

Utilization of complementary and traditional medicine practitioners among older adults in India: results of a national survey in 2016-2017

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Research Article

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Abstract

Background: Lack of information exists about the use of traditional and complementary medicine (TCM) use among older adults in India, which led to studying the estimates of past-12 month Ayurveda/Yoga/Naturopathy/Unani/Siddha/Homeopathy (AYUSH) and traditional health practitioner (THP) utilization in India.

Methods: The study included 72,262 individuals (45 years and older) from the cross-sectional 2017-2018 Longitudinal Ageing Study in India (LASI) Wave 1.

Results: The prevalence of past 12-month AYUSH practitioner utilization was 6.5%, THP 7.0%, and AYUSH or THP 13.0%. In the adjusted logistic regression analysis, functional disability (Adjusted Odds Ratio-AOR: 1.25, 95% Confidence Interval-CI: 1.09-1.42), having pain (AOR: 1.47, 95% CI: 1.31-1.65) and current tobacco use (AOR: 1.30, 95% CI: 1.14-1.48) were positively and male sex (AOR: 0.78, 95% CI: 0.69-0.88), higher education (AOR: 0.92, 95% CI: 0.80-0.99), scheduled caste (AOR: 0.48, 95% CI: 0.36-0.63), high subjective socioeconomic status (AOR: 0.66, 95% CI: 0.57-0.77), urban residence (AOR: 0.65, 95% CI: 0.57-0.75) and having a health insurance cover (AOR: 0.38, 95% CI: 0.32-0.44) were negatively associated with AYUSH practitioner utilization in the past 12 months. In a second adjusted logistic regression analysis, sleep problems (AOR: 1.30, 95% CI: 1.14-1.48), depressive symptoms (AOR: 1.14, 95% CI: 1.02-1.28) functional disability (AOR: 1.14, 95% CI: 1.01-1.30), having pain (AOR: 1.51, 95% CI: 1.35-1.70), current tobacco use (AOR: 1.27, 95% CI: 1.13-1.43) and having underweight (AOR: 1.15, 95% CI: 1.02-1.31) were positively associated with past 12-month THP utilization. Furthermore, having health insurance cover (AOR: 0.44, 95% CI: 0.38-0.51), overweight or obesity (AOR: 0.84, 95% CI: 0.72-0.97), having two or more chronic conditions (AOR: 0.60, 95% CI: 0.50-0.72), urban residence (AOR: 0.24, 95% CI: 0.20-0.28), high subjective socioeconomic status (AOR: 0.81, 95% CI: 0.70-0.96), and higher education (AOR: 0.42, 95% CI: 0.34-0.52) were negatively associated with past 12-month THP utilization.

Conclusion: A moderate prevalence of TCM use among older adults in India was found and several factors associated with its use were identified.

Introduction

“Indian system of medicine has been practised since long however it has got recent prominence after some policy decisions made to make it more accessible to the people of India” [1]. “In the 1970s India gave legal recognition to 4 non-Allopathic systems of medicine (Ayurveda, Unani, Siddha medicine, and Homeopathy)” [2]. In a national Consumer Expenditure Survey in India in 2011-2012, 28.4% of Indian households used the traditional medical systems [3]. In a nationally representative health survey in India in 2014, the outpatient utilization of AYUSH (Ayurveda/Yoga/Naturopathy/Unani/Siddha /Homeopathy) care in the past two weeks for all ages was 6.9% and for persons 60 years and older 7.7% [4]. In a national study among persons predominantly 50 years and older in India in 2007, 19.0% reported traditional health practitioners (THP) use in the previous 12 months [5]. In a small study (N=250) among older adults (≥ 60 years) in Maharashtra, India, 3.6% sought care from AYUSH and/or THP [6]. However, these studies did not

report on the utilization of both AYUSH and THP among older adults in general or for specific illness conditions of the last outpatient visit. To address these shortcomings we analysed more recent national data on India in 2016-2017.

In India, there were 785,185 registered AYUSH practitioners (60.9% Ayurveda, 31.4% Homeopathy, 6.5% Unani, 0.9% Siddha, and 0.2% Naturopathy) in 2010 [7]. In all, it is estimated that “more than 1.5 million practitioners are using the traditional medicinal system for health care in India.” [8]. The prevalence of the utilization (past 12 months) of traditional and complementary medicine (TCM) provider was 21.1% in nine high-income countries [9], and in a 32 country study 26.4% [10].

