



## A CLINICAL STUDY OF *SHUKRA KSHAYA* W.S.R TO OLIGOSPERMIA AND THE EFFECT OF *KOKILAKSHADHI YOGAM* WITH *BALADHI YAPANA BASTI*

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Conflicts of Interest: Nil

### Introduction

Perpetuation of species is the basic phenomenon in nature. Since the beginning of the recorded history the human race has placed a great emphasis on fertility. *Acharya Charaka* has described a person without progeny is like a tree without branches and fruits with an unwanted smell, like a *chitra dweepa* i.e., a lamp in sketches rather an actual lamp which illuminates light<sup>1</sup>. Infertility seldom causes any physical debility, but it severely affects the couples in their psychological harmony, sexual life and social activity. *Ayurveda* being the science of life not only deals with health and illness but also gives importance to socio religious and philosophical aspects, one among these is *Chaturvidha Purusharthas* (*Dharma, Artha, Kama, Moksha*) of which *Moksha* the ultimate goal is obtained only by the righteous deeds to which being healthy is a prime factor. One can't attain these without progeny.

Male infertility has received less attention even though it is widely reported. In 1992 it was first reported that there is a decrease in semen quality of human race in the past 50 years (1940-1990). It showed a significant decrease in the mean sperm count from 113 million / ml to 66 million /ml, and in seminal volume from 3.4 ml to 2.75 ml. The Indian reports both from the Institute for Research in Reproduction, Mumbai and from Mehta et al, Bangalore seem to agree with the decline trend of semen quality over the years. The incidence of infertility varies in different regions and its prevalence is extremely high in the countries of most metropolitan cities according to the recent reports of WHO. Almost 15% of couple worldwide are infertile, of them the male factor is about 45% solely, in 20 % of total infertiles both male factors and female factors are responsible. Therefore it is clear that male factor contributes to more than 50% of the infertile couples. New infertility prevalence calculation as per WHO one in every four couples in developing countries has been found to be affected by infertility. A survey done in 2010, 48.5 million couples are affected by infertility.<sup>2</sup>

*Vajeekarana* one among eight prominent branches of *Ayurveda* deals about pleasure and healthy progeny of the mankind. Contextually under the same realm, the detailed descriptions of *Ashtavidha Shukradusti* and its management are explained. *Shukrakshaya*, one among the eight *Shukra dusti* is caused by *vata, pitta prakopa* and *kapha kshaya*. It is believed that mankind had a life span of 120 years during that period, after certain age naturally the qualitative reduction in reproduction is noted. *Sukra ksheenata* also takes place due to *dhatu kshaya* of *sukra dhatu* (which is compared to sexual hormones present in both males and females, but in female is not capable of *Garbhottpādana*).<sup>3</sup> Oligospermia analogous to *Sukra Kshaya* in *Ayurveda* is the condition where the sperm density is less than 20 million / ml with or without change in motility and morphology.

Ancient days knew the importance of male infertility and social stigma faced by the couple when they do not have progeny. Hence to address such medical problems *Vajeekarana*<sup>4</sup> is vividly described with a good range of foods, condiments, medicines etc. In spite of increasing trend in the prevalence of the

disease, this topic is not given much importance as it really should be given, if this trend continues there is no exaggeration in saying that human race may become extinct.

It is evident that till now there is no proper result oriented treatment available for *Oligospermia* in other systems of medicine. Because of the mental agonies being faced by infertile couples and remarkable fall in fertile power in men, an effort was made to evaluate the efficacy of *Kokilakshadhi yogam* (Internal) and *Baladi yapani vasti*<sup>5</sup> in the treatment of *Sukrakshaya*<sup>6</sup>

(Oligospermia). My study is focussed on present day Male infertility factor which is being more acquired by altered life styles. To address this competent combination of management are choose and tried. By this way I can also contribute an effective and adaptable remedy to this major problem.

### **AIM & OBJECTIVES OF THE STUDY:**

1. To study in detail about the disease *Shukra kshaya* w.s.r to Oligospermia.
2. To assess the efficacy of *Kokilakshadhi yogam* & *Baladi yapana basti* in the management of *Shukra kshaya* (Oligospermia).

### **PATIENTS AND METHODS**

**Ingredients of Drug trial:** The ingredients taken for the study are:

#### **A. DRUG (INTERNAL):** *Kokilakshadhi Yogam*

The drug is prepared as *Anubhoota Yogam*

**Total quantity prepared:** 15 kgs.

#### **B. VASTI:** *Baladhi Yapana vasti*.

### **SOURCE OF DATA:**

**A. LITERARY DATA:** The literary source of the present study is collected from the various classical texts of *Ayurveda*, Vedic scriptures, modern texts, published articles in reputed journals etc.

**B. CLINICAL DATA:** Patients suffering from Infertility and fulfilling inclusion criteria registered from the O.P.D of *Kāya Chikitsā* department, of Dr. B.R.K.R Government *Ayurvedic* College & Hospital.

### **STUDY DESIGN:**

It is a single open clinical trial. The patients were randomly selected from O.P.D of Dr. B R K R Government *Ayurvedic* Medical College & Hospital, Hyderabad. A total of 35 patients fulfilling the criteria for selection are taken for the study incidentally. All the patients were assigned under single group

### **SELECTION CRITERIA:**

#### **INCLUSION CRITERIA**

1. Patients presenting with the signs and symptoms of *Shukra kshaya* are selected.
2. Male patients of age group between 25- 45 years are selected.

#### **EXCLUSION CRITERIA**

1. Patients below 25 years and above 45 years
2. Patients with Absolute Azoospermia
3. Patients with major systemic disorders like DM, Tuberculosis, AIDS, and other STD etc.

### **PARAMETERS OF THE STUDY**

1. The parameters of the study are based on signs and symptoms of *Shukra kshaya* (w.s.r Oligospermia) before, after and follow up of the treatment.
2. Semen Analysis will be conducted before, after and follow up of the treatment.
3. The total course of the study is 120 days including the treatment period and follow up.

**Table 1: Subjective parameters objective paramters**

ECTIVE PARAMTERS	OBJECTIVE PARAMTERS
<i>Alpa Shukrata</i> <i>Maithuna Ashakti</i> <i>Chiradh Praseka</i> <i>Medra Vrshana Vedana</i> <sup>7,8</sup>	Sperm Count Sperm Motility Abnormal forms of sperms.

