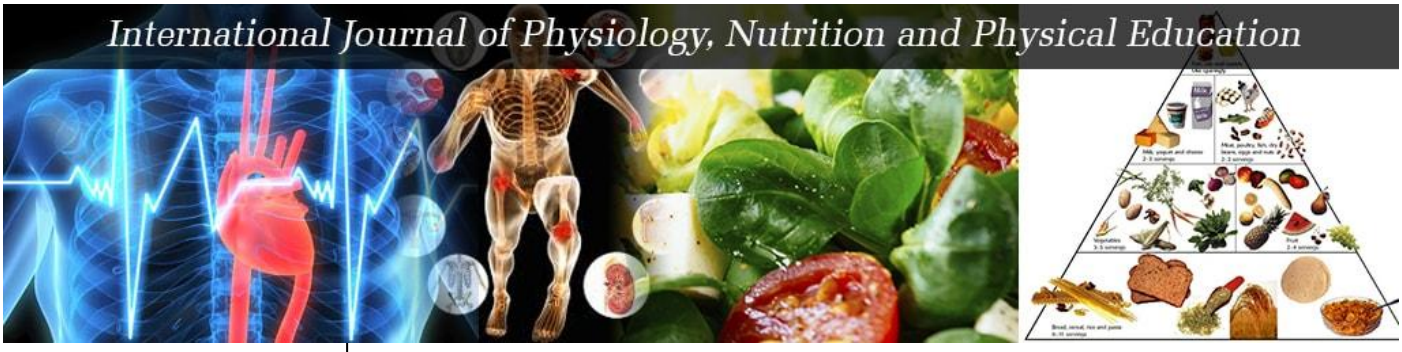


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**Sadhna Dadhore**
Ph.D., Research Scholar,
Department of Yoga Science,
University of Patanjali,
Haridwar, Uttarakhand, India

**G Paran Gowda**
Professor, Department of Yoga Science, University of Patanjali,
Haridwar, Uttarakhand, India

**Correspondence**
**Sadhna Dadhore**
Ph.D., Research Scholar,
Department of Yoga Science,
University of Patanjali,
Haridwar, Uttarakhand, India

# Conceptualizing dharana benefits of yoga to counter wandering state of mind

**Sadhna Dadhore and G Paran Gowda**

**Abstract**
*Dharana* yoga techniques are enshrined in the ancient Indian yoga text books. The main benefit of *Dharana* is deep concentration out of chaotic nature of mind resulting into multiple academic benefits or in advancing ones own carrier. In the present research work, the concept on *Dharana* Health Scale (DHS) has been developed based on these scriptures. A DHS was conceptualized, designed, developed, described and validated to counter the wandering state of mind. To test the scale, we randomly selected 799 adolescent participants. We used SPSS and AMOS *version* 25 exploratory and confirmatory factor analyses to develop a valid and reliable DHS. The developed DHS comprised standardized regression coefficients with 69.53% variance. Internal consistency of the scale measured by Cronbach 's alpha was found to be 0.96. Three different fitness categories of indexes comprising Absolute, Incremental and Parsimonious fits were also analysed and found to be acceptable within the limits.

