

# The Role of Electives in BAMS Education: A Close-Ended Observational Survey Study

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**Abstract:** Elective is an online program introduced in B.A.M.S./ B.U.M.S/ B.S.M.S/ B.S.R.M.S curriculum to provide an opportunity to the students of Ayurveda, Unani Siddha & Sowa - Rigpa to get introduced, exposed and oriented to various allied subjects that are required to understand and build an inter - disciplinary approach. By offering elective subjects, institutions can cater to the diverse interests and career aspirations of BAMS students, fostering a well - rounded and adaptable workforce. This paper delineates the rationale behind incorporating electives, emphasizing the potential for enhancing student engagement, promoting interdisciplinary learning, and nurturing innovation within Ayurvedic practice. Additionally, it explores the process of selecting and designing elective courses, considering factors such as industry demand, faculty expertise, and student preferences. Furthermore, the article discusses the anticipated challenges and opportunities associated with implementing elective modules, including resource allocation, curriculum coherence, and assessment methods. Through the integration of elective courses, the BAMS curriculum can evolve to meet the evolving needs of the healthcare landscape while empowering students to pursue their individual passions and professional goals. Aim of this article is to investigate the significance of elective courses into the Bachelor of Ayurvedic Medicine and Surgery (BAMS) curriculum, heralding a new era of flexibility and specialization in Ayurvedic education on the basis of a survey study.

**Keywords:** Electives, BAMS, curriculum, student, Ayurveda

## 1. Introduction

Electives are introduced in B.A.M.S./ B.U.M.S/ B.S.M.S/ B.S.R.M.S curriculum to provide an opportunity to the students of Ayurveda, Unani Siddha & Sowa - Rigpa

To get exposed and oriented to various allied subjects that are required to understand and build an inter - disciplinary approach, emphasizing the potential for enhancing student engagement and nurturing innovation within Ayurvedic, Unani, Siddha and Sowa Rigpa practices new online courses (electives) are introduced by NCISM in the curriculum. The electives are conducted as an Online Programme. The study hours for electives are over and above the prescribed

teaching hours of B. A. M. S. under these regulations. Electives are Mandatory for Students and marks obtained in electives are added to viva marks of respective subjects of respective professional session of term end University Examinations. Student shall have to qualify (obtaining any grade) Minimum of Three Elective Subjects for Each Professional Session. Also before appearing for Third (Final) Professional examination, the students shall have to pass all subjects of First and Second Professional and Shall Qualify Nine Electives. However, qualifying minimum THREE ELECTIVE courses per professional session shall not be the pre - requisite for appearing in First and Second professional university examinations. The subjects that are need to be selected in the three courses are:

| Section FA  | Section FB   | Section FC  |
|---|--|---|
| <ul style="list-style-type: none"><li>Basics of pharmacology</li><li>Introduction to phytochemistry</li><li>Fundamentals of Ayurveda</li><li>Basics of Physiotherapy</li><li>Introduction to unani system of medicine</li><li>Introduction to siddha system of medicine</li><li>Introduction to science in Sanskrit</li><li>Introduction to sowa - rigpa system of medicine</li><li>Basics of manuscriptology</li><li>Basics of microbiology</li><li>Fundamentals of integrative medicine</li></ul> | <ul style="list-style-type: none"><li>Introduction to samkhya karika</li><li>Architecture in ISM</li><li>Introduction to epidemiology</li><li>Basics of biomedical engineering</li><li>Basics techniques of pharmacognosy</li><li>Technological developments in ISM</li><li>Basics of pedagogy</li><li>Introduction to the science of rejuvenation</li></ul> | <ul style="list-style-type: none"><li>Fundamentals of child psychology</li><li>Basics of sports medicine</li><li>Basics of preventive cardiology</li><li>Introduction to medical instrumentation</li><li>Introduction to vriksh Ayurveda</li><li>Basics techniques of medicinal plantation</li><li>Introduction to medical astrology</li><li>Introduction to Shilpa shastra</li><li>Introduction to telemedicine and telehealth</li></ul> |

## 2. Methods

### Study design

A questionnaire was distributed among BAMS 1<sup>st</sup> and 2<sup>nd</sup> year students of different ayurvedic medical colleges of north India to recognize their perception regarding electives. Due to convenience for this study researcher had selected

colleges of north India. Researcher had developed a self administered online questionnaire using google form. A cross sectional survey was conducted from june 2024 to September 2024. The first part of the survey asked students about their personal and general information as their name, email, college name and batch etc. and then electives selected by students as to know which topic of elective is

more commonly selected by students and which are least selected and then reviews of students about elective with the help of different type of questions.

Questionnaire that was asked to students

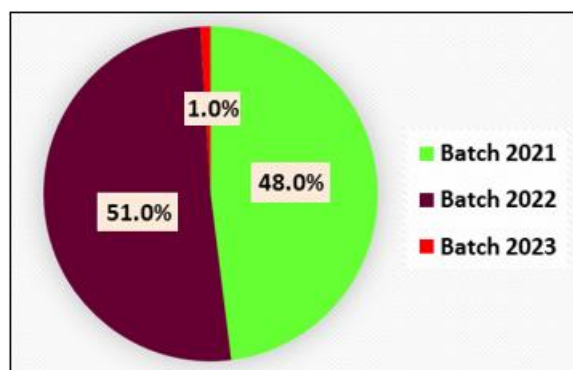
- 1) Name \*
- 2) College \*
- 3) Batch \*
- 4) State \*
- 5) Contact no. \*
- 6) Are you currently enrolled for 1st proff electives course? \*
- 7) Have you completed your 1st proff electives course \*
- 8) Course selected in FA \*
- 9) Course selected in FB \*
- 10) Course selected in FC \*
- 11) Do you get updates about the NCISM electives on time  
Were the objective of course clearly defined \*
- 12) Was the course content well organized \*
- 13) Was the course delivered in engaging manner \*
- 14) Did you feel any extra load of electives course along  
with your regular subjects \*
- 15) What do you think about the relevance of the course  
available to you as electives with your current syllabus \*
- 16) Was the course content relevant to your needs \*
- 17) What do you think of your elective course as  
mandatory part \*
- 18) Any other comments or suggestions about the course \*

### 3. Result

**Table 1: Batchwise Distribution of Respondents**

| Batch      | No. | %     |
|------------|-----|-------|
| Batch 2021 | 243 | 48.0% |
| Batch 2022 | 258 | 51.0% |
| Batch 2023 | 5   | 1.0%  |

The distribution of participants across different batches showed that 48.0% (243 individuals) were from Batch 2021, while the majority, 51.0% (258 individuals), were from Batch 2022. Only 1.0% (5 individuals) were from Batch 2023, making it the smallest group.