**Table 2: Scoring pattern of the subjective parameters**

PARAMETERS	GRADE
<i>Alpa Shukrata</i>	No ejaculate (Absent)-- 3
	Very Scanty -- 2
	1 to 2ml (Adequate)-- 1
	2 to 5 ml (No abnormality)-- 0
<i>Maithuna Ashakti</i>	No desire at all -- 3
	Lack of Desire -- 2
	Desire only in demand of partner-- 1
	Self and partner normal desire-- 0
3. <i>Chiradh Praseka</i>	Complete Inability-- 3
	Beyond 20 to 25 minutes-- 2
	> 10 minutes - <20 minutes -- 1
	4 to 10 minutes --- 0
4. <i>Medra Vrshana Vedana</i>	Severe Pain-- 3
	Moderate Pain-- 2
	Mild Pain -- 1
	No Pain -- 0

**MODE OF ADMINISTRATION OF DRUG AND DOSAGE**

Simple *rechana* is given with *Triphala churna* and warm water at night time the day before commencement of treatment.

1. The internal drug *Kokilakshadhi* yogam dose is 5 gms with Milk as *Anupana* twice a day i.e, morning and evening for 60 days.
2. *Baladhi yapana basti* is given once in every 10 days during the active treatment period as described in classics.

**DURATION OF THE STUDY:**

The total duration of the study is 120 days including the follow up period.

**Table 3: Gradation for the results**

RESULT	PERCENTAGE IN IMPROVEMENT
Excellent	76-100 % relief in symptoms
Good	51-75% relief in symptoms
Moderate	26-50% relief in symptoms
Mild	10-25% relief in symptoms
Insignificant	Below 10%. relief in symptoms

**OBSERVATIONS AND RESULTS**

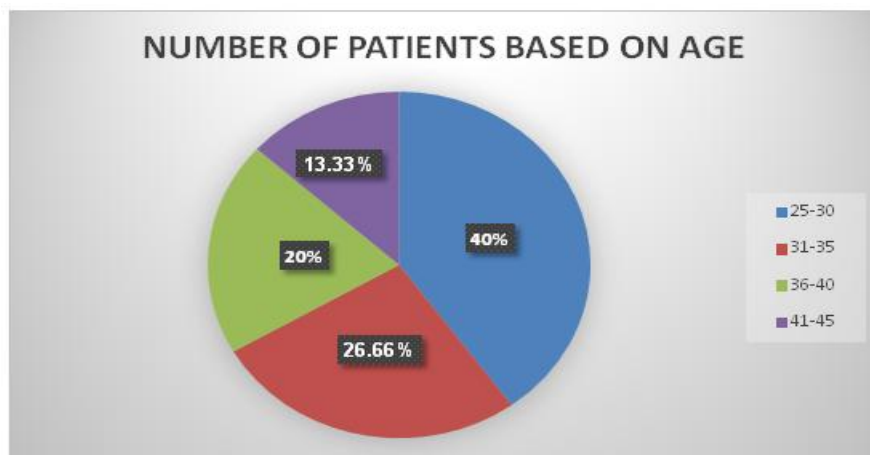
A minimum of 30 patients diagnosed with the condition of *shukra kshaya* of age group between 25-45 years were taken up for the present study. It is a single open clinical study. Patients were selected randomly from OPD of Dr. B R K R Government *Ayurvedic* Medical Hospital, Hyderabad. Patients were examined clinically and a detailed history of the patients was recorded in specially prepared proforma. Necessary lab investigations were advised and recorded in that specially designed proforma after a clear counseling. Well informed written consent was taken from the patient before the clinical trial.

The data obtained in this clinical study was subjected to resolution on varied parameters to know the aetiopathogenesis, progression and management of the disease. The observations made in this regard are comprehended with subjective and objective changes considered for the assessment of *shukra kshaya*. The changes obtained were recorded and a honest effort was made for the interpretation of the management. The clinical study & data collected were statistically represented in different forms as follows.

**Table 4: Distribution of 30 patients based on age**

AGE IN YEARS	NUMBER OF PATIENTS	PERCENTAGE
25-30	12	40.00%
31-35	08	26.66 %
36-40	06	20%
41-45	04	13.33%

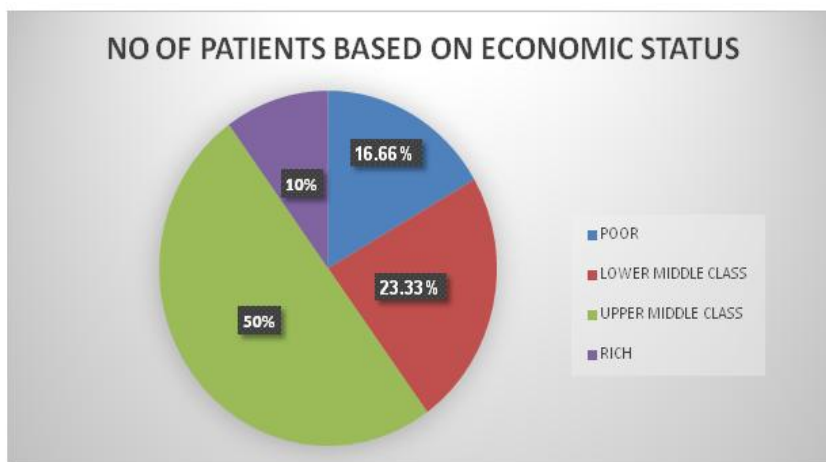
Above table shows that the sample was split into four classes of five years age group. The maximum no. of patients i.e. 12 (40.00%) were recorded in age group 25-30 years followed by 08 (26.66%) patients each in age group of 31-35 years, 06 patients (20%) were in the age group between 36-40 , and among 41-45 years 04 patients (13.33%) were seen



**Table 5: Distribution of 30 patients based on the socio-economic status**

SOCIO-ECONOMIC STATUS	NO OF PATIENTS	PERCENTAGE
POOR	05	16.66%
LOWER MIDDLE CLASS	07	23.33%
UPPER MIDDLE CLASS	15	50.00%
RICH	03	10.00%

