



## DOSHA PRAKOPA NIDANA EVALUATION QUESTIONNAIRE DESIGNING AND VALIDATION

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### ABSTRACT

*Ayurveda* is time tested and effective since centuries and a health system of choice due to its fundamental principles and methods of research inculcated in *Ayurveda* texts. With advent of time the life style, method of education, environment etc has changed including the research methodology. To make *Ayurveda* easily acceptable, as per the current trends in research, a review of previously proved fundamentals of *Ayurveda* in line with currently followed method of research is essential to achieve easy application in field of clinical research. Five step process of designing and validation of questionnaire ensure a research tool for clinical research. Although diseases like Polycystic Ovarian Syndrome is an endocrine disorder known as hyperandrogenic state along with genetic factors. It is now increasingly perceived as disorder of changed life style. Hence evaluation of *Dosha Prakopa Nidana* finds merit.

**KEY WORDS:** Questionnaire Designing and Validation, *Dosha Prakopa Nidana*, *Ayurveda*.

### INTRODUCTION

*Nidana* are the key factors that cause *dosha prakopa* to initiate the disease process. The *ahara*, *vihara*, *manasika* and *anya* factors in the form of *doshaja nidana* trigger the manifestations of the disease. Hence *dosha* involved in pathogenesis can be evaluated by knowledge of *nidana*, paving way for better understanding of *dosha* involved, aiding in *sampraphi vigatana*, to avoid manifestation of diseases. Manifestation of disease is not possible without *dosha Prakopa* and *dosha Dushya sammurchana*. *Dosha Vaishamya*, particularly *Dosha Prakopa* is an important step in manifestation of pathology and understood by evaluating the *nidana*.

### MATERIALS AND METHODS

Questionnaire developing based on classical reference on *Dosha Prakopa nidana*, followed by validation by methods of research. Basically validation of questionnaire involves Five Steps 1. Preparation of questionnaire 2. Expert validity –taking the suggestions of subject experts for Content validity, to check the content of questionnaire, this is done by experts or authority persons 3. Construct validity – checked by Reliability tests 4. Face validity- Pilot study 5. Final reforming of questionnaire.

### RESULT AND DISCUSSION

Validation of Questionnaire for reliability and consistency carried out with the following steps;

- 1: Preparation of questionnaire
- 2: Expert validation
- 3: Cronbach's alpha and Principle Component Analysis
- 4: Pilot Study
- 5: Final reforming the Questionnaire.

#### 1. Preparation of the Questionnaire

A preliminary list of items related to *Dosha prakopa nidana* were prepared according to *Astanga Hridaya*, *Astanga Sangraha*, *Sushruta samhita* and *Madhava nidana* and same was converted into questions and two versions of questionnaires are prepared i.e. in English and Kannada language. This was followed by preliminary version of questionnaire with one hundred and nineteen items. The prepared questionnaire comprised of four Domains with *Ahara*, *Vihara*, *Manasika* and *Anya nidanas*. *Aharaja* domain contains four sub domains as *Rasa*, *Guna*, *Dravya* and Food pattern, and *Anya nidana* contains four sub-domains as *Panchakarma apacharaja*, *Roga-atि-karshana*, *Shonita Srava* and *Kalaja*. The items in the questionnaire were developed in such a way that it was understood and easily completed by patients aged between 15-45 years and it was designed to be self-administered. The respondents were given the option for recording their

responses in the form of 'Regularly = 3-4 times a week', 'Frequently = 1-2times per week', ' Sometimes1-2 times in a month', ' Occasional' and ' Never' with Duration= time of year of practising these habits, by recording a check mark in the respective column provided for the purpose.

## 2. Expert validation

Expert validation was conducted to explore opinions about the positive and negative aspects of questionnaire and give expert suggestions. Thirteen experts were given the questionnaire containing one hundred and nineteen questions with option as Essential, Useful but not essential, not necessary graded as 2, 1, 0 respectively for each question and their suggestions were noted. Cronbach alpha scale was tested for one hundred and nineteen questions as a whole. Two in *ahara* domain-sub domain *Dravya bisa/shaaluka*, *Karira* and *Kalaja* sub domain as a whole in *anya nidana* was removed. One hundred sixteen items was finalised based on results of suggestions of experts and cronbach's alpha. The data analysis was done using the software 'Statistical Package for Social Sciences', Version 23 (SPSS IBM).

## 3. Cronbach's alpha

While validating the scales, value of alpha greater than 0.7 is accepted, value of Alpha greater than Cronbach's coefficient alpha, then corresponding item were deleted. For expert validation Cronbach alpha value was 0.982, three questions were removed, Two in sub domain-*Dravya bisa/shaaluka*, *Karira* and sub domain *Kalaja* as a whole was removed.