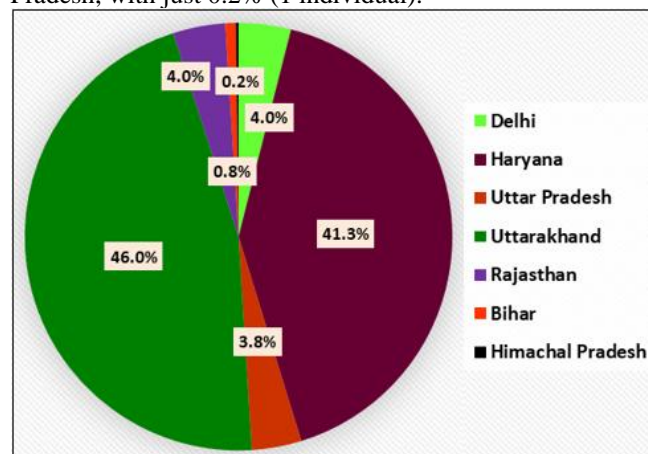


**Table 2: Statewise Distribution of Respondents**

| State         | No. | %     |
|---------------|-----|-------|
| Delhi         | 20  | 4.0%  |
| Haryana       | 209 | 41.3% |
| Uttar Pradesh | 19  | 3.8%  |
| Uttarakhand   | 233 | 46.0% |
| Rajasthan     | 20  | 4.0%  |

|                  |   |     |
|------------------|---|-----|
| Bihar            | 4 | .8% |
| Himachal Pradesh | 1 | .2% |

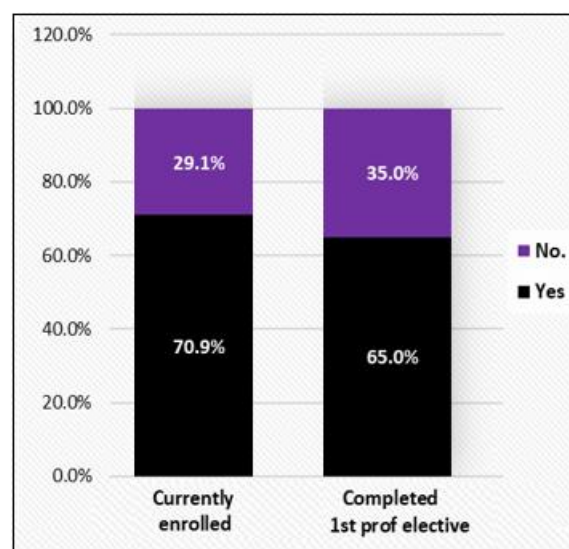
The majority of participants in the study were from Uttarakhand, comprising 46.0% (233 individuals) of the total. Haryana followed closely, with 41.3% (209 individuals). Delhi and Rajasthan both contributed 4.0% (20 individuals each), while Uttar Pradesh accounted for 3.8% (19 individuals). A smaller proportion of participants came from Bihar, making up 0.8% (4 individuals), and Himachal Pradesh, with just 0.2% (1 individual).



**Table 3: Distribution of Respondents according to Elective Course Status**

| Elective Course Status      | Yes |       | No. |       |
|-----------------------------|-----|-------|-----|-------|
|                             | No. | %     | No. | %     |
| Currently enrolled          | 359 | 70.9% | 147 | 29.1% |
| Completed 1st prof elective | 329 | 65.0% | 177 | 35.0% |

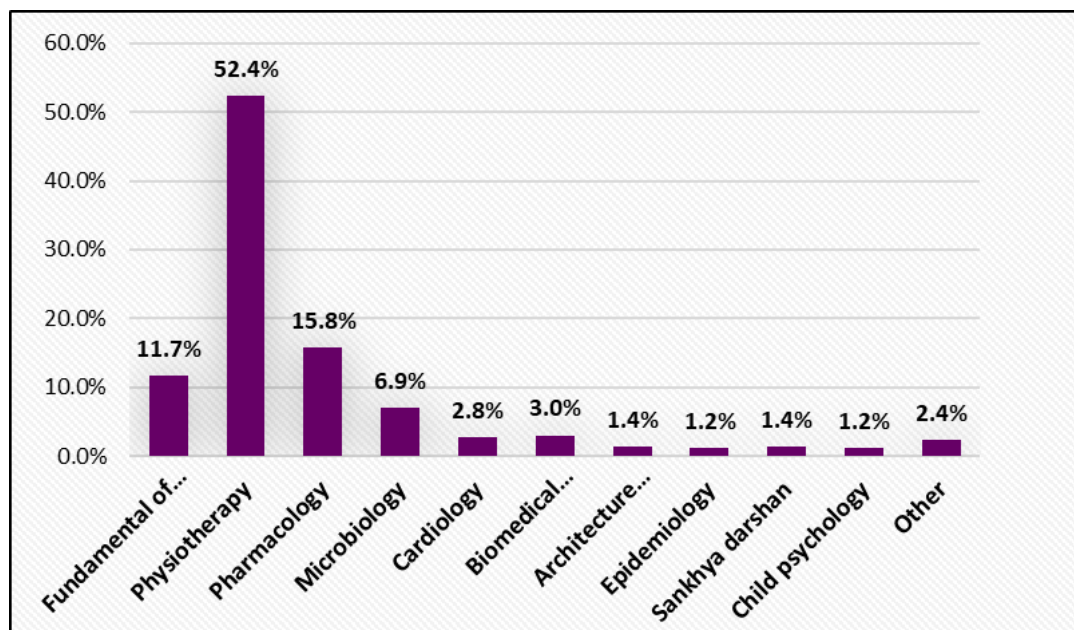
The data revealed that 70.9% (359 individuals) of the participants were currently enrolled in an elective course, while 29.1% (147 individuals) were not enrolled. Additionally, 65.0% (329 individuals) had completed the 1st professional elective course, whereas 35.0% (177 individuals) had not.