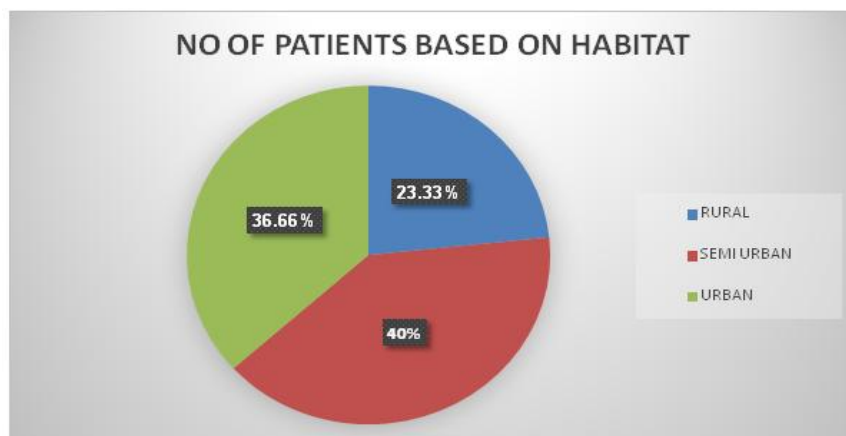
Above table shows that the sample was split into four classes based on their socio-economic status. Maximum number of patients was observed in upper middle class i.e., 15 patients (50.00%) and the minimum number of patients were observed in rich class.



**Table 6: Distribution of 30 patients according to habitat**

HABITAT	NO OF PATIENTS	PERCENTAGE
RURAL	07	23.33 %
SEMI URBAN	12	40.00 %
URBAN	11	36.66 %

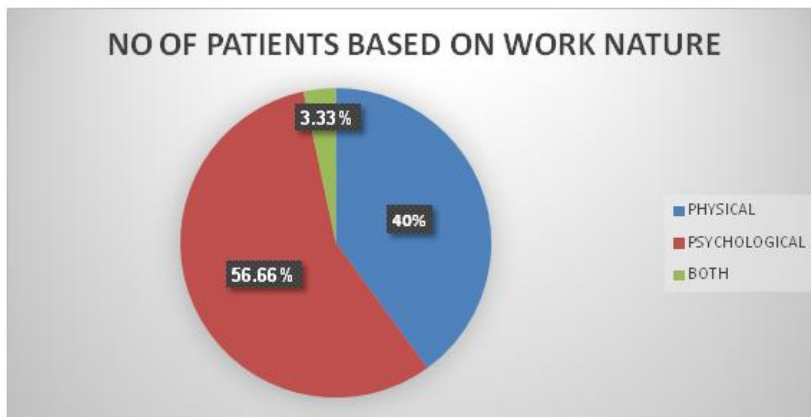
Above table shows that the sample was split into 3 areas based on the habitat of the patient. Most of the cases were from semi urban and urban areas, with combination having a percentage of 76.66.



**Table 7: Distribution of 30 patients based on the nature of work**

NATURE OF WORK	NO OF PATIENTS	PERCENTAGE
PHYSICAL EXERTION	12	40.00%
PSYCHOLOGICAL EXERTION	17	56.66%
BOTH	01	3.33%

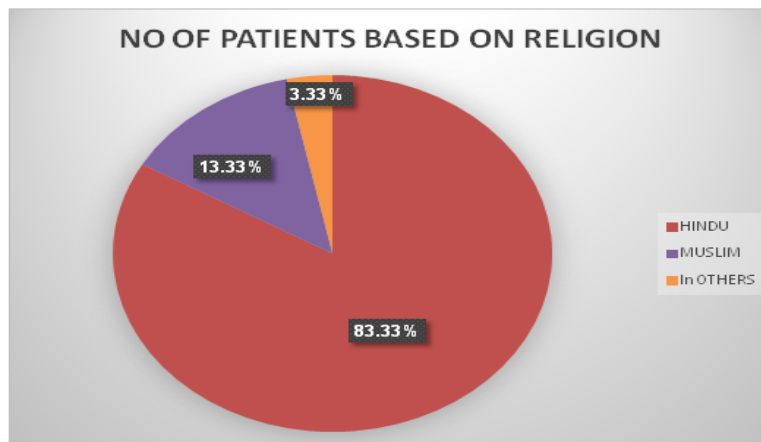
In the above table the sample is divided into 3 groups based on the nature of their work, maximum number of patients were observed who have work not being physical i.e., work being psychological only ,17 patients (56.66%).



**Table 8: Distribution of 30 patients based on the religion**

RELIGION	NO OF PATIENTS	PERCENTAGE
HINDU	25	83.33%
MUSLIM	04	13.33%
OTHERS	01	3.33%

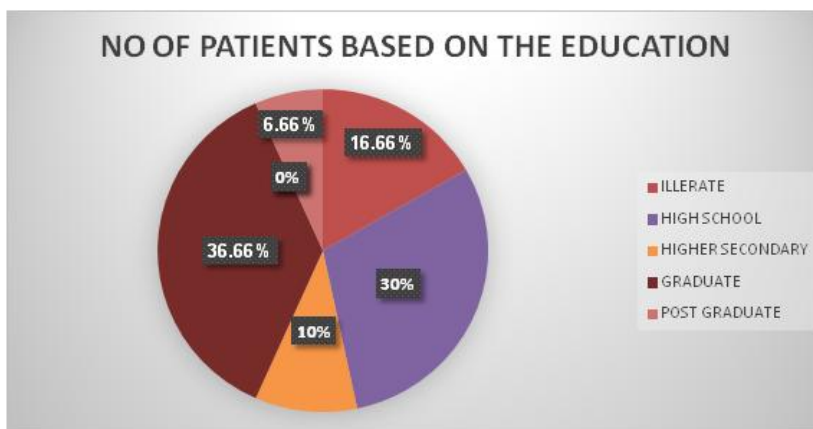
In the present study most of the patients belong to Hindu religion (83.33%) followed by Muslims, (13.33%) only one case was recorded other than these two religions.