For Pilot study Cronbach alpha scale tested for one hundred and sixteen questions as a whole. Alpha value was 0.908, which is acceptable. All the items were significant, no question were removed.

## Principle Component Analysis

Principle Component Analysis was done for each sub domain; "Kaiser-Meyer-Olkin measure of sampling adequacy" is above 0.4 in all sub domains.

## 4. Pilot Study

The self administered questionnaire was distributed to 30 in-patients of Sri Dharmasthala Manjunatheshwara College of Ayurveda and Hospital, Hassan, for pilot study during the month of April - May, 2019. Patients were given 24 hours time to complete the questionnaire. Cronbach alpha scale tested for one hundred and sixteen questions as a whole.

## 5. Final reforming the Questionnaire

Final questionnaire contains one hundred and sixteen questions, the questionnaire also contain a copy of confidentiality agreement and brief history of patient. Confidentiality agreement stating the purpose of the study and assuring strict confidentiality of the respondents and the respondents were also asked to furnish demographic details about their age, gender etc. After pilot study on thirty patients, Cronbach's Alpha value was 0.908 considered to be acceptable. All the items were significant and acceptable. Validated *Dosha prakopaka nidana* questionnaire is presented in Table 1.

**Table.No.1: Showing Validated *Dosha Prakopaka Nidana* Questionnaire.**

Instructions to fill								
Regularly (R)	3-4 times a week							
Frequently (F)	1-2times per week							
Sometimes (S)	1-2 times in a month							
Occasional (O)	Occasional							
Never (N)	Never							
Duration (D)	Since when you are practising these habits							
Item no.	Questions	Dosha	R	F	S	O	N	D
I. Domain: <i>Aharaja Nidana</i>								
I.I. Sub domain: <i>Rasa</i>								
1	How often do you consume food which is sweet in taste? ( <i>madura rasa pradhana</i> )	K						
2	How often do you consume food which is sour in taste ?( <i>amla rasa pradhana</i> )	K P						
3	How often do you consume food which is salty in taste? ( <i>lavana rasa pradhana</i> )	K P						
4	How often do you consume food which is pungent/spicy in taste? ( <i>katu rasa pradhana</i> )	V P						
5	How often do you consume food which is bitter in taste? ( <i>tikta rasa pradhana</i> )	V						
6	How often do you consume food which is astringent in taste? ( <i>kashaya rasa pradhana</i> )	V						

<b>I.2. Sub domain: Guna</b>						
7	How often do you consume items that are light for digestion like rice gruel, butter milk, soup of cereals and pulses? Any other? ( <i>laghu</i> )	V P				
8	Do you consume food items that are cold in nature? ( <i>sheeta</i> )	VK				
9	How often do you consume food items that can causes constipation like bitten rice, bottle gourd, pumpkin, spoiled milk, cold food items ? Any other? ( <i>vishambhi</i> )	V				
10	How often do you consume food items that are hot in nature? ( <i>ushna</i> )	P				
11	How often do you observe symptoms like burning sensation in chest, epigastrum and throat, Sour belching when you consume certain food items? ( <i>Vidhahi</i> )	P				
12	How often do you consume food items that are oily in nature? ( <i>snigdha</i> )	K				
13.	How often do you consume food items that are heavy for digestion like Non vegetarian food, food prepared from milk, newly harvested grains, Sesame seeds, black gram etc.? Any other? ( <i>guru</i> )	K				
<b>I.3. Sub domain: Dravya</b>						
14	How often you consume dried vegetable? ( <i>shuskashaka</i> )	V				
15	How often you consume dried meat? ( <i>shuskavallura</i> )	V				
16	How often you consume Green gram? ( <i>mudga</i> )	V				
17	How often you consume Masoor gram? ( <i>masoora</i> )	V				
18	How often you consume Bengal gram? ( <i>adaki</i> )	V				
19	How often you consume Barnyard millet? ( <i>shyamaka</i> )	V				
20	How often you consume Green peas? ( <i>harenu</i> )	V				
21	How often you consume Flat peas? ( <i>nispava</i> )	V P				
22	How often you consume Kesardal? ( <i>kalaya</i> )	V				
23	How often you consume Sprouts? ( <i>VirudaDhanya</i> )	V				
24	How often you consume Chick pea? ( <i>canaka</i> )	V				
25	How often you consume cereals? ( <i>katrunadhangya</i> )	V K				
26	How often you consume Watermelon? ( <i>kalinga</i> )	V				
27	How often you consume bottle gourd? ( <i>tumba</i> )	V				
28	How often you consume Snake gourd? ( <i>cirbita</i> )	V				
29	How often you consume Jamun fruit? ( <i>Jambawa</i> )	V				
30	How often you consume Sesame oil? ( <i>tilataila</i> )	P				
31	How often you consume Sesame paste? ( <i>Tilapinyaka- Tilakalka</i> )	P				
32	How often you consume Horse gram? ( <i>kulattha</i> )	P				
33	How often you consume Mustard? ( <i>Sarshapa</i> )	P				
34	How often you consume Green leafy vegetables? ( <i>HaritaShaka</i> )	P				
35	How often you consume Fish? ( <i>Matsya</i> )?	P				
36	How often you consume Goat/sheep meat? ( <i>Aja/AvikaMamsa</i> )?	P				
37	How often you consume Curds? ( <i>Dadhi</i> )	P				
38	How often you consume butter milk? ( <i>takra</i> )	P				
39	How often you consume whey? ( <i>Mastu</i> )	P				
40	How often you consume Black gram? ( <i>Masha</i> )	P K				
41	How often you consume Sour fruits? ( <i>amlaphala</i> )	P				
42	How often you consume fried condiments? ( <i>shandaki</i> )	P				
43	How often you consume Unripe mango and gooseberry? ( <i>ama, amrataka, amalaki</i> )	P				
44	How often you consume Pepper? ( <i>Maricha</i> )	P				
45	How often you consume Flax seeds? ( <i>atasi</i> )	P				
46	How often you consume alcohol? ( <i>madhya</i> )	P				
47	How often you consume fermented drinks? ( <i>suravikara</i> )	P				

