



Research Article

Evaluation of the status of Agnibala and Kostha among subtypes of irritable bowel syndrome: An observational study

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Abstract

Background: Irritable Bowel Syndrome (IBS) persists as a significant clinical challenge in the 21st century, being one of the most relevant functional gastrointestinal disorders affecting diverse populations. The global variability in the prevalence of irritable bowel syndrome (IBS) subtypes reflects underlying heterogeneity in gastrointestinal motility, secretion, and digestion, which may be meaningfully interpreted through the Ayurvedic concepts of *Agnibala* and *Kostha*. *Agni*, as a fundamental determinant of digestion and metabolism, and *Kostha*, representing bowel nature and evacuation patterns, together offer a functional framework for understanding IBS phenotypes. **Objective:** The objective of this study was to evaluate the status of *Agnibala* (strength of digestive fire) and *Kostha* among subtypes of irritable bowel syndrome. **Materials and methods:** It was an observational cross-sectional study in which participants aged between 18 to 60 years of either sex were selected from the Kaya chikitsa OPD, Faculty of Ayurveda, Institute of Medical Sciences, Banaras Hindu University, Varanasi. A total of 139 subjects were registered, out of which 59 were male and 80 were female. **Results:** The present study reported that a predominant proportion of individuals diagnosed with irritable bowel syndrome (IBS-C) exhibited *Mandagni* (89%) whereas *Visamagni* was most frequently observed among diarrhoea-predominant IBS (IBS-D) subjects (54.4%). Despite differences in *Agnibala*, both groups predominantly demonstrated *Madhyama Kosṭha* was the most commonly observed *Kosṭha* type in both groups. **Conclusion:** The variation in *Agnibala* was observed in both the subtypes of IBS, as IBS-C exhibited *Mandagni*, whereas *Visamagni* was reported in IBS-D. However, *Madhyama Kosṭha* was observed as the *Kosṭha* type in both the groups.

Keywords: *Agnibala*, Digestive strength, *Kostha*, Inflammatory bowel syndrome, *Grahani*

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Introduction

Irritable bowel syndrome (IBS) is a chronic continuous or remittent functional gastrointestinal (GI) disorder affecting around 20% of world population and approximately 4.2% in Indian population out of which 6.8% population belong to Uttar Pradesh. (1) IBS is characterized by abdominal pain or discomfort associated with a change in consistency or frequency of stools but without gross abnormalities. The pathophysiology of IBS is not clear where as many theories have been put forward, but the exact cause of IBS is still uncertain. (2) The clinical symptoms are mainly abdominal pain and altered bowel habit. The most common pattern is constipation alternating with diarrhoea which

may be associated with altered stool frequency or altered stool form (thin, hard, firm or soft). The other symptoms commonly associated with IBS include passage of mucus, abdominal bloating, feeling of incomplete evacuation, and relief of pain after defecation. Other factors like psychological stress exacerbates gastro-intestinal distress in IBS patients with a great degree than in the normal individual. In recent studies, a Rome III criterion is established to diagnose this disease clinically. IBS can be classified as either diarrhoea predominant (IBS-D), constipation predominant (IBS-C) or IBS with alternating stool pattern (IBS-A) or pain predominant or complex IBS. (3)(4)

Ayurveda conceptualizes irritable bowel disease not as a singular disease entity but as a spectrum of functional gastrointestinal disorders with varied aetiology. These conditions are predominantly of *Vatika* origin and involve dysfunction of both *Annavaḥa Srotas* (upper gastrointestinal tract) and *Purishavaha Srotas* (lower gastrointestinal tract). Ayurveda compendium describes gastrointestinal disturbances under entities like *Grahani*, *Atisara*, *Pravahika*, and *Pakvashayagata Vata*, which exhibit close conceptual and clinical parallels with the symptomatology

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and pathophysiological basis of IBS. (5) The derangement of *Vata*, especially *Samanvayu* and *Apanvayu*, leads to symptoms of pain in the abdomen and altered bowel habits. The emotions like *shoka*, *bhaya*, *krodh*, *kama* etc. may lead to *mansikdosha prakopa* (*rajas*, *tamas*) thereby result in derangement of *doshas* mainly *Kapha* dosha, leading to *Mandagni*. Hence Psychological factors exacerbate gastrointestinal distress in IBS patients with a great degree than in the normal individuals.

Objective

The objective of the study was the evaluation of the status of *Agnibala* (strength of digestive fire) as well as *Kostha* among subtypes of irritable bowel syndrome.