**Table 9: Distribution of 30 patients based on their education**

EDUCATIONAL STATUS	NO. OF PATIENTS	PERCENTAGE
ILLITERATE	05	16.66%
HIGH SCHOOL	09	30.00%
HIGHER SECONDARY	03	10.00%
GRADUATE	11	36.66%
POST GRADUATE	02	6.66%

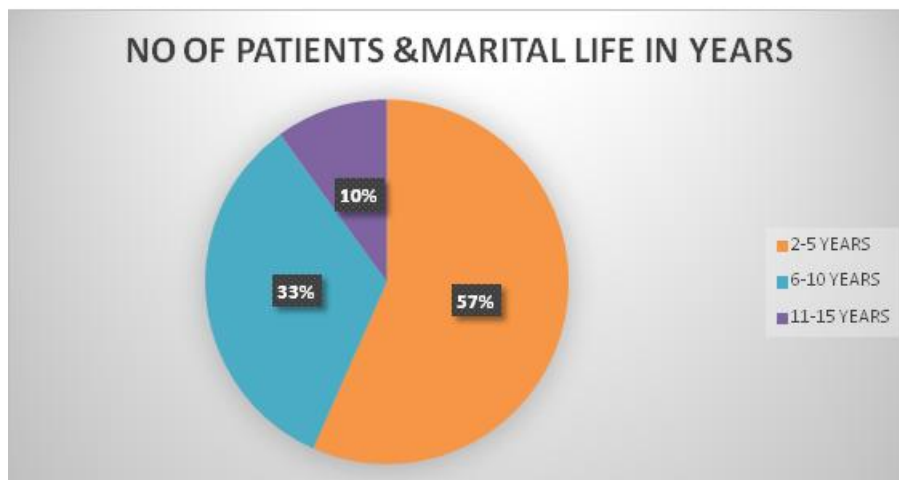
The above table is divided based on their education, most of the cases were recorded who have completed their graduation 11 cases (36.66%) and minimum number of cases in patients who have done their post-graduation 02 cases (6.66%).



**Table 10: Distribution of 30 patients based on their marital life**

MARITAL LIFE IN YEARS	NO. OF PATIENTS	PERCENTAGE
2-5 YEARS	17	56.66%
6-10 YEARS	10	33.33%
11-15 YEARS	3	10%
16-20 YEARS	0	0%

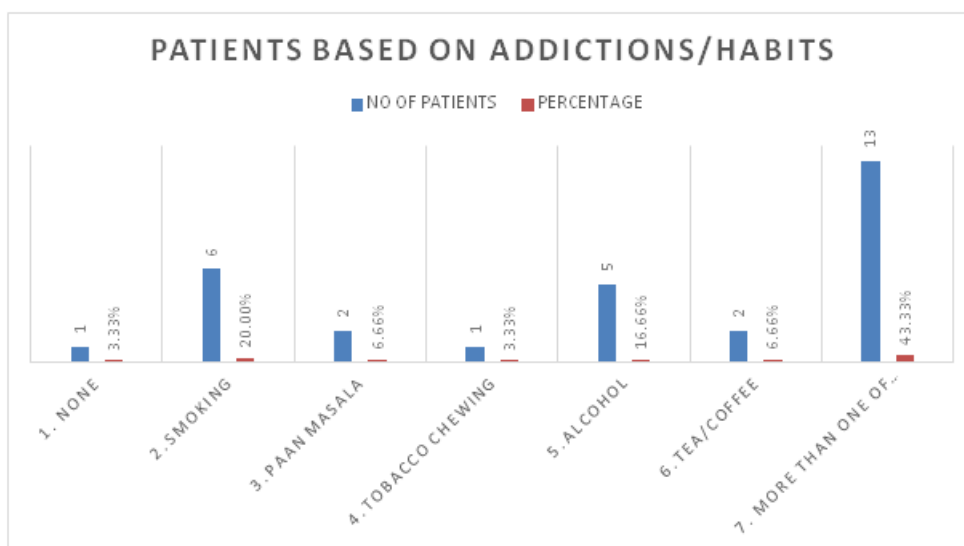
Most of the cases were observed with the marital life history in between 2 to 5 years (56.66%) followed by cases having the history of 6-10 years(33.33%). In the present study I haven't got the cases having history of 16-20 years.



**Table 11: Distribution of 30 patients according addictions/ habits**

HABITS	NO. OF PATIENTS	PERCENTAGE
1. NONE	01	3.33%
2. SMOKING	06	20.00%
3. PAAN MASALA	02	6.66%
4. TOBACCO CHEWING	01	3.33%
5. ALCOHOL	05	16.66%
6. TEA/COFFEE	02	6.66%
7. MORE THAN ONE OF THE ABOVE HABITS	13	43.33%

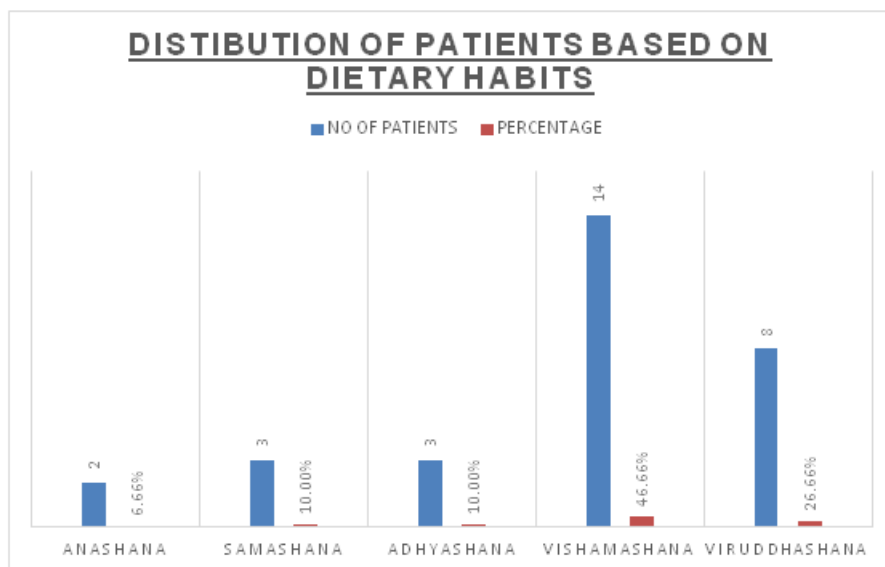
In the present study maximum number of cases registered was having more than one habit 13 cases (43.33%), followed by smoking habit 06 cases (20.00%), persons having the habit of drinking alcohol 05 cases (16.66%).



**Table 12: Distribution of 30 patients based on dietary habits**

DIETARY HABITS	NO. OF PATIENTS	PERCENTAGE
ANASHANA	02	6.66%
SAMASHANA	03	10.00%
ADHYASHANA	03	10.00%
VISHAMASHANA	14	46.66%
VIRUDDHASHANA	08	26.66%

In the above table patients were divided into 5 groups based on the dietary habits. Maximum number of patients were having Vishamashana 14 patients (46.66%), followed by patients consuming Viruddhashana i.e., 08 patients (26.66%).