48	How often you consume freshly harvested grains? ( <i>navanna</i> )	K						
49	How often you consume rice flour? ( <i>pistha</i> )	K						
50	How often you consume dates? ( <i>Kharjura</i> )	K						
51	How often you consume Coconut? ( <i>narikel</i> )	K						
52	How often you consume Beaten rice? ( <i>Pruthuka</i> )	K						
53	How often you consume un boiled milk? ( <i>amaksheera</i> )	K						
54	How often you consume milk? ( <i>ksheera</i> )	K						
55	How often you consume milk products? ( <i>ksheera vikara</i> )	K						
56	How often you consume Cow's milk within 7days of calved? ( <i>piyusha</i> )	K						
57	How often you consume sugarcane juice? ( <i>Ikshu rasa</i> )	K						
58	How often you consume half boiled sugarcane juice? ( <i>phanita</i> )	K						
59	How often you consume Jaggery? ( <i>guda</i> )	K						
60	How often you consume rice boiled with milk? ( <i>payasa</i> )	K						
61	How often you consume Barley? ( <i>Yavaka</i> )	K						
62	How often you consume Wheat? ( <i>godhuma</i> )	K						
63	How often you consume food prepared from Sesame flour? ( <i>tilapista</i> )	K						
64	How often you consume rice boiled with Black gram and Sesame? ( <i>krushara</i> )	K						
65	How often you consume <i>valliphala</i> ? ( <i>alabu, kushmand etc</i> )	K						

**I.4. Sub domain: Food pattern**

66	How often you do fasting? ( <i>anashana</i> )	V						
67	How often you prefer to consume food in less quantity? ( <i>alashana/langhana/pramitashana</i> )	V						
68	How often you drink water though you are hungry? ( <i>kshudhitaambupana</i> )	V						
69	How often you have food though you are thirsty? ( <i>tushitasana</i> )	V						
70	How often you consume less / more quantity of food at irregular intervals? ( <i>Vishamashana</i> )	P						
71	How often you consume food before the previous meals get digested? ( <i>adhyasana</i> )	K						
72	How often you consume compatible and incompatible food together? ( <i>Samashana</i> )	K						

