



DESIGNING AND VALIDATION OF DOSHA VRUDDHI KSHAYA SCALE (SDVK SCALE)

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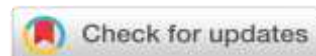
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ABSTRACT

The concept of *Dosha Vruddhi* and *Kshaya* in *Ayurveda* is intricate. It revolves around the balance of three *Doshas*: *Vata*, *pitta*, and *Kapha*. These biological entities are fundamental to the body's constitution, and their equilibrium is essential for maintaining health. *Dosha Vruddhi* refers to an increase or aggravation of *Doshas*. At the same time, *Dosha Kshaya* indicates a decreased or diminished state. Both states can lead to health issues. And the *Doshas* can vitiate themselves, and it vitiates other entities like *Dhatus* and *Malas*. It helps treat the patients early, so this study has been conducted to prepare the *Dosha Vruddhi Kshaya* Scale.

Aim & Objectives: This study aims to design and validate the *Dosha Vruddhi Kshaya* Scale (SDVK Scale) in 100 healthy individuals.

Design: A Cross-Sectional Survey Study.

Methods: The *Dosha Vruddhi Kshaya* Scale has been designed and validated by reliability tests like Face, Content, and Construct Validity. The reliability analysed by Cronbach's alpha coefficient, i.e. 0.752, and KMO Bartlett's test value is 0.529. The Exploratory Factor Analysis used Kaiser's criteria for extracting factors with Varimax rotation.

Results: *Dosha Vriddhi Kshaya Lakshana* reproduced the structure of the original face validity in this study sample. Content validity met the standards. Internal consistency was excellent, with KMO Bartlett's test value at 0.529 and Cronbach's alpha coefficient at 0.752, which is highly significant.

Conclusion: The *Dosha Vriddhi Kshaya* Scale is a valid and reliable instrument for assessing *Dosha Vriddhi Kshaya Lakshanas* in healthy individuals.

Keywords: Reliability, Validity, *Dosha Vriddhi Kshaya*.

INTRODUCTION

In *Ayurveda*, the concepts of *Dosha Vriddhi* and *Kshaya* are central to understand body's physiological balance and the pathogenesis of diseases.¹ *Doshas* are the three fundamental bio-energies—*Vata*, *Pitta*, and *Kapha*—that govern all bodily functions. They are responsible for creating, controlling, and maintaining various physiological processes.² *Dosha Vriddhi* refers to the increase or aggravation of *Doshas*. This can be quantitative (an increase in the amount of *Dosha*) or qualitative (an increase in the intensity of *Dosha's* properties). *Vriddhi* can lead to an excess state where the *Doshas* disturb the body's equilibrium, potentially causing various diseases.³ *Dosha Kshaya* is the opposite condition, where a decrease or diminution of *Doshas* occurs. Like *Vriddhi*, *Kshaya* can also be quantitative or qualitative. A decrease in *Doshas* can lead to a deficiency state, affecting the body's normal functioning and potentially leading to health issues.⁴ The balance (*Sthana*) of *Doshas* is the ideal state where they perform their functions optimally, maintaining health and well-being. Any deviation from this state—either *Vriddhi* or *Kshaya*—can disrupt homeostasis and lead to disease. Assessment of *Dosha Vriddhi* and *Kshaya* is crucial for diagnosing health conditions in *Ayurveda*. Practitioners look for specific signs and symptoms (*Lakshanas*) that indicate the altered state of *Doshas*. For instance, an increase in *Vata* might manifest as dry skin, while a decrease might show reduced mobility or constipation. The treatment in *Ayurveda* often involves restoring the balance of the *Doshas*. This can be achieved through various means, including dietary changes, herbal remedies, lifestyle adjustments, and *Panchakarma* therapies.⁵

Conversely, if the same individual experiences a decrease in *Vata* (*Kshaya*), they might feel sluggish movement, have a slower metabolism, and decrease their usual creativity and mental agility. This happens because the qualities of *Vata* are diminished, leading to a loss of its functional attributes in the body. In both cases, an *Ayurvedic* practitioner would assess the symptoms and suggest lifestyle and dietary changes to bring the *Dosha* back into balance, aiming for the state of *Sthana* (equilibrium) where the person feels healthy and the *Dosha* functions optimally. For *Vriddhi*, treatments might include moisturising and grounding practices, while for *Kshaya*, stimulating and warming practices could be recommended.⁶