**Table 13: Distribution of 30 patients based on dressing habits**

DRESSING HABITS	NO OF PATIENTS	PERCENTAGE
TIGHT TROUSERS	22	73.33%
MODERATE & LOOSE	08	26.66%

Among the 30 patients taken in the clinical trial most of the patients have the habit of wearing tight trousers, jeans 22 patients (73.33%). And the patients wearing moderately loose and loose are 08 patients (26.66%).

**Table 14: Distribution of 30 patients according to mobile phone usage/ carrying place**

MOBILE USAGE	NO. OF PATIENTS	PERCENTAGE
NOT USING	01	3.33%
UPPER/ SHIRT POCKET	09	30.00%
LOWER / TROUSER POCKET	20	66.66%

In the above table where the patients were divided into 3 groups based on the place they carry their mobile phones, maximum number patients carry mobile phone in trouser pocket i.e., 20 patients (66.66%). The patients carrying mobile phone in their shirt pockets are 09 (30.00%). Patients who don't use mobile phone is only one patient. (3.33%).

**Table 15 & 16: Distribution of 30 patients according to prakrithi**

**A. SHARIRIKA**

PRAKRITHI	NO OF PATIENTS	PERCENTAGE
VP	18	60.00%
VK	07	23.33%
PK	05	16.66%

The above table shows the clinical study is divided into 3 based on the Sharirika prakrithi of the persons. Maximum number of the patients are having Vata Pitta Prakrithi 18 (60.00%), followed by Vata Kapha Prakrithi 07 patients (23.33%) and minimum number of patients with Pitta Kapha Prakrithi 05 (16.66%).

**B. MANASIKA**

<i>PRAKRITHI</i>	<b>NO OF PATIENTS</b>	<b>PERCENTAGE</b>
<i>SATVIKA</i>	<b>0</b>	<b>0%</b>
<i>RAJASIKA</i>	<b>22</b>	<b>73.33%</b>
<i>TAMASIKA</i>	<b>08</b>	<b>26.66%</b>

The above table divided into three based on the manasika prakrithi of the patients. Of them Rajasika being predominant having a percentage of (73.33%) i.e., 22 patients. Persons having Tamasika Prakrithi are 08 (26.66%). None of them are having Satvika Prakrithi.

**Table 17: Distribution of 30 patients according to their sarata**

<b>SARATA</b>	<b>NO. OF PATIENTS</b>	<b>PERCENTAGE</b>
<i>PRAVARA</i>	0	0
<i>MADHYAMA</i>	25	83.33%
<i>AVARA</i>	05	16.66%

The above table is divided into 3 groups based on their Sarata. Maximum number of patients are having Madhyama sara i.e., 25 patients (83.33%). Avara sara patients are 5(16.66%). None of the patients are having Pravara sarata.

**Table 18: Distribution of 30 patients according to their satva**

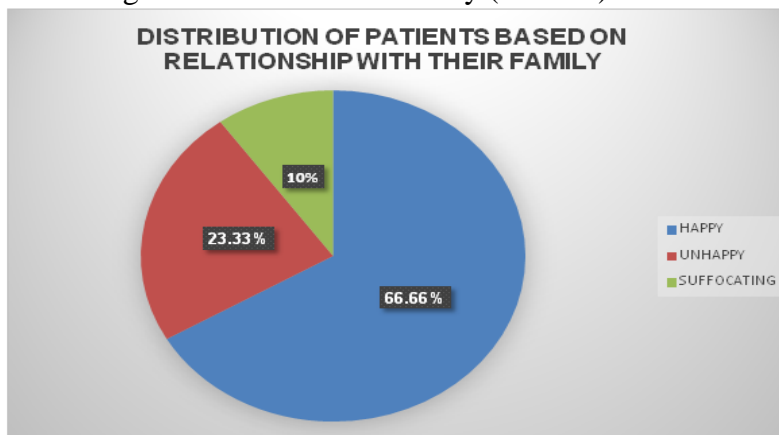
<b>SATVA</b>	<b>NO. OF PATIENTS</b>	<b>PERCENTAGE</b>
<i>PRAVARA</i>	05	16.66%
<i>MADHYAMA</i>	17	56.66%
<i>AVARA</i>	08	26.66%

The above table is divided into 3 groups based on their Satva. Maximum number of patients are having Madhyama satva i.e., 17 patients (56.66%), followed by Avara satva patients 08 (26.66%). Only 5 patients in the present clinical study have Pravara satva (16.66%).

**Table 19: Distribution of 30 patients relation with family life**

<b>FAMILY LIFE</b>	<b>NO. OF PATIENTS</b>	<b>PERCENTAGE</b>
HAPPY	20	66.66%
UNHAPPY	07	23.33%
SUFFOCATING	03	10.00%

The above table shows the patients being divided into 3 groups based on their relationship with family life. Out of 30 patients, 20 are happy (66.66%). 07 patients are unhappy (23.33%) and 3 patients in my clinical study have a suffocating environment in the family (10.00%).



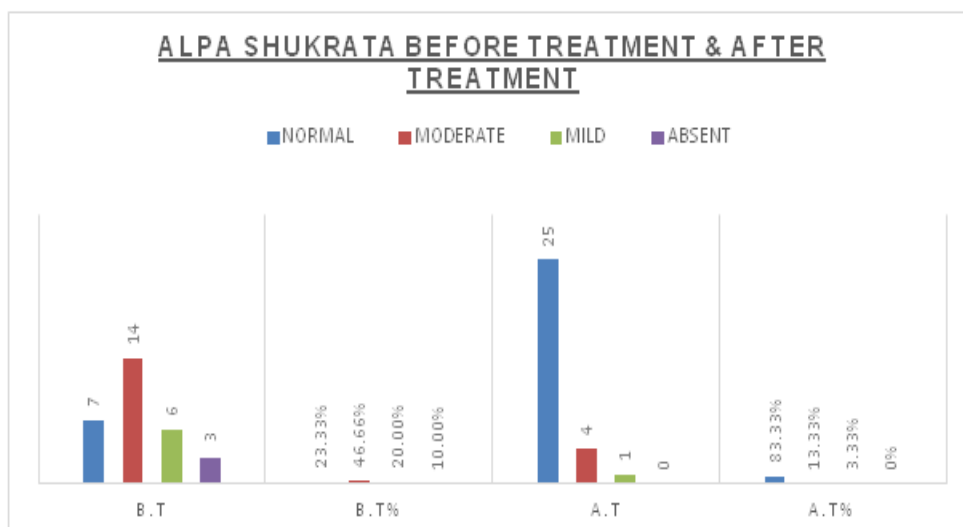
**Table 20: Distribution of patients based on *alpa shukra srava* before treatment & after treatment**

Sr. No	SHUKRA SRAVA	B.T	B.T%	A.T	A.T%
1	NORMAL	07	23.33%	21	70%
2	ADEQUATE	04	13.33%	09	30%
2	VERY SCANTY	19	63.33%	0	0%
4	ABSENT	0	0%	0	0%

The above table shows the data is divided into four groups based on quantitative amount of *shukra srava*.