Determinants of TCM or TCM provider use may include “sociodemographic factors (female gender, age, lower socioeconomic status, and rural residence) and health-related factors (chronic disease, poor physical and mental health, inadequate health care access, and satisfaction with TCM services)” [10]. In India, traditional and AYUSH systems of medicine have a higher rate of utilization in poorer population groups [6], in particular geographical areas (states) [6], in the tribal population [1], among patients with chronic diseases and also for treating skin-related and musculo-skeletal ailments [4].

This study aimed to estimate the prevalence and correlates of the utilization of AYUSH and THP among older adults in a national population survey in India.

Methods

Sample and procedures

Cross-sectional data from the nationally representative Longitudinal Ageing Study in India (LASI) Wave 1, 2017-2018 were analyzed (the overall household response rate is 96%, and the overall individual response rate is 87%.) [11]. Interview, physical measurement and biomarker data were collected from individuals aged 45 and above and their spouses, regardless of age, in a household survey. Details of the sampling strategy have been described elsewhere [11]. The study was approved by the Indian Council of Medical Research (ICMR) Ethics Committee and written informed consent was obtained from participants [11].

Measures

Outcome measure

Utilization of TCM practitioners was assessed with two questions, 1) “In the past 12 months, have you consulted any AYUSH practitioner (Ayurveda /Yoga/Naturopathy/Unani/Siddha /Homeopathy)? (Yes, No)” and 2) “In the past 12 months, have you consulted any Traditional /Folk healers (tribal medicine/bhopa/jhaad-fook/black magic)? (Yes, No).” [11].

Reasons for most recent outpatient visit was assessed with two questions, 1) “Which type of health care provider did you visit, or came to visit you, most recently in the past 12 months?” Response options were grouped into three groups, 1) biomedical practitioner (doctor, dentist, nurse/midwife, physiotherapist, and pharmacist), 2) AYUSH practitioners and 3) traditional healer; and 2) “What was the main reason of your

most recent outpatient visit?" [11]. Response options included a list of 26 conditions, such as cancer (see Table 3).

Treatment outcome was assessed with three questions, 1) "What was the outcome of your most recent visit to the health care provider?" (Responses ranged from 1=got much better to 5=got much worse); 2) "Overall, how satisfied were you with health care you received at this visit?" (Responses ranged from 1=very satisfied to 5=very dissatisfied); and 3) "In your last visit how much you or your household pays for health care provider's fees?" (Rupees) [11].

Exposure variables

Sociodemographic information included age (years), sex (male, female), education (none, <5 years, 5-9 years, and ≥ 10 years), Cast or tribe (Scheduled tribe, Scheduled caste, other backward classes, none of these), residence (rural, urban) and subjective socioeconomic status. The latter was sourced from the item, "Please imagine a ten-step ladder, where at the bottom are the people who are the worst off – who have the least money, least education, and the worst jobs or no jobs, and at the top of the ladder are the people who are the best off – those who have the most money, most education, and best jobs. Please indicate the number given (1-10) on the rung on the ladder where you would place yourself." [11]. Socioeconomic steps 1 to 3 were classified as poor, 4-5 as medium, and 5-10 as high socioeconomic status.

Sleep problems were assessed with four questions: 1) "How often do you have trouble falling asleep?" 2) "How often do you have trouble with waking up during the night?" 3) "How often do you have trouble with waking up too early and not being able to fall asleep again?" 4) "How often did you feel unrested during the day, no matter how many hours of sleep you had?" Responses options were "never, rarely (1-2 nights per week), occasionally (3-4 nights per week), and frequently (5 or more nights per week)" [11]. Sleep problems were coded as "frequently" for the any of the four symptoms as one [12].

Depressive symptoms were assessed with a modified Centre for Epidemiological Studies Depression Scale (CES-D-10) [13]. The 10 items included seven negative symptoms (trouble concentrating, feeling depressed, low energy, fear of something, feeling alone, bothered by things, and everything is an effort), and three positive symptoms (feeling happy, hopeful, and satisfied). Response options included rarely or never (< 1 day), sometimes (1 or 2 days), often (3 or 4 days), and most or all of the time (5-7 days) in a week prior to the interview. For negative symptoms, rarely or never (< 1 day), and sometimes (1 or 2 days) were scored zero, and often (3 or 4 days) and most or all of the time (5-7 days) categories were scored one. Scoring was reversed for positive symptoms. The overall score ranges from zero to 10 and scores of four or more were indicative for depressive symptoms [14]. The Cronbach α of the CES-D-10 in this study was 0.79.