Material and methods

The study was an observational- cross sectional type of study in which 139 subjects of either sex were registered out of which 59 were male and 80 were female.

Population and Sample

The participants of either sex aged between 18 – 60 years were selected from the Kayachikitsa OPD, Faculty of Ayurveda, Institute of Medical Sciences, Banaras Hindu University after taking their written informed consent. The STROBE guidelines were followed in reporting the outcomes of the study. (6)

Screening methods

All the patients recruited in the study were subjected to detailed clinical evaluation and their data was recorded. The variation of both the types of IBS was studied with *Agnibala*, *Kostha* as well as with some physical (height, weight, BMI), physiological (pulse, systolic blood pressure, diastolic blood pressure) and haematological parameters.

Study Design and Sampling Technique

It was an observational, cross-sectional type of study. The registered case was allocated into two groups based on subtypes of IBS, i.e. IBS-C and IBS-D. Based on the estimate of the previous study, assuming the percentage of prevalence of stress/anxiety in IBS patients (80-90%) is reported in previously published studies. Further, taking 5% non-response, the sample size for the present study was 146 cases, but only 139 subjects completed the study, and 07 were dropouts.

The eligible participants of either sex aged 18–60 years who fulfilled the Rome IV diagnostic criteria for IBS (7,8), had experienced symptoms for at least 6 months, and provided written informed consent were included in the study. Subjects of either sex belonging to age group between 18-60 years. Participants were excluded if they were younger than 18 years or older than 60 years; had alternative gastrointestinal diagnoses or conditions, including amoebic dysentery, ulcerative colitis, malabsorption syndrome, inflammatory bowel disease, intestinal tuberculosis, lactase-deficiency diarrhoea, or gastrointestinal malignancy; had a systemic illness or psychiatric disorder requiring active treatment; were receiving psychotropic medication or had a history of substance or alcohol abuse; or had previously undergone abdominal surgery that could affect gastrointestinal function. These criteria were applied to ensure a clinically well-defined study population and to minimize potential confounding factors that could influence gastrointestinal symptoms and psychological outcomes.

Criteria of assessment

ROME IV Criteria

Recurrent abdominal pain on average at least 1day/week in the last 3 month, associated with 2 or more of following criteria. (7,8)

- Related to defecation
- Associated with a change in frequency of stool
- Associated with a change in form of stool

The criteria fulfilled for the last 3 month with symptoms onset at least 6 months before diagnosis.

Agnibala Assessment

For the evaluation of *Agni-Bala* of the subjects the validated proforma developed by Aparna Singh et. al (2013) was used. In this proforma there were four columns for four types of strength of *Agni* i.e. I (*Mandagni*), II (*Vishamagni*), III (*Samagni*) and IV (*Tikshnagni*). One point was assigned for the specific response. Total scores were calculated in respective columns and subsequently the scores were converted into percentages with the help of simple mathematical calculations. (9)

Kostha Assessment

Kostha's assessment of patients was done with the help of a validated proforma developed by Yadav A et al. (2022). It was a self-assessment questionnaire in which 9 questions were asked of patients, and every question had 5 answers (a, b, c, d, e). The respondents were supposed to record their agreement or disagreement with the statement/question in the appropriate columns by marking a check mark (✓) against the specific statement/ question. The respondents were asked to tick the statement/questions that best described them. One point was assigned for the specific response if found in that individual. Total scores were calculated in respective columns and subsequently the scores were converted into percentages for further statistical analysis. (10)

Statistical analysis

After the data collection, the data were systematically coded, entered, and analysed using the Statistical Package for the Social Sciences (SPSS), version 16.0. After tabulation of data, the statistical analysis was done to assess the relationship of subtypes of IBS with *Agnibala* and *Kostha* viz. frequency, descriptive mean, standard deviation, standard error, Chi-square test (χ^2), cross tabulation and one-way ANOVA was applied to draw meaningful inferences. (11)

Observation and Results

The study had a total of 139 subjects were registered for the study which were later categorised into two groups based on subtypes of IBS i.e. IBS-C had 82 subjects and IBS-D had 57 subjects. The variation of both types of IBS was studied with *Agnibala*, *Kostha* as well as with some physical (height, weight, BMI), physiological (pulse, systolic blood pressure, diastolic blood pressure) and haematological parameters were as follows: -