**Before treatment:** Maximum number of the cases in the present study ejaculate very scanty *shukra* 19 (63.33%) normal in 07 cases (23.33%), adequate in 4 cases (13.33%) and none have reported absence of semen during ejaculation.

**After treatment:** Normal amount of semen produced in 70% i.e 21 cases, whereas adequate amount of semen in 09 patients i.e, 30 %.



**Table 21: Distribution of patients based on maithuna ashakthi before treatment & after treatment**

Sr. No	DESIRE FOR SEX	B.T	B.T%	A.T	A.T%
1	NORMAL	07	23.33%	25	83.33%
2	MODERATE	14	46.66%	04	13.33%
3	MILD	06	20.00%	01	3.33%
4	ABSENT	03	10.00%	00	0%

The above table is divided based on the patient desire for sex into four groups.

**Before treatment:** 14 cases in the present study have moderate desire (46.66%). 7 patients have normal desire (23.33%). 06 patients have mild desire (20.00%). Desire for sex is absent in 3 patients (10.00%).

**After treatment:** Normal desire for sex is reported in 25 cases (83.33%), moderate desire in (13.33%) mild desire desire in one patient (3.33%).

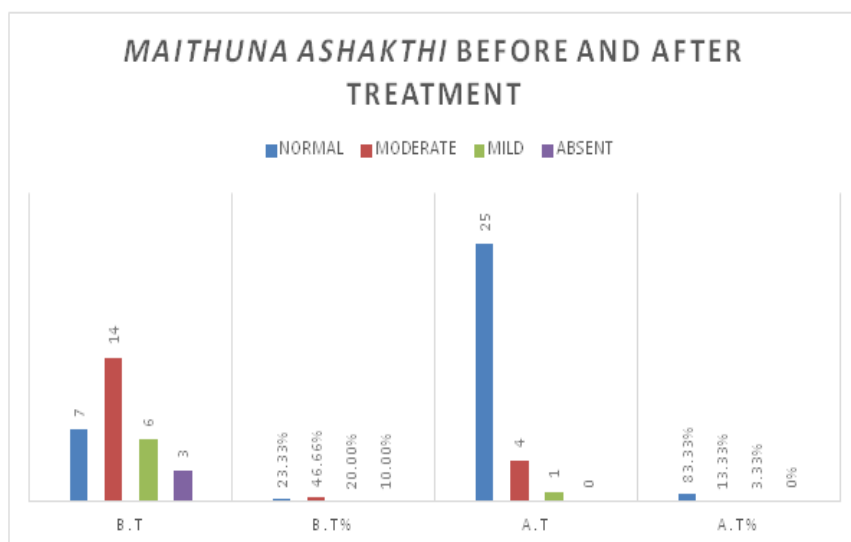


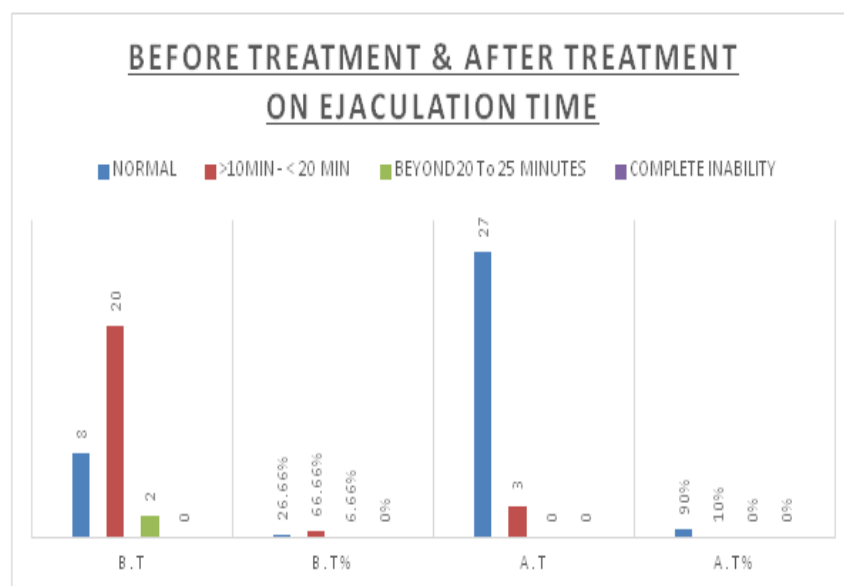
Table 22: Distribution of patients based on *chiradh prasekha* before treatment & after treatment

Sr. No	EJACULATION TIME	B.T	PERCENTAGE	A.T	PERCENTAGE
1	NORMAL	08	26.66%	27	90%
2	>10MIN - < 20 MIN	20	66.66%	03	10%
3	BEYOND 20 To 25 MINUTES	02	6.66%	0	0%
4	COMPLETE INABILITY	0	0%	0	0%

The above table shows the patients were divided into 4 groups based on the symptom delayed ejaculation.

**Before Treatment:** In the present study 20 patients (66.66%) ejaculation time is 10-20 minutes, normal ejaculation time is seen in 08 patients (26.66%), beyond 20 to 25 minutes in 02 patients.

**After Treatment:** 27 cases (90%) shown maximum improvement and 03 cases shown moderate improvement and their ejaculation time is in between 10 to 20 min.