**Keywords:** Dharana, mental health, psychometric properties, Instrumental study.

## 1. Introduction
Since the big bang theory of the universe, the most mystical and intriguing characteristic of human being is mind – even today it's wandering nature has left not only the psychologists but also the creators guessing what it is made up of?. Wang HT [1] in their latest studies brings about the complexities involved in heterogeneity wandering nature relation to psychological functioning. Looking from the positive angle [2] wonders that there could be additional benefits for creativity out of chaotic random behaviour of the mind. The creativity can give raise to innovative ideas with a flexible handle. It was found by Maillet D [3] that wandering nature of the mind reduces with age. The wandering frequencies of mind are calculated and discussed by the same authors. Weinstein Y [4] carried out a review of 377 articles [5] on mind wandering and also carried out an experimental work and found that there is no consensus as to how mind-wondering is measured with the exponential growth in output of the experiment on probe-caught method. Controlling the wandering mind [6] for overall propensity indexed by intermittent thought probes and levels of motivation indexed by subjective reports suggest the possibility of common monitoring system for measuring consciousness and also goals and tasks from wandering nature of mind. Clinical study [7] towards the experiments on pleasant subjects may have an impact on mind wandering populations. The wandering nature of mind especially in educational settings [8] of students may be little tougher and odd to get the better results. A late upsurge in R&D aspects of mind wanderings was carried out by Song X and Wang X [9] in unfolding the mystical nature of mind, in a positive sense reveals the fact a feeling of 'self' and prepare a person to challenge the upcoming events in one's life. More studies [10, 11, 12] emphasized on frequency calculations of wandering mind and found 15 to 50% values during the daily life events or at laboratory task. A controversial question about the loss of executive resources because of wandering nature of mind was studied [13, 14]. Another study carried out by [15, 16, 17] shows that negative emotions increases the wandering mind frequencies and cause for unhappiness of mind [10]. Berntsen D & Jacobsen AS [18]; D'Argembeau [19] A talks about the emotional valence of mind wandering and biasness of wandering quality [18] has received much attention. The goal of this paper is to understand and study the opposite of wandering quality of mind using dharana yoga method and develop a instrument for concentrated mind. In this direction, Telles [20] and her colleagues carried out experimental

Measurement of V wave frequencies which indicates opposite of wandering mind to dharana or concentrated state of mind or meditative focussing.

### 1.1 Conceptual development

In all the literature survey works mentioned above, points out that the nature of mind is wandering. This basic nature of mind was first explained in ancient Indian scripture Bhagavadgita [21] in the form of a simple aphorism; *na hi kashchit kshanam api jatu tishthatya karma-krit (*Not even a single moment mind can remain stationary and its always at work**).** Looking at the conceptual development of 'dharana', the sage Patanjali [22] declares that *deshah bandhah chittasya dharana* **(**focussing from the de-focussing mind is dharana**).** Sage Patannjali [23] further suggests the basic preparations in achieving the concentrated mind through 3 types of kriya yoga – meditation, self-studies, mindfulness [24]. Another concept of dharana was enumerated by sage Gheranda [25] as 'Pancha Dharana Mudra' which may be translated as concentrating the mind on five subtle (mooladhar, swadhishthan, manipur, anahat, vishuddhi) chakras inside the body. A reference frame is developed based on these two concepts of dharana (Fig.1).

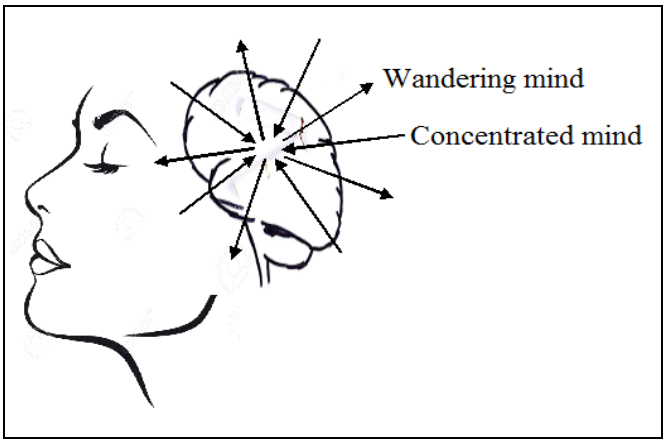


**Fig 1:** Frame of wandering mind vs concentrated mind

### Hypothesis

Our stated hypothesis is "Managing the wandering state of mind through Dharana yoga"

## 2. Methods

### 2.1 Sampling

A sample size of 799 individuals was selected based on convenient sampling basis. De Vellis RF [26] recommends a ratio of 1:15 or 1:20 as an ideal sample size. Learning from the literature, a sample size of greater than 200 was decided to ensure the sample adequacy. The study was conducted in Bhopal city of Madhya Pradesh state, India. An age group of the individuals were considered as the criterion for inclusion and adolescents aged between 10-18 years were included in the study. The individuals who consented to provide data were considered in the sample size selection. The data were collected from 5 April to 4 May 2018.

### 2.2 Procedures of scale development

Scale development is a systematic process that is carried out different stages. Following recommendations of De Vellis RF [26] and Pasquali L [27] scale development for the present study was accomplished in three stages namely item generation, theoretical analysis and psychometric analysis.

