Journal of Interdisciplinary and Multidisciplinary Research
E-ISSN: 1936-6264 | P-ISSN: 1945-3019

*Journal of Interdisciplinary and Multidisciplinary Research (JIMRES)* www.jimres.org
E-ISSN: 1936-6264 | P-ISSN: 1945-3019

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# Parliamentary Attention to Ayurveda and AYUSH in India: A Longitudinal Analysis of Questions in Parliament

**Abstract:** Political attention to Ayurveda in India's Parliament has not previously been measured, despite a decade of institutional build-out around the AYUSH umbrella (Ayurveda, Yoga and Naturopathy, Unani, Siddha and Homoeopathy), including a dedicated Ministry created in 2014. This quantitative content analysis asks how much attention Lok Sabha and Rajya Sabha members have given Ayurveda through parliamentary questions since 1995, and how that attention has changed in volume, vocabulary, partisanship and representation. All 3,953 Ayurveda- or AYUSH-related questions tabled between 1995 and 2026 were retrieved from the official Lok Sabha and Rajya Sabha archives, screened to 3,533 relevant questions, and linked to member and party records current on each question's own date; eight hypotheses were tested in Python (pandas, statsmodels, SciPy, scikit-learn, NetworkX) using exact-denominator rate ratios, an interrupted time series, chi-squared tests and regression models. Relevant questions rose five- to sixfold after the Ministry of AYUSH was created in 2014, concentrated in a single sharp step in 2015 and a sustained climb afterwards. Attention increasingly runs through the broader AYUSH umbrella rather than through Ayurveda by name and gives more weight to research and promotion. The ruling coalition's share of askers tracked its own seat share in most Lok Sabha terms, departing substantially only in the two most recent terms once mid-term coalition changes are properly weighted. Representation was uneven: North-Eastern members specialise in the topic less than members from other regions, while Rajya Sabha women specialise in it more than men do. Political attention, clinical evidence and public use of Ayurveda are distinct quantities, and this study measures only the first.

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**Article History:**

Received Date : Oct 31, 2026
Revised Date : Nov 06, 2026
Accepted Date : Nov 06, 2026
Published Date : Nov 11, 2026

**Keywords**

Agenda Setting; AYUSH; Ayurveda; Health Policy; Legislative Behaviour; Parliamentary Questions.

## 1. Introduction

Question Hour is the part of a parliamentary sitting in which a Member of Parliament (MP) can raise a matter for the government to answer. Starred and unstarred questions are tabled by individual members; admissibility is

decided by the presiding officer under each House's own Rules of Procedure, not the government, so the accumulated record of questions on a topic measures what members chose to raise rather than what the executive wanted debated [1, 2, 3]. Parliamentary questions have been used this way in Indian health policy before: tobacco-related questions shifted from a trade to a health framing [4], obesity questions were coded thematically [5], Kerala Assembly health questions were mapped onto WHO health-system building blocks [6], and computational methods for reading such questions at scale are emerging [7].

Political attention is the construct measured here, drawing on the agenda-setting literature: legislators have limited time, so the issues they choose to raise are evidence of what they consider worth raising, independent of what is later decided [8, 9]. Parliamentary questions serve as a direct attention indicator since tabling one needs no coalition, committee assignment or government cooperation [10, 11]. Issue-ownership theory adds that parties have an incentive to raise issues identified with them [12]. Ayurveda's absorption into the wider AYUSH umbrella since 2014 offers a case through which to examine how political attention to a specific policy area accumulates, changes vocabulary and distributes unevenly across members and parties, independent of the area's clinical-evidence base or everyday use among the public. These frames motivate eight hypotheses: H1 and H2 concern how much attention Ayurveda receives and in what vocabulary; H3 and H6 concern how that attention is framed; H4 and H7 concern whether raising or answering it is partisan; H5 concerns which members specialise in it; and H8 concerns how local, or data-seeking questions are in each House.

No comparable study exists for Ayurveda, despite institutional commitments that would predict rising interest: the Department of Indian Systems of Medicine and Homoeopathy (1995), renamed Department of AYUSH in 2003 and elevated to a full Ministry in November 2014 [13]; the National AYUSH Mission [14]; AYUSH Health and Wellness Centres under Ayushman Bharat [15]; a new statutory regulator, the National Commission for Indian System of Medicine, replacing the Central Council of Indian Medicine in 2020–21 [16]; and a WHO Global Centre for Traditional Medicine hosted in Gujarat from 2022 [17]. This build-out sits against an evidence base described in 2014 as thin, with a single Cochrane review then devoted to Ayurveda against 14 for traditional Chinese medicine and five for homoeopathy [18], and national surveys finding AYUSH used in about 7% of outpatient treatment episodes, with fewer than 30% of households reporting any use [19, 20]. Political attention, the evidence base and public use are distinct quantities; this paper measures only the first.

This paper asks to what extent, and in what forms, political attention to Ayurveda has been expressed through MPs' questions, and how that expression changed over time, across the two Houses, and across parties, regions and genders. Eight hypotheses, formulated before the main analyses but not pre-registered, are reported whichever way they turned out: attention rose after the Ministry of AYUSH was created (H1); Ayurveda is increasingly raised within the AYUSH umbrella rather than by name (H2); the content of questions shifted from service delivery towards research and promotion (H3); the two Houses frame the subject differently (H6); Ayurveda became more of a ruling-side topic (H4); women, North-Eastern and less senior MPs ask relatively fewer such questions once each

member's overall question-asking is held constant (H5); Lok Sabha questions are more local and data-seeking than Rajya Sabha questions (H8); and answers to opposition MPs are more evasive than answers to ruling-side MPs (H7). Two themes added inductively after the main coding, traditional knowledge and COVID-19 and immunity, are treated as exploratory, as are the topic-model and network analyses reported in Section 3.9.

This study also makes a methodological contribution. Earlier Indian studies of parliamentary questions [5, 6, 4] analysed question content but did not link askers to dated party records or express counts as a share of all questions asked; existing structured datasets on Indian legislators [21, 22, 23] cover different questions or do not code party to the question date. Here, every asker was linked to the official member directory, party was coded from the member list for the term or year in which the question was asked rather than the member's current affiliation, and every rate was set against an exact denominator, so a rise in Ayurveda/AYUSH questions can be distinguished from a general rise in parliamentary question volume.

## 2. Materials and Method

### 2.1. Study Materials

The material examined in this study is not a biological or chemical sample but a textual record: every parliamentary question concerning Ayurveda or the wider AYUSH systems (Ayurveda, Yoga and Naturopathy, Unani, Siddha and Homoeopathy) tabled in India's Lok Sabha (House of the People) or Rajya Sabha (Council of States) between 1995 and 2026, together with its official answer and the asking member's record. This is a content analysis of all questions retrieved by the search described in Section 2.2, not a sample, using Ayurveda's place within the AYUSH umbrella as a case through which to trace legislative agenda-setting over three decades. The two Houses are treated as pre-specified subgroups and modelled and reported separately throughout, given their different composition (the directly elected Lok Sabha; the indirectly elected and partly nominated Rajya Sabha), rather than pooled by default.

### 2.2. Sample Collection

Four keywords, ayurved, ayush, indian medicine and traditional medicine, were searched in question titles; because "AYUSH" entered official use only in November 2003 and the individual system names were not separately searched, retrieval before 2003 may be less complete than afterwards (see Section 3.10). Rajya Sabha questions were retrieved from the full rsdoc.nic.in archive (1995–2026), and Lok Sabha questions from sansad.in (2000–2026) and the Sansad e-library (1995–1999). Deduplication left 3,953 unique questions. Each was assigned to the first tier it met: Ayurveda named in the title; Ayurveda named only in the text; Ayushman Bharat (a health-insurance scheme unrelated to the AYUSH systems, excluded); other off-topic hits (excluded); or a residual AYUSH-umbrella tier. Screening left 3,533 relevant questions (2,198 Lok Sabha, 1,335 Rajya Sabha). Each question's official starred or unstarred designation, recorded by the House Secretariat and governing whether it is answered orally with scope for supplementary questions (starred) or only in writing (unstarred), was retained from the source record and examined post hoc as an exploratory, non-pre-registered check (Section 3.8).

### 2.3. Extraction Procedure

Not applicable. This is a quantitative political-science content analysis of publicly available parliamentary text, not a laboratory study; no chemical, biological or other physical extraction procedure was performed. The corresponding procedural step in this design, linking each retrieved question to the member and party record current on its own date and assigning thematic codes, is described in Section 2.4

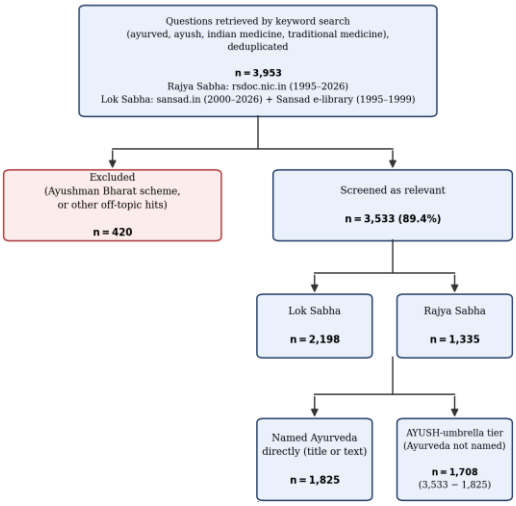



**Figure 1.** Flow of questions from retrieval to screening and classification, with asker-level record linkage shown separately. Every figure in the diagram is already reported elsewhere in this section; the 1,708 AYUSH-umbrella-tier count is the arithmetic difference between two reported totals (3,533 relevant minus 1,825 named-Ayurveda questions) and is not a separately measured count.

### 2.4. Analytical methods

Every asker was linked to the official member directory: Rajya Sabha askers exactly, by member code, and Lok Sabha askers by fuzzy name matching (RapidFuzz token-set similarity, cut-off 80/100), linking 97.8% of Lok Sabha and 99.8% of Rajya Sabha askers. Party was coded from the member list for the term or year in which the question was asked, not the member's current affiliation; three post-2021 party splits were resolved to the member's current faction, exposing 48 questions (1.36% of the corpus) to possible misclassification between ruling and opposition family (see Section 3.10). Ruling status on each date was taken from a separately compiled alliance timeline recording each party's periods of formal coalition membership or declared outside support, checked against news reports; parties giving only informal, issue-based support were coded as opposition throughout.

