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Reliability of self-reported constitutional questionnaires in Ayurveda diagnosis

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ABSTRACT

Background: Ayurveda is one of the most ancient and widely practiced forms of medicine today, along with Traditional Chinese Medicine. It consists of determining an individual's constitution or *Prakriti* and current imbalance(s) through the use of multimodal approaches. Ayurveda practitioners may choose to include either a self-reported or structured interview constitutional questionnaire as part of the *Prakriti* assessment. Currently, there is no standardized or validated self-reported constitutional questionnaire tool employed by Ayurveda physicians or western Ayurveda educational institutions.

Objectives: To examine test-retest reliability of three self-administered constitutional questionnaires at a one month interval and internal consistency of items pertaining to a single constitution.

Materials and methods: Three constitutional questionnaires were administered online. 19 participants completed three questionnaires at two time points, one month apart. Age range was 21–62 years old with a mean age of 34. Of the 19, 5 were male and 14 female. *Vata*, *Pitta*, and *Kapha* scores obtained from each questionnaire were standardized to give a vector of three relative percentages, summing to 100. These percentages were further translated from numerical values to one of ten possible *dosha* diagnoses. **Results:** Analysis indicated that the three questionnaires had moderately good test-retest reliability according to numerical scores, but highly variable reliability according to discrete Ayurveda diagnosis. Internal consistency pertaining to individual constitutions within one questionnaire was poor for all three primary *doshas*, but especially for *Kapha*.

Conclusion: Further research is necessary to develop a reliable and standardized constitutional questionnaire.

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1. Introduction

The traditional Indian medical model known as Ayurveda is one of the most ancient and widely practiced forms of medicine today, along with Traditional Chinese Medicine. As demand in the western world for traditional medicine increases, there is a growing interest to ensure quality in training, research, and practice [1]. Treatment efficacy is the most prolific type of research in Ayurveda [1]; however there is little research examining reliability of the various diagnostic techniques upon which treatment prescription and efficacy depend. The Ayurveda diagnosis consists of determining an

individual's constitution and current imbalance(s) through the use of a multimodal approach including observation, physical exam, pulse diagnosis, and health history. Many Ayurveda physicians and western Ayurveda schools also employ some version of a constitutional questionnaire during the initial patient intake. These questionnaires are often made available online and are popular tools for self-diagnosis amongst the general public. They are not however, standardized or have evidence of validity. If included in the overall assessment, these questionnaires may impact diagnosis and long-term treatment recommendations. Research on their reliability and validity is therefore imperative.

According to the philosophy of Ayurveda, humans have physical and behavioral differences that are classified into one or more of three metabolic forces, or *doshas* [2]. These *doshas*, known as *vata*, *pitta*, and *kapha*, are the vital bioenergies responsible for promoting and sustaining the health of each individual. Each *dosha* comprises

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of five elements: earth, air, fire, water, and space. *Vata* is the combination of air and space, *pitta*- of fire and water, and *kapha*- of earth and fire.

An individual's specific *Prakriti* or constitution refers to the physical and behavioral qualities that remain stable throughout one's life [3]. Ayurveda considers seven *Prakriti* classifications, however, there are ten possible combinations depending on relative predominance of *dosha*: *vata*, *pitta*, *kapha*, *vata-pitta*, *pitta-vata*, *vata-kapha*, *kapha-vata*, *pitta-kapha*, *kapha-pitta*, or *Tridosha*; the *dosha* listed first being the more dominant of the two for an individual who is *Dvidoshic*. Each *Prakriti* classification describes the predominant *dosha*(s) that is likely to overpower the others, producing a certain set of characteristic physiologic imbalances. From an Ayurvedic point of view, knowing one's *Prakriti* enables a person to make educated lifestyle choices in order to minimize the effects of such inherent tendencies [4].

Vikriti on the other hand, is a term used to describe the changed condition of body, mind, and consciousness [4]. While *Prakriti* remains stable throughout one's life, *Vikriti* is a temporary state of imbalance of the *doshas*, constantly changing depending on one's lifestyle habits. It is imperative for the success of an Ayurveda treatment plan that the physician correctly diagnoses an individual's *Vikriti*; but, it is very helpful for the individual and the physician to know the underlying *Prakriti* or constitution as well as it can inform potential future imbalances, disease susceptibility, and long-term treatment plans [5,6]. When evaluating effectiveness of an Ayurveda prescription, for example, it is important to consider *Prakriti*. An appropriate constitutionally based prescription can enhance therapeutic effects and minimize adverse effects.