Chronic conditions were assessed with the question, "Has any health professional ever told you that you have...?": 1) "Hypertension or high blood pressure (Yes/No); 2) Diabetes or high blood sugar; 3) Cancer or malignant tumor; 4) Chronic lung disease such as asthma, chronic obstructive pulmonary disease/Chronic bronchitis or other chronic lung problems; 5) Chronic heart diseases such as Coronary heart disease (heart attack or Myocardial Infarction), congestive heart failure, or other chronic heart problems; 6) Stroke; 7) Arthritis or rheumatism, Osteoporosis or other bone/joint diseases; 8) Any neurological, or psychiatric

problems such as depression , Alzheimer’s/Dementia, unipolar/bipolar disorders, convulsions, Parkinson’s etc.; and 9) High cholesterol (Yes/No).” [11]. Responses for the nine chronic conditions were summed and trichotomized into 0,1, or ≥ 2 chronic conditions.

Functional disability was sourced from Activities of Daily Living (ADL) (6 items) and Instrumental Activities of Daily Living (IADL) (7 items) [15,16]. Cronbach alpha for the ADL and IADL scale was 0.89. Responses were “Yes/No” and were trichotomized into 0,1, or ≥ 2 ADL/IADL items.

Symptom-based pain was defined as troubled by pain and required some form of medication or treatment for relief of pain [11].

Anthropometry: “Height and weight of adults were measured using the Seca 803 digital scale.” [11]. “Body Mass Index=BMI was calculated according to Asian criteria: underweight ($<18.5 \text{ kg/m}^2$), normal weight ($18.5\text{-}22.9 \text{ kg/m}^2$), overweight ($23.0\text{-}24.9 \text{ kg/m}^2$), class I obesity ($25.0\text{-}29.9 \text{ kg/m}^2$), and class II obesity ($\geq 30.0 \text{ kg/m}^2$)” [17].

Current tobacco use was sourced from two items, 1) “Do you currently smoke any tobacco products (cigarettes, bidis, cigars, hookah, cheroot, etc.)? and 2) Do you use smokeless tobacco (such as chewing tobacco, gutka, pan masala, etc.)?” [11].

Health care insurance was assessed with the item, “Are you covered by health insurance? (Yes/No)”. [11]

Data analysis

Descriptive statistics were used to describe sociodemographic, health, and traditional and complementary medicine variables. Unadjusted and adjusted logistic regression was used to estimate the prevalence of past 12-month utilization of AYUSH and THP. No multi-collinearity was detected. $P < 0.05$ was considered significant, and missing values were discarded. All statistical operations were conducted with STATA software version 13.0 (Stata Corporation, College Station, TX, USA), taking the multistage sample design into account.

Results

Sample characteristics

The study sample included 72,262 persons aged 45 years and older (female spouse, any age) from India. Table 1 describes the sample characteristics. The prevalence of past 12-month AYUSH practitioner utilization was 6.5%, traditional healer consultation 7.0%, and AYUSH or traditional health practitioner 13.0% (see Table 1).

Utilization of AYUSH and traditional health practitioner by state

The highest prevalence of AYUSH practitioner utilization in the past 12 months was in Uttar Pradesh (18.7%), followed by Maharashtra (13.8%), Bihar (8.1%), Kerala (7.7%) and West Bengal 6.9%), while the

highest traditional health practitioner utilization was in Bihar (24.3%), followed by West Bengal (16.1%), Uttar Pradesh (15.3%), Jharkhand (9.7%), and Madhya Pradesh (7.9%) (see Table 2).

Main reason of most recent outpatient visit

The distribution of the most recent outpatient visit (N=37,852) was 83.8% biomedical, 8.2% AYUSH and 8.0% traditional healer. For the traditional health and AYUSH practitioner, the most common reason for the most recent outpatient visit was fever or pyrexia of unknown cause (37.6%), followed by chronic pain (17.7%), generalized pain (12.7%), and high blood pressure (4.6%). The rank order of the most common reason for the most recent visit to a biomedical practitioner was the same as with the traditional health and AYUSH practitioner. The prevalence of fever or pyrexia of unknown cause and chronic pain was lower and high blood pressure was higher among biomedical than traditional health and AYUSH practitioner patients (see Table 3).

Treatment outcome of last outpatient visit

Among three different health care agencies, the AYUSH practitioner had the highest positive (got better or much better) treatment outcome (85.6%), followed by the biomedical practitioner (85.1%) and traditional healer (82.9%). Similarly, 88.7% of AYUSH practitioner patients were satisfied or very satisfied with their last outpatient visit, 86.3% of biomedical, and 79.3% of traditional healer patients. The mean expenditure on the health care providers fees of the last outpatient visit was the highest for the biomedical practitioner (227 Rs), followed by the traditional health (152 Rs) and the AYUSH practitioner (150 Rs), while majority of THP patients had no expenditure (62.6%) and the biomedical practitioner (35.5%) and AYUSH practitioner (35.4%) (see Table 4).