Nine keyword rules (seven specified in advance; traditional knowledge and COVID-19/immunity added inductively) assigned each title to one or more themes; the rules are given in full as Table 1, reproduced exactly as coded (each is a case-insensitive regular expression applied to the question title, matched with Python's re module; a title matching a theme's pattern anywhere is assigned that theme, and a title may match more than one theme or none). Table 1's rules use standard regular-expression syntax. A vertical bar (|) separates alternative keywords, any one of which triggers a match for that theme. \b marks a word boundary, so \bban\b matches the standalone word "ban" but not "banned" or "urban"; "banned" is listed as its own separate alternative to catch that case. A question mark makes whichever element immediately precedes it optional (zero

or one occurrence); combined with a full stop, which stands for any single character, as in cross.?pathy or de.?addiction, the pair together match an optional character of any kind, so cross.?pathy matches "crosspathy," "cross-pathy" and "cross pathy" alike, while co-?locat instead makes a specific literal hyphen optional, matching "colocat" and "co-locat." Parenthesised alternatives such as \bstud(y|ies)\b match either "study" or "studies" as a whole word, and a character class such as utili[sz] matches either the British ("utilise") or American ("utilize") spelling in a single rule. The one rule written with a different wildcard, new .*?(college|hospital|institute|centre), matches "new" followed by the shortest possible run of any characters (a "lazy" match, .*?, rather than a greedy one) and then one of the four listed words, so as to catch phrasings such as "new AYUSH college" without the pattern over-running past the first relevant word it finds.

Question text was separately coded for sub-parts, length, requests for state-wise data, and scrutiny versus distributive framing; answers were coded for length and non-answer formulas, with a substantive answer defined as one containing an annexure or a rupee figure and no non-answer formula. All coding was carried out by a single coder (the first author). The theme assignments were checked against an independent reading of the same 10% stratified coding sample (353 questions) by a second human coder, blind to the keyword rules. The title-only rules agreed with the second coder at an observed rate of 84.1% (pooled Cohen's kappa = 0.42, "moderate"); agreement was "substantial" for one theme (Education & Workforce, kappa = 0.61), "fair" for seven, and effectively absent for Traditional Knowledge & Biodiversity (kappa = -0.01; the rules caught none of the ten questions the human coder flagged with this theme, recall 0.00) (see Section 3.10).

Question or answer text needed for the codes above was missing, or below the length threshold used to treat it as present, for 21 of the 3,533 included questions (0.59%: 4 lacked usable question text and 21 lacked usable answer text, the former a subset of the latter); these records were excluded from the analyses that needed them, while title-level theme coding, which uses only the question's title, was unaffected. A closely comparable study, published in a journal of political science, did not break out an equivalent count at all [24].
A substantive answer (above) is defined mechanically, as one containing an annexure or a rupee figure and no non-answer formula; unlike the theme rules, this heuristic has not been independently validated, and since it is also the outcome behind H7 (Section 3.8), any bias it carries could affect that comparison in a direction this study cannot determine (see Section 3.10).

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| Theme | Keyword rule (regular expression on question title) |
|---|---|
| Regulation & Standardisation | regulat\|licen\|pharmacopoe\|quality\|standard\|spurious\|counterfeit\|adulterat\|misleading\|advertis\|\bban\b\|banned\|heavy metal\|safety\|side effect\|testing\|drug control\|ncism\|ccim\|central council of indian medicine\|\bact\b\|\bbill\b\|recogni\|accredit\|certif\|illegal\|fake\|steroid\|toxic\|contaminat\|misuse\|nomenclature\|sale of\|approval\|quack\|malpractice\|mixopathy\|cross.?pathy |
| Research & Evidence | research\|clinical\|trial\|scientific\|evidence\|validat\|ccras\|\bstud(y\|ies)\b\|innovation\|r ?& ?d\|efficacy\|cancer\|diabet\|\bcure\|treatment of\|disease\|laborator\|remedy\|formulation\|drug development\|documentation |
| Education & Workforce | college\|universit\|educat\|student\|\bseats?\b\|bams\|teacher\|faculty\|doctors?\b\|practitioner\|vaidya\|\bposts?\b\|vacanc\|recruit\|training\|course\|degree\|scholarship\|\bpg\b\|neet\|syllabus\|exam\|appointment\|professional\|manpower\|workforce |
| Service Delivery & Integration | hospital\|dispensar\|wellness\|health cent\|\bphc\|primary health\|\bchc\|integrat\|mainstream\|co-?locat\|clinic\|\bwing\|facilit\|cghs\|esic\|armed forces\|de.?addiction\|therapy\|massage\|healthcare\|health care\|treatment\|units?\|services?\b\|allopath\|modern medicine |
| Industry, Trade & Export | export\|import\|trade\|industr\|market\|manufactur\|pharma\|compan\|products?\b\|investment\|msme\|gi tag\|embargo\|\bsector\|business\|tourism\|price\|turnover\|start.?up\|supply\|purchase\|demand\|\bgst\|excise\|\btax\|cluster\|joint venture\|aushadhi\|economy\|value travel\|\bvisa |
| Public Awareness & Promotion | promot\|propagat\|populari\|awareness\|campaign\|ayurveda day\|\bday\b\|publicity\|acceptance\|global\|world\|international\|\bwho\b\|diplomac\|abroad\|foreign\|countr(y\|ies)\|encourag\|foster\|reviv\|spread\|mahasammelan\|award\|saarc\|recognition\|brand\|outreach\|mou\b\|agreement\|cooperation |
| Funding & Infrastructure | \bfund\|budget\|grant\|allocat\|financ\|assistance\|scheme\|mission\|\bnam\b\|infrastructure\|setting up\|set up\|establish\|institute\|aiia\|expansion\|opening\|centre of excellence\|utili[sz]\|new .*?(college\|hospital\|institute\|centre)\|upgrad |
| Traditional Knowledge & Biodiversity | traditional knowledge\|tkdl\|bio-?piracy\|patent\|medicinal plant\|\bherb\|cultivat\|biodivers\|forest\|raw material\|intellectual property\|\bipr\b\|folk\|tribal medicine\|local health tradition |
| COVID-19 & Immunity | covid\|corona\|immun\|pandemic\|kadha\|kashayam\|coronil\|ayush.?64\|black fungus\|mucormycosis |

*A question's title may satisfy more than one rule (for example, a title mentioning both a new AYUSH college and its funding matches both Education & Workforce and Funding & Infrastructure). Two acronyms recur across rules without being spelt out: \bnam\b matches "NAM" (National AYUSH Mission) as a whole word; \baiia\b matches "AIIA" (All India Institute of Ayurveda). The corpus's codebook also defines 39 narrower "concept" rules (named institutions, schemes and issues, for example CCRAS, the National AYUSH Mission, or COVID-19 specifically) used only for the concept co-occurrence network in Section 3.9, not for the nine themes reported above.*

### 2.5. Statistical analysis

Every rate is a share of a known denominator, the number of questions of any kind asked in the same House and window (320,928 Rajya Sabha questions; Lok Sabha session totals from sansad.in and the Sansad e-library). Rates are reported per 10,000 questions asked with exact Poisson confidence intervals [25]; rates before and after 2014 were compared as rate ratios, and an interrupted time series (one row per House-year, with a log offset for total questions asked; [26]) tested for a change in level and slope from 2015. Binary outcomes were modelled by logistic regression (adjusted odds ratios, ORs); theme prevalence by House was tested by chi-squared with Holm correction across nine simultaneous tests [27] and summarised by Cramér's V [28]. Thematic diversity was summarised by the Shannon index (natural logarithm; maximum ln 9 = 2.20; [29]). Member-level predictors of each member's rate of relevant questions, holding total question-asking constant, were modelled by negative-binomial regression for both Houses [30] (Rajya Sabha dispersion was close to zero, equivalent to Poisson), with the log of each member's total questions in the same window entered as an offset and a full set of Lok Sabha term, or Rajya Sabha term-window, fixed effects; a robustness check refitting both models with standard errors clustered by member (Section 3.7) widened the standard errors modestly but changed no coefficient's significance at $p<0.05$. All tests were two-sided at alpha = 0.05. As a check on the paper's overall false-positive rate, Benjamini-Hochberg false-discovery-rate correction [31] was additionally applied across every hypothesis test reported anywhere in this paper with a significance claim, 48 in total: the nine theme-by-period and nine theme-by-House tests above (each already Holm-corrected within its own family), H2, H4, H7, H8 and the interrupted-time-series terms, and the representation-specific predictors in Tables 7 and 8 (excluding party-family, region and term fixed-effect controls, which are adjustment variables rather than tested hypotheses). No finding significant at $p<0.05$ before this wider correction lost significance after it, the closest case being the House difference in Regulation & Standardisation (H6, adjusted $p = 0.047$). Analyses used Python 3.9 with pandas, statsmodels, SciPy, scikit-learn (topic modelling) and NetworkX (network measures; Section 3.9); RapidFuzz was used for name matching.

Several design choices limit bias rather than only describing it after the fact: every rate is expressed against an exact denominator rather than a raw count, so a rise in Ayurveda/AYUSH questions can be distinguished from a general rise in parliamentary activity; member-level models include each member's own total question-asking as an exposure offset, separating topical specialisation from overall activity; and the nine simultaneous theme-by-House tests used Holm correction rather than an uncorrected threshold. Every exclusion at every retrieval and screening stage is reported

in full in Figure 1 above. Further sources of bias could not be addressed with the materials available for this analysis and are reported as limitations instead (Section 3.10).

## 3. Results and Discussion

Of 3,953 unique questions retrieved, 3,533 (89.4%) were relevant and 1,825 named Ayurveda directly; question and answer text is available for 99.0–100% of the relevant corpus in both Houses from 1995 onward, spanning 15 March 1995 to 11 August 2026.

