STUDY TO EVALUATE THE EFFICACY OF KUSHMANDA SHARKAR ON PERCEPTION (*DHEE*) IN CHILDREN

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ABSTRACT:

Acharya *Charak, Sushruta* & WHO definitions all gives so much importance to Mental health as well as physical health. *Dhee, Dhriti and Smriti* are types of *Pragya* (Wisdom). The term *Dhee* is derived /Intelligence). *Dhee* is the power of reasoning and provides the discriminative power of intellect '*Tatkaliki gyeya'* and thus the ability of correct judgement '*Nishchayatmika*' is obtained. It is responsible for real perception of knowledge. *Dhee* is one by which knowledge is obtained. It is considered as the causative factor for all the activities of the person. *Dhee* is responsible for conclusive knowledge. According to *chakrapani dhee* gives an initiation to work and to come to final conclusion after proper analysis. This has been stated by *Dalhana*, which means coming to final conclusion after proper reasoning and logic, is by means of *dhee* only. *Kushmanda* (bennincasa hispida), commonly known as *petha* is a medicinal herb used in many diseases. Ayurveda text describes *kushmanda* as *Cheto-vikaraghna* which means it is useful in mental disorders. It works as *Medhya Dravya* as described in *Priya Nighantu. Kushmanda* as an herb is loaded with Multiple benefits, hassle free, easily available, Side-effect free, and risk-free qualities and can be a very good and comparatively cost effective Cheaper mental health improver for children.

Key words: *Kushmanda, Sharkar, Dhee, Buddhi, Medhya*

➤ INTRODUCTION:

Research work is an essential way to bring the knowledge back into the streamline. The changes and evolutions that occurred from many generations are the proofs of developing skills of human mankind. From many years, human being has been developing several things to make life better but every branch or system of study needs time to time research work to make its knowledge more clarified and authentic. Ayurveda is a science of life, which is the only health system who gives more importance to improvement of health. The health definition according to Ayurveda and modern medical science have similarities. According to WHO Health is a state of complete physical, mental, social well-being and not merely the absence of disease or infirmity. Acharya *Charak, Sushruta* & WHO definitions all gives so much importance to Mental health as well as physical health. Ayurveda deals with physical, psychological, spiritual and social wellbeing of any individual. Being a health science with holistic approach, The Ayurveda takes mind as integral part of one's life and health. It clarifies the inter relation between body, mind and soul. In *Charak Samhita* describes *Sharir* (Body), *Atma* (Soul), and *Manas* (Mind) as *Tridand* (The three pole of life), each one of them they have very

important role in healthy human life. Human Body is the structural unit, Mind controls the connection of senses with their subjects, and *Atma* provides *Chetna* in the life. Between these three only *Sharir* and manas are the place for deformity.

Dhee, Dhriti and Smriti are types of *Pragya* (Wisdom). The term *Dhee* is derived /Intelligence). *Dhee* is the power of reasoning and provides the discriminative power of intellect '*Tatkaliki gyeya*' and thus the ability of correct judgement '*Nishchayatmika*' is obtained. The Term '*Dhee*' is derived from the root '*dhai bhave*' with the *pratyaya* '*qiup*' and by applying the sutra *'Hal'* it becomes *Dhee*. *Dhee* is the deciding factor of knowledge. It is responsible for real perception of knowledge. *Dhee* is one by which knowledge is obtained. It is considered as the causative factor for all the activities of the person. It is phenomenon which motivates the person to work in a particular fashion. *Dhee* is responsible for conclusive knowledge. According to *chakrapani dhee* gives an initiation to work and to come to final conclusion after proper analysis. This has been stated by *Dalhana*, which means coming to final conclusion after proper reasoning and logic, is by means of *dhee* only. Any derangement in *Dhee,Dhriti* And *Smriti'* leads to *pragya-aparaadha*, which is a main causative factor of diseases weather it is Mental or physical. Ayurveda classic texts have preached many ways to maintain and improve the *Dhee (Buddhi)* in the form of *Medhya Dravya. Medhya dravyas* are the group described in Ayurveda, which works on the improvement of *Dhee (Buddhi).*