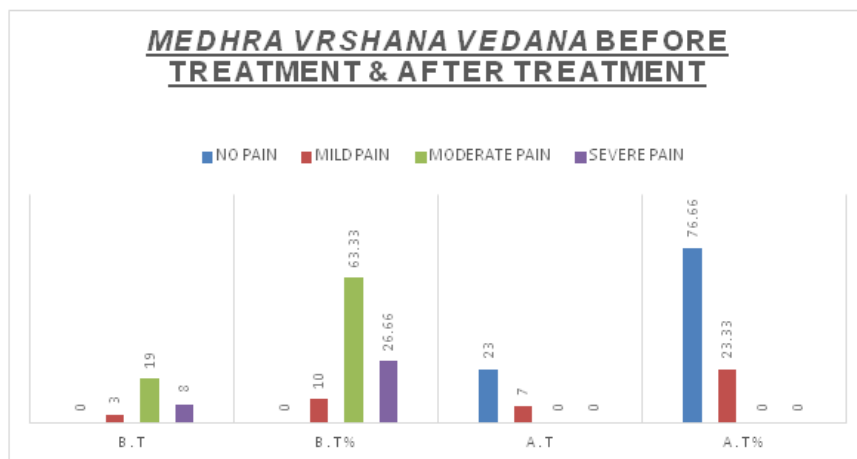
**Table 23: distribution of patients based on *medhra vrshana vedana* before treatment & after treatment**

Sr. No	PAIN DURING COITUS	B.T	B.T%	A.T	A.T%
1	NO PAIN	0	0	23	76.66
2	MILD PAIN	03	10	07	23.33
3	MODERATE PAIN	19	63.33	0	0
4	SEVERE PAIN	08	26.66	0	0

The above table is divided into 4 groups based on based on pain during coitus.

**Before Treatment:** Moderate pain was in 18 patients (63.33%). Severe pain in 08 patients (26.66%), mild pain in 03 (10.00%).

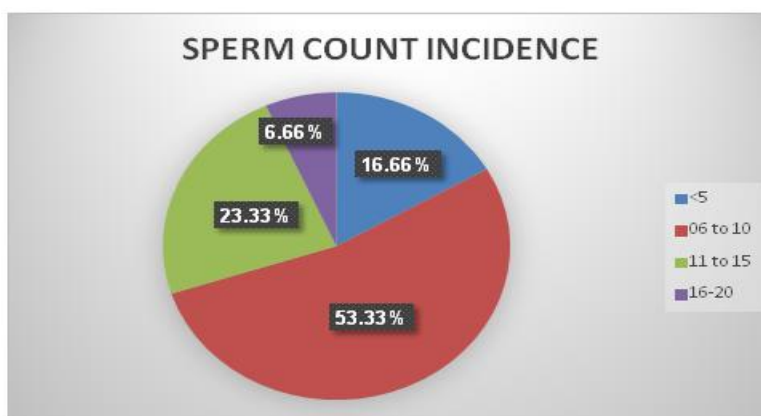
**After Treatment:** No pain during coitus was said in 23 patients (76.66%), mild pain in 07 patients (23.33%).



**Table 24: Distribution of 30 patients based on their sperm count**

SPERM COUNT IN MILLIONS/ ML	NO OF PATIENTS	PERCENTAGE
<5	05	16.66%
6-10	16	53.33%
11-15	07	23.33%
16-20	02	6.66%

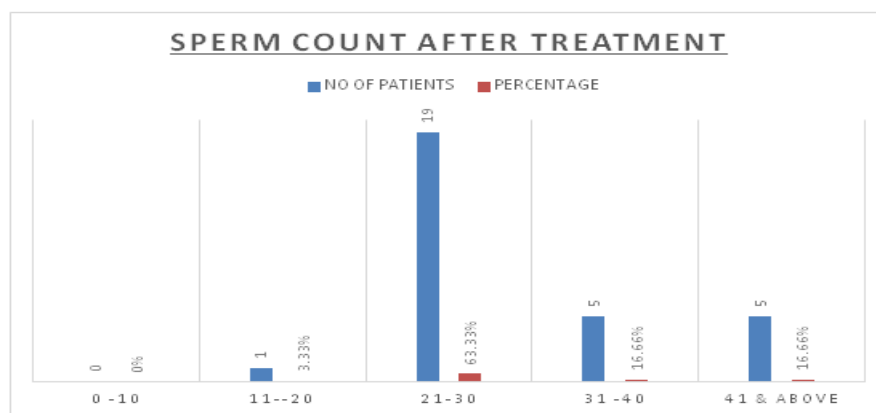
The above table shows the data is divided into 4 groups of patients based on their sperm count. 16 patients (53.33%) of my study have the sperm count in the range of 6-10 million/ml, 7 patients (23.33%) sperm count is in the range of 11-15 million/ml. 5 patients have the sperm count less than 5million/ml but not zero count.2 patients are placed among 16-20million/ml group.



**Table 25: Sperm count of 30 patients after treatment**

Sr. NO	SPERM COUNT IN MILLIONS/ ML	NO OF PATIENTS	PERCENTAGE	RESULT
1	0 -10	0	0%	INSIGNIFICANT
2	11-20	01	3.33%	MILD
3	21-30	19	63.33%	MODERATE
4	31 -40	05	16.66%	GOOD
5	41 & ABOVE	05	16.66%	EXCELLENT

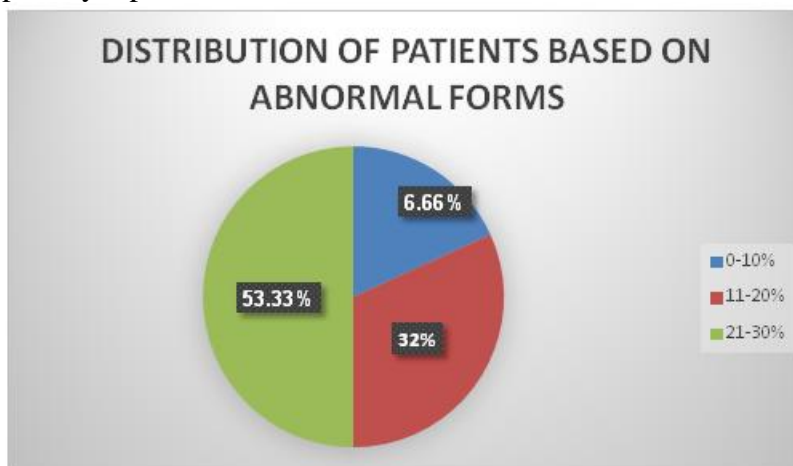
The above table describes the result of the patients after treatment. Among the 30 patients ,19 patients (63.33%) were in the range of 21-30 million/ml count they which says they had moderate improvement, 05 patients shown good improvement i.e, from 31-40 million/ml, and sperm count has increased to 41 million/ml and above in the 05 patients which shows excellent improvement. Only one patient had mild improvement which constitutes of 3.33% of overall study. No insignificant results are seen.