The eight hypotheses are tested in the order below, which groups findings that bear on the same mechanism rather than following strict numerical order; the index below gives the section testing each hypothesis directly.

| Hypothesis | Tested in |
|---|---|
| H1 | Section 3.1 |
| H2 | Section 3.2 |
| H3 | Section 3.3 |
| H4 | Section 3.5 |
| H5 | Section 3.6 |
| H6 | Section 3.4 |
| H7 | Section 3.8 |
| H8 | Section 3.8 |

### 3.1. Attention rose sharply after 2014 (H1)

Relevant question counts were low and did not show a clear rise through the 1990s–2000s in both Houses, then grew sharply after 2014 (Figure 2); the same pattern holds once expressed as a rate against each year's total question volume, the quantity the rate ratios below are built from, plotted year by year for both Houses in Figure 3. Comparing the 16th–18th Lok Sabha terms with the 13th–15th, the rate is 5.00 times higher in the Lok Sabha (95% CI 4.49–5.56) and 5.66 times higher in the Rajya Sabha (95% CI 4.93–6.50); for questions naming Ayurveda specifically the ratios are far smaller, 1.7 and 1.6. An interrupted time series confirms the shape: no detectable trend before 2015 (annual rate ratio 0.99, 95% CI 0.98–1.01), a 2.87-fold step increase in 2015 (95% CI 2.28–3.63), and a further 13% annual rise thereafter (95% CI 1.10–1.16). The break coincides with the National AYUSH Mission's launch two months before the Ministry itself, so the 2015 jump should not be attributed to the Ministry alone.

Since retrieval before November 2003 drew on a narrower keyword set (Section 2.2), a sensitivity check recomputed the pre/post-2014 contrast on an exact date-cutoff basis (Table 2, first two rows: 4.21 Lok Sabha and 5.88 Rajya Sabha, a different but related figure from the term-grouped ratio above) and then restricted the pre-period first to 2004–2026 and then to November 2003–May 2014 only, using exact per-session (Lok Sabha) and per-question (Rajya Sabha) denominators throughout. Both restrictions push the rate ratio up rather than down from the date-cutoff baseline, the opposite of what a pure retrieval-construction artefact would predict, so retrieval incompleteness in the earliest years does not appear to be inflating this finding.

Journal of Interdisciplinary and Multidisciplinary Research
E-ISSN: 1936-6264 | P-ISSN: 1945-3019
Journal of Interdisciplinary and Multidisciplinary Research (JIMRES)
www.jimres.org
E-ISSN: 1936-6264 | P-ISSN: 1945-3019

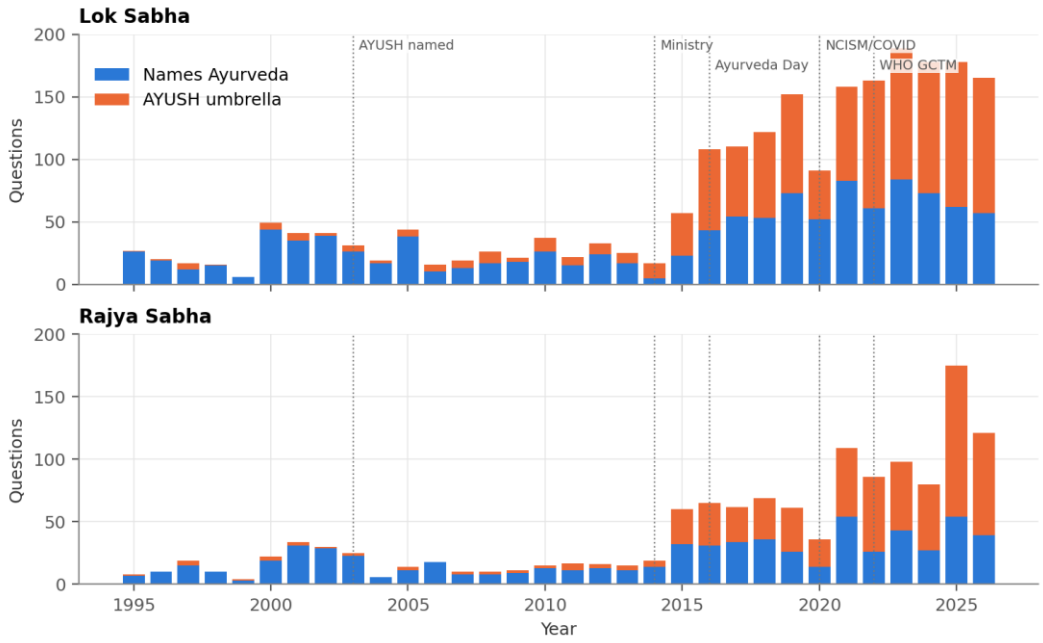



**Figure 2.** Relevant questions per year (raw counts, not adjusted for each year's total question volume), split between those naming Ayurveda directly and those falling in the broader AYUSH-umbrella tier, with policy milestones marked.

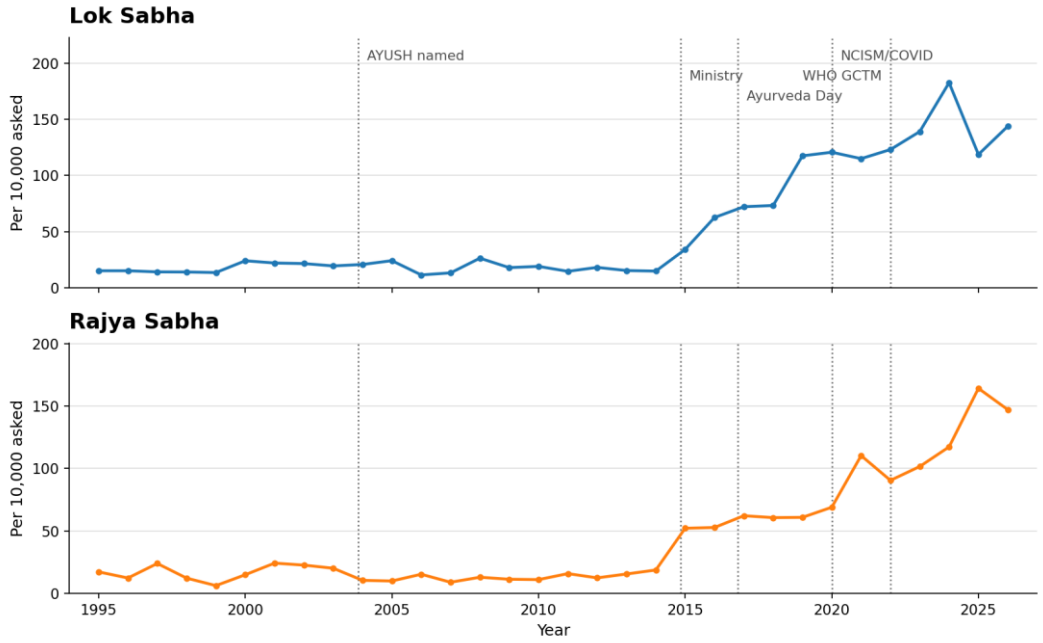



**Figure 3.** Relevant questions per 10,000 questions asked, by year and House, 1995–2026. Same classification and policy milestones as Figure 2; 2026 is a partial year (to 11 August 2026).

**Table 2.** Pre/post-2014 rate ratio for Ayurveda/AYUSH-relevant questions: full study window versus two restricted-period sensitivity checks that drop the years with the thinnest searchable vocabulary.

| Specification | House | Rate ratio | 95% CI | p |
|---|---|---|---|---|
| Full window, date-cutoff basis (1995–2026) | Lok Sabha | 4.21 | 3.82–4.65 | < 0.001 |
| Full window, date-cutoff basis (1995–2026) | Rajya Sabha | 5.88 | 5.17–6.69 | < 0.001 |
| Restricted to 2004–2026 | Lok Sabha | 5.59 | 4.92–6.36 | < 0.001 |
| Restricted to 2004–2026 | Rajya Sabha | 7.18 | 6.01–8.59 | < 0.001 |
| Pre-period limited to Nov 2003–May 2014 | Lok Sabha | 5.56 | 4.89–6.33 | < 0.001 |
| Pre-period limited to Nov 2003–May 2014 | Rajya Sabha | 7.06 | 5.91–8.45 | < 0.001 |

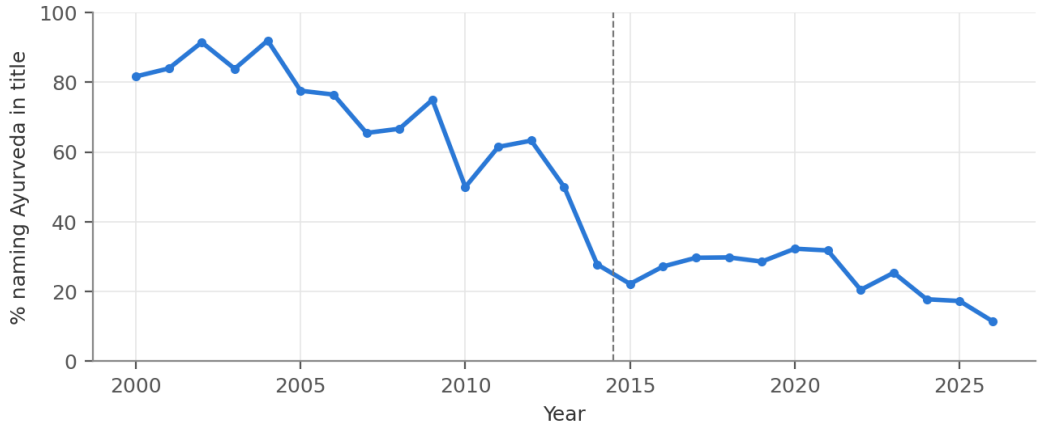



**Figure 4.** Share of relevant questions naming Ayurveda in the title, by year, both Houses pooled, 2000–2026.

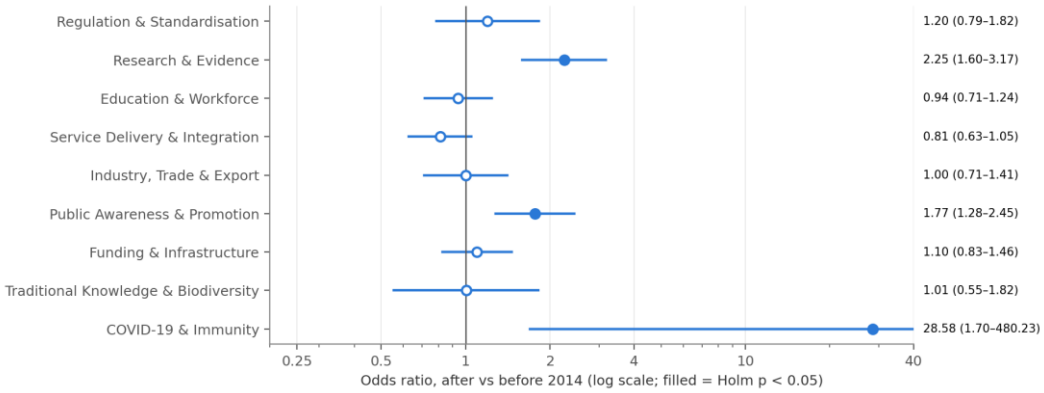



**Figure 5.** Odds ratio for each theme's share of Ayurveda-titled questions, after vs before 2014, with Holm-corrected 95% confidence intervals (log scale). Filled markers: Holm p<0.05.