**Table 4:** Distribution of Respondents according to Elective Course Selected in FA

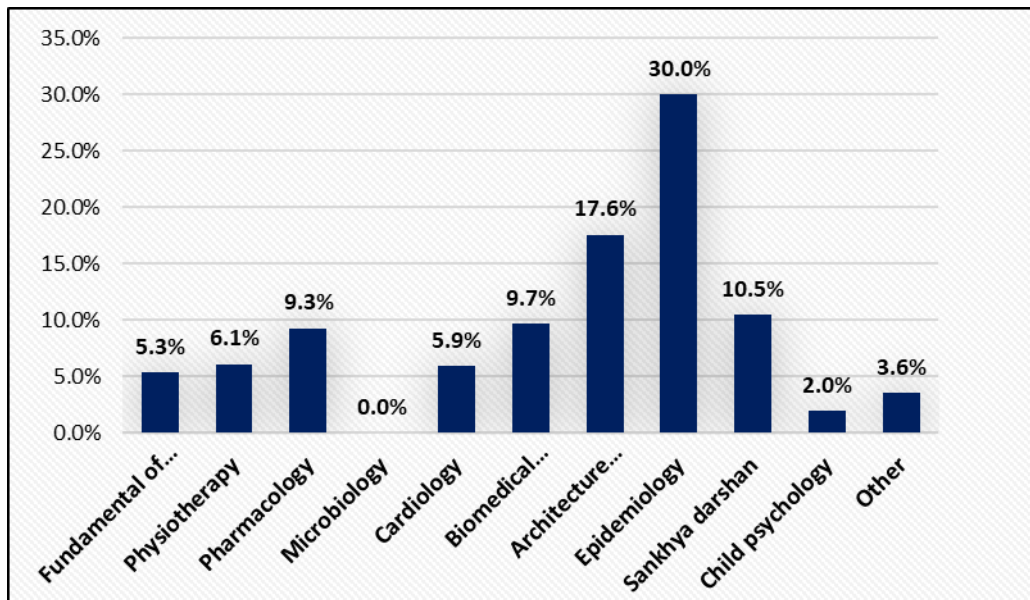
| Elective Course selected in FA | No. | %     |
|--------------------------------|-----|-------|
| Fundamental of Ayurveda        | 59  | 11.7% |
| Physiotherapy                  | 265 | 52.4% |
| Pharmacology                   | 80  | 15.8% |
| Microbiology                   | 35  | 6.9%  |
| Cardiology                     | 14  | 2.8%  |
| Biomedical Engineering         | 15  | 3.0%  |
| Architecture and ISM           | 7   | 1.4%  |
| Epidemiology                   | 6   | 1.2%  |
| Sankhya darshan                | 7   | 1.4%  |
| Child psychology               | 6   | 1.2%  |
| Other                          | 12  | 2.4%  |

In the elective course selection for the FA, the majority of participants, 52.4% (265 individuals), opted for Physiotherapy, followed by 15.8% (80 individuals) choosing Ayurveda. Microbiology was chosen by 6.9% (35 individuals), while other courses such as Cardiology (2.8%), Biomedical Engineering (3.0%), Architecture and ISM (1.4%), Sankhya Darshan (1.4%), Epidemiology (1.2%), and Child Psychology (1.2%) had fewer participants. Additionally, 2.4% (12 individuals) selected other courses.

**Table 5:** Distribution of Respondents according to Elective Course Selected in FB

| Elective Course selected in FB | No. | %     |
|--------------------------------|-----|-------|
| Fundamental of Ayurveda        | 27  | 5.3%  |
| Physiotherapy                  | 31  | 6.1%  |
| Pharmacology                   | 47  | 9.3%  |
| Microbiology                   | 0   | 0.0%  |
| Cardiology                     | 30  | 5.9%  |
| Biomedical Engineering         | 49  | 9.7%  |
| Architecture and ISM           | 89  | 17.6% |
| Epidemiology                   | 152 | 30.0% |
| Sankhya darshan                | 53  | 10.5% |
| Child psychology               | 10  | 2.0%  |
| Other                          | 18  | 3.6%  |

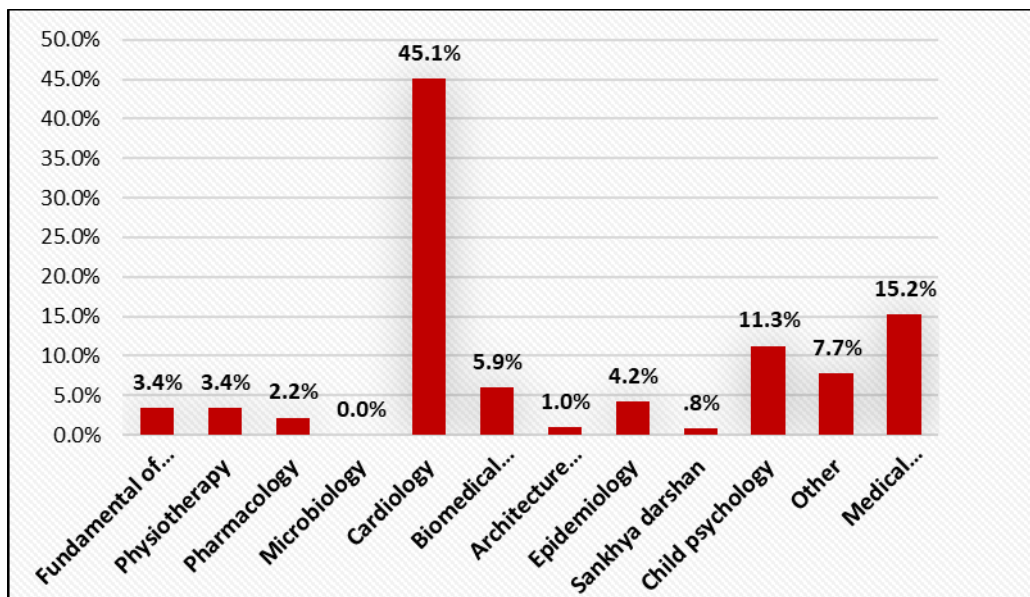
In the elective course selection for FB, the most popular choice was Epidemiology, with 30.0% (152 individuals) opting for it. Architecture and ISM followed, selected by 17.6% (89 individuals). Sankhya Darshan attracted 10.5% (53 individuals), while Biomedical Engineering was chosen by 9.7% (49 individuals). Pharmacology accounted for 9.3% (47 individuals), and Physiotherapy was selected by 6.1% (31 individuals). Courses like Cardiology (5.9%), Fundamental of Ayurveda (5.3%), and Child Psychology (2.0%) were less favored. Additionally, 3.6% (18 individuals) selected other courses, while no one opted for Microbiology.



**Table 6:** Distribution of Respondents according to Elective Course Selected in FC

| Elective Course selected in FC | No. | %     |
|--------------------------------|-----|-------|
| Fundamental of Ayurveda        | 17  | 3.4%  |
| Physiotherapy                  | 17  | 3.4%  |
| Pharmacology                   | 11  | 2.2%  |
| Microbiology                   | 0   | 0.0%  |
| Cardiology                     | 228 | 45.1% |
| Biomedical Engineering         | 30  | 5.9%  |
| Architecture and ISM           | 5   | 1.0%  |
| Epidemiology                   | 21  | 4.2%  |
| Sankhya darshan                | 4   | .8%   |
| Child psychology               | 57  | 11.3% |
| Other                          | 39  | 7.7%  |
| Medical Plantation             | 77  | 15.2% |

In the elective course selection for FC, Cardiology was the most chosen subject, with 45.1% (228 individuals) opting for it. Medical Plantation followed with 15.2% (77 individuals), and Child Psychology was selected by 11.3% (57 individuals). Biomedical Engineering attracted 5.9% (30 individuals), while Epidemiology accounted for 4.2% (21 individuals). Both Fundamental of Ayurveda and Physiotherapy were chosen by 3.4% (17 individuals) each, and Pharmacology by 2.2% (11 individuals). Less popular choices included Architecture and ISM (1.0%), Sankhya Darshan (0.8%), and "Other" courses with 7.7% (39 individuals). No one selected Microbiology.

