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Research Article

Association of Self Perception of Pre-Mature Ageing and Human Constitution (*Prakriti*) - A Cross-Sectional Study

Neha Rawat[1], Ritesh[2], Rakesh Roushan[3], Manjry Anshumala Barla[4], Yogita Munjal[5]

[1]Assistant Professor, Department of Kriya Sharir, Future Institute of Ayurvedic Medical Sciences, Bareilly, UP, India.
[2]P.G Scholar, P.G Department of Kriya Sharir, Ch. Brahm Prakash Ayurved Charak Sasnthan, Govt. of NCT of Delhi, New Delhi, India.
[3]Assistant Professor, P.G Department of Kriya Sharir, Ch. Brahm Prakash Ayurved Charak Sasnthan, Govt. of NCT of Delhi, New Delhi, India.
[4]Chief Medical Officer (Ay), Directorate of AYUSH, Govt of NCT Delhi, New Delhi, India.
[5]Deputy Director, Directorate of AYUSH, Govt of NCT Delhi, New Delhi, India.
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I N F O

Corresponding Author:
Rakesh Roushan, PG Department of Kriya Sharir, Ch. Brahm Prakash Ayurved Charak Sasnthan, Govt. of NCT of Delhi, New Delhi, India-110073.
E-mail Id:
rakesh3151@gmail.com
Orcid Id:
https://orcid.org/0000-0002-0874-0332
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A B S T R A C T

Introduction: Premature ageing is a process associated with a progressive accumulation of deleterious changes over time, an impairment of physiologic functions, an increase in the risk of disease and death. In Ayurveda, all human beings are categorised into basic sub-seven types based on their constitution. Along with this, ageing can be accelerated by lifestyle choices and environmental conditions to which our genes are exposed. The primary objective of the cross-sectional analysis was to find the association between prakriti and self-perception of premature ageing.

Methodology: For the present study, a total of 100 participants, who were found positive for self-perception of pre-mature ageing and were fulfilling the other inclusion criteria, were eligible. The analysis of self-perception of pre-mature ageing was done by using The Brief Ageing Perception Questionnaire (B-APQ). The assessment of prakriti was done with a validated Prakriti Analysis Pro forma prepared by the Central Council for Research in Ayurvedic Sciences (CCRAS), New Delhi, India.

Result: The prevalence of self-perception of pre-mature ageing was maximum among vata prakriti (58, 58%) and minimum in kapha prakriti (18, 18%). A significant association of male and female participants was found with three questions of B-APQ by applying Fisher Exact test. No significant association was found between the group of vata, pitta and kapha dominant prakriti with individual B-APQ on applying independent-samples Kruskal-Wallis test.

As per descriptive analysis, vata prakriti individuals were more vulnerable to the self-perception of premature ageing as per B-APQ while kapha prakriti was the least. The distribution of individual B-APQ was the same across all categories of prakriti.