Associations with AYUSH and traditional health practitioner utilization

In the adjusted logistic regression analysis, functional disability (Adjusted Odds Ratio-AOR: 1.25, 95% Confidence Interval-CI: 1.09-1.42), having pain (AOR: 1.47, 95% CI: 1.31-1.65) and current tobacco use (AOR: 1.30, 95% CI: 1.14-1.48) were positively and male sex (AOR: 0.78, 95% CI: 0.69-0.88), higher education (AOR: 0.92, 95% CI: 0.80-0.99), scheduled caste (AOR: 0.48, 95% CI: 0.36-0.63), high subjective socioeconomic status (AOR: 0.66, 95% CI: 0.57-0.77), urban residence (AOR: 0.65, 95% CI: 0.57-0.75) and having a health insurance cover (AOR: 0.38, 95% CI: 0.32-0.44) were negatively associated with AYUSH practitioner utilization in the past 12 months. In a second adjusted logistic regression analysis, sleep problems (AOR: 1.30, 95% CI: 1.14-1.48), depressive symptoms (AOR: 1.14, 95% CI: 1.02-1.28) functional disability (AOR: 1.14, 95% CI: 1.01-1.30), having pain (AOR: 1.51, 95% CI: 1.35-1.70), current tobacco use (AOR: 1.27, 95% CI: 1.13-1.43) and having underweight (AOR: 1.15, 95% CI: 1.02-1.31) were positively associated with past 12-month traditional healer utilization. Furthermore, having health insurance cover (AOR: 0.44, 95% CI: 0.38-0.51), overweight or obesity (AOR: 0.84, 95% CI: 0.72-0.97), having two or more chronic conditions (AOR: 0.60, 95% CI: 0.50-0.72), urban residence (AOR: 0.24, 95% CI: 0.20-0.28), high subjective socioeconomic status (AOR: 0.81, 95% CI: 0.70-0.96), and higher education (AOR: 0.42, 95% CI: 0.34-0.52) were negatively associated with past 12-month traditional healer utilization. Compared to

scheduled tribes, scheduled castes, other backward classes, and none of those had a lower odds of past 12-month traditional healer utilization (see Table 5).

Discussion

The study found that in a large national older adult sample in India in 2016-2017, the prevalence of past 12-month AYUSH or THP utilization was 13.0% (6.5% AYUSH and 7.0% THP). The prevalence of AYUSH utilization in the past 12 months (6.5%) is similar to a previous national survey in India in 2014 (6.9% for all ages and 7.7% for persons 60 years and older of the past 2 weeks health care provider visit) [4], and the prevalence of AYUSH and/or traditional health practitioner utilization (13.0%) was lower than in a national study among persons predominantly 50 years and older in India in 2007 (19.0% traditional medicine practitioners use in the previous 12 months) [5], and higher than in a small study among older adults (≥ 60 years) in Maharashtra, India (3.6%) [6]. Using the same reference period (12 months), this survey showed lower utilization rates than in a previous review (21.1% TCM provider use) [9] and in a 32-country study (26.4%) [10]. In a national survey in Indonesia, 5.6% of participants (15 years and older) had utilized a TCM practitioner in the past 4 weeks [18], while in our survey the past 12-month prevalence of AYUSH and/or THP use was 13.0%. The prevalence of AYUSH and/or traditional health practitioner use varied by state in India. Some states had a high utilization rate while some had no utilization. For example, the highest prevalence of AYUSH practitioner utilization in the past 12 months was in Uttar Pradesh (18.7%), followed by Maharashtra (13.8%), Bihar (8.1%), Kerala (7.7%) and West Bengal (6.9%), which is in some cases similar to a previous survey in India, with high rates of past 2 weeks AYUSH utilization in Kerala (13.7%) and West Bengal (11.6%), but lower rates in Uttar Pradesh (8.6%) and Maharashtra (4.0%) [4]. Some of these regional differences may be attributed to the availability of AYUSH practitioners, which highly differs by state in India. For example, among all states, the third highest number of Ayurveda registered practitioners in 2010 was in Uttar Pradesh (53735) [19], the highest number of UNANI practitioners (16967) [20], the highest number of homeopathy practitioners in 2010 was in Uttar Pradesh (1575) [21]. However, Uttar Pradesh is also India's most populous state (199 million) [22]. The prevalence of THP utilization was the highest in Bihar (24.3%). Among the ethnic communities in Bihar, primarily THP do the treatment of different ailments [23], and many people "continue to depend on local medicinal plants at least for the treatment of primary healthcare [24].