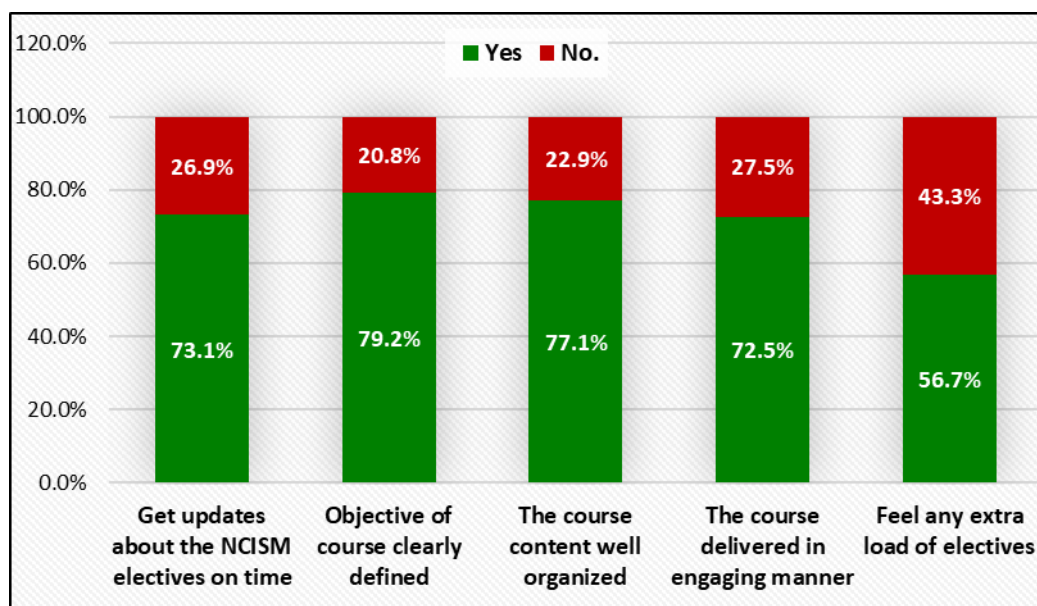




**Table 7:** Distribution of Respondents according to Satisfaction Level

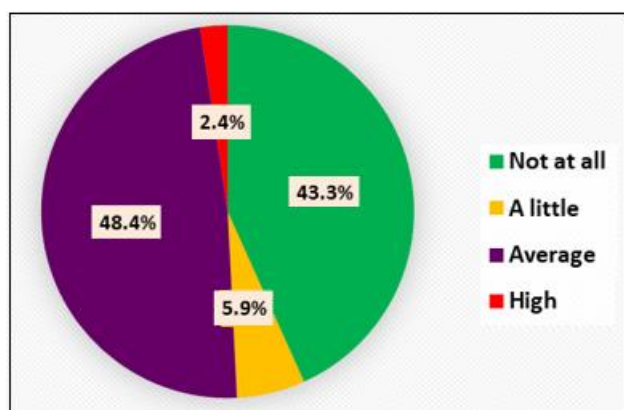
| Satisfaction Level                            | Yes |       | No. |       |
|---|-----|-------|-----|-------|
|   | No. | %     | No. | %     |
| Get updates about the NCISM electives on time | 370 | 73.1% | 136 | 26.9% |
| Objective of course clearly defined           | 401 | 79.2% | 105 | 20.8% |
| The course content well organized             | 390 | 77.1% | 116 | 22.9% |
| The course delivered in engaging manner       | 367 | 72.5% | 139 | 27.5% |
| Feel any extra load of electives              | 287 | 56.7% | 219 | 43.3% |

The satisfaction levels regarding various aspects of the NCISM electives revealed that 73.1% (370 individuals) felt they received updates about the electives on time, while 26.9% (136 individuals) did not. A majority, 79.2% (401 individuals), agreed that the objectives of the course were clearly defined, with 20.8% (105 individuals) disagreeing. Additionally, 77.1% (390 individuals) found the course content to be well organized, while 22.9% (116 individuals) felt otherwise. The course delivery was considered engaging by 72.5% (367 individuals), although 27.5% (139 individuals) did not share this view. Lastly, 56.7% (287 individuals) reported feeling an extra load from electives, while 43.3% (219 individuals) did not.

**Table 8:** Distribution of Respondents according to Level of Feeling any extra load of electives

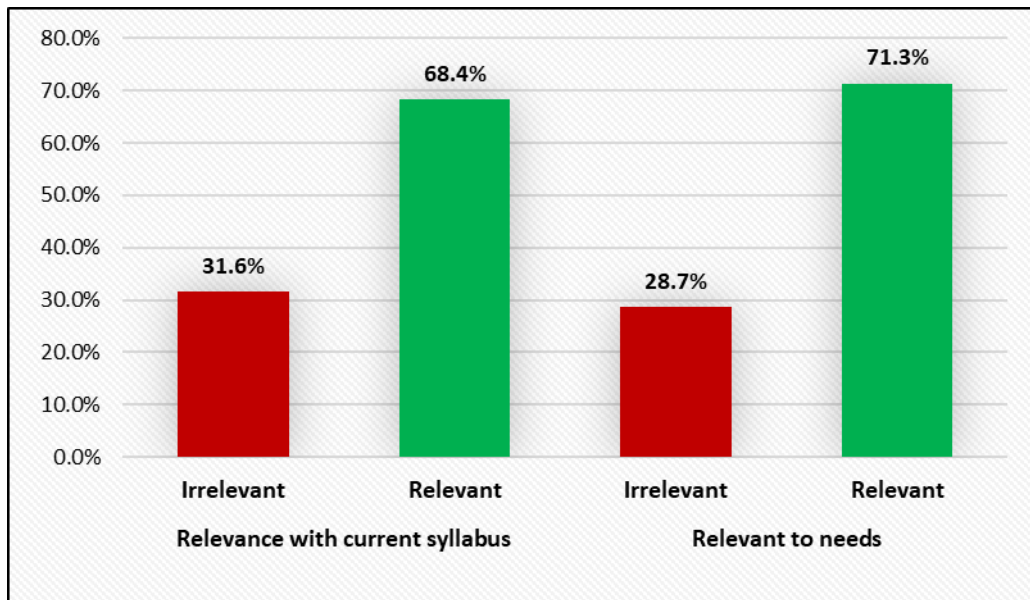
| Level of Feeling any extra load of electives | No. | %     |
|--|-----|-------|
| Not at all                                   | 219 | 43.3% |
| A little                                     | 30  | 5.9%  |
| Average                                      | 245 | 48.4% |
| High   | 12  | 2.4%  |

The level of feeling an extra load from electives varied among participants. While 43.3% (219 individuals) reported not feeling any extra load at all, 5.9% (30 individuals) felt a little burden. A significant portion, 48.4% (245 individuals), rated the load as average, and 2.4% (12 individuals) experienced a high level of extra load from the electives.