Keywords: Ageing, Ayurveda, B-APQ, *Prakriti*

Introduction

Ageing is characterised by a gradual loss of molecular fidelity after reaching sexual maturity. It leads to the functional loss of cells and tissues and ultimately causes the disease and death of an organism.[1] Premature ageing is a process associated with a progressive accumulation of deleterious changes over time, an impairment of physiologic functions, an increase in the risk of disease and death. Regardless of genetic background, ageing can be accelerated by lifestyle choices and environmental conditions to which our genes are exposed.[2] Cellular DNA is continuously being damaged by exogenous and endogenous agents and chemicals, which generate many types of lesions throughout the genome.[3] According to Ayurveda, the lifespan of an individual is divided into three parts known as Vaya. These are Balavastha (childhood), which lasts up to the age of 16 years, Madhyavastha (young and middle age), which lasts from the age of 16 years to 60-70 years, Vriddhavastha or Jirnavastha (old age), which refers to the period after 60 or 70 years.[4,5] Ayurveda mentions numerous properties of doshas and how they affect a human being's physiology or prakriti based on the dominance of one or more doshas. The prakriti of a person is quite capable of providing a fair indication of physiological strengths and weaknesses, mental tendencies, susceptibility to illnesses of various types.[6] Ageing significantly increases susceptibility to cancer, neurodegeneration, cardiovascular diseases, metabolic disorders.[7,8,9] Based on physical, physiological, psychological characteristics, Deha prakriti has been classified into seven subtypes namely kapha, pitta, vata, pitta-kapha, vata-kapha, vata-pitta, samdoshaj, depending on the preponderance of doshas.[10] There are several prenatal and postnatal factors which contribute to the manifestation of *prakriti*.[11] The disintegration of *Dhatu* occurs due to the predominance of vata and leads to gradual wearing down till the age of hundred years.[12] After 60 years of age, there is a qualitative and quantitative diminution of Dhatus and Indriya leading to jaravastha. Jara (ageing) is one of the Swabhavika Vyadhi,[13] where it is explained that Jara is a natural and inevitable phenomenon. Jara is counted in Swabhava Bala Pravrtta Vyadhi (under Adhidavika roga) along with kshudha (hunger), pipasa (thirst), nindra (sleep) and mrityu (death).[14] These Swabhava Bala Pravrtta Vyadhis are further of two types Kalaja and Akalaja, thereby categorising Jara into Kalaja and Akalaja Jara. The Jara represents a cluster of physical and mental inabilities like emaciation, subnormal mental health, reduced sexual power, strength, ability of sense, power of speech associated with tremors and dislike for the food.[15] Other triggering elements like anxiety and depression can accelerate ageing.[16] The primary objective of this cross-sectional analysis was to find the association between *prakriti* and self-perception of premature ageing.

Methodology

Study Design

This is a cross-sectional analysis of data generated through the Brief Ageing Perception Questionnaire (B-APQ) and a validated *Prakriti* Analysis Pro forma prepared by the Central Council for Research in Ayurvedic Sciences (CCRAS). We followed the Strengthening the Reporting of Observational Studies in Epidemiology (STROBE) guidelines for reporting the findings.[17]

Study Setting

The study was carried out on the inpatient and outpatient departments of CBPACS, New Delhi who had given their consent. *Prakriti* determination was done for only those participants who were positive for self-perception of ageing from November 2018 to November 2019. The data generated through the determination of *prakriti* was confined to participants positive for self-perception of ageing only. Data generated from a total of 100 participants was used for analysis.

Study Participants

For the present study, a total of 100 participants, who fulfilled the inclusion and exclusion criteria and voluntarily provided the requisite information to the questionnaire in either English or Hindi were eligible to participate in the study.

Inclusion Criteria

Only positive B-APQ participants of either gender were selected from OPD and IPD of Ch. Brahm Prakash Ayurved Charak Sansthan, Khera Dabar, New Delhi. The age group of participants was between 31 to 60 years.

Exclusion Criteria

Persons with ages below 31 and above 60 years, or people with severe malignant hypertension, paralysis, renal failure, cardiovascular disease, history of epilepsy, diabetes mellitus, or any pre-diagnosed congenital or psychological disorder were excluded from the study.

Informed Consent and Ethical Consideration

This study was approved by the Institutional Ethics Committee (IEC) before starting the study (IEC Code: 2018/3/MD/12, dated: 12.06.2018). Prior to the inclusion of participants in the study, written informed consent was taken through mandated pro forma. Participants were briefed about their voluntary participation in the study. It was made explicitly clear that by participating in the survey, users were voluntarily giving their consent to use the data for research purposes.

