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Clinical Assessment Scales For The Kostha

Neera Saini¹, Pradeep Kumar Pal², Shukla S K³, Rakesh Kumar Singh⁴, Byadgi P S^{*5}¹Department of Roga-Nidana avum Vikriti Vigyan, Vijay Ayurvedic Medical College, Kaithi, Varanasi, UP, India²Department of Rachana Sharir, Faculty of Ayurveda, IMS, BHU, Varanasi, UP, India³Department of Gastroenterology, IMS, BHU, Varanasi, UP, India⁴Department of Shalaky Tantra, Vijay Ayurvedic Medical College Hospital and Research Centre, Bhandaha Kala, Kaithi Varanasi, Uttar Pradesh – 221116, India⁵Department of Vikriti Vigyan, Faculty of Ayurveda, IMS, BHU, Varanasi, UP, India

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ABSTRACT

The present clinical study is planned to develop a scale to assess the *Kostha*. *Kostha* is accredited in the scriptures as *Mahasrotas* (the great channel), *Sharira Madhya* (central section of the body), *Mahanimna* (the inmost part of the body) and *Amapakvashaya* (stomach and intestines). The term *Kostha* is expressed in the context of bowel habit and clinically it is classified into three types *Mridu*, *Madhyama* and *Krura*. Regarding the assessment of *Kostha*.i.e. bowel habit should be examined considering the frequency, consistency, straining during defecation etc. Randomly 60 healthy cases were registered for the assessment of *Kostha*. A self developed 10-items was introduced earlier and 9-items in the final scale. Mean, Median, Standard deviation, higher and lower values etc. of total score were calculated. The reliability of the scale was calculated by administering Cronbach-alpha, was found 0.835, indicating higher reliability of the test. Construct validity of the test was determined by finding coefficient of correlation between scores and reliability of the scores. It was found 0.913 & it indicates higher validity.

*Corresponding Author

Name: Byadgi P S
 Phone: 9450711759
 Email: psbyadgi@gmail.com

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INTRODUCTION

Kostha is derived from the word “Kush Dahe” Dhatu, means in which digestion occurs is identified as *Kostha* (Lal, n d). *Kostha* is also one of the pathway of diseases and is known as internal pathway of diseases (Sharma and B, 2014e). Although the concept

of *Kostha* is described in many places, clinically it is classified into three type's .i.e. *Mridu* (soft bowel), *Madhyama* (normal bowel) and *Krura* (hard bowel) in the context of *Samshodhana* (purification therapy) as *Snehana* (oleation), *Virechana* etc. According to some Acharya, *Kostha* is of four types e.g. *Mridu*, *Madhyama*, *Sama* and *Krura* (Sharma and B, 2014f). Clinically the term *Kostha* is expressed in the context of bowel habit and it mostly depends on individual's *Prakriti* (constitution of body). That's why for the assessment of *Kostha* bowel habit should be examined considering frequency, consistency, straining during defecation, required more time for proper defecation, feeling of lightness, satisfaction etc. prior encounters of diarrhoea and constipation and earlier experiences of purgatives and laxatives (Sharma and B, 2014a).

Need of questionnaire

During the study, the problem in assessment of *Kostha*, is usually encountered. Due to lack

Table 1: Scales for Kostha assessment

S.N.	Items	Mridu Kostha	Madhyama Kostha	Krura Kostha	Cronbach's alpha
1.	Do you pass stool regularly	2-3 times/day	Once a day	No	0.831
2.	What is usual nature of stool	Semi formed (slightly loose)	Formed stool	Hard and dry	0.805
3.	Do you feel lightness after passing of stool	Yes	Yes	No	0.804
4.	Do you need straining during defecation	Easy defecation	Required minimal strain	Required more strain	0.804
5.	What is usual time for proper defecation	Up to five minutes	5 to 15 minutes	More than 15 minutes	0.825
6.	Do you feel satisfaction after defecation	Yes	Yes	No	0.817
7.	Whether do you take purgatives	Not at all	Occasionally	Regularly	0.824
8.	Do you have history of watery stool due to hot drinks, tea etc.	Usually	Sometimes	No	0.817
9.	Effect of milk intake on bowel habit	Loose motion	Slightly loose stool.	No effect	0.834

Table 2: Cronbach's alpha reliability of the selected questions after item analysis (Reliability, Validity and other Statistical Analysis of Kostha)

S No	Cronbach's alpha	Statistical Analysis data
1	Reliability	0.835
2	Validity	0.913
3	Mean	7.49
4	Standard deviation	3.23
5	Median	8.00
6	Minimum	.00
7	Maximum	14
8	Range	14
9	Variance	10.44
10	Interquartile range	4.00

of appropriate questionnaires for the assessment of *Kostha*, it is very difficult to identify various types. Hence the questionnaires were designed to assess the *Kostha*. There aren't validated and standard questionnaire of *Kostha* available. *Kostha* is assessed based on gastrointestinal system motility and bowel habit. It is important to understand because it helps to plan the appropriate therapeutics based on *Kostha* variety and it also helps the individuals to adopt lifestyle according to nature of *Kostha* (Sharma and B, 2014g; R.K, 2014).