**Table 9:** Distribution of Respondents according to Relevance of the Course

| Relevance of the course         |            | No. | %     |
|---------------------------------|------------|-----|-------|
| Relevance with current syllabus | Irrelevant | 160 | 31.6% |
|                                 | Relevant   | 346 | 68.4% |
| Relevant to needs               | Irrelevant | 145 | 28.7% |
|                                 | Relevant   | 361 | 71.3% |

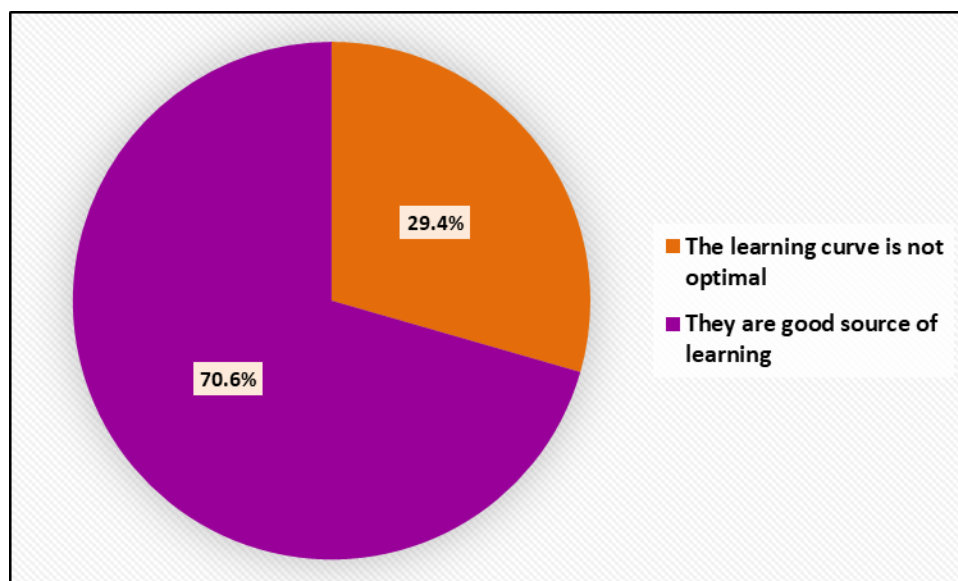
The relevance of the elective courses was evaluated in two key areas. In terms of relevance to the current syllabus, 68.4% (346 individuals) found the courses relevant, while 31.6% (160 individuals) considered them irrelevant. Regarding relevance to their needs, 71.3% (361 individuals) rated the courses as relevant, whereas 28.7% (145 individuals) felt they were irrelevant to their needs.



**Table 10:** Distribution of Respondents according to Opinion about Elective Course as Mandatory Part

| Think about elective course as mandatory part | No. | %     |
|---|-----|-------|
| The learning curve is not optimal             | 149 | 29.4% |
| They are good source of learning              | 357 | 70.6% |

The distribution of respondents' opinions regarding elective courses as a mandatory part of their education revealed that 70.6% (357 individuals) believed that electives are a good source of learning. In contrast, 29.4% (149 individuals) felt that the learning curve associated with these courses is not optimal.

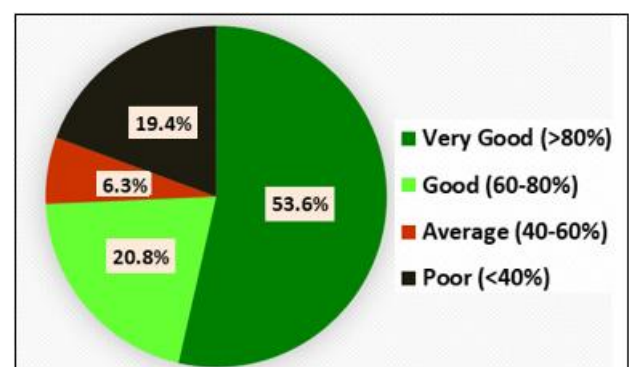


**Table 11:** Distribution of Respondents according to Overall Satisfaction Level about Elective

| Satisfaction Level about Elective | No. | %     |
|-----------------------------------|-----|-------|
| Very Good (>80%)                  | 271 | 53.6% |
| Good (60 - 80%)                   | 105 | 20.8% |
| Average (40 - 60%)                | 32  | 6.3%  |
| Poor (<40%)                       | 98  | 19.4% |

The distribution of respondents regarding their overall satisfaction level with elective courses indicated that a majority, 53.6% (271 individuals), rated their experience as "Very Good" (greater than 80%). Additionally, 20.8% (105 individuals) considered their satisfaction as "Good" (ranging from 60% to 80%). In contrast, a smaller portion of the respondents reported "Average" satisfaction (40% to 60%), accounting for 6.3% (32 individuals), while 19.4% (98

individuals) expressed "Poor" satisfaction (less than 40%). This distribution highlights a generally positive perception of the elective courses among the majority of respondents.



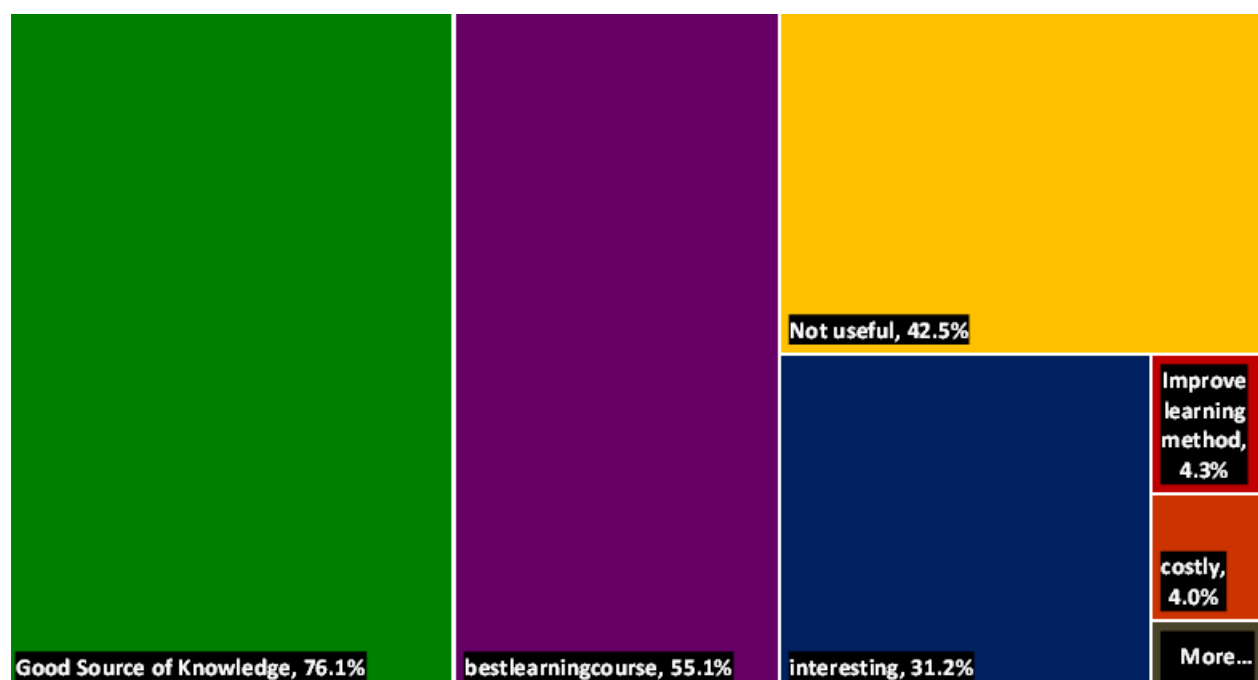
**Table 12:** Thematic Analysis of Random Responses of Respondents about Elective Courses