Data Sources and Data Collection Method

All data were recorded by the investigator in a case report

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form (CRF) and were instantly recorded in the database. All information regarding the study was properly documented, carefully handled, scrupulously stored in order to ensure its accurate interpretation and verification. The original CRFs were also kept. All the subjects were normotensive on examination. All the selected participants for the study were informed about the Brief Ageing Perception Questionnaire (B-APQ) to be used. Among the seventeen questions, if the subject answered at least eight questions as agree or strongly agree then the subject was considered positive for self-perception of premature ageing and was enrolled for further study, whereas, if any subject answered less than eight questions as agree or strongly agree then the participant was considered negative for self-perception of premature ageing and was not included for further study. After this, all the positive subjects of self-perception of premature ageing were further evaluated for the assessment of *prakriti*. Assessment of *prakriti* was done with a validated *Prakriti* Analysis Pro forma prepared by the Central Council for Research in Ayurvedic Sciences (CCRAS). The dominant *prakriti* was considered the *prakriti* of that person. After this, the association was established between *prakriti* and self-perception of premature ageing to find out which dominant *prakriti* individuals belongs more for the self-perception of premature ageing (B-APQ).

Bias

The data were generated through subjective questionnaires i.e., B-APQ and CCRAS *prakriti* pro forma. However, the data are not representative of the population, as the respondents were restricted only to the participants positive for self-perception of premature ageing and a broader age criterion was considered, hence the findings may have limited generalisability. The possibility of information bias and recall bias could also not be completely ruled out, as the information provided in the questionnaire was obtained subjectively and the questions were close-ended.

Statistical Analysis

Categorical data were summarised in proportions and percentages. Independent samples were statistically analysed by Kruskal-Wallis test. Fisher Exact test was used to find possible associations. A p value of less than 0.05 was considered statistically significant. The data were entered in an MS EXCEL spreadsheet and analysis was done using Statistical Package for Social Sciences (SPSS) software version 22.0.

Table 1.Demographic Distribution of the Participants

S. no.			N (%)	Total N (%)
1.	Prakriti	*Vata*	58 (58)	100 (100)
		Pitta	24 (24)	
		Kapha	18 (18)	
2.	Age (years)	31-40	39 (39)	100 (100)
		41-50	29 (29)	
		51-60	32 (32)	
3.	Gender	Male	57 (57)	100 (100)
		Female	43 (43)	
4.	Occupation	Business	7 (7)	100 (100)
		Desk work	33 (33)	
		Engineer	5 (5)	
		Farmer	4 (4)	
		Field work	12 (12)	
		Home maker	29 (29)	
		Service	8 (8)	
		Student	2 (2)	
5.	Economic status	Lower	7 (7)	100 (100)
		Middle	75 (75)	
		Upper	18 (18)	
6.	Diet	Mix	57 (57)	100 (100)
		Veg	43 (43)	

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7.	Sleep	Disturbed	72 (72)	100 (100)
		Normal	28 (28)	
8.	*Satva*	*Avara*	53 (53)	100 (100)
		Madhyama	28 (28)	
		Pravara	19 (19)	
9.	*Vyayama*	*Avara*	54 (54)	100 (100)
		Madhyama	27 (27)	
		Pravara	19 (19)	
10.	*Ahara*	*Avara*	52 (52)	100 (100)
		Madhyama	28 (28)	
		Pravara	20 (20)	
11.	*Agni*	*Manda*	31 (31)	100 (100)
		Sama	16 (16)	
		Tikshana	15 (15)	
		Vishama	38 (38)	

Table 2.Association of Three Questions of B-APQ among Male and Female Participnats

S. no.	Variables	Gender	Strongly Disagree N (%)	Disagree N (%)	Neither Agree nor Disagree N (%)	Agree N (%)	Strongly Agree N (%)	Fisher Exact Test Value	P Value
Q1.	I feel my age in everything that I do.	Male	0 (0)	3 (3.0)	3 (3.0)	24 (24.0)	28 (28.0)	7.986	0.031
		Female	0 (0)	0 (0.0)	4 (4.0)	27 (27.0)	11 (11.0)		
Q2.	I get depressed when I think about how ageing might affect the things that I can do	Male	0 (0.0)	7 (7.0)	9 (9.0)	27 (27.0)	15 (15.0)	9.864	.028
		Female	2 (2.0)	0 (0.0)	4 (4.0)	19 (19.0)	17 (17.0)		
Q3.	As I get older I do not cope well with problems that arise	Male	0 (0)	3 (3.0)	9 (9.0)	31 (31.0)	15 (15.0)	8.031	.036
		Female	0 (0)	1 (1.0)	1 (1.0)	20 (20.0)	20 (20.0)		

