PROTOCOL DESIGN FOR AN OBSERVATIONAL STUDY ON THE VARIATION IN CAUSATIVE FACTORS OF *VYANGA* (MELASMA) W.S.R. TO *DAIHIK PRAKRITI*

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Abstract

Background-*Vyanga* (Melasma) is a *Kshudra Roga* (minor skin disorder) described in *Ayurveda*, characterized by *Shyava Varna Mandala* (bluish-black patches) on the face due to vitiation of *Vata* and *Pitta Dosha*. In modern dermatology, *Vyanga* is correlated with melasma, a hyperpigmentation disorder linked to genetic, hormonal, and environmental factors. The concept of *Daihik Prakriti* (body constitution) in *Ayurveda* determines individual susceptibility to diseases and influences the skin's response to internal and external stimuli. This study aims to assess the variation in causative factors of *Vyanga* with special reference to *Daihik Prakriti*. **Objectives-**To analyze the *Samprapti* (pathogenesis) of *Vyanga* in relation to *Daihik Prakriti*. To evaluate the association between *Vyanga* and *Daihik Prakriti*. To explore the role of *Bhrajaka Pitta* in skin pigmentation from *Ayurvedic* and modern perspectives. **Methods** -A total of 500 subjects diagnosed with *Vyanga* will be selected through a simple random sampling method at Baba Khetanath Government Ayurvedic College & Hospital, Haryana. This observational study will assess the participants' *Daihik Prakriti* using a validated Prakriti assessment scale and the severity of *Vyanga* using the Melasma Area Severity Index (MASI) score. Inclusion criteria involve individuals aged 18-45 years with clinically diagnosed *Vyanga*. Pregnant women and individuals with systemic diseases or congenital hyperpigmentation will be excluded. Statistical analysis will be conducted to establish variations in causative factors across different *Prakriti* types. **Expected Outcome -**The study is expected to reveal significant variation in the causative factors of *Vyanga* based on *Daihik Prakriti*. Findings may aid in the development of personalized preventive and therapeutic approaches based on constitutional factors.

Keywords-*Vyanga*, Melasma, *Daihik Prakriti*, *Bhrajaka Pitta*, *Samprapti*, Pigmentation, *Ayurveda*, *Dosha*, Hyperpigmentation, MASI Score.

Introduction

Health, according to *Ayurveda*, is a state of equilibrium among the three *Doshas—Vāta, Pitta*, and *Kapha*, where the mind, body, and sensory organs function harmoniously, allowing an individual

to experience well-being and perform daily activities with ease.[1] The *Doshas* govern various physiological and pathological processes in the body, and their balanced state is essential for maintaining *Upachaya* (nutrition), *Bala* (immunity), *Varṇa* (skin complexion), and *Prasannata* (happiness). However, when these *Doshas* become imbalanced, they give rise to various diseases, including dermatological conditions.[2]

Among the different types of *Pitta*, *Bhrajaka Pitta* resides in the skin and is responsible for maintaining its color, luster, and heat regulation.[3] *Acharya Sushruta* describes *Bhrajaka Pitta* as *Bhrajaka Agni*, emphasizing its role in skin metabolism and pigmentation. Modern dermatology associates skin pigmentation with melanin production, and *Bhrajaka Pitta* can be correlated with melanin due to similarities in function and localization.[4]

Skin complexion varies based on *Daihik Prakriti* (constitutional body type), which is determined at the time of conception. *Acharya Charaka* classifies normal skin tones into *Krishna* (black), *Shyama* (dark), *Shyamavadata* (mix of dark and pale), and *Avadata* (fair).[5] Modern science attributes skin pigmentation to genetic factors, with multiple genes controlling melanin synthesis. Thus, *Ayurvedic* principles of *Prakriti* align with modern genetic determinants of skin color.[6]