In agreement with some previous studies [4,25-31], this study found that in unadjusted analysis older age (≥ 60 years) was associated with AYUSH and THP utilization. Several studies showed that female sex was associated with TCM provider use [4,25,30], which in this study was found for AYUSH utilization but not for traditional health practitioner utilization. This investigation found that lower education, and lower socioeconomic status increased the odds of AYUSH and THP utilization. Similar results were found in two studies among older adults in India [5,6], while some other studies found mixed results [4,18,25,30].

Compared to scheduled tribes, all other castes were less likely utilizing THP, and scheduled castes were less likely using AYUSH. While in a previous surveys [1,4], compared to scheduled tribes, all other castes were less likely utilizing AYUSH. Most previous studies [25-28] found an association between rural residence and TCM use, which is confirmed in this study for both AYUSH and THP utilization. Reasons for this may be

attributed to subsidized public health care mostly serving economically better-off urban dwellers, while rural public health care is poorly staffed and has poorer quality, increasing the dependency on private providers, such as AYUSH and THP, for health care [4].

In concordance with previous studies [5,18,31,32], this study found that having a chronic condition (functional disability and chronic pain) [5,32], and tobacco use [31], were associated with both AYUSH and THP utilization, while sleep problems [18] and depressive symptoms [5,18,32] were associated with THP utilization. Contrary to some previous research [25,29,30], this study showed a negative association between having multiple chronic conditions, obesity and THP utilization. It is possible that older adults with functional disability, pain, including mental conditions, engage in increased health-seeking behaviours including TCM [33,34]. Furthermore, the positive association between tobacco use and AYUSH and THP use may be explained by their increased likelihood of suffering from health problems requiring treatment, including TCM.

In this study, among the conditions treated at the most recent outpatient visit, the highest prevalence of AYUSH and/or THP use was found for fever or pyrexia of unknown cause (37.6%), followed by chronic pain (17.7%), generalized pain (12.7%), and high blood pressure (4.6%). Pain and fever are commonly treated by THP in India [35-37] and AYUSH practitioners [38,39]. In a previous survey in India, AYUSH utilization was high for skin diseases [4] and musculo-skeletal related diseases [4,6], which was similar for the treatment of chronic pain in joints, back, neck or muscle at the second highest prevalence and at a lower prevalence for skin diseases in this study. Regarding high blood pressure, in community-based surveys in several Southeast Asian countries, the use of TCM for hypertension was 1.9% in Laos [40], 7.2% in Indonesia [18], 13.4% in Myanmar and 15.3% in Cambodia [40]. The prevalence using AYUSH and THP for malaria was about 1.2%, similarly to the biomedical sector (1.2%). In a qualitative study in the district of Gadchiroli, Maharashtra state in India, widespread misconceptions about malaria and treatment by unqualified traditional healers delayed effective treatment seeking [41]. The higher utilization of AYUSH and/or THP for fever or pyrexia of unknown cause, chronic pain in joints, arthritis, rheumatism or osteoporosis, generalized pain (stomach, headache, migraine, or other nonspecific pain) than allopathic health care services, may emphasise their role in the provision of both acute and chronic care services.

In this study, satisfaction with the last health care visit with an AYUSH and THP were (88.7% and 79.3%, respectively, were satisfied or very satisfied). Results compare with 90% satisfaction with TCM among adults in Lebanon [29], and 85.7% satisfaction with the last THP visit among adults in Indonesia [18]. Majority rated their treatment outcome as positive (got better or much better), 85.6% for the AYUSH practitioner and 82.9% for the THP in this study, which compares 80% of very or somewhat helpful TCM provider consultations among adults with chronic conditions in lower Mekong countries [25]. Similarly, to a previous national survey in India in 2001-2002, the mean expenditure on allopathic consultation was higher (Rs 39 in 2001-2 and 227 Rs in 2016-17) than for AYUSH consultation (Rs 29 in 2001-2 and 150 Rs in 2016-17) [42]. In addition, 62.6% of THP patients had no expenditure on consultation, but only 35.4% with the AYUSH practitioner and 35.5% with the biomedical practitioner (35.5%). Furthermore, in this study, having no health insurance cover was associated with both AYUSH and THP utilization, which compares with previous results in a study in Lebanon [29]. Individuals having a health insurance cover were less likely

utilizing AYUSH and THP, meaning that patients may more likely consult THP because of less or no expenditure.