#### 2.2.1 Item Generation

Content domain was specified through review of literature related to dharana as specified in Patanjali yoga philosophy [28]. Among the eight limbs of yoga, the Dharana conceptual model (Fig.1) that relates beliefs with health and wellbeing [29, 30, 31] was considered to specify the content domain. The model comprises of benefits of dharana as the construct for scale development. Item pool generation provides a conceptual endorsement for the initial item pool [32]. The present research employed combination of deductive and inductive methods of initial item pool generation as recommended by Kapuscinski AN [33]. The researchers reviewed literature related to the Health Benefit Model, dharana and health to acquire basic comprehension about the concept and take leads for developing constructs and items. The researchers also interacted with experts in the fields of yoga science and obtained qualitative information regarding the content domain and objective of the research. The information was analyzed and related with the concept of dharana to generate pool initial items. As a result, 30 items were developed under the selected content domains. Items worded negatively for the construct were reverse coded and scored. Following the recommendations by DeVellis RF [26], Montero I [34] and Pasquali L [27] parameters such simplicity, clarity, specificity, capability to ensure variability of response and freeness from bias of the items were carefully considered while drafting the items.

#### 2.2.2 Theoretical analysis

**Content validity**

Content validity of the initial items was assessed to make sure that the items are representative of the identified construct i.e. dharana [19]. The researchers, in order to assess content validity of the initial items, clearly defined the conceptual framework (Fig.1) of yoga self-restraint by undertaking a thorough literature review and sought opinions from four experts in the field of yoga. The expert panel comprised of 4 experts; one Vedic philosophy expert from Texas, USA, another expert from alternative and complementary medicine, All India Institute of Medical Sciences, Rhishikesh, statistical expert and a psychology professor Sastra university, yoga expert from University of Patanjali, Haridwar, India. The experts assessed the relevance of items in relation to the content domain applying a tool namely Content Validity Index (CVI) developed by Waltz [35]. The experts rated each item against a four-point scale (1=Note relevant, 2= Some what relevant, 3=Quite relevant and 4=Highly relevant). A score of 3 or 4 indicates that the content represented by each item was considered valid and in harmony with the theory that is being measured and they are retained. The items which received score 1 or 2 were rejected from the scale indicates that the theoretically or practically irrelevant questions or any ambiguous items that apparently repeated the essential content of other items.

**Face validity**

Visual appearance of the tool such as consistency of the style, formatting, readability and feasibility as prescribed by DeVon HA [36] were tested by applying the initial level scale with 40 individuals. The respondents were asked to judge the user-friendliness of the tool. Feedback from the respondents was incorporated to improve the tool. This process was helpful to assess ambiguity and skewedness i.e. respondents providing very similar answer to all the items.

### 2.2.3 Psychometric analysis

The psychometric analysis involves a number of quantitative techniques to test construct validity and reliability of the scale. Construct validity according to Posak off PM [37] is the quantity to which interpretation can be meaningfully constructed from the observed scores to the hypothetical construct about which the observations are meant to hold information. In addition to construct validity, convergent validity, criterion validity and discriminant validity of the scale were tested quantitatively. De Vellis RF [26] strongly recommends the combined use of Exploratory Factor Analysis (EFA) and Confirmatory Factor Analysis (CFA) to achieve consistent results of the psychometric indices. Hence, these validity tests were done using EFA and CFA. Reliability, a quantification method producing the consistent results on recurring examinations [26] was measured in terms of indicators namely Cronbach Alpha, Spearman-Brown coefficient, composite reliability and average variance extraction. Concurrent validity was assessed by calculating the correlation between the scores of the present scale and an established scale namely Yoga Self Efficacy Scale [30].