Medhya drugs are such drugs, which are being used to improve the functions of *dhee* and the promotion of the mental health in healthy as well as in the diseased. Critical review of the Ayurvedic classics reveals that this drug also improves the function of *Dhee*, *Dhriti* and *Smriti*. Hence, since time immemorial, these drugs are being used in management of many neuropsychiatric disorders. In this research study was used orally a to evaluate its role on *Dhee*. *Kushmanda* (bennincasa hispida), commonly known as *petha* is a medicinal herb used in many diseases. Ayurveda text describes *kushmanda* as *Cheto-vikaraghna* which means it is useful in mental disorders. It works as *Medhya Dravya* as described in *Priya Nighantu. Kushmanda* as an herb is loaded with Multiple benefits, hassle free, easily available, Side-effect free, and risk-free qualities and can be a very good and comparatively cost effective Cheaper mental health improver for children.

> ➤ **CLINICAL STUDY:**

❖ **AIMS OF STUDY:**
  • "To Evaluate The efficacy of *Kushmanda Sharkar on perception (Dhee)* in children."
❖ **OBJECTIVE OF STUDY:**

  • To study the *medhya* karma of *kushmanda sharkar* in improvement mental health of school children.
  • To evaluate the efficacy of *kushmanda Sharkar* on *Dhee (Buddhi).*
  • To provide a comparatively cost effective, side effect free, hassle free, easy to use mental health improver for children.

❖ **ETHICAL CLEARANCE:**

This study was approved by Institutional Ethical Committee (IEC) DSRRAU, Jodhpur vide letter no. Sr.No./dsrrau/uca/iec/19-20/302 on dated 08/07/2020. Before starting the clinical trial. The present study was also registered under CTRI (Clinical Trial Registry of India).

❖ **MATERIALS & METHODS:**

Following materials & methods have been adopted to conduct the clinical trial.

A) MATERIALS:

1) **Literary:**
   - Various literary sources of *Ayurveda* and modern medical science have been explored to study the subject *Dhee, Bhuddhi*, perception and Intelligence.
   - *Kushmanda* is described as *Medhya Dravya* in *Priya Nighantu*.
   - *Sushruta Samhita* and *Bhav Prakash* has described use of *kushmanda* in *Chitta Vikara* (Impairment of *Dhee,Dhriti, Smriti*).
   - *Acharya Vagbhatta* Describes *Kushmanda* along with *Yashtimadhu* as *Dhee Vak Swarpradam*.
   - *Sharkar Kalpana* is described for *Fal Ras* in *Dravya guna vigyan uttrardh Shri Yadav ji, Siddh Bheshaj Mani Mala* and *Bheshajya Kalpana.*
   - Milk is described as *Medhya* and *Rasayana dravya* in classic texts.

2) **Clinical:** This includes the observations of patients, before trial assessments and trial procedures, and after trial assessments.

B) METHODS:

SELECTION OF SUBJECTS: The study was conducted on 45 subjects fulfilling the age criteria, selected from OPD of University Post Graduate Institute of Ayurveda Studies & Research, DSRRAU, Jodhpur. The case selection was random regardless of sex, age, occupation and socio-economic conditions.

Subjects were taken after evaluation of the Draw a man IQ test score for the study. A regular record of assessment of all subjects was maintained according to proforma prepared for the purpose.

GROUPING OF THE SUBJECTS:
- The trial will consist one group with 45 Subjects and will be administrated with *Kushmanda Sharkar.*

INCLUSION CRITERIA:-
- To avoid Stress factor, Children aged between 11-13 years old will be eligible for trial.
- Children without any disease and systemic disorder.

EXCLUSION CRIETERIA:
- Subjects below 11 years and above 13 years of age (To avoid stress factor).
- Subjects affected cerebral palsy, down syndrome, ADHD will be excluded.
- Subjects affected with systemic illness will be excluded.
- If Parents/guardian are not permitting for trial.