Study strength and limitations

The strength of the study was a nationally representative sample of older adults in India and the use of standardized measures adapted from the Health and Retirement Study. The self-report of most data may have their limitations. Furthermore, this study was based on cross-sectional data, and we therefore cannot ascribe causality to any of the associated factors in the study. Some questions asked about over-the-counter medicine use, including AYUSH and traditional and complementary medicine, but since they were only asked for a subsample of the survey, we excluded them from the results. More details regarding the type of AYUSH and traditional medicines and for which ailments could have been assessed, and included in future research.

Conclusions

The study confirms a moderate prevalence of AYUSH and THP utilization in India. Sociodemographic and health-related factors such as female sex, lower socioeconomic status, lower education, scheduled tribes, rural residence, functional disability, having chronic conditions, being underweight, pain, tobacco use, not having health insurance, sleep problems and depressive symptoms were found to be associated with utilization of AYUSH and/or THP.

Declarations

All methods were carried out in accordance with relevant guidelines and regulations.

Ethics approval and consent to participate

The study was approved by the Indian Council of Medical Research (ICMR) Ethics Committee and written informed consent was obtained from participants.

Consent for publication

Not applicable

Availability of data and materials

The data are available at the The Gateway to Global Aging Data (www.g2aging.org).

Competing interests

The authors declare that they have no competing interests.

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Authors' contributions

"All authors fulfil the criteria for authorship. SP and KP conceived and designed the research, performed statistical analysis, drafted the manuscript, and made critical revisions of the manuscript for key intellectual content. All authors read and approved the final version of the manuscript and have agreed to the authorship and order of authorship for this manuscript."

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Abbreviations

ADL: Activities of Daily Living; AYUSH: Ayurveda/Yoga/Naturopathy/Unani/Siddha /Homeopathy; BMI: Body Mass Index; IADL: Instrumental Activities of Daily Living; LASI: Longitudinal Ageing Study in India; TCM: Traditional and Complementary Medicine; THP: Traditional health practitioner

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Tables

Table 1: Sample characteristics

Variable	Sample	AYUSH practitioner	Traditional /Folk healers
	N (%)	%	%
All	72262	6.5	7.0
Age (years)			
45-59 (female spouse: any age)	40785 (54.1)	6.0	6.6
≥60	31477 (45.9)	7.2	7.5
Sex			
Female	41685 (58.0)	6.9	7.1
Male	30577 (42.0)	6.0	6.8
Education			
No schooling	33213 (49.5)	6.9	9.9
<5 years		7.2	6.5
5-9 years	8056 (10.8)	6.4	4.7
≥10 years	16911 (21.1)	5.3	2.2
	14079 (18.5)		
Cast/tribe			
Scheduled tribe	12047 (19.7)	7.5	11.1
Scheduled caste		3.3	5.6
Other backward class	12509 (8.8)	6.3	6.0
None of the above	27185 (46.7)	7.5	6.0
	17893 (24.9)		
Subjective socioeconomic status			
Low (1-3)	23625 (37.2)	7.5	9.3
Medium (4-5)		6.7	6.4
High (6-10)	28380 (38.7)	4.8	4.9
	18134 (24.1)		
Residence			
Rural	46539 (68.2)	7.4	9.4
Urban	25723 (31.8)	4.6	1.7
Sleep problems	8367 (12.7)	6.6	10.0
Depressive symptoms	17650 (27.6)	7.1	8.6
Chronic conditions			
0	39715 (55.0)	6.3	8.1
1		7.5	6.4
2 or more	19336 (26.9)	5.8	4.4
	12991 (18.1)		
Functional disability ADL & IADL=0		5.7	5.9

ADL & IADL=1	46762	7.9	8.2
ADL & IADL=2 or more	(60.7) 7425 (10.5) 17700 (28.8)	7.7	8.9
General body weight			
Normal	23447	7.2	8.1
Under	(36.7)	7.4	10.8
Overweight/obese	11644 (20.8) 29497 (42.5)	5.9	4.7
Symptom-based pain	19145 (27.7)	8.9	9.9
Current tobacco use	21071 (30.4)	7.6	9.3
Has health insurance	16558 (20.7)	3.0	3.5

AYUSH practitioner (Ayurveda /unani/ siddha /homeopathy); Traditional /Folk healers (tribal medicine/bhopa/jhaad-fook/black magic)