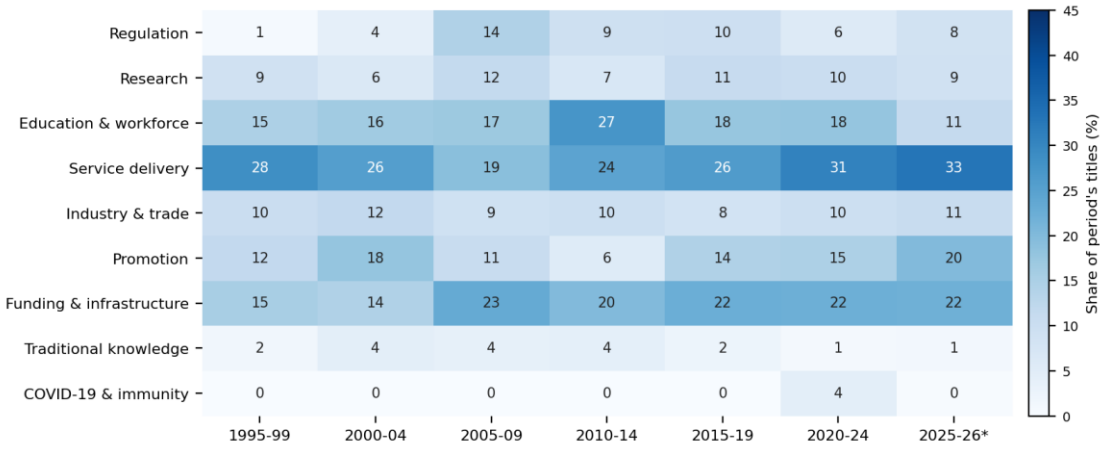



**Figure 6.** Share of all relevant question titles assigned to each theme, by five-year period (%; colour bar: share of period's titles); a title may carry more than one theme or none. 2025–26 is a partial period (to 11 August 2026).

**Table 3.** Theme prevalence by House

| Theme | Lok Sabha % | Rajya Sabha % | $\chi^2$ | Cramér's V | p (Holm) |
|---|---|---|---|---|---|
| Regulation | 6.7 | 8.8 | 5.0 | 0.038 | 0.102 |
| Research | 8.9 | 10.9 | 3.4 | 0.031 | 0.198 |
| Education & workforce | 18.5 | 14.5 | 9.2 | 0.051 | 0.014 |
| Service delivery | 27.0 | 30.9 | 6.0 | 0.041 | 0.073 |
| Industry & trade | 8.2 | 12.1 | 14.3 | 0.064 | 0.001 |
| Promotion | 12.6 | 18.8 | 25.0 | 0.084 | < 0.001 |
| Funding & infrastructure | 19.0 | 24.9 | 17.1 | 0.070 | < 0.001 |
| Traditional knowledge | 1.9 | 2.0 | 0.0 | 0.002 | 1.000 |
| COVID-19 & immunity | 1.5 | 1.6 | 0.1 | 0.005 | 1.000 |

Across all relevant questions, not only the Ayurveda-titled subset, but the research share also stayed flat (6–12% every period, Figure 6) and promotion rose more modestly; thematic diversity (Shannon index) stayed within a narrow 1.79–1.98 band throughout. Traditional-knowledge questions fell (OR 0.36, 95% CI 0.22–0.58), though this estimate rests on only three rule-tagged questions and should be read with caution. H3 is accordingly partly supported: research and promotion grew among Ayurveda-titled questions after 2014, but service delivery and funding did not decline, and overall thematic breadth did not narrow.

### 3.4. The two Houses differ only slightly in theme emphasis (H6)

A chi-squared test for each theme against House, with Holm correction, finds four of nine themes statistically distinguishable (education and workforce, industry and trade, promotion, and funding and infrastructure), but every association has Cramér's V below 0.10 (Table 3). Where a difference exists, the Rajya Sabha leans

**Table 4.** House effect (Rajya Sabha vs Lok Sabha) on theme presence, adjusted for period, with Holm correction across the nine themes.

| Theme | Adjusted OR (House: RS vs LS) | 95% CI | p | p (Holm) |
|---|---|---|---|---|
| Regulation & Standardisation | 1.34 | 1.04–1.73 | 0.022 | 0.089 |
| Research & Evidence | 1.24 | 0.99–1.56 | 0.061 | 0.183 |
| Education & Workforce | 0.75 | 0.62–0.90 | 0.002 | 0.013 |
| Service Delivery & Integration | 1.21 | 1.04–1.40 | 0.015 | 0.073 |
| Industry, Trade & Export | 1.55 | 1.24–1.94 | < 0.001 | < 0.001 |
| Public Awareness & Promotion | 1.61 | 1.33–1.94 | < 0.001 | < 0.001 |
| Funding & Infrastructure | 1.41 | 1.20–1.66 | < 0.001 | < 0.001 |
| Traditional Knowledge & Biodiversity | 1.08 | 0.66–1.76 | 0.771 | 1.000 |

towards promotion, industry and trade, and funding and infrastructure, and the Lok Sabha towards education and workforce. H6 is therefore only weakly supported: the Houses differ modestly in emphasis within an otherwise shared agenda.

A companion logistic-regression version of this test, modelling each theme jointly on House and period rather than House alone (Table 4), confirms the unadjusted picture for seven of the nine themes and surfaces one reversal worth noting: education and workforce, not statistically distinguishable by the unadjusted test above, becomes a significant Rajya Sabha deficit once period is controlled for (adjusted OR 0.75, 95% CI 0.62–0.90, Holm p=0.013). Eight of the nine themes converged without difficulty; the ninth, COVID-19 & Immunity, had zero pre-2014 COVID-19-themed questions, producing quasi-complete separation, so that one theme's model was restricted to the post-2014 subsample only (n=2,719), reported with this restriction stated rather than hidden.

*Adjusting for period changes the picture for Education & Workforce in particular: this is the one place in this extension where adjustment changes a substantive conclusion, not just a p-value, and the only theme among the nine where the adjusted estimate points in the direction opposite to Lok Sabha's generally higher question volume. Industry/Trade & Export, Public Awareness & Promotion and Funding & Infrastructure remain robustly significant in the Rajya Sabha's favour after adjustment and Holm correction. Traditional Knowledge & Biodiversity and COVID-19 & Immunity show no adjusted House difference, consistent with both being flagged elsewhere in this paper as exploratory, low-count themes.*

### 3.5. Ruling-side share of askers tracked seat share except in the 18th Lok Sabha (H4)

With each asker's party coded to the question date, the ruling coalition's overall share of askers rose from 46.2% before 2014 to 61.1% after (adjusted OR 1.82, 95% CI 1.58–2.09); in the Lok Sabha alone, the rise is from 50.1% to 64.6% (Table 5). Term by term, using the seat share recorded at each coalition's formation, the ruling coalition's share of askers sits within

five percentage points of its own seat share from the 13th to 17th Lok Sabha; only the 18th Lok Sabha departs substantially, with ruling-side MPs making up 65.2% of linked askers against 54.0% of seats. Most of the rise in ruling-side asker share tracks its larger seat share after 2014; H4 is accordingly not supported once seat share is considered, except in the 18th Lok Sabha.

**Table 5.** Ruling share of askers vs seats, Lok Sabha.

| Lok Sabha | Linked askers | Ruling share of askers % | Ruling share of seats % |
|---|---|---|---|
| 10th | 54 | 20.4 | 42.7 |
| 11th | 46 | 34.8 | 56.0 |
| 12th | 24 | 54.2 | 49.7 |
| 13th | 206 | 50.5 | 54.9 |
| 14th | 163 | 50.3 | 55.1 |
| 15th | 232 | 49.6 | 48.1 |
| 16th | 861 | 62.3 | 61.9 |
| 17th | 1,429 | 65.6 | 64.5 |
| 18th | 753 | 65.2 | 54.0 |

*Seat share in Table 5 is each ruling party or coalition's average share of the 543 elected Lok Sabha seats, held constant across the term rather than weighted by days in session; the 10th–12th-term rows rest on far fewer linked askers than later terms and on a different retrieval source (the Sansad e-library), and are reported for context only.*

Table 5's seat-share column is itself a simplification: a days-weighted recomputation accounting for mid-term coalition departures (Table 6) shows the 17th Lok Sabha also departing from its seat share, not only the 18th: its ruling asker share (65.6%) sits 5.1 points above the days-weighted seat share (60.5%), against only 1.1 points above the at-formation figure in Table 5, once Shiv Sena's November 2019 departure and Janata Dal (United)'s 2022–24 exit are weighted by the days each actually held its seats.

*The two largest corrections are in the 11th and 17th Lok Sabha (4.6 and 4.0 percentage points): the 11th because the short-lived United Front coalition's recorded composition changed substantially within the term; the 17th because of Shiv Sena's November 2019 departure and Janata Dal (United)'s 2022–24 exit and return. One limitation is stated rather than absorbed silently: this method can only subtract a party's seats once it leaves, so it cannot credit seats gained when a party joins a coalition mid-term; two such events (the Ajit Pawar faction of the Nationalist Congress Party joining the NDA in July*

**Table 6.** Static (at-formation) versus days-weighted ruling-coalition seat share, by Lok Sabha term.

| Lok Sabha term | Static seat share (at formation) | Days-weighted seat share | Difference |
|---|---|---|---|
| 10th (1991–96) | 42.7% | 42.7% | 0.0 pp |
| 11th (1996–97) | 56.0% | 51.4% | −4.6 pp |
| 12th (1998–99) | 49.7% | 48.9% | −0.8 pp |
| 13th (1999–2004) | 54.9% | 53.5% | −1.4 pp |
| 14th (2004–09) | 55.1% | 52.4% | −2.7 pp |
| 15th (2009–14) | 48.1% | 46.1% | −2.0 pp |
| 16th (2014–19) | 61.9% | 61.0% | −0.9 pp |
| 17th (2019–24) | 64.5% | 60.5% | −4.0 pp |
| 18th (2024–) | 54.0% | 52.5% | −1.5 pp |

*2023, and the AIADMK rejoining in April 2025) are not credited, so the reported 17th- and 18th-term figures are conservative lower bounds.*

### 3.6. Representation gaps with total question-asking held constant (H5)

In over half of Lok Sabha member-terms (55%) and over two-thirds of Rajya Sabha member-periods (68%), the member asked no relevant question; both Houses show marked over-dispersion, addressed by negative-binomial models with each member's total questions in the same window as an offset, so coefficients describe topical specialisation independent of overall activity.

