system (Rajaguru, 2020). Table 08 shows that a number of individuals (33; 21.85%) have never used Ayurveda and Sri Lankan indigenous medicine and that 67 of the persons (44.37%) had rarely utilized Ayurveda and Sri Lankan indigenous medicine, while 51 (33.77%) frequently utilized them. And a systematic review done in India of people adopting traditional and AYUSH (Ayurveda Unani Sidda Homeopathy) systems of medicine showed that utilization is confined to a particular geographical area and a special group of people in India (Samal & Dehury, 2019).

According to Table 09, 82.17% of participants used Ayurveda and Sri Lankan indigenous medicine in the preceding year. It is speculated that this outcome was a result of using Ayurveda and Sri Lankan indigenous medicine during the COVID-19 pandemic (Udayanga & Ekanayake 2021). These results can be compared with a survey on medicinal materials used in traditional systems of medicine in Sri Lanka, which emphasizes that 60-70% of the Sri Lankan rural population's healthcare needs were covered by Ayurveda and Sri Lankan indigenous medicine (Kankanamalage et al., 2014). There has also been no evidence of an estimate of the utilization of Ayurveda and Sri Lankan indigenous medicine among the Sri Lankan urban population in other studies. Compared to rural populations, the urban population's utilization of Ayurveda and Sri Lankan indigenous medicine can be varied. The results presented in this article emphasize that people in urban Sri Lanka still use Ayurveda and Sri Lankan indigenous medicine for health promotion (26.67%): they self-prescribe remedies using their knowledge of Ayurveda and Sri Lankan indigenous medicine when a new disease emerges with no definite treatment. This article also focused on how the level of income may affect the utilization of Ayurveda and Sri Lankan indigenous medicine when there is a medical need. Table 12 clearly shows that irrespective of the level of income, the majority of the individuals utilized Ayurveda and Sri Lankan indigenous medicine as complementary medical sources.

However, it shows that those with a monthly income below Rs. 20,000 demonstrate more affinity towards Ayurveda and Sri Lankan indigenous medicine as their first treatment option, while individuals with a monthly income above Rs. 80,000 mostly utilized them either when the conventional medical system had failed to give better results, or never consumed them at all. Table 07 in the article presents participants' awareness of using Ayurveda and Sri Lankan indigenous medicine for children below five years of age, and 57 individuals (37.75%) were not aware that Ayurveda and Sri Lankan indigenous medicine can be used for children below five years. 44 individuals (29.14%) said that they were aware that Ayurveda and Sri Lankan indigenous medicine have limited applications for children below five years in general. Table 13 of the article presents the experiences of the parents in the sample utilization of Ayurveda and Sri Lankan indigenous medicine for their children below five years, demonstrating that 40 (55.56%) had not utilized it for their children. The results of Table 07 and Table 13 show that the utilization of Ayurveda and Sri Lankan indigenous medicine for children below five years by parents in the sample could be due to the lack of awareness and knowledge about, and lack of trust and confidence in, Ayurveda and Sri Lankan indigenous medicine. These results determined that the utilization of Ayurveda and Sri Lankan indigenous medicine is marginal.

However, according to the study, about 88.07% of participants have taken Ayurveda, or Sri Lankan indigenous medicine, from a qualified practitioner at least once in their lives for different medical conditions when the conventional medical system has failed to completely cure those conditions (Table 14). Out of the respondents' ratings of the medicine that they obtained from qualified Ayurveda or indigenous practitioners, the majority had positive opinions: 27.07% said it was excellent, 39.10% said it was good, and 26.32% were satisfied with the medicine they had taken (Table 15). The quality of Ayurveda and Sri Lankan indigenous medicine was rated in the article based on participants' opinions, and the majority had positive opinions regarding the quality. The article shows that 44% were satisfied with the quality of medicines available on the market, while 32% stated that it was good. 8% stated that it is excellent, while the other 16% commented that it is poor or very poor in quality (Table 16). The article revealed that 60.93% of individuals would like to take Ayurveda and Sri Lankan indigenous medicine in the future, irrespective of age (Table 17). The majority of all age groups (87.42% of participants) would recommend Ayurveda and Sri Lankan indigenous medicine to others (Table 18). There are some factors that have been understood to cause a lack of preference for Ayurveda and Sri Lankan indigenous medicine when compared to conventional medicine (Western medicine) and are as follows in order from most to least influential: Difficulty of preparation (75.50%), low palatability (32.45%), not achieving desired outcomes within a given time (29.14%), expense (14%), and production of side effects (8.61%) (Table 19). This article also details suggestions from the participants to improve

the preference for Ayurveda and Sri Lankan indigenous medicine among the public. (Table 20).

The article shows that the majority of individuals who participated knew that Ayurveda and Sri Lankan indigenous medicine are available as medical systems in Sri Lanka, but comprehensive knowledge about Ayurveda and Sri Lankan indigenous medicine is limited. The majority had utilized the medicine to a limited extent, and had positive attitudes towards Ayurveda and Sri Lankan indigenous medicine while pointing out some improvements to be made to increase general preference.