Table 3.Association of B-APQ with Vata, Pitta and Kapha Dominant *Prakriti*

Hypothesis Test Summary				
	Null Hypothesis	**Test**	**Sig.**	**Decision**
1.	The distribution of I always classify myself as old is the same across categories of Prakriti of the person	Independent-Samples Kruskal-Wallis Test	.298	Retain the null hypothesis
2.	The distribution of I am always aware of the fact that I am getting older is the same across categories of Prakriti of the person	Independent-Samples Kruskal-Wallis Test	.433	Retain the null hypothesis
3.	The distribution of I feel my age in everything that I do is the same across categories of Prakriti of the person	Independent-Samples Kruskal-Wallis Test	.448	Retain the null hypothesis

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4.	The distribution of As I get older I get wiser is the same across categories of Prakriti of the person	Independent-Samples Kruskal-Wallis Test	.786	Retain the null hypothesis
5.	The distribution of As I get older I continue to grow as a person is the same across categories of Prakriti of the person	Independent-Samples Kruskal-Wallis Test	.884	Retain the null hypothesis
6.	The distribution of As I get older I appreciate things more is the same across categories of Prakriti of the person	Independent-Samples Kruskal-Wallis Test	.262	Retain the null hypothesis
7.	The distribution of I get depressed when I think about how ageing might affect the things that I can do is the same across categories of Prakriti of the person	Independent-Samples Kruskal-Wallis Test	.384	Retain the null hypothesis
8.	The distribution of The quality of my social life in later years depends on me is the same across categories of Prakriti of the person	Independent-Samples Kruskal-Wallis Test	.520	Retain the null hypothesis
9.	The distribution of The quality of my relationships with others in later life depends on me is the same across categories of Prakriti of the person	Independent-Samples Kruskal-Wallis Test	.207	Retain the null hypothesis.
10.	The distribution of Whether I continue living life to thefull depends on me is the same across categories of Prakriti of the person	Independent-Samples Kruskal-Wallis Test	.052	Retain the null hypothesis.
11.	The distribution of Getting older makes me less independent is the same across categories of Prakriti of the person	Independent-Samples Kruskal-Wallis Test	.568	Retain the null hypothesis.
12.	The distribution of As I get older I can take part in fewer activities is the same across categories of Prakriti of the person	Independent-Samples Kruskal-Wallis Test	.977	Retain the null hypothesis.
13	The distribution of As I get older I do not cope well with problems that arise is the same across categories of Prakriti of the person	Independent-Samples Kruskal-Wallis Test	.732	Retain the null hypothesis.
14	The distribution of Slowing down with age is not something that I can control is the same across categories of Prakriti of the person	Independent-Samples Kruskal-Wallis Test	.640	Retain the null hypothesis.
15	The distribution of I have no control over the effects which getting older has on my social life is the same across categories of Prakriti of the person	Independent-Samples Kruskal-Wallis Test	.482	Retain the null hypothesis.
16	The distribution of I worry about the effects that getting older may have on my relationships with others is the same across categories of Prakriti of the person	Independent-Samples Kruskal-Wallis Test	.886	Retain the null hypothesis.
17	The distribution of I feel angry when I think about getting older is the same across categories of Prakriti of the person	Independent-Samples Kruskal-Wallis Test	.968	Retain the null hypothesis.

The significance level is .05.