In the Lok Sabha model (n=2,892 member-terms, 13th–18th terms), Congress and regional-party MPs had a markedly lower rate of relevant questions per question asked than BJP MPs, and North-Eastern and Eastern MPs a lower rate than central-region MPs; gender, education and ruling-side status were not significant once total output was held constant (full coefficient table, Table 7; forest plot, Figure 7). Seniority ran against H5's prediction: each additional prior Lok Sabha term served lowered the rate rather than raising it.

The Rajya Sabha model (n=1,507 member-periods) shows a similar Congress/regional-party pattern, and a lower rate for Left MPs. Unlike the Lok Sabha, Rajya Sabha women asked relatively more such questions than men, a difference from the Lok Sabha estimate that is itself statistically significant; ruling-side status was independently associated with a higher rate here, and seniority again ran against H5 (full coefficient table, Table 8; forest plot, Figure 8; comparison of both Houses' headline predictors, Table 9).

A simpler descriptive ratio, each region's share of askers divided by its share of Lok Sabha seats, agrees with the Lok Sabha model in pointing to the North-East as markedly under-represented (Table 10); the Rajya Sabha estimate points the same way but is not significant. The same ratio is well above parity in the West and South, so the representation gap is concentrated mainly in the North-East rather than spread evenly (Figure 9, with per-state counts given in Table 11). H5 is accordingly partly supported: the regional finding is consistent in direction across methods, the gender finding appears only in the Rajya Sabha, and seniority runs against the hypothesis in both Houses.

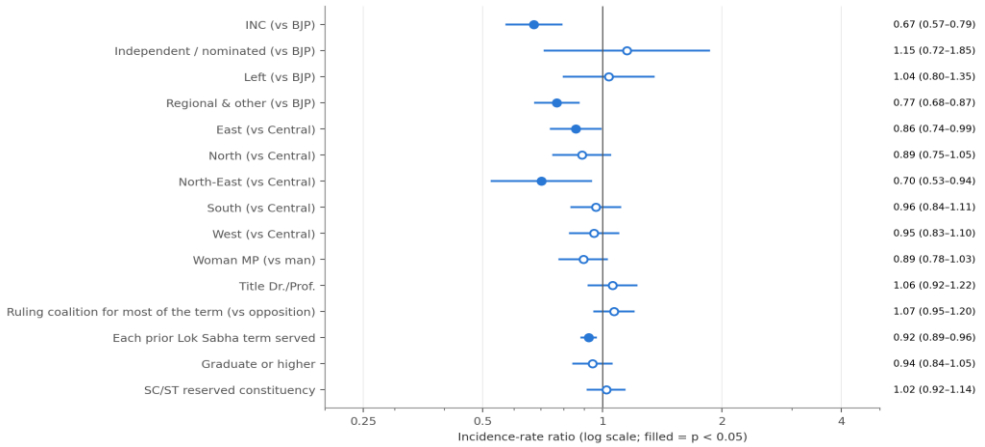



**Figure 7.** Incidence-rate ratios with 95% confidence intervals, Lok Sabha model. Filled markers: p<0.05.

**Table 7.** Negative-binomial model with exposure (Lok Sabha MP per term; MPs who asked at least one question of any kind, n = 2,892).

| Predictor (reference) | β | SE | IRR (95% CI) | p |
|---|---|---|---|---|
| Intercept (log rate) | −5.785 | 0.123 | 0.0031 | < 0.001 |
| INC (vs BJP) | −0.397 | 0.081 | 0.67 (0.57–0.79) | < 0.001 |
| Independent / nominated (vs BJP) | 0.141 | 0.243 | 1.15 (0.72–1.85) | 0.562 |
| Left (vs BJP) | 0.037 | 0.132 | 1.04 (0.80–1.35) | 0.779 |
| Regional & other (vs BJP) | −0.264 | 0.064 | 0.77 (0.68–0.87) | < 0.001 |
| East (vs Central) | −0.155 | 0.074 | 0.86 (0.74–0.99) | 0.035 |
| North (vs Central) | −0.120 | 0.084 | 0.89 (0.75–1.05) | 0.153 |
| North-East (vs Central) | −0.355 | 0.147 | 0.70 (0.53–0.94) | 0.016 |
| South (vs Central) | −0.038 | 0.072 | 0.96 (0.84–1.11) | 0.600 |
| West (vs Central) | −0.048 | 0.072 | 0.95 (0.83–1.10) | 0.504 |
| 14th Lok Sabha term (vs 1st) | −0.281 | 0.119 | 0.76 (0.60–0.95) | 0.018 |
| 15th Lok Sabha term (vs 1st) | −0.258 | 0.109 | 0.77 (0.62–0.96) | 0.018 |
| 16th Lok Sabha term (vs 1st) | 0.932 | 0.094 | 2.54 (2.11–3.05) | < 0.001 |
| 17th Lok Sabha term (vs 1st) | 1.792 | 0.090 | 6.00 (5.03–7.16) | < 0.001 |
| 18th Lok Sabha term (vs 1st) | 1.763 | 0.093 | 5.83 (4.85–7.00) | < 0.001 |
| Woman MP (vs man) | −0.111 | 0.070 | 0.89 (0.78–1.03) | 0.112 |
| Title Dr./Prof. (vs none) | 0.059 | 0.070 | 1.06 (0.92–1.22) | 0.403 |
| Ruling coalition for most of the term (vs opposition) | 0.068 | 0.058 | 1.07 (0.95–1.20) | 0.246 |
| Each prior Lok Sabha term served | −0.080 | 0.021 | 0.92 (0.89–0.96) | < 0.001 |
| Graduate or higher (vs below graduate) | −0.058 | 0.056 | 0.94 (0.84–1.05) | 0.302 |
| SC/ST-reserved constituency (vs general) | 0.021 | 0.054 | 1.02 (0.92–1.14) | 0.692 |

*Intercept gives the baseline rate (0.0031 questions per MP-term) for the reference profile: a male BJP MP from the Central region, in his first Lok Sabha term, without a Dr./Prof. title, in opposition for most of the term, below graduate level, from a general constituency. Dispersion parameter $\alpha = 0.324$; log-likelihood = −3391.13 against a null (intercept-only) log-likelihood of −3966.49; likelihood-ratio $\chi^2(20) = 1150.72$, $p < 0.001$; Akaike information criterion = 6826.3; McFadden pseudo-$R^2 = 0.145$.*

**Table 8.** Poisson model with exposure (Rajya Sabha member per Lok Sabha-term window; members who asked at least one question of any kind, n = 1,507).

| Predictor (reference) | β | SE | IRR (95% CI) | p |
|---|---|---|---|---|
| Intercept (log rate) | −6.999 | 0.426 | 0.0009 | < 0.001 |
| INC (vs BJP) | −0.441 | 0.128 | 0.64 (0.50–0.83) | < 0.001 |
| Independent / nominated (vs BJP) | 0.332 | 0.190 | 1.39 (0.96–2.02) | 0.081 |
| Left (vs BJP) | −0.367 | 0.187 | 0.69 (0.48–1.00) | 0.049 |
| Regional & other (vs BJP) | −0.300 | 0.110 | 0.74 (0.60–0.92) | 0.006 |
| East (vs Central) | 0.183 | 0.101 | 1.20 (0.98–1.46) | 0.071 |
| North (vs Central) | 0.082 | 0.100 | 1.09 (0.89–1.32) | 0.413 |
| North-East (vs Central) | −0.408 | 0.217 | 0.67 (0.43–1.02) | 0.060 |
| South (vs Central) | 0.042 | 0.098 | 1.04 (0.86–1.26) | 0.670 |
| West (vs Central) | −0.203 | 0.109 | 0.82 (0.66–1.01) | 0.062 |
| 13th Lok Sabha term-window (vs 12th) | 0.776 | 0.444 | 2.17 (0.91–5.18) | 0.080 |
| 14th Lok Sabha term-window (vs 12th) | 0.101 | 0.460 | 1.11 (0.45–2.72) | 0.827 |
| 15th Lok Sabha term-window (vs 12th) | 0.513 | 0.428 | 1.67 (0.72–3.86) | 0.230 |
| 16th Lok Sabha term-window (vs 12th) | 1.955 | 0.413 | 7.06 (3.14–15.88) | < 0.001 |
| 17th Lok Sabha term-window (vs 12th) | 2.349 | 0.413 | 10.48 (4.67–23.52) | < 0.001 |
| 18th Lok Sabha term-window (vs 12th) | 2.809 | 0.413 | 16.59 (7.38–37.29) | < 0.001 |
| Woman MP (vs man) | 0.255 | 0.085 | 1.29 (1.09–1.52) | 0.003 |
| Title Dr./Prof. (vs none) | 0.122 | 0.075 | 1.13 (0.97–1.31) | 0.107 |
| Ruling coalition for most of the term (vs opposition) | 0.247 | 0.100 | 1.28 (1.05–1.56) | 0.013 |
| Each earlier term-window with questions | −0.126 | 0.034 | 0.88 (0.83–0.94) | < 0.001 |

*Intercept gives the baseline rate (0.0009 questions per member per Lok Sabha-term window) under the same reference profile. The negative-binomial dispersion parameter for this model was estimated at the Poisson boundary (α = 0.000); since a negative-binomial model with α = 0 is a Poisson model, the fit is reported as Poisson throughout this section. Log-likelihood = −1425.23 against a null log-likelihood of −1905.48; likelihood-ratio $\chi^2(19) = 960.51$, $p < 0.001$; Akaike information criterion = 2890.5; McFadden pseudo-$R^2 = 0.252$. Robustness check: both models above are fit on a panel in which the same MP or member can contribute more than one row; refitting both with standard errors clustered by*