| Theme                    | % responses |
|--------------------------|-------------|
| Good Source of Knowledge | 76.1%       |
| Interesting              | 31.2%       |
| Best learning course     | 55.1%       |
| Improve learning method  | 4.3%        |
| Should be more practical | 2.2%        |
| Not useful               | 42.5%       |
| costly                   | 4.0%        |

The thematic analysis of respondents' random feedback regarding elective courses revealed several key insights. A significant majority, 76.1%, viewed the courses as a "Good Source of Knowledge, " indicating that many found them informative and beneficial to their education. Additionally, 55.1% of respondents labeled these courses as the "Best Learning Course, " suggesting a strong endorsement of their

effectiveness in enhancing learning. However, only 31.2% described the courses as "Interesting, " which may highlight a need for more engaging content or teaching methods.

On the other hand, some respondents expressed critical views, with 42.5% considering the courses "Not Useful, " which raises concerns about their relevance or applicability. A smaller percentage, 4.3%, suggested that the courses could benefit from improved learning methods, while 2.2% advocated for more practical applications within the curriculum. Furthermore, 4.0% noted that the courses are "Costly, " implying that financial barriers could hinder access to these educational opportunities. Overall, while the feedback was predominantly positive, it also highlighted areas for improvement to better meet the needs and expectations of students.

**Table 13:** Association of Satisfaction Level with Batch

| Batch        | Satisfaction Level about Elective |       |                 |       |                    |      |             |       |
|--------------|-----------------------------------|-------|-----------------|-------|--------------------|------|-------------|-------|
|              | Very Good (>80%)                  |       | Good (60 - 80%) |       | Average (40 - 60%) |      | Poor (<40%) |       |
|              | N                                 | %     | N               | %     | N                  | %    | N           | %     |
| Batch 2021   | 99                                | 40.7% | 46              | 18.9% | 20                 | 8.2% | 78          | 32.1% |
| Batch 2022   | 170                               | 65.9% | 58              | 22.5% | 12                 | 4.7% | 18          | 7.0%  |
| Batch 2023   | 2                                 | 40.0% | 1               | 20.0% | 0                  | 0.0% | 2           | 40.0% |
| Significance | chi sq=60.46, p<0.001             |       |                 |       |                    |      |             |       |

The satisfaction levels regarding elective courses varied notably across different batches. In Batch 2021, 40.7% of respondents rated their experience as "Very Good" (greater than 80%), while 18.9% considered it "Good" (60 - 80%). However, a significant portion, 32.1%, expressed dissatisfaction by rating their experience as "Poor" (less than 40%). In contrast, Batch 2022 demonstrated a higher level of satisfaction, with 65.9% categorizing their experience as "Very Good" and 22.5% as "Good. " Only a small

percentage, 7.0%, reported a "Poor" experience. Batch 2023 had limited responses, with 40.0% rating it as "Very Good, " 20.0% as "Good, " and a concerning 40.0% marking their experience as "Poor. " The overall analysis revealed significant differences among the batches, indicated by a chi - square value of 60.46 with a p - value of less than 0.001, suggesting a strong statistical significance in the satisfaction levels across the different cohorts.

**Table 14:** Association of Satisfaction Level with State

| State            | Satisfaction Level about Elective |       |                 |        |                    |       |             |       |
|------------------|-----------------------------------|-------|-----------------|--------|--------------------|-------|-------------|-------|
|                  | Very Good (>80%)                  |       | Good (60 - 80%) |        | Average (40 - 60%) |       | Poor (<40%) |       |
|                  | N                                 | %     | N               | %      | N                  | %     | N           | %     |
| Delhi            | 8                                 | 40.0% | 6               | 30.0%  | 2                  | 10.0% | 4           | 20.0% |
| Haryana          | 128                               | 61.2% | 35              | 16.7%  | 13                 | 6.2%  | 33          | 15.8% |
| Uttar Pradesh    | 11                                | 57.9% | 4               | 21.1%  | 1                  | 5.3%  | 3           | 15.8% |
| Uttarakhand      | 117                               | 50.2% | 56              | 24.0%  | 13                 | 5.6%  | 47          | 20.2% |
| Rajasthan        | 6                                 | 30.0% | 3               | 15.0%  | 2                  | 10.0% | 9           | 45.0% |
| Bihar            | 1                                 | 25.0% | 0               | 0.0%   | 1                  | 25.0% | 2           | 50.0% |
| Himachal Pradesh | 0                                 | 0.0%  | 1               | 100.0% | 0                  | 0.0%  | 0           | 0.0%  |
| Significance     | chi sq=28.46, <b>p=0.055</b>      |       |                 |        |                    |       |             |       |

The satisfaction levels regarding elective courses varied significantly across different states. In Delhi, 40.0% of respondents rated their experience as "Very Good" (greater than 80%), while 30.0% considered it "Good" (60 - 80%). Conversely, 20.0% reported a "Poor" experience (less than 40%). Haryana showcased a more favorable response, with 61.2% indicating "Very Good" satisfaction and only 15.8% rating it as "Poor." In Uttar Pradesh, 57.9% rated their experience as "Very Good," with 21.1% choosing "Good." Uttarakhand had a balanced distribution, with 50.2% in the "Very Good" category and 20.2% in the "Poor" category. In

contrast, Rajasthan presented a concerning picture, as only 30.0% reported "Very Good" satisfaction, while a substantial 45.0% rated their experience as "Poor." Bihar had a low overall satisfaction, with 25.0% rating it "Very Good," and 50.0% indicating "Poor." Interestingly, Himachal Pradesh had only one response, which rated the experience as "Good." The overall chi - square value of 28.46 with a p - value of 0.055 suggested a marginal significance in the differences in satisfaction levels among the states, indicating a trend but not reaching conventional statistical significance.