In the above table maximum number of respondents in both the groups belonged to 18 to 30 years of age with 36(43.8%) individuals in IBS-C and 35 (61.5%) individuals in IBS-D. The mean age in IBS-C is 35.90±11.5, whereas in IBS-D is 29.89±6.14, and on applying χ^2 , p value was found significant. As per gender, IBS-C had 22(26.8%) subjects were male whereas 60 (73.2%) were female where in IBS-D 37(64.9%) subjects were

male and 20(35.1%) were female and on applying χ^2 , p value was found significant. Most of the subjects were Hindu with 75(91.5%) individuals in IBS-C and 55(96.5%) individuals were in IBS-D whereas 8.5% individuals in IBS-C and 3.5% in IBS-D were Muslims whereas p value was not significant. The maximum respondents belong to UP i.e. 72 (87.8%) individuals in IBS-C and 53(93%) in IBS-D. As for residents out of UP were as 10(12.2%) individuals in IBS-C and 4(7%) individuals in IBS-D. On applying χ^2 , p value was also not significant.

Table 1: Showing distribution of IBS types based on Age, Gender, Religion and Habitat

Variables	Age (years)		IBS-C (n=82)	IBS-D (n=57)
Age	18-30		36 (43.8%)	35(61.5%)
	31-40		25 (30.4%)	19 (33.4)
	41-50		10 (12%)	3 (5.4%)
	51-60		11(13.3%)	0 (0%)
	Mean± SD		35.90	29.89±6.14
	χ ² =11.48 & p= 0.000			
Gender	Gender	IBS-C	IBS-D	TOTAL
	Male	22 (26.8%)	37 (64.9%)	59 (42.4%)
	Female	60 (73.2%)	20 (35.1%)	80 (57.6%)
	Total	82	57	139
χ ² =19.963 & p= 0.000				
Religion	Religion	IBS-C	IBS-D	TOTAL
	Hindu	75(91.5%)	55(96.5%)	130(93.5%)
	Muslim	7(8.5%)	2(3.5%)	9(6.5%)
	Total	82	57	139
χ ² =1.404 and p= 0.236				
Habitat	State	IBS-C	IBS-D	TOTAL
	Residents	72(87.8%)	53(93%)	125(89.9%)
	Residents	10(12.2%)	4(7%)	14(10.1%)
	Total	82	57	139
χ ² =1.407 and p=0.704				

Table 2: Showing variation of IBS types with vital physiological and anthropometric parameters among subjects

Vital physiological & anthropometric parameters	n=IBS-C: 82 IBS -D:57	Mean± S.D	t-value	p- value
SBP (mmHg)	IBS-C	123.95±9.62	1.01	0.31
	IBS-D	122.39±7.76	1.05	0.29
DBP (mmHg)	IBS-C	83.27±7.87	1.37	0.17
	IBS-D	81.58±5.84	1.45	0.14
Height (meter)	IBS-C	17017±7.88.	0.38	0.69
	IBS-D	169.67±6.92	0.39	0.69
Weight (in kg)	IBS-C	61.15±7.76	2.84	0.005
	IBS-D	57.33±7.77	2.84	0.005
BMI (kg/m ²)	IBS-C	21.13±2.55	2.82	0.006
	IBS-D	19.90±2.47	2.83	0.005
Pulse rate (per minute)	IBS-C	76.15±10.40	1.89	0.06
	IBS-D	79.61±10.95	1.87	0.06

The table number 2 suggests the mean Systolic BP of included subjects was 123.95±9.62 in IBS-C and in IBS-D was 122.39±7.76. whereas the Diastolic BP was 83.27±7.87 in IBS-C and in IBS-D was 81.58±5.84 respectively. The mean pulse rate in IBS-C was 76.15±10.40 and IBS-D was 79.61±10.95 respectively. The mean height in IBS-C was 17017±7.88 and in IBS-D was 169.67±6.92 respectively whereas mean weight in IBS-C was 61.15±7.76 and IBS-D was 57.33±7.77. The mean BMI in IBS-C

was 21.13±2.55 and in IBS-D was 19.90±2.47 respectively. On intergroup comparison significant changes were observed among the mean weight and BMI of both the groups($p=0.000$)