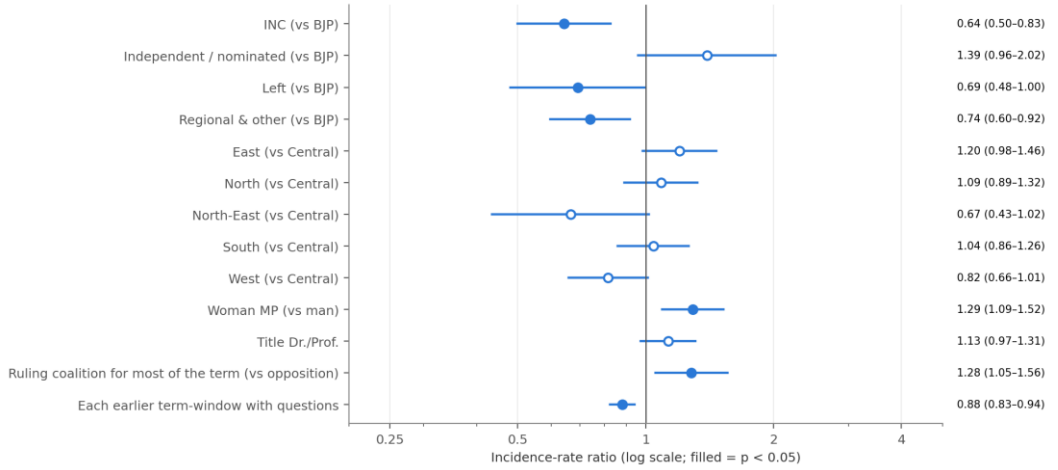



**Figure 8.** Incidence-rate ratios with 95% confidence intervals, Rajya Sabha model. Filled markers: p<0.05.

*member widens the standard errors modestly, as expected, but changes the statistical significance (at p < 0.05) of no coefficient in either model, including every coefficient reported above.*

**Table 9.** Incidence-rate ratios for relevant questions per question asked, member-level models with an exposure offset for each member's total questions. * p < 0.05. Lok Sabha-only predictors (graduate education, SC/ST-reserved constituency, each prior Lok Sabha term served) and the Rajya Sabha-only predictor (each earlier term-window with questions asked, IRR 0.88, 95% CI 0.83–0.94) are reported in Tables 7 and 8 above.

| Predictor (reference category) | Lok Sabha IRR (95% CI) | Rajya Sabha IRR (95% CI) |
|---|---|---|
| INC (vs BJP) | 0.67 (0.57–0.79)* | 0.64 (0.50–0.83)* |
| Independent / nominated (vs BJP) | 1.15 (0.72–1.85) | 1.39 (0.96–2.02) |
| Left (vs BJP) | 1.04 (0.80–1.35) | 0.69 (0.48–0.997)* |
| Regional & other (vs BJP) | 0.77 (0.68–0.87)* | 0.74 (0.60–0.92)* |
| East (vs Central) | 0.86 (0.74–0.99)* | 1.20 (0.98–1.46) |
| North (vs Central) | 0.89 (0.75–1.05) | 1.09 (0.89–1.32) |
| North-East (vs Central) | 0.70 (0.53–0.94)* | 0.67 (0.43–1.02) |
| South (vs Central) | 0.96 (0.84–1.11) | 1.04 (0.86–1.26) |
| West (vs Central) | 0.95 (0.83–1.10) | 0.82 (0.66–1.01) |
| Woman MP (vs man) | 0.89 (0.78–1.03) | 1.29 (1.09–1.52)* |
| Title Dr./Prof. (vs none) | — | — |
| Ruling coalition for most of the term (vs opposition) | 1.07 (0.95–1.20) | 1.28 (1.05–1.56)* |

**Table 10.** Representation ratio by region.

| Region | Central | East | North | North-East | South | West |
|---|---|---|---|---|---|---|
| Ratio | 0.92 | 0.83 | 0.95 | 0.44 | 1.14 | 1.39 |

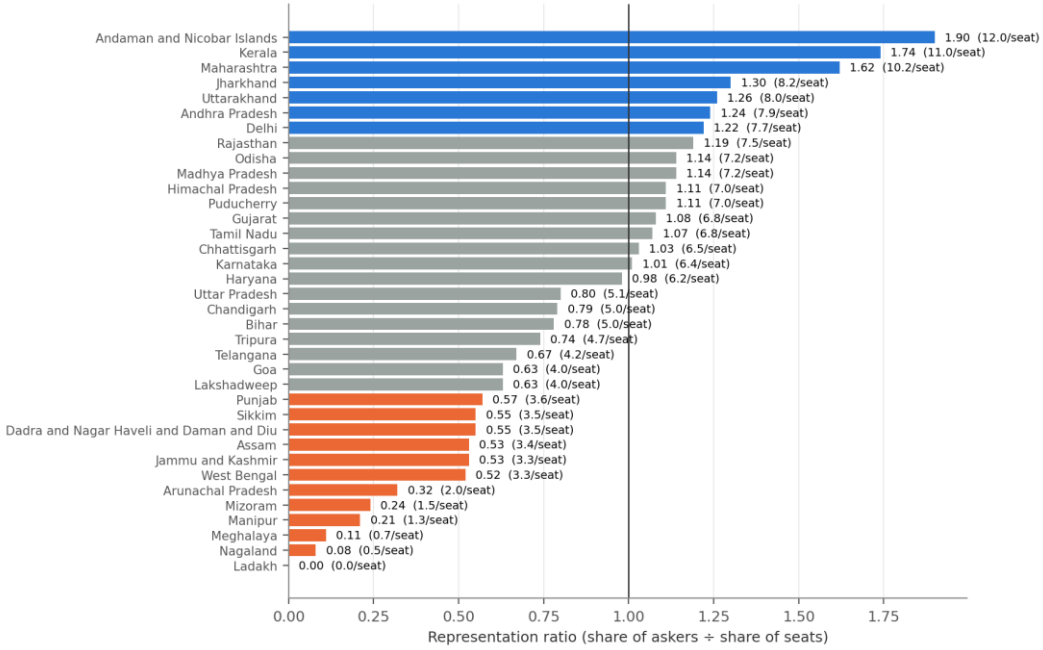



**Figure 9.** Concentration of Ayurveda/AYUSH question-asking by state and union territory, relative to each unit's average share of Lok Sabha seats over 1995–2026, ranked from most to least over-represented. Blue bars: ratio above about 1.2; orange: below about 0.6; grey: in between.

*Record linkage: every count above depends on matching the raw asker name printed on each question to a Lok Sabha or Rajya Sabha member-directory record. This succeeds for the great majority of askers but not all: 29 of 1,399 unique Lok Sabha asker names (2.1%) and 3 of 464 unique Rajya Sabha names (0.6%) could not be linked to any directory record and are excluded rather than forced to a wrong match. A further 63 Lok Sabha names (4.5%) and 1 Rajya Sabha name matched successfully but at a less-than-perfect similarity score, carrying some residual risk of a wrong match; a full, ranked list of these matched-but-imperfect pairs has been retained for the authors' own verification, since confirming each one is a real-world identity judgement rather than something this analysis can verify on its own.*

### 3.7. Party composition of askers by government

Table 12 gives the party-family composition of askers in both Houses, broken down by government rather than by Lok Sabha term, and extended back to the Narasimha Rao government (1995–1996) for context. The BJP's share of askers rose under every successive pre-2014 government before reaching its highest point under the Modi-led NDA, while Congress's share fell to its lowest recorded point over the same span; regional parties held a broadly stable share under every government except the short-lived United Front (Table 12). Party is coded to the date of each question, with one known, bounded exception: three post-2021 party splits are resolved using each new

**Table 11.** Lok Sabha and Rajya Sabha askers by state and union territory, 1995–2026, with Lok Sabha seats and askers-per-seat ratio to the all-India average of 6.32 askers per seat; ordered most to least over-represented.

| State / union territory | Region | Lok Sabha askers | Rajya Sabha askers | Lok Sabha seats | Askers per seat | Ratio to average |
|---|---|---|---|---|---|---|
| Andaman and Nicobar Islands | East | 12 | 0 | 1 | 12.00 | 1.90 |
| Kerala | South | 250 | 70 | 29 | 11.03 | 1.74 |
| Maharashtra | West | 586 | 101 | 67 | 10.25 | 1.62 |
| Jharkhand | East | 118 | 46 | 20 | 8.20 | 1.30 |
| Uttarakhand | Central | 36 | 28 | 8 | 8.00 | 1.26 |
| Andhra Pradesh | South | 211 | 72 | 36 | 7.86 | 1.24 |
| Delhi | North | 58 | 19 | 10 | 7.70 | 1.22 |
| Rajasthan | North | 205 | 58 | 35 | 7.51 | 1.19 |
| Odisha | East | 136 | 88 | 31 | 7.23 | 1.14 |
| Madhya Pradesh | Central | 217 | 71 | 40 | 7.20 | 1.14 |
| Himachal Pradesh | North | 15 | 34 | 7 | 7.00 | 1.11 |
| Puducherry | South | 0 | 14 | 2 | 7.00 | 1.11 |
| Gujarat | West | 221 | 32 | 37 | 6.84 | 1.08 |
| Tamil Nadu | South | 297 | 90 | 57 | 6.79 | 1.07 |
| Chhattisgarh | Central | 69 | 35 | 16 | 6.50 | 1.03 |
| Karnataka | South | 180 | 76 | 40 | 6.40 | 1.01 |
| Haryana | North | 68 | 25 | 15 | 6.20 | 0.98 |
| Uttar Pradesh | Central | 425 | 137 | 111 | 5.06 | 0.80 |
| Chandigarh | North | 5 | 0 | 1 | 5.00 | 0.79 |
| Bihar | East | 210 | 68 | 56 | 4.96 | 0.78 |
| Tripura | North-East | 9 | 5 | 3 | 4.67 | 0.74 |
| Telangana | South | 76 | 26 | 24 | 4.25 | 0.67 |
| Goa | West | 3 | 9 | 3 | 4.00 | 0.63 |
| Lakshadweep | South | 4 | 0 | 1 | 4.00 | 0.63 |
| Punjab | North | 28 | 44 | 20 | 3.60 | 0.57 |

faction's sourced, party-wide recognition date, affecting 48 questions (1.36% of the corpus). Checking this assumption against each affected member's own publicly reported switch, the twelve Shiv Sena Lok Sabha MPs who declared allegiance to the Shinde faction on 19–20 July 2022, and Sunil Tatkare's and Sunetra Pawar's membership of the Ajit Pawar faction, found no case in which an individual's documented crossover date differs from the party-level cutoff applied; the earliest affected question in the corpus (22 July 2022) falls after every one of these declarations, so no actual misclassification was identified among the 48 questions, though the possibility remains for any undocumented individual exception.