Table 2: Utilization of AYUSH and traditional health practitioner in the past 12 months by state

State in India	AYUSH practitioner	Traditional/folk healer
	%	%
Jammu & Kashmir	1.2	0.2
Himachal Pradesh	5.0	1.5
Punjab	2.3	5.5
Chandigarh	0.9	0.8
Uttarakhand	2.4	3.2
Haryana	3.9	2.3
Dehli	1.1	0.0
Rajasthan	1.0	1.2
Uttar Pradesh	18.7	15.3
Bihar	8.1	24.3
Arunachal	0.5	1.2
Nagaland	0.1	0.2
Manipur	0.9	3.2
Mizoram	0.2	0.2
Tripura	2.2	0.8
Meghalaya	0.4	1.2
Assam	0.9	0.2
West Bengal	6.9	16.1
Jharkhand	1.9	9.7
Odisha	1.6	0.4
Chhatisgarh	1.7	6.6
Madhya Pradesh	4.4	7.9
Gujarat	4.7	0.5
Daman & Diu	1.5	0.1
Dadra & Nagar Haveli	1.6	1.7
Maharashtra	13.8	0.3
Andhra Pradesh	0.8	4.0
Karnataka	6.3	1.9
Goa	2.1	0.3
Lakshadweep	0.9	0.0
Kerala	7.7	0.7
Tamil Nadu	0.9	0.1
Puducherry	1.8	0.0
Andaman & Nicobar	1.4	0.1
Telangana	0.2	6.0

Table 3: Main reason of most recent outpatient visit

Reason for most recent outpatient visit	Biomedical (N=33615)	AYUSH (N=2120)	Traditional healer (N=2117)	Both (N=4237)
	%	%	%	%
Fever/pyrexia of unknown cause	27.2	33.1	42.1	37.6
Chronic pain in your joints/arthritis/rheumatism/osteoporosis (joints, back, neck, muscle)	13.9	19.7	15.7	17.7
Generalized pain (stomach, headache, migraine, or other nonspecific pain)	10.0	13.7	11.8	12.7
High blood pressure (hypertension)	9.3	4.3	4.9	4.6
Problems with your breathing	3.5	3.5	2.2	2.9
Gastroenteritis or other diarrheal illness	2.9	3.2	2.1	2.6
Problems with your mouth/teeth/gum/lips/swallowing/throat	3.1	2.1	2.5	2.3
Skin diseases	2.0	2.9	1.5	2.2
Gastritis/acidity	1.6	1.6	2.3	2.0
Injury/accident (non-occupational)	2.7	1.6	2.3	1.9
Liver diseases (hepatitis, alcoholic liver disease, cirrhosis)	1.1	1.2	2.0	1.6
Diabetes or related complications	6.6	1.8	0.9	1.3
Malaria	1.2	1.1	1.2	1.2
Depression or anxiety/tension/sleep problem	0.9	1.2	0.8	1.0
Other	14.0	9.2	7.7	8.4

Table 4: Treatment outcome of last outpatient visit

Variable	Biomedical practitioner	AYUSH practitioner	Traditional healer
	%	%	%
<i>Outcome of most recent visit to the health care provider</i>			
Got much better	11.8	14.6	13.6
Got better	73.3	71.0	69.3
Had no change	14.2	13.9	16.8
Got worse	0.5	0.3	0.2
Got much worse	0.1	0.1	0.1
<i>Satisfaction with health care received during last outpatient visit</i>			
Very satisfied	13.9	17.6	12.4
Satisfied	72.4	71.1	66.9
Neither satisfied nor dissatisfied	12.3	10.6	19.1
Dissatisfied	1.3	0.5	1.5
Very dissatisfied	0.1	0.2	0.1
No expenditure on health care providers fees in last out-patient visit	35.5	35.4	62.6
Mean expenditure on health care providers fees in last out-patient visit (Rs)	M=227 (SD=586)	M=150 (SD=385)	M=152 (SD=317)

Table 5: Associations with past-12-month AYUSH and traditional health practitioner use