Observation and Result

As depicted in Table 1, a total of 100 participants were positive for self-perception of premature ageing. Among them, the maximum number of participants, i.e. 58, were of vata dominant *prakriti*, whereas, 24 subjects were of pitta dominant *prakriti*, 18 subjects were of kapha dominant *prakriti*. Maximum participants (39, 39%) were between 31 and 40 years of age, 32 (32%) participants were between 51 and 60 years of age and 29 (29%) were between 41 and 50 years of age. 57 (57%) subjects were male and 43 (43%) were female. As per occupation, 33 subjects were desk workers, 29 were homemakers, 12 were involved in field work, 8 were in service, 7 did their own business, 5

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were engineers, 4 were farmers, 2 were students. 75 (75%) subjects belonged to the middle class, 18 (18%) belonged to the upper class, only 7 (7%) belonged to the lower class. 57 (57%) subjects were non-vegetarian or mixed and 43 (43%) were vegetarian. 72 (72%) participants had disturbed sleep, whereas, 28 (28%) had normal sleep patterns. 53 (53%) subjects had avara satva, 28 (28%) had madhyama satva, 19 (19%) had pravara satva. 54 (54%) subjects had avara vyayam shakti, 27 (27%) had madhyama vyayam shakti, 19 (19%) had pravara vyayam shakti. 52 (52) subjects had avara ahara shakti, 28 (28%) had madhyama ahara shakti, 20 (20%) had pravara ahara shakti. 38 (38%) had visham agni, 31 (31%) had manda agni, 16 (16%) had sama agni, 15 (15%) had tikshna agni.

Table 2 shows that Fisher Exact test revealed a significant association of male and female participants with three questions of B-APQ. Table 3 shows that no significant association was found between vata, pitta, kapha dominant *prakriti* with individual B-APQ by applying independent-samples Kruskal-Wallis test.

Discussion

The primary objective of this study was to analyse the association of self-perception of premature ageing among positive self-B-APQ participants and *prakriti*. In this study, 100 positive self-B-APQ participants were enrolled who were normotensive on examination. The assessment of *prakriti* was done by using a validated *Prakriti* Analysis Pro forma developed by the Central Council for Research in Ayurvedic Sciences (CCRAS), New Delhi. Regarding the assessment of *prakriti*, the dominant *prakriti* was considered to be the *prakriti* of that person. Three dominant *prakriti* i.e., vata, pitta, kapha *prakriti* were taken to analyse the association of *prakriti* and self-perception of ageing. As per descriptive analysis, ageing was more associated with vata *prakriti*, (58, 58%). Vata *prakriti* individuals are more vulnerable towards self-perception of premature ageing as per B-APQ. A significant association of male and female participants was found with three questions of B-APQ by applying Fisher Exact test. There is a gradual diminution in the qualities of dhatu and the dominance of vata during this age.[18] Independent samples Kruskal-Wallis test showed no significant association between vata, pita, kapha *prakriti* and individual B-APQ. The distribution of individual B-APQ was the same across all categories of *prakriti*.

Recommendation

The following points can be taken for future consideration:

1. A case-control study based on all seven *prakriti* with B-APQ can be conducted in future.
2. In this study, no association was found between age distribution (31 to 40 years) and self-perception of premature ageing. This may be due to a non-homogenous age group. So, age criteria can be narrowed down to obtain homogenous data.
3. Ageing is a natural phenomenon which we cannot control but self-perception of premature ageing can be controlled by following proper ahar (food), vihar (lifestyle), aushadhi (medicine).

Conclusion

Without arriving at some conclusions in any study, it would not be successful in its aims. *Prakriti* and ageing both are natural phenomena as well as occur essentially and naturally. Vata *prakriti* individuals are more prone to self-perception of premature ageing. They should take important measures to control self-perception of premature ageing. A statistically significant association of male and female participants was found with three questions of B-APQ by applying Fisher Exact test. No significant association was found between vata, pita, kapha *prakriti* and individual B-APQ by applying independent samples Kruskal-Wallis test indicating no significant difference in self-perception of ageing among different *prakriti*. This can be because only participants positive for self-perception of premature ageing were enrolled in the study. The distribution of individual B-APQ was the same across all categories of *prakriti*.

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