### 2.3 Data collection and analysis

In these study the scale was with five options ranging from 'strongly disagree' (score 1) to 'strongly agree' (score 5). Each of the items in the scale is an agreement statement on the five point Likert scale [38], which is a quantitative technique meant for measuring psychological variables like attitude, perception, stress, beliefs etc. All the items in the scale were positively stated about dharana. The summated score of all the items was treated as the quantifiable measure of the construct and it was considered for all quantitative analytical purposes. All items included in the Likert scale were considered as continuous variables. The scale was prepared in English and Hindi to facilitate respondents' comprehension over the statements. The questionnaire was filled by the respondents. Factors are extracted and a factor structure including the correlation between the factors is proposed by EFA. The proposed factor structure is hypothesized and tested in CFA. It the statistical results fit with the hypothesized model the researcher can conclude that the factor structure is valid [39]. Hence, the study evaluated the scale using both EFA and CFA. IBM SPSS 25 software version was used to calculate descriptive statistics, correlation matrix, EFA and Cronbach Alpha value. IBM SPSS Amos 25 software version was used to perform CFA. Convergent validity was verified using the Average Variance Extracted, a statistic calculated from values of factor loads. Construct validity was assessed by computing model fitness indices namely p value of Chi square, RMSEA, GFI, AGFI, CFI, TLI, NFI and Chisq/df which were the outputs of confirmatory factor analysis. Discriminate validity was examined by measuring the level of redundancy of items through Modification Indices (MI).

## 3. Results

### 3.1 General characteristics of the sample

799 adolescents in the age group ranging 10 to 18 years were selected for the study to test the psychometric properties of the dharana scale. The group covers both male 398 (49.81) and female 401 (50.18%) populations. Among the total participants, 96.54% practiced dharana during the yoga classes lasting 40 minutes each class for a period of one month. The demographic details of the subjects are given in Table 1.

**Table 1:** Participant Characteristics

| Characteristics | Total (N = 799) | | Population | | | |
|---|---|---|---|---|---|---|
| | | | Male (N =398) | | Female (N = 401) | |
| | N | % | N | % | N | % |
| 10-12 years | 197 | 24.66 | 100 | 50.76 | 97 | 49.24 |
| 13-14 years | 202 | 25.28 | 99 | 49.00 | 103 | 50.99 |
| 15-16 Years | 199 | 24.91 | 102 | 51.26 | 97 | 48.74 |
| 17-18 Years | 201 | 25.16 | 97 | 48.26 | 104 | 51.74 |

### 3.2 Item generation

We developed the instrument for dharana on the lines of methodology given by Montero I & León OG [34]. As a result based on the conceptual frame work of dharana (Fig 1), 20 items were developed under the selected major content domain viz; dharana was generated as the initial pool of items.

### 3.3 Theoretical analysis

The initial item pool consisting of 30 items was vetted by four experts to assess the degree to which the items taken together constitute an adequate operational definition of a construct [35] i.e. content validity. The experts reviewed the initial item pool using a CVI rating tool. CVI was calculated following the recommendation of Waltz C [35]. The experts gave their rating individually. Then, for each item, the index was calculated as the number of experts giving a rating 3 or 4 and this was divided by total number of experts. The items for which the index was less than 0.75 were considered to be irrelevant eliminated from the original list. From the initial pool, 15 items on the draft dharana scale were deemed to be invalid because they yielded CVIs of 1/4=0.25 to 2/4=0.50 and were removed with CVI lower [40] than 0.75, All the remaining items were valid with CVIs ranging from 0.75 (3/4) to 1 (4/4) and were retained which resulted in a 15-item questionnaire. After modifying the scale based on rating by the experts, the scale was individually administered with 40 persons who regularly practiced dharana. Each statement was read out to the respondent and in reply, the respondent stated what he/she understood from the item. If the content what the respondent comprehended and what had been conceived by the researchers matched, the item would be considered to be qualified. If mismatch was identified, the researcher was asked, "Why did you mean the statement like this?" The response would uncover issues present in the items like vagueness, ambiguity, leading words/sentence, unfamiliar words, complicated sentence, closed ended statement, sensitive statement etc. Based on this information, statements were rephrased. The modified statements were once again read out to the respondent and feedback was received and accordingly modified. The 15 items developed after content validity testing and cognitive interviews with select respondents.