Traditionally, there are four methods of determining or diagnosing an individual's *Prakriti*: observation, physical exam, pulse diagnosis, and health history [4]. These methods used together are preferable to any used alone as individually, they may lead to bias in *Prakriti* diagnosis [7]. Several studies have examined reliability and validity of *Prakriti* diagnosis by way of various methods: pulse taking alone [1,6], interview-based or self-reporting questionnaires in combination and alone [8–10], and incorporating several of the diagnostic methods together [1,8,9]. To date, results of these studies have varied greatly, from low to moderate levels of reliability, and there is not a validated standard by which to compare one method to another.

Ayurveda practitioners may choose to include either a self-reported or structured interview constitutional questionnaire as part of the *Prakriti* assessment. At present, there is no standardized or validated self-reported constitutional questionnaire tool employed by Ayurveda physicians or western Ayurveda educational institutions. Rather, there are a wide variety of questionnaires, many of which are publicly available. It is our intention to contribute to the existing literature on examination of the reliability of self-reported constitutional questionnaires by investigating three publicly available questionnaires developed by two of the most well known western Ayurveda educational institutions and by a private international Ayurveda products company. We are unaware of any prior research investigating the reliability or validity of these specific self-reporting constitutional questionnaires. We chose these questionnaires as our starting point because these sources are easily available to the general public and influence western trained Ayurveda practitioners, leading many to employ these or very similar questionnaires in private medical practice. For purpose of this research, we have decided to focus solely on the subject of reliability of self-reported questionnaires without incorporating any other diagnostic methods (i.e. pulse, interview-style questionnaires) due to not having a validated standard by which to compare results.

Reliability refers to consistency and repeatability of outcome measures [1,11]. Test–retest reliability is used to assess consistency

of measures between two points set apart by a length of time. It is necessary to separate the two measures by an adequate amount of time so that results are not influenced by the observer's memory. Based on methods used to assess test–retest reliability for various other self-reporting diagnostic questionnaires [10,14–16], we chose a 1-month time period to ensure an adequate length of time before retesting.

Internal consistency reliability refers to consistency of responses across individual items within a test that intend to measure the same construct [1]. Here, it is a way of assessing the amount of agreement amongst questions that examine the *vata*, *pitta*, and *kapha* diagnoses. If, for example, a survey uses a number of questions to assess *vata dosha* – i.e., a high score on these questions is supposed to identify presence of *vata dosha* in the respondent – then we would expect there to be high levels of agreement between answers to these questions.

It is our hope that, by exploring the structure and reliability of various self-reporting questionnaires used by western Ayurveda institutions, we can contribute to development of a reliable and validated self-reporting constitutional questionnaire tool that can be shared widely by Ayurveda educational institutions and practitioners.

2. Materials and methods

Participants were recruited by two methods: 1) an email sent to the local naturopathic school's student body and 2) flyers posted on the school's campus and throughout the greater Portland area. Eligible participants (Table 1) were administered three Ayurveda constitutional questionnaires at two separate time points, one month apart, using REDCap [17], an online survey tool. Participants were able to access the questionnaires online from any computer with Internet access. They were given exactly one week to complete the questionnaires at each time point. All participants provided informed consent.

We studied three constitutional questionnaires used at prominent western Ayurveda educational institutions and made publicly available on their websites. Two questionnaires were developed by the institutions, while the other originated with an established private international Ayurveda products company.

Questionnaire 1 answer options were a degree of agreement on a scale from 0 to 6 (0 = does not apply, 3 = applies somewhat, 6 = applies most); items were grouped into sections labeled as relating to *vata*, *pitta*, or *kapha dosha*. Questionnaires 2 and 3 gave three distinct answers to each item, corresponding to the three *doshas* and labeled as V, P, and K (and therefore also not disguised).

None of the questionnaires assign a numerical scoring key nor is there an established guideline provided for in previous research.

Table 1
Inclusion/Exclusion criteria.

Subject inclusion criteria	<ul style="list-style-type: none"> • Adults 18+ years of age • Willingness to complete the three questionnaires online at two separate time points, one month apart • Access to a computer and internet • Ability to read and write in English
Subject exclusion criteria	<ul style="list-style-type: none"> • Self-reported history or current diagnosis of cognitive impairment that would reduce his or her ability to complete the questionnaires • Anyone who has previously completed an Ayurveda constitutional questionnaire and can recall his or her constitutional type. • Anyone who has previously been given an Ayurveda constitution (such as: <i>vata</i>, <i>pitta</i>, <i>kapha</i>, or any combination thereof) by a healthcare professional and can recall his or her constitutional type.

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