MATERIALS AND METHODS

I. Designing the Dosha vriddhi kshaya lakshanas scale.

A questionnaire for evaluating *Dosha Vriddhi Kshaya* was created considering the lack of instruments for administering *Dosha vriddhi Kshaya Lakshanas* and its significance for health maintenance and disease treatment. The *Astanga Hrudya Samhita*, an authoritative *Ayurvedic* source, was thoroughly searched both printed and electronically for this, and the *Lakshanas* of *Dosha Vriddhi Kshaya* were considered when creating the questionnaire.

Research Questions:

To Design and validate the *Dosha Vriddhi Kshaya* scale (SDVK) based on the description of *Lakshanas* of the *Doshas* present.

Scale and response format:

The questionnaire was framed in a close-ended Likert format with five options for each question, i.e., Often, Sometimes, Rarely, Never, and I used gradings as

follows: 4 is Always, and three (3) is Often, 2 is Sometimes, 1 is Rarely, and Never was graded 0.

VALIDITY

Face validity

Face Validity is checking the tool for its validity on the face of it. The face validity is evaluated using the following questionnaire: Readability⁷, Clarity of wording, Layout and style, and Feasibility. Face validity indicates the questionnaire appears appropriate to the study purpose and content area. It is the weakest form of validity. It evaluates the appearance of the questionnaire in terms of feasibility, readability, consistency of style and formatting and the clarity of the language.⁸

Content Validation:

Content validation of any tool shows how well each item responds to the explored idea. A qualitative technique is generally used to test this. The content of the *Dosha Vriddhi Kshaya Lakshana* survey was confirmed by analysing the reference in the *Astanga Hrudaya Samhita*. *Ayurvedic* experts have further selected the variable and its measurement properties to ensure that it is a reliable way to determine the dominance of certain *Dosha* factors. Each *Ayurvedic* expert was administered a *Vriddhi Kshaya* Assessment Questionnaire and asked to indicate the extent to which each variable was valid for identifying the dominance of *Dosha Vriddhi Kshaya Lakshanas*. A decrease was found. Five out of five questions were given to the expert panel; the first two levels were finally included in the study.⁹

Construct Validation:

The expert panel examined each *Dosha Vriddhi Kshaya Lakshanas* Assessment Questionnaire question to perform the construct validity test. To find out the feasibility of the *Dosha Vriddhi & Kshaya* scale, the standard reference of *Astanga Hrudaya Samhita* for *Dosha Vriddhi Kshaya* was modified into 31 questions, and a panel of experts examined each question to see the feasibility of *Dosha Vriddhi Kshaya*¹⁰ using one standard clinical method. Methods, i.e. inspection and questioning. All the questions proved convincing in investigating them by asking what was achieved; after analysing

the scaled factor analysis test, KMO BARTETT TEST.¹¹ is used.

RELIABILITY:

Internal consistency:

Internal consistency is usually a measure based on correlations. Different items in the same test (or the same sub-scale in a more extensive test). It measures whether multiple items that purport to measure the same general construct procedure become similar. Internal consistency is usually measured using Cronbach's alpha, calculated from item pairwise correlations. Cronbach's alpha for each question ranges from 0.651 to 0.806, giving it acceptable internal consistency.

FACTOR ANALYSIS:

This is a general term for a group of methods used primarily to reduce and summarise data. The entire interdependent relationship is examined using factor analysis, an interdependence technique that does not distinguish between dependent and independent variables. The following situations require the use of factor analysis. A new, smaller set of uncorrelated variables is in the subsequent multivariate analysis. Defines underlying dimensions or factors that account for relationships between variables. Find a new, smaller set of uncorrelated variables to use in a multivariate analysis to replace the original correlated variables. It selects significant variables for subsequent multivariate analysis by narrowing down a more extensive set of variables. The selection of variables necessary to factor analysis importance is evaluated using the Kaiser-Meyer-Olkin (KMO) measure of sampling adequacy; a fold of 0.529 indicates that the analysis is appropriate. It is a general term for a set of techniques primarily for summarising and reducing data. Factor analysis should be used in the following scenarios. In the subsequent multivariate analysis, a new, smaller set of uncorrelated variables should be found to replace the original set of correlated variables. Determines the underlying dimensions or correlations of the influencing variables. Large population into a smaller population for use in subsequent multivariate analysis.