### 3.4 Psychometric analysis

#### 3.4.1 Exploratory factor analysis

The scale evolved after theoretical analysis with 15 items was administered to 799 participants. Exploratory factor analysis was conducted using the scores obtained from the survey. The Kaiser–Meyer-Olkin (KMO) measure was used to assess the sample adequacy and to prove the correlation matrix is an identity matrix Bartlett's Test of Sphericity is calculated. KMO value was 0.98 and it was significant ($p<0.001$). Bartlett's Test of Sphericity value which tests association between the variables was $\chi 2=10981.87$ and it was significant ($p<0.001$). Which were discussed in table 2.

**Table 2:** KMO and Bartlett's test of sphericity

| S. No. | Scales | Kaiser-Meyer-Olkin (KMO) Measure of Sampling Adequacy | Bartlett's Test of Sphericity | | |
|---|---|---|---|---|---|
| | | | Approx. Chi-Square | DF | Significant level |
| 1 | Dharana | 0.98 | 10981.87 | 105 | 0.0001 |

Principal Component Analysis method of factor extraction was used and one factor was extracted explaining 82.79 % of the total variance. Results of the Scree plot technique indicated extraction of one factor from the ten variables. Values of communalities ranged between 0.767 and 0.843. Factor loading measures ranged from 0.88 to 0.92. Since all the factor load values of all the ten variables were greater than 0.5, all of them were retained in the scale for next level confirmatory factor analysis. To undertake the most appropriate interpretation, the loading values were carefully examined using Hair [41] guideline for practical significance, which indicates a factor loading of ±0.3 for which the item is of minimal significance, ±0.4 indicates it is more important, and ±0.5 indicates the factor is significant. Table 3 shows variance contributed by each factor and their corresponding Eigen values.

**Table 3:** Exploratory factor analyses of 15-item dharana scale.

| Sl. No. | Domain/Item | factor loadings |
|---|---|---|
| 1 | Q1: My mind is focused. | 0.81 |
| 2 | Q2: Curious to see what mind was up to from moment to moment. | 0.83 |
| 3 | Q3: Performance increases with dharana. | 0.85 |
| 4 | Q4: Memory becomes sharp. | 0.85 |
| 5 | Q5: Analytical power enhances. | 0.85 |
| 6 | Q6: curious about my reactions to natural wandering state of mind. | 0.8 |
| 7 | Q7: Dharna improves cognitive nature of mind. | 0.8 |
| 8 | Q8: Dharna leads to personality development. | 0.81 |
| 9 | Q9: Dharna fulfills one's goal in the life. | 0.8 |
| 10 | Q10: focused energy is concentrated mind. | 0.84 |
| 11 | Q11: Watching the different wandering states of mind. | 0.81 |
| 12 | Q12: Dharna is attention of mind. | 0.82 |
| 13 | Q13: Experienced mental stability out of dharana practices. | 0.8 |
| 14 | Q14: Dharna brings wellness in life. | 0.82 |
| 15 | Q15: Dharna leads to meditation. | 0.84 |
| % of variance | | 69.53 |
| Cumulative % | | 69.53 |

**Note:** Extraction Method: Principal Component. Rotation Method: Vari max. Only factor loadings greater than. 40 are reported, in order to aid interpretation of the factor structure. Kaiser-Meyer-Olkin Measure of Sampling Adequacy: 0.98.

#### 3.4.2 Confirmatory factor analysis

The researchers conducted a CFA applying a structural equation modelling to test a hypothetically developed factor structure with one latent factor and 15 observed variables. The model obtained from confirmatory analysis is presented in Fig 2.

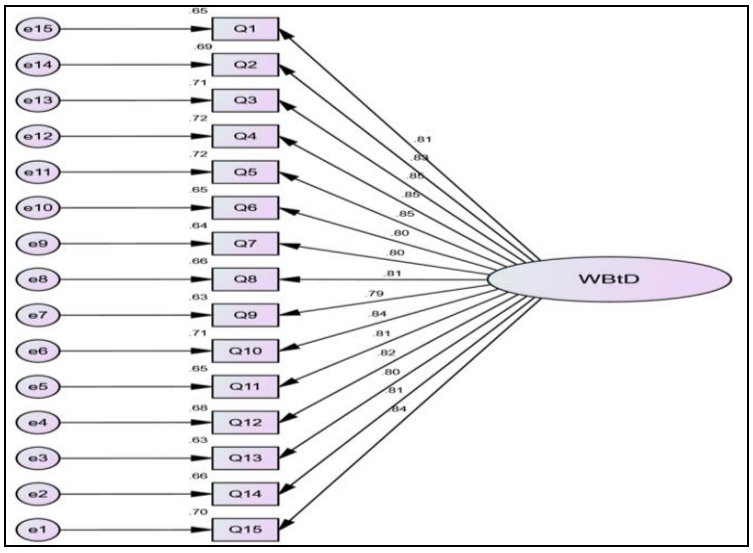


**Fig 2:** WBt Dr model produced by confirmatory analysis

The factor loadings for the 15 items obtained from the confirmatory analysis are given in Table 4.