Variable	AYUSH practitioner		Traditional/Folk healer	
	Crude Odds Ratio (95% CI)	Adjusted Odds Ratio (95% CI)	Crude Odds Ratio (95% CI)	Adjusted Odds Ratio (95% CI)
Age (years)				
45-59 (female spouse: any)	1 (Reference) 1.22 (1.10, 1.34)***	1 (Reference) 1.09 (0.96, 1.23)	1 (Reference) 1.13 (1.02, 1.26)*	1 (Reference) 0.96 (0.87, 1.07)
60				
Gender				
Male	1 (Reference) 0.85 (0.77, 0.95)**	1 (Reference) 0.78 (0.69, 0.88)***	1 (Reference) 0.95 (0.85, 1.06)	1 (Reference) 1.10 (0.98, 1.24)
Education				
No schooling	1 (Reference)	1 (Reference)	1 (Reference)	1 (Reference)
≤5 years	1.05 (0.89, 1.23)	1.09 (0.91, 1.32)	0.63 (0.52, 0.76)***	0.68 (0.56, 0.83)***
6-10 years	0.92 (0.81, 1.04)	1.02 (0.96, 1.31)	0.76)***	0.83)***
>10 years	0.76 (0.66, 0.88)***	0.92 (0.80, 0.99)*	0.45 (0.39, 0.52)***	0.61 (0.51, 0.72)***
Religion				
Hindu	1 (Reference)	1 (Reference)	1 (Reference)	1 (Reference)
Muslim	0.43 (0.32, 0.56)***	0.48 (0.36, 0.63)***	0.48 (0.40, 0.57)***	0.45 (0.37, 0.54)***
Other	0.83 (0.72, 0.95)**	0.96 (0.83, 1.10)	0.51 (0.45, 0.58)***	0.68 (0.60, 0.78)***
Socioeconomic status				
High (1-3)	1 (Reference) 0.89 (0.79, 0.99)*	1 (Reference) 0.89 (0.79, 1.00)	1 (Reference) 0.63 (0.56, 0.71)***	1 (Reference) 0.85 (0.75, 0.97)*
Medium (4-5)	0.62 (0.54, 0.72)***	0.66 (0.57, 0.77)***	0.51 (0.44, 0.58)***	0.81 (0.70, 0.96)*
Low (6-10)				
Health status				
Good	1 (Reference) 0.61 (0.54, 0.68)***	1 (Reference) 0.65 (0.57, 0.75)***	1 (Reference) 0.16 (0.14, 0.19)***	1 (Reference) 0.24 (0.20, 0.28)***
Some problems	1 (Reference) 1.01 (0.89, 1.16)	1 (Reference) 0.90 (0.79, 1.03)	1 (Reference) 1.57 (1.37, 1.80)***	1 (Reference) 1.24 (1.06, 1.44)**
Severe symptoms	1 (Reference) 1.13 (1.02, 1.26)*	1 (Reference) 1.03 (0.91, 1.16)	1 (Reference) 1.39 (1.24, 1.56)***	1 (Reference) 1.14 (1.02, 1.28)*
Chronic conditions				
None	1 (Reference)	1 (Reference)	1 (Reference)	1 (Reference)
1 or more	1.20 (1.07, 1.35)** 0.91 (0.79, 1.05)	1.13 (1.00, 1.27) 0.87 (0.74, 1.01)	0.77 (0.68, 0.87)*** 0.52 (0.45, 0.61)***	0.78 (0.68, 0.89)*** 0.60 (0.50, 0.72)***
Functional disability				
None (L & IADL=0)	1 (Reference)	1 (Reference)	1 (Reference)	1 (Reference)
Mild (L & IADL=1)	1.42 (1.21, 1.66)***	1.25 (1.06, 1.48)**	1.41 (1.20, 1.66)***	1.14 (0.96, 1.35)
Severe (L & IADL=2 or more)	1.39 (1.24, 1.55)***			1.14 (1.01, 1.30)*

		1.25 (1.09, 1.42)***	1.54 (1.37, 1.73)***	
Normal body weight	1 (Reference)	1 (Reference)	1 (Reference)	1 (Reference)
Underweight	1.02 (0.89, 1.18)	0.98 (0.85, 1.14)	1.38 (1.22, 1.57)***	1.15 (1.02, 1.31)*
Overweight/obese	0.84 (0.75, 0.94)**	0.89 (0.78, 1.00)	0.57 (0.49, 0.65)***	0.84 (0.72, 0.97)*
Stomach-based pain	1.65 (1.48, 1.83)***	1.47 (1.31, 1.65)***	1.75 (1.56, 1.95)***	1.51 (1.35, 1.70)***
Current tobacco use	1.26 (1.14, 1.41)***	1.30 (1.14, 1.48)***	1.62 (1.45, 1.80)***	1.27 (1.13, 1.43)***
Health insurance	0.38 (0.32, 0.44)***	0.38 (0.32, 0.44)***	0.43 (0.37, 0.49)***	0.44 (0.38, 0.51)***

*** $p < 0.001$; ** $p < 0.01$; * $p < 0.05$