WITHDRAWL CRIETERIA:
- If subject wants to withdraw from clinical trial for any reason.
- During the course of the trial, if any serious conditions occur or any serious adverse effect is seen which requires emergency treatment.
- Non-compliance of Subject.

ADMINISTRATION OF DRUG:
- **45** subjects will be selected and registered randomly with fulfilling the inclusion criteria of selection will be eligible for the study and will be administrated with *Kushmanda Sharkar.* The trial will consist one group with 45 Subjects and will be administrated with *Kushmanda Sharkar.*

DESIGN OF STUDY:

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- Study type- Randomised Study
- Interventional model- One group assignment
- Allocation- Randomized
- Masking- Open label
- Purpose- Health Improvement
- Timing- 3Months
- End point- Efficacy
- Group - One
- Subjects- 45 subjects in one group.

DRUG ADMINISTRATION:

1) *Kushmanda Sharkar***:**

Drug was prepared in the pharmacy of DSRRAU, Jodhpur.

Dose	: 20 ml twice a day
Dosage form	: *Sharkar*
Route of administration	: Oral
Time of administration	: Twice a day in morning and after meal at bed time in night.
Anupana	: *Dugdha* (Milk)
Packing form	: 900 ml per bottle
Duration of trial	: 3 months

FOLLOW UP:

Follow up of every subject was done regularly after every 15 days.

OUTCOMES:

- **Outcome Measures:**
  - ✓ Improved Draw a man IQ test score before and after the trial of every subject.

ASSESSMENT CRITERIA:

1. Assessment will be done with the help of Goodenough–Harris Draw-a-Man test.
2. Goodenough–Harris Draw-a-Man IQ test will be conducted for each subject will be taken before and after the study.
3. IQ Test score will be calculated as per the criteria of Goodenough–Harris Draw-a-Man IQ test.
4. The Scores and results of tests conducted before and after the drug administration will be compared and data was analysed.

➢ **OBSERVATIONS:**

Table No. 01, Average IQ Score according to age of 45 subjects before Trial:

S. No.	Age	No. of Subjects	Average IQ Score
1.	11 yrs	15	88.21
2.	12 yrs	13	84.06
3.	13 yrs	17	84.03

Table No. 02, Average IQ Score according to sex of 45 subjects before Trial:

S. No.	Sex	No. of Subjects	Average IQ Score
1.	Male	22	84.96
2.	Female	23	85.13

Table No. 03, Average IQ Score according to habitat of 45 subjects before Trial:

S. No.	Habitat	No. of Subjects	Average IQ Score
1.	Urban	32	85.09
2.	Rural	13	85.04

Table No. 04, Average IQ Score according to Socio-economic status of 45 subjects before Trial:

S. No.	Education Status	No. of Subjects	Average IQ Score
1.	Upper Primary	30	86.17
2.	Secondary	15	84.26

Table No. 05, Average IQ Score according to Medium of Education of 45 subjects before Trial:

S.No.	Medium Of Education	No. of Subjects	Average IQ Score
1.	English	32	86.02
2.	Hindi	13	84.33

Table No. 06, Average IQ Score according to Education status of 45 subjects before Trial:

S.No.	Education status	No. of Subjects	Average IQ Score
1.	6th	5	87.64
2.	7th	14	87.13
3.	8th	11	84.29
4.	9th	15	84.26

❖ **RESULTS:**

In this study titled 'Study to evaluate the efficacy of *Kushmanda Sharkar* in Perception (*Dhee*) in children." the children were registered in PGIA hospital OPD and included for the research work with due permission from their Parents/Guardian.

Overall, 45 subjects were screened in test for the detection of their I.Q. level and attention and concentration questionnaire was provided to their parents/guardians before the administration of trial drug. After the test results trial drug '*Kushmanda Sharkar* was provided to every subject. All the results were calculated by using Graph Pad Instat 3 Trial Software. Intra-group study: For parametric data Paired t test is used and results were calculated in the group of 45 patients.