**Table 4:** Factor loadings of the scale

| Item | Standardized Regression ( ≥ 0.5 ) |
|---|---|
| Q1: My mind is focused. | 0.81 |
| Q2: Curious to see what mind was up to from moment to moment? | 0.83 |
| Q3: Performance increases with dharana. | 0.85 |
| Q4: Memory becomes sharp. | 0.85 |
| Q5: Analytical power enhances. | 0.85 |
| Q6: curious about my reactions to natural wandering state of mind. | 0.8 |
| Q7: Dharna improves cognitive nature of mind. | 0.8 |
| Q8: Dharna leads to personality development. | 0.81 |
| Q9: Dharna fulfills one's goal in the life. | 0.79 |
| Q10: focused energy is concentrated mind. | 0.84 |
| Q11: Watching the different wandering states of mind. | 0.81 |
| Q12: Dharna is attention of mind. | 0.82 |
| Q13: Experienced mental stability out of dharana practices. | 0.8 |
| Q14: Dharna brings wellness in life. | 0.81 |
| Q15: : Dharna leads to meditation. | 0.84 |
| Regression coefficients | 0.82067 |
| CR ( ≥0.6 ) | 0.97 |
| AVE ( ≥0.5) | 0.67 |

### 3.5 Convergent validity

We performed three additional factor extractions to confirm the model structure, presented in Table 4. This table shows item quality (Chi-square), composite reliability (CR), and average variance extraction (AVE) were quantified to test convergent validity. Statistical significance of all the items in the model indicates presence of convergent validity. All factors had values of .50 or higher, demonstrating that the observed variable sufficiently reflected its construct's latent variable [42]. Factors with a CR of .97 were considered good [43], and the value of AVE was 0.67 for the scale under consideration.

**3.6 Construct validity:** In confirmatory factor analysis many indices of model fitness are used to test construct validity. Hair JF [44] recommends to use at least one index from model fit categories namely absolute fit, incremental fit and Parsimonious fit. Results obtained in the present study on model fitness indices are presented in Table 5. All three different fit indices minimum level was achieved [45]. The statistical fit indices improved immensely when both the one-factor and variables.

**Table 5:** Model fitness indices computed for the compared with acceptable levels

| Sl. no. | Name of category | Name of index | Accepted level | Study result |
|---|---|---|---|---|
| 1 | Incremental fit | Comparative Fit Index (CFI) | >0.90 | 0.98 |
| | | Tucker-Lewis Index (TLI) | >0.90 | 0.98 |
| | | Normed Fit Index (NFI) | >0.90 | 0.97 |
| | | Adjusted Goodness of Fit (AGFI) | >0.90 | 0.94 |
| 2 | Parsimonious fit | Chi Square/Degrees of Freedom (Chi-square/df) | df<3.0 | 3.33 |
| 3 | Absolute fit | Discrepancy Chi Square (Chi-square) | P>0.05 | 0.0001 |
| | | Root Mean Square of Error Approximation (RMSEA) | <0.08 | 0.05 |
| | | Goodness of Fit Index (GFI) | >0.90 | 0.96 |

**3.7 Concurrent validity:** A Yoga Self Efficacy Scale (YSES) developed by Birdee, GS [30] with 3 constructs and 12 items was selected to test concurrent validity of the present scale. YSES has been developed to measure self-efficacy among the practitioners of Yoga in American context. The tool has been evolved based on the theory of self-efficacy. YSES has robust internal consistency with Cronbach's alpha value of 0.93 and good construct validity measures. When the scale was administered in our study, it had Cronbach's alpha value of 0.87. The scores of the scale developed in the present study were correlated with YSES. Since the data were not normally distributed, non-parametric tool of association measurement namely Spearman's correlation coefficient was applied. Both the scores were positively correlated ($\rho$=0.87) and it was significant ($p<0.001$). Presence of criterion validity was proved due to positive and significant correlation coefficient between the newly developed scale and an established scale.