Table 3: Showing distribution of IBS type as per appetite

Appetite	IBS-TYPE		TOTAL
	IBS-C	IBS-D	
Low	53(64.6%)	11(19.3%)	64(46%)
Normal	26(31.7%)	46(80.7%)	72(51.8%)
Good	1(1.2%)	0	1(0.7%)
Very Good	2(2.4%)	0	2(1.4%)
Total	82	57	139
$\chi^2=32.679$, $p=0.000$			
Bowel Habits	IBS-TYPE		TOTAL
	IBS-C	IBS-D	
Constipated	79(96.3%)	3(5.3%)	82(59%)
Loose	3(3.6%)	54(94.8)	57(41%)
Total	82	57	139
$\chi^2=122.99$, $p=0.000$			

The table number 3 suggests the distribution of IBS type as per appetite. Maximum respondents in IBS-C 53(64.6%) individuals reported low appetite whereas maximum respondents in IBS-D 46 (80.7%) had normal appetite and on applying χ^2 , p value was found significant. ($p=0.000$)

The distribution of IBS type as per bowel habits suggests that in IBS-C group maximum respondents i.e. 79(96.3%) reported constipated stool whereas in IBS-D maximum respondents i.e. 54(94.8) reported loose stool and on applying χ^2 , p value was found significant. ($p=0.000$)

Table 4: Showing distribution of IBS types as per *Kostha*

<i>Kostha</i>	IBS-TYPE		TOTAL
	IBS-C	IBS-D	
<i>Mridu Kostha</i>	30(36.6%)	4(7%)	34(24.5%)
<i>Madhyama Kostha</i>	43(52.4%)	29(50.9%)	72(51.8%)
<i>Krura Kostha</i>	9(11%)	24(42.2%)	33(23.7%)
Total	82	57	139
$\chi^2=26.265$, $p=0.000$			

The table number 4 indicate that *Mridu Kostha* was present in 30(36.6%) individuals in IBS-C and 4 (7%) individuals in IBS-D. *Madhyama Kostha* was present in 43(52.4%) individuals in IBS-C 29(50.9%) individuals in IBS-D. *Krura Kostha* was present in 9(11%) individuals IBS-C and in 24 (42.2%) individuals in IBS-D and on applying χ^2 , p value was found significant. ($p=0.000$)

Table 5: Showing distribution of IBS types as per *Agnibala*

<i>Agnibala</i>	IBS-TYPE		TOTAL
	IBS-C	IBS-D	
<i>Mandagni</i>	73(89%)	6(10.5%)	79(56.8%)
<i>Vishmaggni</i>	3(3.7%)	31(54.4%)	34(24.5%)
<i>Samagni</i>	6(7.3%)	20(35.1%)	26(18.7%)
<i>Tikshnagni</i>	0	0	0
Total	82	57	139
$\chi^2=26.265$, $p=0.000$			

As per *Agnibala* status of IBS types in table number 5, the maximum respondents belong to *Mandagni* i.e. 73(89%) in IBS-C and *Vishmaggni* i.e. 31(54.4%) in IBS-D and on applying χ^2 , p value was found significant. ($p=0.000$)

Table 6: Showing distribution of IBS types in Haematological parameter

Haematological parameter	IBS Group N=IBS-C: 82 IBS-D:57	Mean± S.D.	t-value	p- value
Hb (g/dl)	IBS-C	13.10±1.62	2.27	0.85
	IBS-D	12.47±1.56	2.29	
TLC (/cu mm)	IBS-C	6435.37±1051.20	0.11	0.08
	IBS-D	6457.54±1255.68	0.10	
Lymphocyte (%)	IBS-C	43.19±2.50	3.09	0.50
	IBS-D	44.43±2.04	3.21	
Eosinophil (%)	IBS-C	4.92±1.07	1.85	0.08
	IBS-D	5.24±0.90	1.90	
Monocyte(%)	IBS-C	2.59±0.64	1.06	0.07
	IBS-D	2.70±0.54	1.09	
Basophile(%)	IBS-C	0.17±0.37	2.37	0.01
	IBS-D	0.34±0.47	2.33	
PCV(%)	IBS-C	33.75±2.26	1.13	0.41
	IBS-D	34.18±2.02	1.15	
Platelet (thou/ µl)	IBS-C	2.68±0.54	0.58	0.93
	IBS-D	2.74±0.52	0.59	
MCV(fL)	IBS-C	81.44±2.41	0.59	0.77
	IBS-D	81.66±1.74	0.62	
MCH(pg)	IBS-C	30.23±1.41	4.60	0.61
	IBS-D	31.32±1.30	4.67	
MCHC(g/dl)	IBS-C	32.46±2.44	1.34	0.33
	IBS-D	31.93±2.07	1.38	

In the table number 6, the mean Basophil in IBS-C was 0.17±0.37 whereas in IBS-D was 0.34±0.47 and on intergroup comparison significant changes were observed (**p = 0.000**) whereas no significant changes were observed with mean of rest of the haematological parameters.