Vyanga is a *Kshudra Roga* (minor disease) of the skin, described in *Ayurvedic* texts as painless, dark-colored patches, mainly affecting the face. *Acharya Sushruta* attributes its causation to excessive *Krodha* (anger) and *Ayasa* (stress), which lead to vitiation of *Vāta* and *Pitta Dosha*. The pathology of *Vyanga* primarily involves *Udāna Vāyu*, *Bhrajaka Pitta*, and *Rakta Dhātu*, classifying it as a *Raktapradoshaja Vikāra*.[7]

In modern dermatology, *Vyanga* is closely correlated with melasma, a common pigmentary disorder characterized by asymptomatic, dark brown macules on the face. Melasma is influenced by ultraviolet (UV) radiation, hormonal fluctuations (such as pregnancy or oral contraceptive use), phototoxic reactions, cosmetics, and genetic predisposition. The condition follows three patterns: centrofacial, malar, and mandibular, with centrofacial melasma being the most prevalent.[8]

ORIGIN OF RESEARCH PROBLEM

The prevalence of melasma varies between 1.5% and 33.3% depending on the population. Melasma is more common in women than in men. Its prevalence in women is around 50%-70%

related with pregnancy stage and 8%-29% of women on o.c pills. In men its prevalence is between 20.5%-25.38% of the cases. Female and male ratio of melasma prevalence in india is approximately 4:1 and in singapore 21:1[9]. An indian study of 331 patients with melasma found a 4:1 female to male ratio. Most common time of onset of melasma was post pregnancy (42%), where as 26% of patients developed it during pregnancy. The predominant pattern observed in the patients was centro-facial melasma (42%)[10].

Melasma or vyanga being a non-communicable and non-deteriorated condition is still a mental trauma in this aesthetic era. So this topic is selected to fill up the research gap because

- No previous work is done in this respect.
- To assess the variation in nidaan of vyanga w.s.r. to daihik prakriti.
- To know association between *Vyanga* and daihik prakriti.

RESEARCH QUESTION

Is there any variation in causative factors of *vyanga* w.s.r. to daihik *prakriti* ?

HYPOTHESIS

NULL HYPOTHESIS H_0 –There is no variation in causative factors of *vyanga* w.s.r. to daihik *prakriti*.

ALTERNATE HYPOTHESIS H_1- There is variation in causative factors of *vyanga* w.s.r. to daihik *prakriti*.

REVIEW OF LITERATURE

Concept of Vyanga

Vyanga is classified as a *Kshudra Roga* (minor skin disorder) in *Ayurveda*, primarily caused by the vitiation of *Vāta* and *Pitta Dosha*. According to *Acharya Sushruta*, *Vyanga* is characterized by **painless, bluish-black patches on the face**, primarily caused by excessive *Krodha* (anger) and *Ayasa* (stress), which lead to *Vāta* and *Pitta* imbalance. The involvement of *Udāna Vāyu*, *Bhrajaka Pitta*, and *Rakta Dhātu* makes *Vyanga* a *Rakta-Pradoshaja Vikara* (disorder related to blood tissue).[11]

According to *Acharya Charaka*, skin color is determined by a person's *Prakriti* (constitutional type), which is influenced by genetic, environmental, and lifestyle factors. He describes four natural skin tones:

- *Krishna* (black)
- *Shyama* (dark)
- *Shyamavadata* (mix of dark and pale)
- *Avadata* (fair)

Since *Vyanga* results in hyperpigmentation and altered complexion, it can be associated with the imbalance of *Bhrajaka Pitta* (responsible for skin color) and its correlation with melanin regulation.[12]

Concept of Melasma in Modern Science

Melasma is a common **acquired hyperpigmentation disorder** affecting the face, characterized by dark brown, symmetrical patches on the skin, predominantly in women. It is associated with:

- Hormonal fluctuations (*e.g.*, pregnancy, oral contraceptive use).
- Ultraviolet (UV) exposure.
- Genetic predisposition.
- Cosmetic use and phototoxic reactions.[13]

Melasma occurs in three distinct patterns:

1. **Centro-facial pattern** (forehead, cheeks, nose, and upper lip) – most common.
2. **Malar pattern** (cheeks and nose).
3. **Mandibular pattern** (jawline and chin).