➤ **Effect of *Kushmanda Sharkar* on Draw-a-man IQ Score:**

In Group of 45 Subjects, the mean score before treatment was 85.54 which is increased to 90.94 after trial giving a relief of 6.32% with mean difference of 5.40, which is statistically extremely significant (P <0.001).

❖ DISCUSSIONS:

➢ Discussion on the method used for the assessment of IQ

Keeping all these things in mind **Draw-a-man IQ test** was selected which is a standard tool for IQ assessment. It is very easy and convenient to perform. Thus the test was administered without any difficulty and bias in mind. As the standard formats designed for IQ testing can not be modified and if modified they will not be considered as standard ones. Therefore the IQ test need to be administered as they are.

➢ Discussion of Trial Drug:

In *Ayurveda,* the action of drugs is determined on the basis of pharmacodynamics factors as *Rasa, Guna, Veerya* and *Vipaka* along with certain specific properties called *Prabhava,* which cannot be explained on these principles inherited by the drugs. These factors in combination act as antagonist to the main morbid factors i.e. *Dosha* and *Dushya* to cause *Samprapti Vighatana* to all the symptoms of the disease.

➢ Discussion on Observations:

Registered patients: Total 45 Subjects were registered for this clinical study; in which all 45 patients (100%) completed the study and 0 patients (0%) i.e. no subject withdrawn the trial in the middle. One of the reason for no withdrawal of any subject from the trial was the taste of the medicine was sweet and children liked it with milk.

Age: The reason why the age group 11-13 years was taken was because by this time the child have had developed sufficient skills of understanding and interpreting of their perception and observation, which makes it easier to assess the child. Also there has not been more of a stress or anxiety in that age group. The more the age grows the stress and anxiety factors begins to dominate a person. So in age group of 11-13, due to sufficient development of perception, lack of stress/anxiety factor and lesser education related pressure, it can be considered as the best age to test and develop their mental health and perception. Among 45 subjects, maximum no. of subjects i.e. 17 (37.7%) were observed in 13 years of age criteria followed by 15 patients (33.33%) were in 11 years of age criteria, 13 patients (28.88%) were observed in 12 years of age criteria.

> The Average IQ score of subjects with age of 11 years is 88.21
> The Average IQ score of subjects with age of 12 years is 84.06
> The Average IQ score of subjects with age of 13 years is 84.03
> This shows that the subjects of 11 years have the maximum of average IQ score followed by the subjects of 12 years and 13 years. The average IQ score has been decreased with the age according to this data.

Sex: In present study, maximum no. of subjects i.e. 23 (51.11%) were reported to be female and 22 patients (48.88%) were males among the 45 subjects.

> The Average IQ score of 22 male subjects is 84.96
> The Average IQ score of 22 male subjects is 85.13
> The difference between Average IQ of male and female is 0.17 with female leading. Although the difference is small but this data shows that the Average IQ in female subjects are more than the male subjects. This does not proves that gender is a factor that affects perception or Dhee as the difference of average is very small.

Habitat: In present study, the highest patients were from Urban areas i.e. 32 patients (71.11%) while 13 patients (28.88%) were from rural areas.

> - The Average IQ score of 32 subjects from urban areas is 85.09
> - The Average IQ score of 32 subjects from urban areas is 85.04
>
> The difference between average IQ score of Rural and Urban areas is 0.05 and the difference between no. of subjects from rural and urban areas is 19. Although the difference between Average IQ of both rural and urban areas is very small i.e. 0.05, According to this data, the

average IQ in urban areas is just above than the rural areas although the difference between no. of subjects is very much.

Educational Status: The educational status has been categorized into three parts.

I. **Education Status:** Primary, Upper Primary and secondary. In present study, most of subjects i.e. 30 (66.66%) were from upper primary, while 15 patients (33.33%) were from secondary.
- The Average IQ score of 30 subjects from upper primary is 86.17.
- The Average IQ of 15 subjects from secondary is 84.26

The difference between average IQ score of education status of Upper primary and secondary subjects is 1.91 and the difference between no. of subjects of education status of upper primary and secondary is 15. Although the difference of no. of subjects is very much but still the difference of average IQ score of 1.91 according to this data shows that subjects from upper primary has better IQ than subjects from secondary. Same pattern has been seen related to age where average IQ score was inversely proportional to age.