Discussion

The present study was an observational type of study that primarily focuses on exploring the association of the status of *Agnibala* and *Kostha* in types of IBS i.e. IBS-C and IBS-D. The demographic profile such as age, sex, religion, habitat as well as appetite, bowel habits along with certain vital physiological and anthropometric parameters were also studied.

IBS has been reported to be more prevalent among younger individuals, particularly those below 35 years of age. In the present study, participants were recruited from the 18–60-year age group. However, the highest proportion of patients in both subgroups belonged to the younger age bracket of 18–30 years, accounting for 43.8% of cases in the IBS-C group and 61.5% in the IBS-D group. The mean age of patients was 35.90 ± 11.5 years in the IBS-C group and 29.89 ± 6.14 years in the IBS-D group. The study done by M. Kosako et al (2018) study reveals that the expression rate of abdominal distention and abdominal pain was significantly higher among IBS-C subjects aged 20–49 than 50–79 years (12). Thus, the findings of the present study are consistent with previous reports indicating a higher prevalence of IBS among younger individuals.

In the IBS-C group, female predominance was observed, with 73.2% of participants being women and 26.8% men. In contrast, the IBS-D group showed a male predominance, comprising 37 (64.9%) male and 20 (35.1%) female participants. Further, application of the chi-square (χ^2) test revealed that gender had a statistically significant association with IBS distribution in both

groups. IBS shows a female predominance, with prevalence rates estimated to be approximately 1.5–3 times higher in women than in men. The increased prevalence of IBS in women has been attributed, at least in part, to fluctuations in female sex hormones, which are known to influence gastrointestinal motility and visceral sensitivity, leading to exacerbation of IBS symptoms, particularly in the premenstrual phase. Similar findings were reported in the study by done by M. Kosako et al. (2018) that patients with IBS-C were predominantly younger and more frequently female. Their findings highlighted a greater susceptibility among women in the 20–49-year age group, with a mean age of 36 ± 8 years, while older women (mean age 60 ± 7 years) exhibited poorer quality of life, accompanied by higher levels of stress and anxiety.

The variation of IBS types with anthropometry parameters among subjects was observed as the mean BMI in IBS-C was 21.13±2.55 whereas in IBS-D was 19.90±2.47 respectively and on intergroup comparison significant changes were observed among the mean BMI in both the groups whereas the mean weight in IBS-C was 61.15±7.76 and IBS-D was 57.33±7.77 and this difference was also found to be statistically significant on intergroup analysis.

Appetite, defined as the desire to consume food, is an important indicator of gastrointestinal and nutritional status. Acharya Charaka described loss of appetite among the consequences of suppressing hunger, along with emaciation, weakness, body ache, and giddiness (Ch. Su. 7/20). Fysekidis et al. (2018) reported reduced appetite in 33% of patients with functional gastrointestinal disorders, with a stronger association in those presenting depressive and anxiety symptoms. (13) Consistent with these observations, reduced appetite was more prevalent in the IBS-C group (64.6%), whereas normal appetite predominated in the IBS-D group (80.7%). The chi-square analysis demonstrated a statistically significant association between appetite status and IBS subtype, suggesting that appetite may contribute to the clinical differentiation of IBS-C and IBS-D.

IBS is a complex disorder that is associated with altered GI motility, secretion and sensation. The present study holds that constipation was reported by the majority of participants in the IBS-C group (96.3%), whereas loose stools were observed in 94.8% of individuals in the IBS-D group. Motor abnormalities of the gastrointestinal tract are well documented in IBS. These include increased frequency and irregularity of luminal contractions, delayed intestinal transit in constipation-predominant IBS, and an exaggerated motor response to cholecystokinin release and meal ingestion in diarrhoea-predominant IBS. Serotonin also plays a significant role in the pathophysiology of IBS i.e. in regulating the GI motility, secretion and sensation. (14) Altered serotonin signalling could lead to intestinal and extra intestinal symptoms in IBS. These results support the concept that diarrhoea-predominant (IBS-D) IBS is characterized by reduced 5-HT reuptake, whereas impaired release may be a feature of constipation predominant IBS (IBS-C).