Conclusion

There is an increased global interest in seeking traditional medicine for healthcare needs. Therefore, it is worthwhile to determine the attitudes towards Ayurveda and Sri Lankan indigenous medicine among the Sri Lankan public. This article, based on the study evaluating the level of awareness, utilization, and preference regarding Ayurveda and Sri Lankan indigenous medicine among the sample working population from the Colombo district revealed that the majority were aware of the availability of Ayurveda and Sri Lankan indigenous medicine in Sri Lanka. However, knowledge about Ayurveda and Sri Lankan indigenous medicine in available medicinal dosage forms and knowledge about the purpose of medical usage were lacking. The utilization is specifically confined to particular areas of medical purposes such as chronic conditions, health promotion, disease prevention, and home remedies. Utilization for acute conditions and utilization for children below five were low. The working adult population of the sample had positive attitudes towards Ayurveda and Sri Lankan indigenous medicine. The majority was satisfied with the quality of the medicines and would like to take them in the future and recommend them to others. To understand the attitudes towards Ayurveda and Sri Lankan indigenous medicine among the Sri Lankan general public, an island-wide population-based study representing all the districts of Sri Lanka would be recommended.

Ethical clearance

Ethical clearance was obtained from the Ethical Review Committee of the Faculty of Medicine, University of Colombo, 28th May 2020 (ERC Reference No PGDHD/18/24).

Conflict of interest

The authors declare that they have no conflict of interest.

Acknowledgments

The 7th International Conference on Ayurveda, Unani, Siddha and Traditional Medicine (7th ICAUST 2021), Sri Lanka, on 10th and 11th June 2021 is acknowledged for the partial presentation of the abstract.

References

- Abeyrathne, R. M. (2019). Current Trends in the Popular Sector Traditional Medicine in Sri Lanka: Traditional Medicine in Sri Lanka. *Proceedings of the Pakistan Academy of Sciences: B. Life and Environmental Sciences*, 56(3), 27–36. <http://www.ppaspk.org/index.php/PPAS-B/article/view/106>
- Broom, A., Wijewardena, K., Sibbritt, D., Adams, J., & Nayar, K. (2010). The use of traditional, complementary and alternative medicine in Sri Lankan Cancer Care: Results from a survey of 500 cancer patients. *Public Health*, 124(4), 232–237. doi:10.1016/j.puhe.2010.02.012
- Clarke, T. C., Black, L. I., Stussman, B. J., Barnes, P. M., & Nahin, R. L. (2015). Trends in the use of complementary health approaches among adults: United States, 2002–2012. *National health statistics reports*, (79), 1–16
- Dahanayake, J. M., Perera, P. K., Galappaththy, P., & Samaranayake, D. (2020). Efficacy and safety of two ayurvedic dosage forms for allergic rhinitis: Study protocol for an open-label Randomized Controlled Trial. *Trials*, 21(1). doi:10.1186/s13063-019-4004-1
- Dayarathana, K., Sakeena, M. H. F., & Bowatte, G. (2022). Use and Attitudes of Complementary and Alternative Medicines Among Allied Health Sciences Students, University of Peradeniya. *Sri Lankan Journal of Health Sciences*, 1(1), 10–18. DOI: <https://doi.org/10.4038/sljhs.v1i1.25>
- Imran, M. Amir, M. & Naqvi, H. (2017). the prevalence and patterns of usage of Ayurveda, Unani, and Home remedies in younger adults of Rural North India. *International Journal of Green Pharmacy* 11(2):108–113. <http://dx.doi.org/10.22377/ijgp.v11i02.922>.
- Jayasinghe, S., Bandara, B. R., Wickramasinghe, A., Karunaratne, D. N., Wijesundara, D. S. A., & Karunaratne, V. (2017). The importance of harnessing the rich diversity of Sri Lankan flora for their medicinal value. *Ceylon Journal of Science*, 46(4), 3–13.
- Jones, M., & Liyanage, C. (2018). Traditional Medicine and Primary Health Care in Sri Lanka: Policy, Perceptions, and Practice. *Asian Review of World Histories*, 6(1), 157–184. <https://doi.org/10.1163/22879811-12340029>
- Kankanamalage, T. N. Dharmadasa, R. M. Abeyasinghe, D. C & Wijesekara, R. G. (2014). A survey on medicinal materials used in traditional systems of medicine in Sri Lanka. *Journal of Ethnopharmacology*, 155(1), 679–691. <https://doi.org/10.1016/j.jep.2014.06.016>