Melasma is diagnosed using the **Melasma Area and Severity Index (MASI)**, which quantifies pigmentation intensity, surface area involvement, and homogeneity.[14]

Correlation between Vyanga and Melasma

Both *Ayurveda* and modern dermatology suggest that pigmentation disorders like *Vyanga* (melasma) arise due to **internal and external factors**, including genetic, hormonal, and environmental influences. *Bhrajaka Pitta*, responsible for skin complexion, can be correlated with **melanin metabolism**, and an imbalance in *Pitta Dosha* may lead to hyperpigmentation. Furthermore, *Ayurvedic* treatment principles such as *Varnya Dravyas* (skin-brightening herbs), *Rakta Shodhana* (blood purification), and *Lepas* (external applications) provide a holistic approach to melasma management.[16]

Daihik Prakriti

Concept of Prakriti in Ayurveda

In *Ayurveda*, **Prakriti** refers to an individual's unique constitutional makeup determined at the time of conception by the predominance of *Doshas* (*Vāta, Pitta,* and *Kapha*). It remains constant throughout life and governs physical, physiological, and psychological attributes, including disease susceptibility and response to treatment.[17]

Acharya Charaka lists *Prakriti* assessment as the **first among the tenfold examination parameters (Dashavidha Pariksha)** used for patient evaluation. *Prakriti* is classified into:

1. **EkaDoshaja Prakriti** – Dominance of a single *Dosha* (*Vāta, Pitta,* or *Kapha*).
2. **Dwandwaja Prakriti** – Combination of two *Doshas* (*Vāta-Pitta, Pitta-Kapha, Kapha-Vāta*).
3. **Sama Prakriti** – Equal balance of all three *Doshas* (rare).

Each *Prakriti* type has distinct physical, physiological, and psychological characteristics that influence an individual's skin type, immunity, metabolism, and response to environmental factors.[18]

Characteristics of Different Daihik Prakriti

Prakriti Type	Physical Traits	Skin Characteristics	Susceptibility to Diseases

Vāta Prakriti	Lean body, dry hair, rough skin	Thin, dry, cracked, less glowing skin, prone to wrinkles	Neurological disorders, arthritis, dryness-related skin issues
Pitta Prakriti	Medium build, sharp metabolism	Soft, fair, reddish complexion, sensitive, prone to acne, freckles, pigmentation	Skin rashes, hyperpigmentation, acidity, inflammation
Kapha Prakriti	Well-built, smooth skin, stable health	Oily, thick, radiant skin, prone to excessive oil secretion	Obesity, water retention, oily skin conditions like acne

Since *Bhrajaka Pitta* regulates skin complexion and pigmentation, **Pitta-dominant individuals are more prone to hyperpigmentation disorders like Vyanga (melasma).**

Daihik Prakriti and Skin Disorders

Different *Prakriti* types react differently to external and internal factors. The **influence of *Pitta Dosha*** on skin conditions, particularly hyperpigmentation, is evident from the following:

- *Bhrajaka Pitta* governs skin color and response to sunlight (UV radiation).
- Individuals with Pitta-dominance often experience sunburn, freckles, and melasma due to increased heat sensitivity.
- *Vāta-Pitta Prakriti* individuals may develop dry, patchy pigmentation, while *Kapha-Pitta* individuals may have oilier, darker pigmentation patches.[19]