IBS can be considered as a disorder where there is a derangement of *Vata* in GIT especially of *Saman Vayu* and *Apan Vayu* leading to symptoms of pain in abdomen and altered bowel habits thus involving both *annnavaha srotas* (upper gastrointestinal tract) and *purishavaha srotas* (lower gastrointestinal tract). Several etiological factors like *aharaj* (diet) *viharaj* (lifestyle) and *mansic* (psychological) factors are associated with it. These etiological factors might lead to vitiation that causes *mandagni* (low digestive fire), that further leads to formation of *ama* (undigested food). (15) (16) These undigested food particles do not get properly absorbed

through the intestines and are therefore expelled out through the stool, thus altering the stool consistency. As per in contemporary literature altered gastrointestinal motility, visceral hypersensitivity, post infectious reactivity, brain-gut interactions, alteration in faecal micro flora, bacterial overgrowth, food sensitivity, carbohydrate malabsorption, and intestinal inflammation all have been implicated in the pathogenesis of IBS. Serotonin is largely present in the enterochromaffin cells in the gut and is a major regulator of the peristaltic reflex and sensory relays in the gut. There are two lines of evidence supporting the view that serotonin regulation is abnormal in IBS. The release of serotonin in plasma appears to be reduced in those with constipation-predominant IBS (IBS-C) and increased in diarrhoea-predominant IBS (IBS-D) as per L. Seha, et al (2014). (17). The present study also proclaims that predominant proportion of individuals diagnosed with constipation-predominant irritable bowel syndrome (IBS-C) exhibited *Mandagni* (89%), whereas *Vişamagni* was most frequently observed among diarrhoea-predominant IBS (IBS-D) subjects (54.4%). Despite differences in *Agnibala*, both groups predominantly demonstrated *Madhyama Kosṭha* was the most commonly observed *Kosṭha* type in both groups, accounting for 52.4% of IBS-C and 50.9% of IBS-D cases. Further, chi-square test demonstrated a significant association between IBS subtype and variations in *Agnibala* and *Kosṭha*, suggesting that irritable bowel syndrome exerts a discernible influence on *Agnibala* and *Kosṭha*.

Limitations

- Participants were recruited from the Kayachikitsa outpatient department of a single institution, which may limit the generalizability of the findings to patients with IBS from other geographical regions, healthcare settings and populations. Further, the findings may not fully represent the broader IBS population.
- IBS is a multifactorial disorder influenced by dietary habits, lifestyle, psychological factors, medications, and other environmental factors. Although several demographics, anthropometric, physiological, and haematological parameters were assessed, not all potential confounding variables were comprehensively evaluated.
- Since the study did not include longitudinal assessment, changes in *Agnibala* and *Kosṭha* over the course of IBS or in response to treatment could not be evaluated.

Conclusion

Understanding the global distribution of IBS subtypes is essential for comparative clinical research and provides a foundation for correlating traditional Ayurvedic constructs such as *Agnibala* and *Kosṭha* with modern clinical phenotypes, thereby facilitating integrative and personalized approaches to IBS management. Emerging evidence suggests that variations in *Doṣa*, *Agni*, and *Kosṭha* play a pivotal role in determining the clinical expression of irritable bowel syndrome (IBS) subtypes. The present study revealed that a predominant proportion of individuals diagnosed with constipation-predominant irritable bowel syndrome (IBS-C) exhibited *Mandagni* (89%), reflecting delayed gastrointestinal transit and impaired digestive capacity. In contrast, diarrhoea-predominant IBS (IBS-D) shows closer alignment with *Vişamagni* as derangement of *Vata Doṣa* especially *Samanvayu* and *Apanvayu* that leads to symptoms of pain in abdomen and altered bowel habits. These observations support the Ayurvedic view that dysregulation of *Agni*, influenced by *Doṣa* imbalance, governs bowel habit variability through its impact on *Kosṭha*.

Understanding IBS subtypes through this triad provides a rational basis for individualized Ayurvedic assessment and subtype-specific therapeutic strategies.

Future Perspective

- Future research should include participants from multiple Ayurvedic and biomedical centers across different geographical regions to improve the generalizability and external validity of the findings.
- Studies with larger samples of IBS-C and IBS-D participants should be undertaken to increase statistical power and provide more robust estimates of the association between IBS subtypes, *Agnibala*, and *Kosṭha*.
- Further research should correlate *Agnibala* and *Kosṭha* with relevant biochemical, physiological, gastrointestinal, and microbiological markers to strengthen their objective and clinical interpretation.

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