RESULTS:

Face validity:

The questionnaire was administered to 100 healthy subjects, and face validity was assessed based on word clarity, placement and style, and probability. The target group's ability to understand the questionnaire was also evaluated. All participants responded satisfactorily.

Content validity:

Ayurvedic experts again raised content validation issues. The clarity of the design and style of the questionnaire was assessed by giving the completed form to 100 healthy volunteers. The *Dosha Vruddhi*

Kshaya rating scale was studied by an expert panel so that the *Dosha Vruddhi Kshaya* rating could be applied using any standard clinical method, i.e. control or questionnaire. Content validity Factor analysis was performed to analyse the relationship between different sets of variables in the questionnaire. A correlation matrix was constructed, and the KMO coefficient above 0.6 was considered for the study. Reliability and Cronbach's Alpha Internal consistency shows Cronbach's alpha value of 0.752, which is excellent and reliable: feasibility, readability, consistency of style and formatting and the clarity of the language⁸.

Reliability Statistics:

| | |
|------------------|--------------|
| Cronbach's Alpha | No. of Items |
| 0.752 | 31 |

TABLE NO: 1 (TABLE SHOWING THE VALUE OF CRONBACH'S ALPHA)

Factor Analysis:

The **KMO Bartlett's Test** value is .529, and the value is 0.000, which is highly significant.

| | | |
|--|--------------------|----------|
| Kaiser-Meyer-Olkin measure of sampling Adequacy. | | .529 |
| Bartlett's Test of Sphericity def. | Approx. Chi-Square | 1140.916 |
| | | 465 |
| | Sig. | .000 |

TABLE NO: 2 (TABLE SHOWING THE VALUE OF KMO BARTLETT'S SCORE)

Descriptive Statistics:

| QUESTION NUMBER | MEAN | STD.DEVIATION | ANALYSIS N |
|-----------------|--------|---------------|------------|
| VKQN1 | 1.7400 | .73333 | 100 |
| VKQN2 | 1.7700 | 1.23791 | 100 |
| VKQN3 | .7900 | .97747 | 100 |
| VKQN4 | 1.4800 | .91541 | 100 |
| VKQN5 | 2.5100 | 1.11460 | 100 |
| VKQN6 | 1.3300 | 1.90226 | 100 |
| VKQN7 | .8000 | .93203 | 100 |
| VVQN1 | .3500 | .75712 | 100 |
| VVQN2 | 2.4000 | 1.12815 | 100 |
| VVQN3 | .9500 | .85723 | 100 |
| VVQN4 | .7200 | .89983 | 100 |
| VVQN5 | 1.1300 | 1.01160 | 100 |
| VVQN6 | 1.4100 | 1.06453 | 100 |
| VVQN7 | 1.3800 | 1.37642 | 100 |
| PKQN1 | 1.2600 | .86012 | 100 |
| PKQN2 | 1.1100 | 1.00398 | 100 |

| | | | |
|-------|--------|---------|-----|
| PKQN3 | 1.4600 | .83388 | 100 |
| PKQN4 | 1.0500 | .91425 | 100 |
| PVQN1 | 1.6600 | .84351 | 100 |
| PVQN2 | .4600 | .84591 | 100 |
| PVQN3 | 2.0600 | 1.05237 | 100 |
| PVQN4 | 1.9000 | 1.03962 | 100 |
| PVQN5 | 1.4600 | 1.10481 | 100 |
| KKQN1 | .9400 | 1.00323 | 100 |
| KKQN2 | 1.1400 | 1.06382 | 100 |
| KKQN3 | 1.2000 | .95346 | 100 |
| KKQN4 | .5600 | .71520 | 100 |
| KVQN1 | 1.4300 | .94554 | 100 |
| KVQN2 | 1.0700 | 1.01757 | 100 |
| KVQN3 | 1.7400 | 1.04078 | 100 |
| KVQN4 | 2.5000 | 1.13262 | 100 |