**Table 12.** Party family of askers by government (both Houses; % of askers).

| Government | BJP % | Congress % | Left % | Regional % | Independent/other % |
|---|---|---|---|---|---|
| **INC – Narasimha Rao (Mar 1995–May 1996)** | **39.4** | **27.3** | **3.0** | **30.3** | **0.0** |
| **United Front (1996–1998)** | **45.8** | **27.8** | **12.5** | **11.1** | **2.8** |
| **NDA – Vajpayee (1998–2004)** | **31.1** | **20.4** | **10.1** | **33.3** | **5.1** |
| **UPA – Manmohan Singh (2004–2014)** | **29.0** | **22.9** | **10.2** | **36.2** | **1.7** |
| **NDA – Modi (2014–present)** | **52.2** | **10.5** | **2.4** | **32.6** | **2.3** |

**Table 13.** Question form by House.

| Measure | Lok Sabha | Rajya Sabha |
|---|---|---|
| Questions with text | 2,197 | 1,332 |
| Mean sub-parts | 4.0 | 3.4 |
| Asks state- or district-wise data (%) | 34.7 | 16.1 |
| Asks about funds (%) | 31.1 | 25.2 |
| Names a state (%) | 39.6 | 36.0 |
| Names the asker's own state (% of askers) | 28.5 | 30.2 |
| Scrutiny framing (%) | 25.6 | 18.5 |
| Distributive framing (%) | 29.7 | 28.2 |

### 3.8. Question form and the government's answers (H8, H7)

Lok Sabha questions sought state-, district- or constituency-wise data more than twice as often as Rajya Sabha questions, and were somewhat more often scrutiny-framed, but the two Houses were nearly identical in how often they named a state and in distributive framing (Table 13); H8 is accordingly partly supported. No clear difference was found in the odds of a non-substantive answer for opposition askers once period and House were accounted for, so H7 is not supported; this outcome rests on a heuristic that has not been independently validated, so a bias favouring one side over the other cannot be ruled out (Section 2.4). Answers became longer and more often substantive over

time for askers on both sides alike: median answer length rose from 122 words in 1995–99 to 540 words in 2025–26, and the share containing an annexure or a rupee figure without a non-answer formula rose from 26.3% to 61.3% over the same span.

A further, exploratory check not among the eight pre-specified hypotheses examined whether a question's procedural form, starred or unstarred, was itself associated with the government's answer. The starred share was stable across House, period and naming tier (Table 14), so this is not a channel through which the volume findings above could be confounded. But starred questions received a substantive, documented answer far more often than unstarred questions, were longer, and were much more likely to include a supporting annexure; they were not significantly less likely to contain an outright non-answer formula (Table 14).

**Table 14.** Starred versus unstarred relevant questions: distribution and answer quality (unadjusted rates and chi-squared tests unless noted).

| Measure | Unstarred | Starred | Test statistic | p |
|---|---|---|---|---|
| Share of relevant questions (%) | 90.9 | 9.1 | — | — |
| Lok Sabha (%) | 90.5 | 9.5 | $\chi^2(1)=0.83$ | 0.36 |
| Rajya Sabha (%) | 91.5 | 8.5 | (House × type) | |
| Before 2014 (%) | 90.4 | 9.6 | $\chi^2(1)=0.18$ | 0.67 |
| After 2014 (%) | 91.0 | 9.0 | (period × type) | |
| Answer substantive (annexure or rupee figure, no non-answer formula) (%) | 44.5 | 75.2 | $\chi^2(1)=110.1$ | <0.001 |
| Answer includes an annexure (%) | 45.3 | 92.6 | $\chi^2(1)=260.1$ | <0.001 |
| Answer includes a rupee figure (%) | 26.7 | 34.4 | $\chi^2(1)=8.3$ | 0.004 |
| Answer contains a non-answer formula (%) | 24.0 | 20.1 | $\chi^2(1)=2.25$ | 0.13 |
| Answer length, words (median) | 247 | 378 | Mann-Whitney U=666,105 | <0.001 |

*Controlling for House and period (logistic regression), starred questions had 3.98 times the odds of a substantive answer (95% CI 3.05–5.19, p<0.001) and did not differ significantly from unstarred questions in the odds of containing a non-answer formula (OR 0.79, 95% CI 0.59–1.05, p=0.10). The starred share of relevant questions by five-year period ranged narrowly, from 5.6% (2010–14) to 12.4% (2000–04), with no monotonic trend. The oversight (scrutiny-framing) rate was similar for starred and unstarred questions within each House, consistent with starred status reflecting a procedural choice about how a question is answered rather than a difference in what kind of question is asked.*

### 3.9. Robustness and computational checks

Every thematic finding above rests on nine keyword rules (Table 1). This section asks whether an entirely data-driven method, given no information about those rules, recovers a similar structure, and separately describes three structural network checks. Non-negative matrix factorisation (NMF) was applied to a term frequency–inverse document frequency (TF-IDF) matrix of 3,529 question texts to extract ten topics, each matched post hoc to its closest rule-based theme by lift (Table 15; [32]). The correspondence is expected to be imperfect, since an unsupervised model with

ten free topics cannot reproduce nine hand-specified categories exactly. Agreement is modest overall (normalised mutual information 0.187), but several topics map onto a theme with high lift, for example new AYUSH colleges onto education and workforce (5.19) and products, drugs and quality onto regulation (4.96).

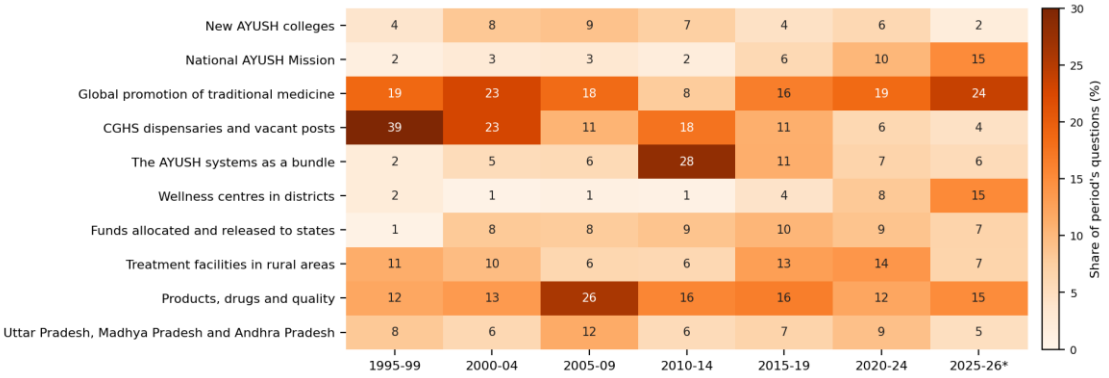



**Figure 10.** Share of question texts assigned to each of ten NMF topics, by period (%; colour bar: share of period's questions). 2025–26* is a partial period.

**Table 15.** NMF topics.

| Topic | n | Top words | Closest theme (lift) |
|---|---|---|---|
| New AYUSH colleges | 186 | colleges, medical, new, college, set | Education & workforce (5.19) |
| National AYUSH Mission | 290 | mission, national, nam, services, hospitals | Funding & infrastructure (2.81) |
| Global promotion of traditional medicine | 662 | traditional, research, promote, global, modern | Traditional knowledge (2.78) |
| CGHS dispensaries and vacant posts | 375 | dispensaries, cghs, doctors, delhi, hospitals | Education & workforce (2.01) |
| The AYUSH systems as a bundle | 304 | unani, siddha, yoga, homoeopathy, naturopathy | Promotion (1.56) |
| Wellness centres in districts | 242 | centres, wellness, health, district, operational | Service delivery (2.19) |
| Funds allocated and released to states | 297 | funds, allocated, schemes, development, released | Funding & infrastructure (1.98) |
| Treatment facilities in rural areas | 389 | treatment, areas, rural, facilities, hospitals | COVID-19 & immunity (3.53) |
| Products, drugs and quality | 522 | products, drugs, quality, export, manufacturing | Regulation (4.96) |
| Uttar Pradesh, Madhya Pradesh and Andhra Pradesh | 262 | pradesh, uttar, madhya, institute, andhra | Funding & infrastructure (1.94) |

*CGHS, Central Government Health Scheme.*

A concept co-occurrence network, with links between terms that appear in the same question weighted by lift, has a modularity of 0.401 [33], indicating that concepts form moderately well-separated communities. Communities were assigned by greedy modularity maximisation [34], as implemented in NetworkX. This value was tested against a null distribution built from 5,000 degree- and weight-preserving randomisations of the same network (edges rewired by double-edge swaps, with the original edge-weight multiset reassigned to the rewired topology on each draw); the observed modularity exceeded all but four of the 5,000 null draws (null mean 0.343, SD 0.020; z = 2.92; one-tailed p = 0.0008), indicating the detected community structure is unlikely to be an artefact of the network's degree sequence alone (Supplementary Material S1).