**II. Domain: Viharaja Nidana**

73	How often you do excess exercise? ( <i>Vyayam</i> )	V						
74	How often you indulge in sexual activity? ( <i>vyavaya</i> )	V P						
75	Do you have habit of reading/ studying for long hours? ( <i>Adhyayana</i> )	V						
76	Do you have the habit of fast running? ( <i>pradhavana</i> )	V						
77	Do you have the history of injury? ( <i>abhigata</i> )							
78	Do you have the history of assault? ( <i>paraghata or balavadvighraha</i> )	V						
79	Do you have the history of falling from height? ( <i>prapatana</i> )	V						
80	Do you have the habit of travelling? ( <i>yaana</i> )	V						
81	Do you sleep on uncomfortable bedding? ( <i>dukhashayya</i> )	V						
82	Do you sit on uncomfortable seats? ( <i>dukhasana</i> )	V						
83	Do you indulge in excessive walking? ( <i>ati-adhva</i> )	V						
84	Do you carry heavy loads? ( <i>bharavahana</i> )	V						
85	How often you awake in nights? ( <i>Rathrijagarana</i> )	V						
86	Are you exposed to cold climate /snow/mist? ( <i>sheetaaavashyaya</i> )	V K						
87	Do you have the habit of swimming? ( <i>pratarana</i> )	V						
88	Do you indulge in excessive physical activities? ( <i>athichesta</i> )	V						
89	Do you have the habit of sitting and standing in abnormal postures? ( <i>Vishamashareera</i> )	V						
90	Do you have habit of suppressing natural urges? ( <i>vegadharana</i> )	V						

91	Do you have the habit of premature initiation of natural urges? ( <i>vegadeerana</i> )	V					
92	Do you have habit of sleeping day time? ( <i>divaswapna</i> )	V K					
93	Do you have habit of speaking in high pitch? ( <i>ucchabhashana</i> )	V					
94	Do you get exposed to sunlight? ( <i>atapasevana</i> )	P					
95	Do you get exposed to heat of fire? ( <i>agnisantapa</i> )	P					
96	Do you get exposed to dust? ( <i>raja sevana</i> )	P					
97	Do you get exposed to smoke? ( <i>dhuma sevana</i> )	P					
98	Do you have habit of sleeping soon after having food during day time? ( <i>bhuktamatra diwaswapna</i> )	K					
99	Do you have the habit of sleeping without pillow? ( <i>anupaadhana shayana</i> )	K					
100	Do you have sedentary life style? ( <i>avyayama</i> )	K					
101	Do you have habit of sleeping for more than required hours? ( <i>kaalathiswapna</i> )	K					
102	Do you have drinking large amount of water? ( <i>Atyambupana</i> )	K					
103	Do you have habit of drinking water at night? ( <i>Nishaambupana</i> )	K					
104	Do you have habit of suppressing vomiting? ( <i>Charddi Vighata</i> )	K					

**III. Domain: Manasika Nidana**

105	Do you become anxious? ( <i>udwega</i> )	V				
106	Do you become depressed? ( <i>shoka</i> )	V P				
107	Do you become worried? ( <i>chintha</i> )	V				
108	Do you have fear of anything? ( <i>bhaya</i> )	V P				
109	Do you often get anger? ( <i>Krodha</i> )	V P				
110	Do you often become jealous? ( <i>Irshya</i> )	P				
111	Do you have mental stress? ( <i>shrama</i> )	P				
112	Do you often feel happy? ( <i>harsha</i> )	K				
113	Do you become emotional? ( <i>utkantha</i> )	V				

**DOMAIN- IV Anyaja Nidana****ITEM NO 114 (Panchakarma Apacharaja)**

Did you underwent panchakarma therapies? yes      no      If yes,

Type of panchakarma	No. of times	Samyak yoga	Ayoga	Atiyoga	Dosha
Vamana					
Virechana					
Anuvasana basthi					
Asthapanas basthi					
Nasya					

**ITEM NO. 115 (Rogathikarshan and Dhatus Kshaya)**

Did you suffered from chronic illness? yes      no

A. If yes, specify the disease

B. Was there any debilitation? yes      no

Item no.	Question	Dosha
115	Rogatikarshana	Vata
	Dhatu kshaya	Vata

**ITEM NO. 116**Do you have history of *Shonitasravana*? yes      no      If yes,

Cause	No. of times	Complications	Dosha
Abhighata			Vata
Rakta mokshana			Vata

## CONCLUSION

Information scattered in *Ayurveda* text on particular fundamental principles needs to be compiled and a method has to be devised for its application. One such method is questionnaire designing. Hence designing of questionnaire and its validation is of paramount importance in *Ayurveda anusandhana*. Questionnaires are the most commonly used tool in survey research. Questionnaires should produce valid and reliable demographic variable measures. A questionnaire is valid if what it measures is what it had originally planned to measure. These self-report scales, which are usually presented in questionnaire form, are one of the most used instruments in psychology and observational studies, and thus it is important that the measures be constructed carefully, while also being reliable and valid. The way that a question is phrased can have a large impact on how a research participant will answer the question. The vocabulary of the questions should be very simple and direct, sensitive questions which are very personal to the patients should be framed well and consciously. Order of questions should be arranged in such a way that respondent feel interest in answering and to catch the respondent's attention. Then reliability test should be carried based on response of subjects.

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