- Liyanage, C., & Ekanayaka, P. (2018). Competency and Challenges of Traditional Medical Systems in Postcolonial Sri Lanka. *Journal of Social Sciences and Humanities Review*, 3(1), 11–22. DOI: <http://doi.org/10.4038/jsshr.v3i1.2>.
- Lwanga, S.K. & Lemeshow, S. (1991) Sample size determination in health studies: a practical manual World Health Organization. <https://apps.who.int/iris/handle/10665/40062>.
- Nanayakkara, V., & Ekanayake, L. (2008). Use of traditional medicine for oral conditions in rural Sri Lanka. *International Dental Journal*, 58(2), 86-90. doi:10.1111/j.1875-595x.2008.tb00181.x
- Nasmeer, M S M. et al (2018). Current scenario and the challenges to traditional medicine in Sri Lanka. *World Congress on Traditional and Complementary Medicine Abu Dhabi, UAE, Journal of Traditional Medicine & Clinical Naturopathy*. J Tradit Med Clin Natur. 7, 26. DOI: 10.4172/2573-4555-C2-005..
- Niraj, S., & Varsha, S. (2020). A review on scope of immuno-modulatory drugs in Ayurveda for prevention and treatment of Covid-19. *Plant Science Today*, 7(3), 417–423. <https://doi.org/10.14719/pst.2020.7.3.831>
- Padmasiri, G. R. (2018). An Investigation into utilization, beliefs, and practice of Indigenous medicine in Sri Lanka. *African Journal of Traditional, Complementary and Alternative Medicines*, 15(4), 1–12. <https://doi.org/10.21010/ajtcam.v15i4.1>
- Patricia, M. Barnes, MA. Richard, L. Nahin, MPH. (2004). Complementary and Alternative Medicine use among adults United States, 2002, *Seminars in Integrative Medicine*. 2(2), 54-71. <https://doi.org/10.1016/j.sigm.2004.07.003>.
- Perera, P. K. (2012). Current Scenario of Herbal Medicine in Sri Lanka. Conference paper ASSOCHAM, 4th annual Herbal International Summit cum Exhibition on Medical and Aromatic products, Species and finish products (hi-MAPS). https://www.researchgate.net/publication/224771841_Current_scenario_of_herbal_medicine_in_Sri_Lanka.
- Rajaguru, M. (2020). Medical utilization in the context of culture: Analyzing the concepts, benefits, and drawbacks of Sri Lankan biomedical and Ayurvedic healthcare [Master's thesis, Minnesota State University, Mankato]. Cornerstone: A Collection of Scholarly and Creative Works for Minnesota State University, Mankato. <https://cornerstone.lib.mnsu.edu/etds/1010/>.
- Samal, J. & Dehury, R. (2019). Utilization, preference, perception, and characteristics of people adopting traditional and AYUSH systems of medicine in India: a systematic review. *Journal of Complementary and Integrative Medicine*, 16(2), 20180020. <https://doi.org/10.1515/jcim-2018-0020>.
- Sharma, H., Basisht, G., Singh, G., & Chandola, H. M. (2007, November 30). Utilization of Ayurveda in health care: An approach for prevention, health

- promotion, and treatment of disease. part 2--Ayurveda in primary health care. *Journal of alternative and complementary medicine (New York, N.Y.)*. <https://pubmed.ncbi.nlm.nih.gov/18166127/>
- Sharma, P. (2014), Caraka Samhita, chikithsastana agnivesha treatise text with English translation. Chaukamba oriental publication Varanasi.
- Sieler, R. (2022). Religion, Alchemy, and Medicine in South India: Tamil Siddha Traditions and Siddha Medicine. *Asian Medicine*, 17(1), 1-15. <https://doi.org/10.1163/15734218-12341504>
- Sri Lankan Ayurveda Pharmacopeia (Ayurveda Aushada Sangraha), (1970), Department of Ayurveda, Sri Lanka.
- Tripathi, J. S. (2012). Dimensions of Sattvavajaya Chikitsa (Ayurvedic psychotherapy) and their clinical applications. *Ann Ayurvedic Med*, 1, 31-8.
- Udayanga, S., & Ekanayake, P. (2021). Witnessing a Going Back to Authentic Medical Heritage in Sri Lanka: An Anthropological Study on Covid-19 Experiences and Use of Alternative Health Care Approaches.
- Uragoda, C.G. (1987). A history of medicine in Sri Lanka: from the earliest times to 1948. Colombo: Sri Lanka Medical Association
- Wasana, K. G., Attanayake, A. P., & Arawwawala, L. D. (2022). Ethnobotanical survey on medicinal plants used for the treatment of diabetes mellitus by ayurveda and traditional medicine practitioners in Galle district of Sri Lanka. *European Journal of Integrative Medicine*, 55, 102177. <https://doi.org/10.1016/j.eujim.2022.102177>
- World Health Organization. Regional Office for South-East Asia. (2020). Traditional medicine in the WHO South-East Asia Region: review of progress 2014–2019. World Health Organization. Regional Office for South-East Asia. <https://iris.who.int/handle/10665/340393>. License: CC BY-NC-SA 3.0 IGO
- World Health Organization. Regional Office for South-East Asia. (2021). A review of traditional medicine research in Sri Lanka: 2015–2019. World Health Organization. Regional Office for South-East Asia. <https://iris.who.int/handle/10665/347359>. License: CC BY-NC-SA 3.0 IGO
- Zaigham, H., Tauheed, A., & Ali, A. (2019). Recent trends in traditional medicine dosage form and present status of Unani and Ayurvedic medicine. *Int J Pharm Sci & Res*, 10(4), 1640-49.