### 3.8 Reliability

Internal consistency of the 15-item scale was assessed by calculating Crohbach's alpha measure, Spearman Brown coefficient and composite reliability measure. The Crobbach's alpha value was 0.96 while studies suggest that above 0.7 suggest high levels of internal reliability [36]. Spearman-Brown coefficient of split half reliability was 0.966. Composite reliability measure was 0.97.

We also analyzed internal consistency reliability through inter-item correlations matrix (table 6). It is a measure of if individual questions on a test or questionnaire give consistent, appropriate results. The average inter-item correlation was found to be in the range from 0.609 to 0.751. All correlation values were 0.50 and above and thus demonstrating that the observed variables were consistent and appropriate [46].

**Table 6:** Inter-item correlations matrix

| Inter-Item Correlation Matrix | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | **Q1** | **Q2** | **Q3** | **Q4** | **Q5** | **Q6** | **Q7** | **Q8** | **Q9** | **Q10** | **Q11** | **Q12** | **Q13** | **Q14** | **Q15** |
| Q1 | 1 | | | | | | | | | | | | | | |
| Q2 | 0.654 | 1 | | | | | | | | | | | | | |
| Q3 | 0.649 | 0.711 | 1 | | | | | | | | | | | | |
| Q4 | 0.669 | 0.692 | 0.701 | 1 | | | | | | | | | | | |
| Q5 | 0.672 | 0.693 | 0.733 | 0.751 | 1 | | | | | | | | | | |
| Q6 | 0.613 | 0.665 | 0.655 | 0.706 | 0.697 | 1 | | | | | | | | | |
| Q7 | 0.724 | 0.65 | 0.699 | 0.659 | 0.667 | 0.629 | 1 | | | | | | | | |
| Q8 | 0.674 | 0.709 | 0.676 | 0.684 | 0.681 | 0.662 | 0.681 | 1 | | | | | | | |
| Q9 | 0.662 | 0.663 | 0.685 | 0.655 | 0.662 | 0.644 | 0.634 | 0.609 | 1 | | | | | | |
| Q10 | 0.706 | 0.728 | 0.715 | 0.732 | 0.686 | 0.677 | 0.669 | 0.647 | 0.652 | 1 | | | | | |
| Q11 | 0.645 | 0.698 | 0.689 | 0.658 | 0.689 | 0.622 | 0.649 | 0.637 | 0.713 | 0.649 | 1 | | | | |
| Q12 | 0.64 | 0.653 | 0.711 | 0.7 | 0.716 | 0.708 | 0.625 | 0.649 | 0.653 | 0.723 | 0.663 | 1 | | | |
| Q13 | 0.636 | 0.665 | 0.662 | 0.689 | 0.672 | 0.652 | 0.606 | 0.658 | 0.637 | 0.662 | 0.638 | 0.649 | 1 | | |
| Q14 | 0.665 | 0.682 | 0.694 | 0.656 | 0.729 | 0.63 | 0.662 | 0.669 | 0.602 | 0.688 | 0.657 | 0.667 | 0.661 | 1 | |
| Q15 | 0.683 | 0.669 | 0.707 | 0.733 | 0.693 | 0.681 | 0.66 | 0.683 | 0.684 | 0.707 | 0.673 | 0.689 | 0.68 | 0.694 | 1 |

**3.9 Test-retest reliability:** was carried out for a month's time, considering 300 participants. The Intra-class correlation coefficient (ICC), Cronbach's alpha and one-sample statistics was used to calculate the test-retest reliability. ICC for single measure was 0.656 and for average measures were 0.966 considered as an adequate reliability score [47]. The Overall scale reliability for the items was better, with Cronbach's alpha 0.97. These results confirmed that 15 items dharana scale has good stability. Test-retest analysis data mean 3.42 with t-value 65.72 were same over a month's time showed better consistency.