**Table 15:** Association of Satisfaction Level with Course selected in FA

| Course selected in FA   | Satisfaction Level about Elective |       |                 |       |                    |       |             |       |
|-------------------------|-----------------------------------|-------|-----------------|-------|--------------------|-------|-------------|-------|
|                         | Very Good (>80%)                  |       | Good (60 - 80%) |       | Average (40 - 60%) |       | Poor (<40%) |       |
|                         | N                                 | %     | N               | %     | N                  | %     | N           | %     |
| Fundamental of Ayurveda | 17                                | 28.8% | 16              | 27.1% | 4                  | 6.8%  | 22          | 37.3% |
| Physiotherapy           | 163                               | 61.5% | 46              | 17.4% | 12                 | 4.5%  | 44          | 16.6% |
| Pharmacology            | 42                                | 52.5% | 20              | 25.0% | 6                  | 7.5%  | 12          | 15.0% |
| Microbiology            | 17                                | 48.6% | 9               | 25.7% | 4                  | 11.4% | 5           | 14.3% |
| Cardiology              | 2                                 | 14.3% | 5               | 35.7% | 4                  | 28.6% | 3           | 21.4% |
| Biomedical Engineering  | 10                                | 66.7% | 2               | 13.3% | 1                  | 6.7%  | 2           | 13.3% |
| Architecture and ISM    | 4                                 | 57.1% | 3               | 42.9% | 0                  | 0.0%  | 0           | 0.0%  |
| Epidemiology            | 2                                 | 33.3% | 1               | 16.7% | 0                  | 0.0%  | 3           | 50.0% |
| Sankhya darshan         | 3                                 | 42.9% | 1               | 14.3% | 1                  | 14.3% | 2           | 28.6% |
| Child psychology        | 4                                 | 66.7% | 1               | 16.7% | 0                  | 0.0%  | 1           | 16.7% |
| Other                   | 7                                 | 58.3% | 1               | 8.3%  | 0                  | 0.0%  | 4           | 33.3% |
| Significance            | chi sq=58.7, <b>p&lt;0.001</b>    |       |                 |       |                    |       |             |       |

The satisfaction levels regarding elective courses varied significantly across different subjects selected in the Fundamental of Ayurveda (FA) program. For Fundamental of Ayurveda, only 28.8% of respondents rated their satisfaction as "Very Good" (greater than 80%), while 37.3% indicated a "Poor" experience (less than 40%). In contrast, Physiotherapy received a favorable response, with 61.5% rating it as "Very Good" and only 16.6% as "Poor." Similarly, Pharmacology showed a good level of satisfaction, with 52.5% rating it "Very Good," while 15.0% rated it as "Poor." For Microbiology, 48.6% of respondents rated their satisfaction as "Very Good," but 14.3% reported a "Poor" experience. In the case of Cardiology, only 14.3% rated their experience as "Very Good," with a significant

21.4% reporting "Poor." Biomedical Engineering stood out with 66.7% indicating "Very Good" satisfaction. In Architecture and ISM, 57.1% rated it as "Very Good," with no respondents marking it as "Poor." Epidemiology had a mixed response, where 50.0% reported a "Poor" experience, despite only 33.3% rating it as "Very Good." For Sankhya darshan, 42.9% rated their experience as "Very Good," with 28.6% indicating "Poor." Child psychology received a 66.7% "Very Good" rating, while Other courses garnered 58.3% in the same category. The overall chi - square value of 58.7 with a p - value of less than 0.001 indicated significant differences in satisfaction levels among the various elective courses offered, highlighting the variability in student experiences.



**Table 15:** Association of Satisfaction Level with Course selected in FB

| Course selected in FB   | Satisfaction Level about Elective |       |                 |       |                    |       |             |       |
|-------------------------|-----------------------------------|-------|-----------------|-------|--------------------|-------|-------------|-------|
|                         | Very Good (>80%)                  |       | Good (60 - 80%) |       | Average (40 - 60%) |       | Poor (<40%) |       |
|                         | N                                 | %     | N               | %     | N                  | %     | N           | %     |
| Fundamental of Ayurveda | 13                                | 48.1% | 8               | 29.6% | 1                  | 3.7%  | 5           | 18.5% |
| Physiotherapy           | 20                                | 64.5% | 9               | 29.0% | 1                  | 3.2%  | 1           | 3.2%  |
| Pharmacology            | 21                                | 44.7% | 8               | 17.0% | 6                  | 12.8% | 12          | 25.5% |
| Microbiology            | 0                                 | 0.0%  | 0               | 0.0%  | 0                  | 0.0%  | 0           | 0.0%  |
| Cardiology              | 11                                | 36.7% | 6               | 20.0% | 1                  | 3.3%  | 12          | 40.0% |
| Biomedical Engineering  | 28                                | 57.1% | 6               | 12.2% | 3                  | 6.1%  | 12          | 24.5% |
| Architecture and ISM    | 62                                | 69.7% | 22              | 24.7% | 1                  | 1.1%  | 4           | 4.5%  |
| Epidemiology            | 82                                | 53.9% | 28              | 18.4% | 13                 | 8.6%  | 29          | 19.1% |
| Sankhya darshan         | 17                                | 32.1% | 14              | 26.4% | 4                  | 7.5%  | 18          | 34.0% |
| Child psychology        | 6                                 | 60.0% | 2               | 20.0% | 1                  | 10.0% | 1           | 10.0% |
| Other                   | 11                                | 61.1% | 2               | 11.1% | 1                  | 5.6%  | 4           | 22.2% |
| Significance            | chi sq=57.7, p<0.001              |       |                 |       |                    |       |             |       |

The satisfaction levels regarding elective courses selected in the Fundamental of Biomedical (FB) program revealed notable differences across various subjects. In the Fundamental of Ayurveda, 48.1% of respondents rated their satisfaction as "Very Good" (greater than 80%), while 18.5% indicated a "Poor" experience (less than 40%). For Physiotherapy, 64.5% rated their satisfaction as "Very Good," with only 3.2% reporting a "Poor" experience. In Pharmacology, 44.7% rated it "Very Good," but a significant 25.5% reported feeling "Poor" about their experience. Notably, Microbiology had no respondents indicating any level of satisfaction, as all entries showed "0.0%." In the case of Cardiology, only 36.7% rated it as "Very Good," while 40.0% expressed a "Poor" level of satisfaction. Biomedical Engineering fared better, with

57.1% rating it as "Very Good" and 24.5% marking it as "Poor." Architecture and ISM stood out, with 69.7% of respondents indicating a "Very Good" level of satisfaction, while only 4.5% rated it as "Poor." Epidemiology showed a strong response, with 53.9% of respondents rating it as "Very Good" and 19.1% marking it as "Poor." For Sankhya darshan, 32.1% rated it as "Very Good," with 34.0% indicating "Poor." In Child Psychology, 60.0% rated their experience as "Very Good," while only 10.0% expressed a "Poor" level of satisfaction. The Other category also received a favorable response, with 61.1% rating it as "Very Good." The chi - square value of 57.7 with a p - value of less than 0.001 indicates significant differences in satisfaction levels among the various elective courses offered, reflecting a diverse range of student experiences.