II. **Education status (Class):** 6th, 7th, 8th, and 9th. In present study, most of subjects i.e. 15 (33.33%) were from 9th class, 14 subjects (31.11%) were from 7th class, 11 patients (24.44%) were from 8th class and 5 subjects (11.11%) were from 6th class.
- The Average IQ score of 5 subjects from 6th class is 87.64
- The Average IQ score of 14 subjects from 7th class is 87.13
- The Average IQ score of 11 subjects from 8th class is 84.29
- The Average IQ score of 15 subjects from 9th class is 84.26

The difference between average IQ score of subjects from 6th class and subjects from 7th class is 0.51 and the difference between average IQ score of subjects from 7th class and subjects from 8th class is 2.84, the difference between average IQ score of subjects from 8th class and subjects from 9th class is 0.03 According to this data average IQ score is decreasing with increase of class, shows that subjects from 6th class has better IQ than subjects from 7th, 8th and 9th class respectively.. Same pattern has been seen related to age where average IQ score was decreasing with increasing the age.

III. **Medium of Education:** hindi or English. In present study, most of subjects i.e. 32 (71.11%) were from English medium and 13 subjects (31.11%) were from Hindi medium.
- The Average IQ score of 32 subjects from English Medium is 86.02
- The Average IQ score of 32 subjects from English Medium is 84.33

As per this data, subjects from English Medium has Average IQ 86.02 and subjects from Hindi medium having average IQ 84.33. There is significant difference between average IQ of English medium and Hindi Medium i.e. 1.69.

The difference between average IQ score of subjects from 6th class and subjects from 7th class is 0.51 and the difference between average IQ score of subjects from 7th class and subjects from 8th class is 2.84, the difference between average IQ score of subjects from 8th class and subjects from 9th class is 0.03 According to this data average IQ score is decreasing with increase of class, shows that subjects from 6th class has better IQ than subjects from 7th, 8th and 9th class respectively.. Same pattern has been seen related to age where average IQ score was decreasing with increasing the age. With increase in age the exposure to competition in education and other fields increases. This may cause a downfall in average IQ scores.

Socioeconomic Status: Present study reveals that highest no. of patients i.e. 27 (60%) were observed from upper class, while 11 patients (24.44%) were from middle class and 7 patients (15.55%) were from lower class.
- The Average IQ score of 27 subjects from Upper class is 85.07
- The Average IQ score of 11 subjects from Middle class is 86.5
- The Average IQ score of 7 subjects from Lower class is 82.6

The highest average IQ Score has been of subjects from middle class. The Lowest average IQ score has been of subjects from lower class. The difference between average IQ score of upper and middle class

subjects is 1.43. The difference between average IQ score of middle and lower class is 3.9. which shows that socioeconomic environment of a child can have direct effect on perception/Dhee.

Dietary Habits: In present clinical study most of patients were vegetarian 41 (91.11%) while 4 patients (8.88%) were of mixed dietary habits.

- The Average IQ score of 41 subjects with Vegetarian diet is 85.8
- The Average IQ score of 4 subjects with Mixed diet is 81.9

  The average IQ Score has been of subjects following vegetarian diet is more than the average IQ score of subjects following Mixed diet. The difference between average IQ score of Mixed and vegetarian diet subjects is 3.9. Although the difference between no. of subjects in each section is too much but still data shows better IQ score in Vegetarian diet followers.

*Shareerika Prakruti***:** 16 patients; (35.55%) were of *Vata-Pittaja Prakruti* while 11 patients (24.44%) were of *Vata-Kaphaja Prakruti* and 18 patients (40%) were of *Pitta-Kaphaja Prakruti.*

- The Average IQ score of 16 subjects of vata pittaja prakruti is 84.92
- The Average IQ score of 11 subjects of Vata Kaphaja Prakruti is 84.41
- The Average IQ score of 11 subjects of Pitta Kaphaja Prakruti is 86.76

  The highest average IQ Score has been subjects of Pitta kaphaja prakruti. The Lowest average IQ score has been subjects of Vata kaphaja prakruti. According to this data, pitta kaphaja prakruti subjects have good IQ score than others.