TABLE NO:3 (TABLE SHOWING THE VALUE OF DESCRIPTIVE STATISTICS)

DISCUSSION

The present study's design is considered as a lack of instruments to assess *Dosha Vriddhi Kshaya*. An essential tool for assessing health is the basic idea of *Dosha* in general and of *Dosha Vriddhi Kshaya* in particular. These basic ideas have been thoroughly explored through an introductory survey of *Ayurvedic* literature. Most of the properties listed in the old *Dosha Vriddhi Kshaya* texts are still valid. The healthy and unhealthy state plays a crucial role. After collecting and interviewing all the *Lakshanas*, a closed questionnaire was created; these questions were rated on a four-point Likert scale. The questionnaire was designed considering the following steps: research object, research question, answer format, tool creation and item testing. The questionnaire was prepared for *Vata Kshaya*, *Vata Vriddhi*, *Pitta Kshaya*, *Pitta Vriddhi*, *Kapha Kshaya*, and *Kapha Vriddhi*. The questionnaire was prepared only based on the *Lakshanas* explained in *Astanga Hrudaya*. Hence, the questionnaire had seven questions for each *Vata Kshaya* and *Vata Vriddhi*, *Pitta Kshaya* with four questions, followed by *Pitta Vriddhi* with five questions and *Kapha Kshaya* and *Kapha Vriddhi* with four questions each. The following were considered during the preparation of the survey. After sending the questionnaire to an expert in the subject to confirm the content, it was

established that it corresponds to the content being studied. The validity of the questionnaire was checked by ensuring that it was straight forward to understand. After conducting a construct validity analysis to determine its clinical applicability, it was found and demonstrated that the interview process easily accessed the *Dosha Vriddhi Kshaya*. Sampling was appropriate when factor analysis was performed using the Kaiser-Meyer-Olkin (KMO) measure. Cronbach's alpha was used to check internal consistency, and the results showed that it was statistically significant.

CONCLUSION

Assessing the *Dosha Vriddhi Kshaya Scale* is essential in determining healthy and diseased conditions and their effectiveness. There is a significant lacuna in accessing the *Dosha Vriddhi Kshaya* assessment of individuals, including how much percentage and how many days we can assess through this assessment. This is my very first attempt in this direction. An interview of an individual is concerned. An interview based on this questionnaire will serve as a practical and objective analysis of the scale of *Dosha Vriddhi Kshaya*.

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ANEXXURE :1

DESIGNING AND VALIDATION OF DOSHA VRUDDHI KSHAYA SCALE

INFORMED WRITTEN CONSENT

Name - _____ M/F _____ Age - _____ Years

1. I confirm that I have read & understood the information for the study & can ask the questions.

2. I understand that my participation in the study is voluntary & I am free to withdraw at any time, without giving any reason, without my medical care or legal rights being affected.

3. I understand that the sponsors of the clinical trial are working on the sponsor's behalf, and the ethical committee and regulatory authority will not need my permission to look at my health records that may be conducted about it, even if I withdraw from the trial. I agree to this access. However, I understand my identity will not be revealed in any information released to a third party or published.

4. I agree not to restrict any data or results from this study, provided such use is only for scientific purposes.

5. I agree to take part in this study.

Name & Signature

witness

Name & Signature

volunteer

Name & Signature

investigator

Place:

Date:

DR. BASAVANTHRAO POLICE PATIL

VATA KSHAYA

1. DO YOU FEEL BODY PAIN?

a) Never b) Rarely c) Sometimes d) Often e) Always

2. DO YOU SPEAK LESS COMPARED TO OTHERS?

a) Never b) Rarely c) Sometimes d) Often e) Always

3. WHETHER YOU FEEL LOSS OF SENSATION IN THE BODY PARTS?

a) Never b) Rarely c) Sometimes d) Often e) Always

4. DO YOU FEEL WEAK DIGESTIVE POWER?

a) Never b) Rarely c) Sometimes d) Often e) Always

5. DO YOU FEEL MORE SLEEP COMPARED TO OTHERS?

a) Never b) Rarely c) Sometimes d) Often e) Always

6. DO YOU FEEL COLDNESS OF BODY?

a) Never b) Rarely c) Sometimes d) Often e) Always

7. ARE YOU SUFFERING FROM COUGH AND BREATHLESSNESS?

a) Never b) Rarely c) Sometimes d) Often e) Always

VATA VRUDDHI

1. DO YOU HAVE BLACKISH DISCOLOURATION OF YOUR SKIN?

a) Never b) Rarely c) Sometimes d) Often e) Always

2. DO YOU LIKE HOT SUBSTANCE?

a) Never b) Rarely c) Sometimes d) Often e) Always

3. DO YOU FEEL DISTENSION OF ABDOMEN?

a) Never b) Rarely c) Sometimes d) Often e) Always

4. DO YOU FEEL TREMORS?

a) Never b) Rarely c) Sometimes d) Often e) Always

5. DO YOU FEEL CONSTIPATION?

a) Never b) Rarely c) Sometimes d) Often e) Always

6. DO YOU FEEL LOSS OF SLEEP?

a) Never b) Rarely c) Sometimes d) Often e) Always

7. DO YOU FEEL THIN COMPARED TO OTHERS?

a) Never b) Rarely c) Sometimes d) Often e) Always

PITTA KSHAYA

1. DO YOU FEEL A LOSS OF APPETITE?

a) Never b) Rarely c) Sometimes d) Often e) Always

2. DO YOU FEEL COLDNESS OF BODY?

a) Never b) Rarely c) Sometimes d) Often e) Always

3. DO YOU FEEL LOSS OF COMPLEXION?

a) Never b) Rarely c) Sometimes d) Often e) Always

4. DO YOU NOTICE DECREASED TEMPERATURE?

a) Never b) Rarely c) Sometimes d) Often e) Always

PITTA VRUDDHI

1. WHETHER YOUR PASSING YELLOWISH DISCOLOURATION OF URINE AND STOOL?

a) Never b) Rarely c) Sometimes d) Often e) Always

2. DO YOU HAVE YELLOWISH DISCOLOURATION OF EYES?

a) Never b) Rarely c) Sometimes d) Often e) Always

3. DO YOU FEEL HUNGRY FREQUENTLY?

a) Never b) Rarely c) Sometimes d) Often e) Always

4. DO YOU FEEL THIRSTY AND BURNING SENSATION?

a) Never b) Rarely c) Sometimes d) Often e) Always

5. DO YOU FEEL LOSS OF SLEEP?

a) Never b) Rarely c) Sometimes d) Often e) Always

KAPHA KSHAYA

1.DO YOU FEEL GIDDINESS?

a) Never b) Rarely c) Sometimes d) Often e) Always

2.DO YOU FEEL LIGHTNESS OF BODY PARTS?

a) Never b) Rarely c) Sometimes d) Often e) Always

3.DO YOU FEEL PALPITATION?

a) Never b) Rarely c) Sometimes d) Often e) Always

4.DO YOU FEEL LOOSENESS OF JOINTS?

a) Never b) Rarely c) Sometimes d) Often e) Always

KAPHA VRUDDHI

1.DO YOU FEEL REDUCED APPETITE?

a) Never b) Rarely c) Sometimes d) Often e) Always

2.DO YOU FEEL EXCESSIVE SALIVATION?

a) Never b) Rarely c) Sometimes d) Often e) Always

3.DO YOU FEEL HEAVINESS OF THE BODY?

a) Never b) Rarely c) Sometimes d) Often e) Always

4.DO YOU FEEL MORESLEEPY?

a) Never b) Rarely c) Sometimes d) Often e) Always

SCORES:

NEVER:0 RARELY:1 SOMETIMES:2 OFTEN:3 ALWAYS:4