**Table 15:** Association of Satisfaction Level with Course selected in FC

| Course selected in FC   | Satisfaction Level about Elective |       |                 |       |                    |       |             |       |
|-------------------------|-----------------------------------|-------|-----------------|-------|--------------------|-------|-------------|-------|
|                         | Very Good (>80%)                  |       | Good (60 - 80%) |       | Average (40 - 60%) |       | Poor (<40%) |       |
|                         | N                                 | %     | N               | %     | N                  | %     | N           | %     |
| Fundamental of Ayurveda | 6                                 | 35.3% | 4               | 23.5% | 1                  | 5.9%  | 6           | 35.3% |
| Physiotherapy           | 4                                 | 23.5% | 6               | 35.3% | 3                  | 17.6% | 4           | 23.5% |
| Pharmacology            | 5                                 | 45.5% | 3               | 27.3% | 0                  | 0.0%  | 3           | 27.3% |
| Microbiology            | 0                                 | 0.0%  | 0               | 0.0%  | 0                  | 0.0%  | 0           | 0.0%  |
| Cardiology              | 109                               | 47.8% | 46              | 20.2% | 18                 | 7.9%  | 55          | 24.1% |
| Biomedical Engineering  | 19                                | 63.3% | 7               | 23.3% | 0                  | 0.0%  | 4           | 13.3% |
| Architecture and ISM    | 3                                 | 60.0% | 1               | 20.0% | 0                  | 0.0%  | 1           | 20.0% |
| Epidemiology            | 12                                | 57.1% | 3               | 14.3% | 3                  | 14.3% | 3           | 14.3% |
| Sankhya darshan         | 2                                 | 50.0% | 1               | 25.0% | 0                  | 0.0%  | 1           | 25.0% |
| Child psychology        | 33                                | 57.9% | 9               | 15.8% | 4                  | 7.0%  | 11          | 19.3% |
| Other                   | 24                                | 61.5% | 7               | 17.9% | 2                  | 5.1%  | 6           | 15.4% |
| Medical Plantation      | 54                                | 70.1% | 18              | 23.4% | 1                  | 1.3%  | 4           | 5.2%  |
| Significance            | chi sq=41.8, p=0.074              |       |                 |       |                    |       |             |       |

The satisfaction levels regarding elective courses selected in the Fundamental of Clinical (FC) program displayed varied responses across different subjects. In the Fundamental of Ayurveda, 35.3% of respondents rated their satisfaction as "Very Good" (greater than 80%), while an equal percentage (35.3%) indicated a "Poor" experience (less than 40%). The Physiotherapy course received a mixed response, with 23.5% rating it as "Very Good" and a similar 23.5% marking it as "Poor." In Pharmacology, 45.5% rated their experience as "Very Good," while 27.3% reported feeling "Poor." Notably, Microbiology had no respondents indicating any level of satisfaction, reflecting a complete lack of engagement.

In Cardiology, 47.8% rated their experience as "Very Good," although 24.1% expressed a "Poor" level of satisfaction. Biomedical Engineering garnered a positive response, with 63.3% rating it as "Very Good" and only 13.3% marking it as "Poor." In Architecture and ISM, 60.0% rated their experience as "Very Good," and 20.0% expressed a "Poor" sentiment. Epidemiology showed a good level of satisfaction, with 57.1% of respondents rating it as "Very Good" and 14.3% marking it as "Poor." In Sankhya darshan, 50.0% rated their experience as "Very Good," while 25.0% indicated "Poor." The Child Psychology course received a positive response, with 57.9% rating it as "Very Good," although 19.3% reported feeling "Poor." The Other category also had favorable

ratings, with 61.5% indicating "Very Good. " Notably, the Medical Plantation course excelled, with 70.1% of respondents rating it as "Very Good" and only 5.2% expressing "Poor" satisfaction. The chi - square value of 41.8 with a p - value of 0.074 suggests a trend in satisfaction levels among the various elective courses, although the significance is not statistically strong.

#### 4. Discussion

- 1) The study surveyed 506 students, mostly from batches 2021 and 2022. Most participants were from Uttarakhand and Haryana.
- 2) A majority were enrolled in or had completed an elective course.
- 3) Physiotherapy was the most popular elective choice in FA, while Epidemiology dominated in FB and Cardiology in FC.
- 4) Most respondents felt they received timely updates and found the courses well - organized and engaging, though some felt an extra workload.
- 5) The courses were deemed relevant to both the syllabus and students' needs by most, with a majority viewing electives as beneficial learning opportunities.
- 6) Most respondents (53.6%) rated elective courses "Very Good, " with another 20.8% rating them "Good. " However, 42.5% found them "Not Useful, " while other criticisms included lack of interest, impracticality, and high cost.
- 7) The courses were largely seen as a good knowledge source and best learning courses.
- 8) Student satisfaction with elective courses varied significantly across batches, states, and chosen foundational courses (FA and FB).
- 9) Batch 2022 showed highest satisfaction, while Rajasthan and certain FA/FB courses (e. g., Cardiology) had lower satisfaction rates.
- 10) Statistical analysis showed highly significant differences in satisfaction across batches and foundational courses, but only marginal significance across states.
- 11) Student satisfaction with elective courses varied significantly.
- 12) "Other" courses received highly favorable ratings (61.1% "Very Good").
- 13) Chi - square analysis ( $p < 0.001$ ) confirmed significant differences in satisfaction across courses, ranging from extremely positive (Biomedical Engineering) to completely negative (Microbiology).

#### 5. Conclusion

This study concludes that a diverse range of satisfaction levels across various elective courses within the Fundamentals of Clinical (FC) program. Some courses, such as Biomedical Engineering, Architecture and ISM, and the Medical Plantation course, stood out with notably high satisfaction rates, with a significant proportion of respondents rating their experiences as "Very Good. " In contrast, courses like Microbiology and Physiotherapy received mixed or low satisfaction ratings, indicating areas where improvements may be needed. While the chi - square value of 41.8 and the p - value of 0.074 suggest a trend in

satisfaction across courses, the statistical significance of this relationship remains weak. These findings emphasize the importance of continuing to assess and adjust the curriculum to better meet students' needs, particularly for those courses with low engagement or mixed feedback. Overall, while many students found the electives beneficial and relevant, this study emphasizes the need for improvements in specific courses to better meet student expectations, particularly for those reporting dissatisfaction due to perceived impracticality or lack of interest.

#### References

- [1] <https://ncismelectives.org/>