## 4. Discussion

Systematic steps as prescribed in the literature of psychometric research were adopted to develop this instrument. The dharana scale concept is developed based on Indian yoga philosophical texts with an extensive literature review (deductive method) and consulted with relevant people about the subject (inductive method) [48]. The initial item pool, which had 30 items got reduced to 15 items with five constructs at the end of the study. It has been validated and found to be reliable by using the psychometric analysis. The stated hypothesis that managing the wandering state of mind through Dharana yoga has been proved with final regression coefficient value (Table 4). It was calculated using EFA and CFA analytical techniques to assess the influence of dharana on mental health and wellbeing. In terms of scale's validity, reliability and factor structure of dharana Scale. The results of this study suggest that the dharana scale is providing an appropriate instrument for measuring the wellness among adolescents and support the factor structure, reliability, and validity of the measures. We identified one factor dharana scale as WBDr exhibited good internal reliability and constituted a model with a good fit (GoF) with the data. The research community, over the years, has developed a number of fit Indices to test the construct validity. The GoF Indices are categorized into three group's namely absolute fit indices, incremental fit indices and parsimonious fit indices. Absolute fit indices are a quantity of degree of fitness of the model to the empirical data. They offer the most fundamental measure of the fitness [41]. Goodness of Fit Index (GFI) is another absolute fit index. According to Tanaka JS & Huba GJ [49], GFI is equivalent to $R^2$ in regression analysis. In the lines of $R^2$ measure, for GFI also adjusted index is calculated (AGFI). Root Mean Square Error of Approximation (RMSEA) is a population based index and is less sensitive to sample size. Tucker Lewis Index (TLI) has values range between 0 and 1. Models with values close to 1 show better fit. Likewise, Normed Fit Index (NFI) values range from 0 to 1 and values above 0.90 indicate better fit [48]. According to Hair JF [41] a parsimonious model is significant to prove that the postulated model fits the data in comparison with a complex model. According to Wheaton, B [50] the ratio of Normed Chi square/df is reasonable. The ratio obtained in the present study was 3.67 and hence it could be inferred that the value is reasonable to judge that the model has parsimonious fitness. The results of this study suggest that the dharana scale is providing an appropriate instrument for measuring the wellness among adolescents and support the factor structure, reliability, and validity of the measures. The 15-item dharana scale is a short scale that can be administered both for general population and for school setting. The age appropriateness is compared with the adolescent psychiatry of the quality of life [51]. The psychometric quality of the dharana scale are generally comparable to the pattern matrix, goodness of fit and factor loadings of the CFA analysis carried out by Huang CH [52]. The dharana wellness scale is positively and significantly correlated with yoga self-efficacy scale to prove existence of concurrent validity.

## 5. Conclusion

The conceptualization of sixth limb of astanga yoga, 'dharana' paves the way for modern interpretation of the term in the language of deep concentration with diversified benefits to counter the wandering state of mind. A sample size of 799 participants were selected and administered with a 20 item questionnaire and tests were conducted using the latest version 25 statistical software tools SPSS and AMOS. The analysis resulted with a reduced 15 item dharana scale. The developed DHS comprised standardized regression coefficients with 69.53% variance. Overall reliability of the scale was found to be 0.96. The results of three different fitness categories of indexes comprising Absolute, Incremental and Parsimonious fits were also analysed and found to be acceptable within the limits. The multiple benefits of this study are like from wandering state of mind to a stable state, attentive mind, focussed mind leading to better memory recall etc. there is a scope for further study in relating the dharana state to mindfulness state of mind.

## 6. Acknowledgment

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**8. Conflict of interest**
Authors and co-author, declare that they have no conflict of interest.

**9. Author Contribution**
The main author is the administrative head and the remaining co-author contributed to the data analysis and its statistical interpretation.

**10. Compliance with Ethical Standards**
**Disclosure of potential conflict of interest:** Authors and co-author declare that they have no conflict of interest to this work.

**11. Research involving human participants and/or animals**: This article does not contain any studies with animals.

**11.1 Informed consent:** Informed consent was obtained from all individual participants included in the study.

**11.2 Informed consent: "**Informed consent was obtained from all individual participants in the study."

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