Previous Research Work

S. No.	YEAR	SCHOLAR NAME	TOPIC NAME	INSTITUTE

1.	1994	Prakash	Effect of *Nasya Karma* in *Vyanga*	Mysore Govt. Ayurvedic Medical College
2.	1999	Anitha	Clinical management of *Vyanga* with *Manjistha Madhu Lepa*	Hyderabad Dr. BKRR Govt. Ayurvedic College AP University,Vijayawada
3.	2000	Swapna c	A study on *Ayurvedic* cosmetics formulation w.s.r to *Vyanga Roga*	Trivendrum Govt. Ayurvedic College, Kerala University, Tiruvananthpuram
4.	2001	Savita S Angadi	Evaluation of the efficacy of *Mukha Lepa* in *Vyanga* w.s.r to *Arjun Twak Lepa* and *Panchanimba Churna* internally-A clinical study	Bangalore Govt. Ayurvedic College (Rajiv Gandhi University of Health Sciences)
5.	2002	Sahu Swapna	*Raktachanadana Lepa* nirmana evam uske *Guna Karma* ka *Vyanga* ke pariprekshya main aturalayeadhyana	NagpurSri Ayurveda Mahavidyalaya, Nagpur University
6.	2002	BandeSm	*Apakarshana Chikitsa Sidhantagata Vyanga Vyadhi* main *Virechanartha Triphala Kwath* ka prayogik aadhyana	Nagpur Sri Ayurveda Mahavidyalaya, Nagpur University
7.	2002	Godbole Manik,	The study of *Mukhkantikara Lepa* as a cosmetic in *Ayurveda*	Mumbai

8.	2004	Jaikrishnam Kp	An evaluative study in the market samples of *Sariva* w.s.r to its clinical efficacy in *Vyanga*	Hyderabad Dr. BKRR Govt. Ayurvedic College AP University,Vijyawada
9.	2005	Shah zarana V	Cosmetic approach In *Ayurvedic* w.s.r to etiopathogenesis and management of *Vyanga Roga*	Jamnagar I.P.G.T & R.A.
10.	2009	PrasanV Joshi	Evaluation of the efficacy of *Varnya Yoga* in *Vyanga* w.s.r. to Melasma.	Gadag, Karnataka
11	2010	G pallavi	Clinical evaluation of *Varnya Gana Lepa* in *Vyanga* (melasma)	GAMC Mysore
12.	2016-17	Dr.Babita kumara	A Clinical and comparative study of *Madhumanjistha lepa* and *varnyahara mahakasaya* in Vyanga	NIA, Jaipur
13.	2018	Ritika Verma	Inter relationship between *Prakriti* diet and life style in the management of *Vyanga*.	IPGT&RA Jamnagar
14.	2018	Dr.Sukha ram	A randomised clinical trial for the evaluation of *Balahardradi lepa* in *Vyang*	NIA, Jaipur
15	2022	Madhuri Nivrutti Gavade	Comparative clinical evaluation of *Manjishta churna lepa* and *Jatiphala churna lepa* in *Vyanga* (Melasma)	Sangamner, Distt Ahemadnagar

AIM AND OBJECTIVES

AIM

To assess the nidaan variation of vyanga w.s.r. to daihik *prakriti*.

OBJECTIVES

- Conceptual study of *BHRAJAKA PITTA* in *Ayurveda* & Modern view.
- Conceptual study of *VYANGA* in Ayurved & Modern view.
- To analyse the *Prakriti* of the Subjects with validated Prakriti Assessment Scale.

METHODOLOGY

Plan of Study

Parameter	**Details**
Study Site	Baba Khetanath Government Ayurvedic College & Hospital, Patikara, Narnaul, Haryana
Study Type	Observational Study
Sources of Data	Individuals having symptoms of *Vyanga*
Diagnostic Criteria	As per classical symptoms of *Vyanga* clinically
Assessment Tools	MASI Score (Melasma Area Severity Index Score), *Prakriti* Proforma (CCRAS)
Sample Size	500
Sampling Technique	Simple Random Method for Screening
Timeline	Study will be completed within the stipulated time limit

Assessment Criteria

Inclusion Criteria

Criteria	Details
Inclusion Criteria	- Subjects between the age group of **18-45 years**. - Subjects with **classical signs and symptoms of Vyanga (Melasma)**. - Subjects **who are willing to participate**.