Design of questionnaire

The questionnaire was developed after studying the characters of *Kostha* present in *Ayurvedic Samhita* (Sharma and B, 2014b,c), published articles (Vasant et al., 2008) and other text books. Further to this study, each character of *Kostha* questionnaire was validated. The questionnaire was designed in such a way that each trait was converted into simple form keeping the original idea intact. Each question/trait was allocated equal marks for *Kostha* assessment. Total 9 questions were designed in

Kostha assessment questionnaire. One has to simply read the question and has to assess the trait in him/her and has to allocate the marks likewise at the end, one can calculate the scores for different types of Kostha (Sharma and B, 2014d; Atridev, 2009).

Process of Validation of the questionnaire

New questionnaires were designed by Byadgi, Saini et al, therefore its validation is necessary.

Determining Validity Experimentally

The validity of a test is determined experimentally by finding the correlation between the test and some independent criteria. A criterion may be an objective measure of performance, or a qualitative measure such as a judgement of the character or excellence of work done (Anastasi, 1982). A trade test may be validated against time taken to carry out standard operations, amount done in a given time or excellence of work. A high correlation between a test and a criterion is, evidence of validity provided (1) the criterion was set up independently and (2) both the test and criterion are reliable. The index of reliability is sometimes taken as measure of validity (Bland and A, 1997). The correlation coefficient, it will be recalled, gives the relationship between obtained scores and their theoretical true counterparts. If the reliability coefficient of a test is 0.81, for example $r_{1\infty}$ is $\sqrt{0.81}$ or 0.90. This means that the test measures true ability to the extent expressed by an r of 0.90 (David, 2015; Ben_Porath et al., 1989).

Test for Reliability/Consistency

The data was fed on to the computer using the software 'Statistical Package for Social Sciences (SPSS)' (Version 16.0). For the conversion of responses into numerical format, positive response for *Krura Kostha* feature was incorporated as "0" for all 9 questions, for *MadhyamaKostha* feature was incorporated as "1" and for *Mridu Kostha* feature was incorporated as "2" for 7 questions. In question no. 3 and 6 positive responses for either *Madhyama Kostha* or *Mridu Kostha* feature was incorporated as "1". *Kostha* was assessed as *Krura*, *Mridu* and *Madhyama*. *Kostha* was assessed as having at least 5 or more than 5 traits of a particular type of *Kostha*.

Reliability test in form of Cronbach's coefficient Alpha was carried out after Item Analysis and Correlation. This was done to find out the correlation between the respective item and total sum score and the internal consistency of the scale if the respective item would be deleted.

$$\text{Cronbach's Alpha} = \frac{N \cdot \bar{c}}{\bar{v} + (N-1) \cdot \bar{c}}$$

N= Number of items

\bar{c} = Average inter item covariance among items

\bar{v} = Average variance

For the validation of scale, value of alpha greater than 0.7 was considered acceptable.

The Pilot Study

An initial administration of the scale (Table 1) utilized 60 volunteer subjects ranging from age 16 and above. Ninety percent of the scores were indicative of satisfaction. Majority of scores being high and indicative satisfaction. Item analysis of data obtained in this pilot study administration indicated that one item was to be discarded.

The Final Study

After a scale is developed and its reliability and validity are established, its research practicality must also be demonstrated. One indication of its proper development should be that it will function appropriately when used as intended. So finally 9 items were administered to a group of 60 volunteer living in of Varanasi. Result of this study indicated that, in general, items correlated well with the total scale, that there was a very high level of internal consistency.

As the above Table 2 of *Kostha* shows the value of "Alpha if item deleted" is not much altering resultant Cronbach's Alpha of *Kostha* (.835). Cronbach's Alpha of near to 0.8, that shows its good consistency/reliability.

CONCLUSIONS

Reliable and valid scales were needed to assess the *kostha*. Hence questionnaire was developed in the form of scale for the purpose of assessing *Kostha*. It was administered to a total of 60 subjects. The scale was proved to be of sufficient reliability and of high internal consistency.

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