*Manasika Prakruti***:** while assessing the *Manasika Prakruti* of patients, it was observed that maximum patients i.e. 27 (60%) were of *Rajasika Prakruti,* while 18 patients (40%) were of *Tamasika Prakruti* and 0 patients (0%) were of *Satvika Prakruti.*

- The Average IQ score of 27 subjects of Rajasika prakruti is 86.36
- The Average IQ score of 16 subjects of Tamasika prakruti is 84.39

  As the data shows, highest average IQ has been from Rajasik prakruti i.e. 86.36. Difference between average IQ of rajasika and tamasika prakruti subjects is 1.97 which is significant enough to conclude that Rajasika prakruti has better IQ than Tmasika prakruti.

DISCUSSION ON RESULTS:

After completion of the study, statistical evaluation was done as calculating mean, standard deviation, standard error, t value and p value by using the GraphPad InStat 3 software. After observation and calculation on the basis of subjective and objective parameters of the study following facts could be drawn-

A) Effect of therapy on Draw a Man IQ Score (Intra-group study)

(A) Effect of Therapy on Draw a Man IQ Score (Intra-group Study):

✓ In **Group of 45 subjects**, the mean score before reatment was 85.54 which increased to 90.94 after trial giving a relief of 6.32% with mean difference of 5.40, which is statistically **extremely significant (P <0.001)**.

REFERENCES:

1. Ch.Sha. 1/36
2. Ch.Sha.1/23-Chkrapani
3. Ch.Vi.4/8-Chakrapani
4. Ch.Sha.4/36 (2)
5. Ch. Sha. 1/21 –Chakrapani
6. Ch.Sha.1/98-Chakrapani
7. Ch.Sh.1/100
8. SU.Sh 1/18-Dalhana
9. Ch.Vi. 4/8.
10. Ch.Sha. 4/39-Chakrapani
11. Ch.Sha. 1/20, 21-Chakrapani
12. Ch.Sha. 1/21, 22
13. Ch.Sha. 1/23
14. Ch.Sha. 1/5,
15. Ch.Vi. 4/8,
16. Ch.Vi. 4/8.
17. Ch.Sha. 1/70
18. Ch.Vi. 8/3
19. Ch.Vi. 4/10
20. Ch.Sha. 1/70
21. Ch.Su. 20/5
22. Ch.Sh. 4/12
23. Ch.Vi. 8/13
24. SU.Su 1/35
25. Su.Su. 1/24-Dalhana
26. Ch.Vi. 4/9
27. Ch.Su. 27/350-Chakrapani
28. Ch.Sha. 3/33
29. Ch.Su. 1/54
30. Ch.Sha.3/17
31. Ch.Chi. 28/204
32. Ch.Vi. 8/112
33. A.S.Su. 1/23
34. Ch.Su. 17
35. Ch.Chi 30/245
36. Ch.Sha. 8/5,9.
37. Ch.Sha.8/47
38. Ch.Sha. 8/62
39. Cha. Sa. 9/3
40. Cha. 5a. 1/127
41. Cha.Sa.1/121-124
42. Ah U.7/28

43. *Bhav. Pr. Shakvarg* 44-55

44. www.ijaronline.com.

45. Oduwole O et al, Honey for acute cough in children, Cochrane Database Sys Rev, Jan 20, 2010 (1)

46. from http://www.ncbi.nlm.nih.gov/pubmed.gov

47. *Priya Nighantu- Priyavrat Sharma (Kushmanda)*

48. *Dravya Guna bigyan Uttarakhandh – Sharkar Kalpana*

49. *Siddha Bheshaja Manimala – Sharkar Kalpana*

50. *Abhinav Bheshajya Kalpana Vigyan*