Exclusion Criteria

Criteria	Details
Exclusion Criteria	- Subjects suffering from **any systemic or skin diseases**. - Subjects **below 18 years & above 45 years** of age. - **Pregnant women**. - **Hyperpigmentation present since birth**.

ASSESSMENT CRITERIA

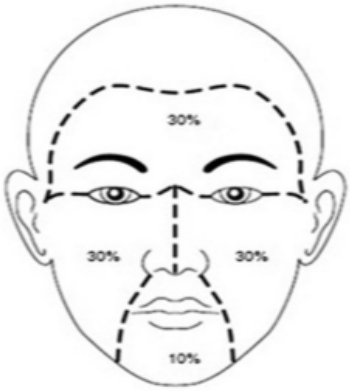
The subjects will be assessed on the basis of MASI Score and prakriti proforma .

MASI Score (Melasma area severity index score)

The melasma area severity index (MASI) score is calculated by assessment of three parameters: Area (A), darkness (D), and homogeneity (H) of involvement where in forehead (f) constitutes 30%, right malar region (rm) 30%, left malar region (lm) 30%, and chin (c)-10%. The MASI score is calculated by adding the sum of the severity ratings for darkness and homogeneity, multiplied by the value of the area of involvement, for each of the four facial areas. The total score range is 0–48. Higher the score, higher is the severity.

The following formula is used for calculation is:

MASI total score = 0.3A (f) [D (f) + H (f)] +0.3A (lm) [D (lm) + H (lm)] +0.3A (rm) [D (rm) + H (rm)] +0.1A (c) [D (c) + H (c)].



Total MASI score = Forehead 0.3 (D+H) A + right malar 0.3 (D+H) A + left malar 0.3 (D+H) A + chin 0.1 (D+H) A.

Score range = 0 to 48

Area (A)	Darkness (D)	Homogeneity (H)
0=no involvement	0=Absent	0=Minimal
1=<10%	1=Slight	1=Slight
2=10-29%	2=Mild	2=Mild
3=30-49%	3=Marked	3=Marked
4=50-69%	4=Severe	4=Maximum
5=70-89%		
6=90-100%		

Statistical Analysis

The results of the study will be analyzed statistically to determine the variation in causative factors of *Vyanga* with respect to *Daihik Prakriti*. Appropriate statistical methods will be used to assess the correlation between *Prakriti* types and the severity of *Vyanga* based on MASI scores and other assessment tools.

Probable Outcome

The study is expected to demonstrate a significant variation in the causative factors of *Vyanga* with special reference to *Daihik Prakriti*. These findings may help in establishing *Prakriti*-based diagnostic and treatment approaches for *Vyanga*.

Conclusion

This study aims to explore the variation in causative factors of *Vyanga* (Melasma) with special reference to *Daihik Prakriti*. Based on *Ayurvedic* principles, *Vyanga* is considered a *Kshudra Roga* caused by the vitiation of *Vāta* and *Pitta Dosha*, primarily affecting individuals with *Pitta*-

dominant Prakriti. The correlation between *Bhrajaka Pitta* and melanin metabolism in modern dermatology further supports this association. Through statistical analysis of 500 subjects, this study is expected to reveal a significant relationship between *Daihik Prakriti* and *Vyanga* causative factors, emphasizing the role of constitutional predisposition in skin disorders. The findings may provide valuable insights into individualized treatment strategies based on *Prakriti*, enhancing both preventive and therapeutic approaches in *Ayurveda*. Ultimately, this research contributes to bridging the gap between *Ayurveda* and modern dermatology, offering a holistic perspective on the pathogenesis and management of *Vyanga* (Melasma). Future studies integrating genetic and hormonal analysis with *Prakriti*-based evaluation may further validate these findings and open new avenues for personalized skincare and disease management.

Conflict of Interest –nil

Source of Support –none

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