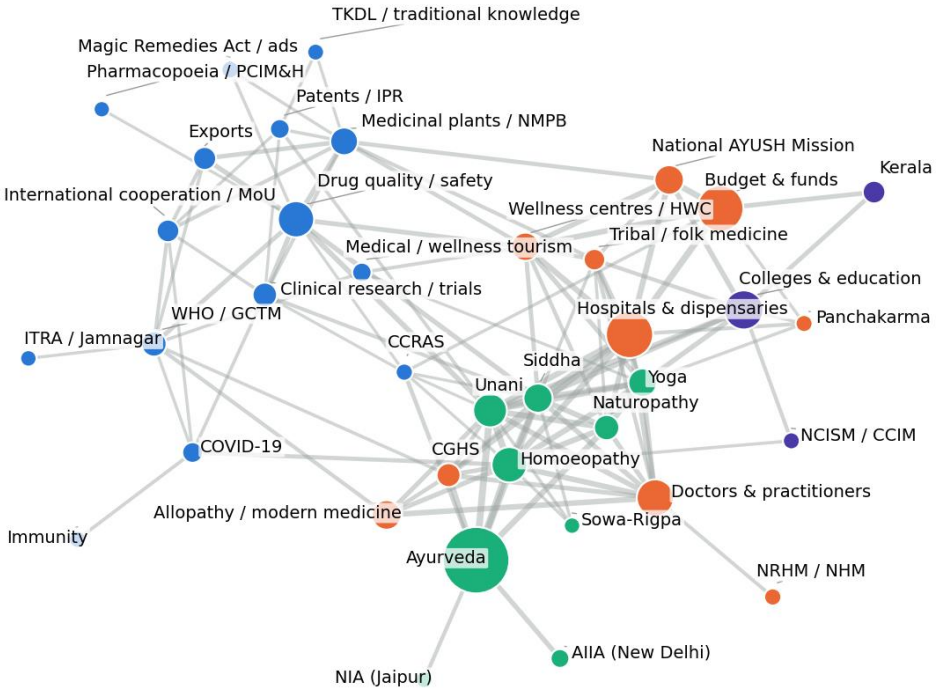



**Figure 11.** Concept co-occurrence network, full set of 39 coded concepts. Node size: questions mentioning the concept; colour: detected community; edge width: scaled co-occurrence strength.

$$\text{lift}(A,B) = cAB \cdot N / (nA \cdot nB)$$

Example (Ayurveda and homoeopathy): cAB = 363, nA = 1,819, nB = 441, N = 3,533 → lift = 1.6

$$\text{Modularity } Q = \Sigma c \left[ Lc / L - (dc / 2L)^2 \right], \; Q = 0.401 \text{ [S1]}$$

A party-by-theme heat map shows that theme emphasis differs considerably more by party than by House (Figure 12).

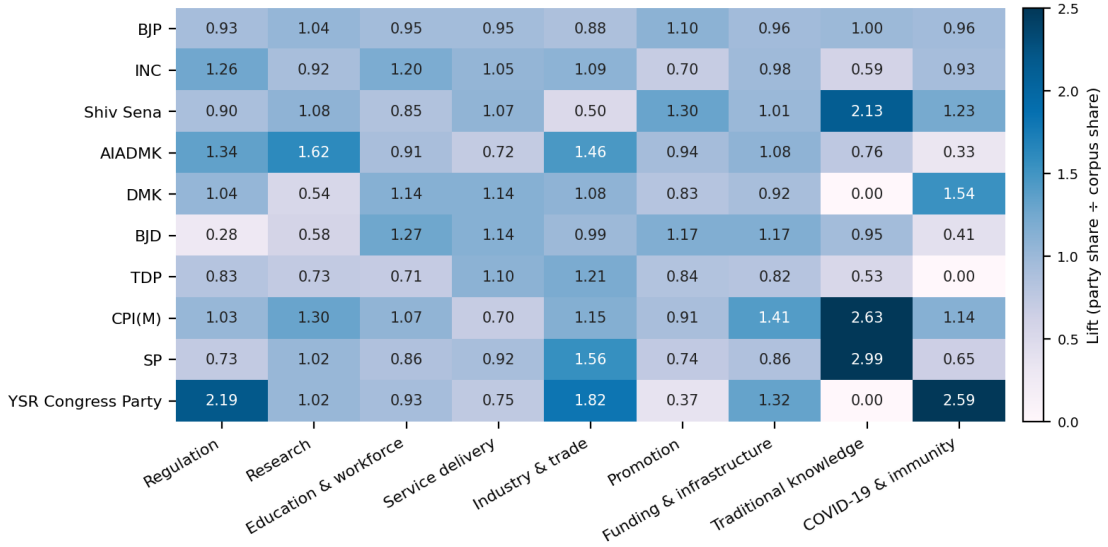



**Figure 12.** Theme lift by party, relative to the corpus-wide average for each theme (colour bar: lift value; cell values shown to two decimal places).

### 3.10. Synthesis and limitations

Relevant questions per 10,000 asked rose five- to sixfold after 2014, concentrated in a single sharp 2015 jump and a sustained further climb, without precedent in the Lok Sabha's record. Part of this reflects the umbrella relabelling documented under H2, since the overall rate ratio is roughly three times that for Ayurveda-named questions alone. Growth was concentrated in research and promotion (H3), the areas most tied to the Ministry's mandate; this is consistent with, but does not show, a Ministry effect, since its creation coincided with a change of government, the National AYUSH Mission and the first International Day of Yoga. Historical work traces how Ayurveda's modern identity has repeatedly been remade through state patronage rather than a fixed tradition [35], and ethnographic work describes a continuing tension between medical plurality and a state-promoted Ayurvedic hegemony [36]. Issue-ownership theory [12] offers one account of why volume and research/promotion framing grew together after the Ministry's creation, though an association in time cannot rule out a purely administrative mechanism, more schemes and more occasions for a question to attach to, regardless of political motive.

The findings on who asks are more qualified than a naive reading of the post-2014 ruling-side odds ratio (1.82) suggests: comparing ruling asker share with the at-formation seat share, only the 18th Lok Sabha departs substantially, by 11 percentage points, the largest gap since 1999. A days-weighted recomputation of the seat-share benchmark (Section 3.5), which accounts for mid-term coalition departures, brings the 17th Lok Sabha into the same picture. One hypothesis for future work is that a government newly reliant on regional coalition partners with their own state-level Ayurveda constituencies has prompted more questions from the ruling benches in both two most recent terms; the data cannot test this directly. This pattern, in which an institutional factor (ruling or Opposition status) tracks who raises a topic more consistently than any individual-level attribute,

echoes a finding from UK written parliamentary questions: being in Opposition was a stronger and more consistent predictor of raising minority-interest questions than an MP's own religious-minority background [24]. The representation findings bear on a wider literature holding that women MPs' substantive representation operates unevenly across issues and Houses [37]. The North-East's low representation ratio (0.44) agrees across methods; the gender result is genuinely mixed, with Rajya Sabha women specialising 29% above men once total output is held constant, while the Lok Sabha estimate is indistinguishable from parity, so a single India-wide claim about gender and interest in this subject would be wrong for at least one House. Set against an evidence base described in 2014 as thin (one Cochrane review for Ayurveda against 14 for traditional Chinese medicine; [18]) and national-survey use of about 7% of outpatient episodes [19, 20], this study measures only political attention, not evidence or use, and cannot show how far these three quantities influence one another. Qualitative work on AYUSH integration in primary care found that the single "AYUSH" label imposes a monolithic identity on distinct systems [38]; the umbrella shift documented here is consistent with that administrative grouping and with Indian sociology of medicine's emphasis on medical plurality [39, 40].

A secondary, exploratory check (Section 3.8) found that a question's procedural form shaped the government's answer independent of who asked it or when: starred questions, which are answered orally with scope for supplementary follow-up in the House, received a documented, substantive answer roughly four times more often than unstarred questions once House and period are held constant, without being significantly less likely to contain an outright non-answer formula. This suggests the live, interactive setting of a starred question disciplines how completely an answer is written up, a distinct mechanism from the asker's party that the existing evasiveness literature underlying H7 does not separately test.

This study has general limitations. A parliamentary question count measures what a member chose to place on the public record rather than private knowledge, influence or belief, and ministers do not themselves ask questions. The timing of the post-2014 rise is an association rather than a demonstrated causal effect of the Ministry's creation specifically, since several related institutional changes happened in close succession. These findings are specific to India's Two-House Parliament and to Ayurveda's own institutional history within the AYUSH umbrella; whether a similar pattern holds for the other AYUSH systems individually, or for traditional-medicine politics in other parliamentary settings, remains an open question this study cannot answer.

## 4. Conclusion

Political attention to Ayurveda in India's Parliament grew several-fold after the Ministry of AYUSH was created in 2014, faster than parliamentary questions overall and without precedent in the Lok Sabha's record. Attention now runs mainly through the wider AYUSH umbrella rather than Ayurveda by name and gives more weight to research and promotion. The ruling coalition's share of askers tracked its own seat share in most Lok Sabha terms; once mid-term coalition changes are weighted by the days each partner held its seats, both the 17th and 18th terms depart from that seat share, not only the 18th as the simpler at-formation

comparison alone suggests. Representation is uneven: North-Eastern MPs specialise less, while Rajya Sabha women specialise more than men. Future work could test this growth against AYUSH research output, extend the method to the other AYUSH systems, and test whether coalition composition, not seat share alone, explains why the two most recent terms depart from the pattern.

**5. Acknowledgement**

The authors thank the **Revisit Micro Research Group**, Jawaharlal Nehru University, for institutional support.

**Author Contributions**

**Ankit Raj:** Conceptualization, Investigation, Methodology, Formal Analysis, Writing — original draft, Writing — review and editing. **Ranjana M:** Methodology, Formal Analysis, Writing — review and editing. **Shubh Gupta:** Conceptualization, Methodology, Formal Analysis, Supervision, Writing — review and editing. **Siddhant Prakash:** Investigation, Writing — review and editing.

**6. Disclosure Statement**

The authors declare that there has been no competing interest among the authors which could influence the writing and publication of this manuscript.

**7. Use of Generative AI**

During manuscript preparation, the authors used Claude (Anthropic) to improve the manuscript's readability, fluency, and clarity. The authors then reviewed, edited, and verified all content for accuracy and appropriateness, and take full responsibility for the manuscript's accuracy and originality.

**8. Conflict of Interest**

The authors declare that there has been no conflict of interest during the study that could influence the preparation of this manuscript.

**9. Ethics Statement**

Not applicable. This study analyses only questions, answers and member records already in the public domain under India's parliamentary rules of procedure; no human participants or animals were involved, no samples were collected, and no institutional ethics review was required or sought.

**10. Funding**

The authors received no funding for this work.

**11. Data Availability**

Every table and figure supporting the findings reported here is given in the body of this article. The underlying question-level coded dataset, inter-rater validation workbook and analysis code have been deposited in Zenodo and are publicly available at https://doi.org/10.5281/zenodo.23989401

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