**Table 26: Distribution of 30 patients based on abnormal forms**

Sr. NO	ABNORMAL FORMS IN %	NO. OF PATIENTS	PERCENTAGE
1	0 -30 %	02	6.66%
2	31-60%	12	40.00%
3	61 & ABOVE	16	53.33%

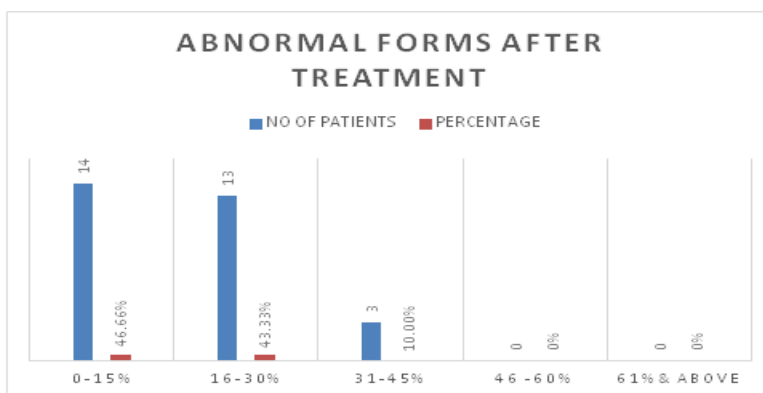
In the above table the data is divided based on the abnormal forms into 3 groups. Among the 30 patients 16 of them have abnormal forms more than 61%. 12 patients (40.00%) were among the 31-60 % abnormal forms group. Only 2 patients were observed below 30% abnormal forms.



**Table 27: Distribution of 30 patients based on abnormal forms after treatment**

S.NO	ABNORMAL FORMS %	NO. OF PATIENTS	PERCENTAGE	RESULT
1	0-15%	14	46.66%	EXCELLENT
2	16-30%	13	43.33%	GOOD
3	31-45%	03	10.00%	MODERATE
4	46 -60%	0	0%	MILD
5	61%& ABOVE	0	0%	NO RESULT

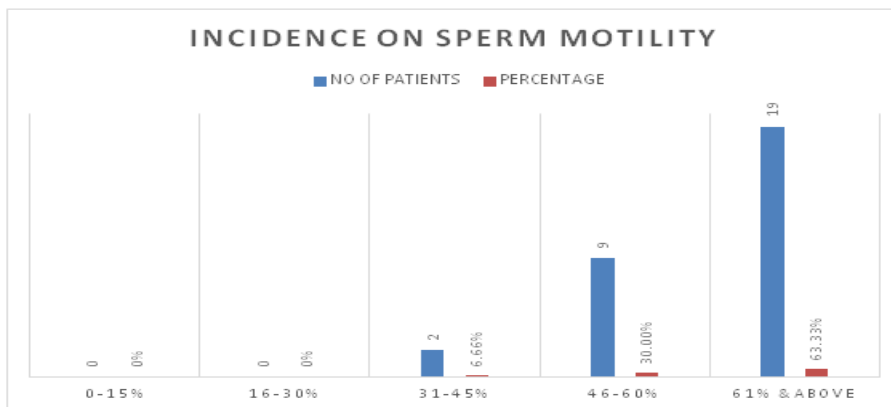
The above table shows the after treatment abnormal forms in the present clinical study. 14 patients (46.66%) among 30 patients were in category of 0-15 % abnormal forms showing excellent improvement. 13 patients (43.33%) of the patients got good improvement and their abnormal forms after treatment were in the range of (16- 30%), moderate improvement for 3 patients (10.00%) and their abnormal forms were in the range (31-45 %).



**Table 28: Distribution of 30 patients based on sperm motility**

Sr. NO	SPERM MOTILITY %	NO. OF PATIENTS	PERCENTAGE
1	0-10%	04	13.33%
2	11-20%	07	23.33%
3	21-30%	11	36.66%
4	31-40%	06	20.00%
5	41 -50%	02	6.66%

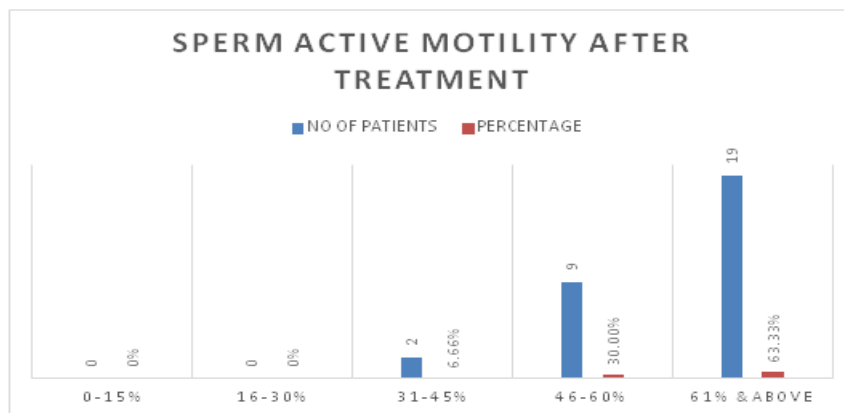
The above table shows patients were grouped based on their sperm motility.11 cases (36.66%) in the present study were in the range of 21-30 % motility, followed by 07 patients in the range of 11-20 % motility. 06 patients (20.00%) among 31-40%among motility group. 02 patients among 41-50% active motility group ,04 patients (13.33%) have very less motility i.e., below 10%.



**Table 29: Distribution of sperm motility of 30 patients after treatment:**

Sr. NO	SPERM MOTILITY %	NO. OF PATIENTS	PERCENTAGE	RESULT
1	0-15%	0	0%	NO RESULT
2	16-30%	0	0%	MILD
3	31-45%	02	6.66%	MODERATE
4	46-60%	09	30.00%	GOOD
5	61% & ABOVE	19	63.33%	EXCELLENT

The above table describes the sperm motility in patients after treatment, 19 (63.33%) patients have 61% & above motility showing excellent result. 9 patients among 30 have good results i.e. 46-60 % active sperm motility. Moderate result was seen in 2 patients (30.00%) being among 31-45% motility group. No patients have 0-30 % motility rate after treatment.

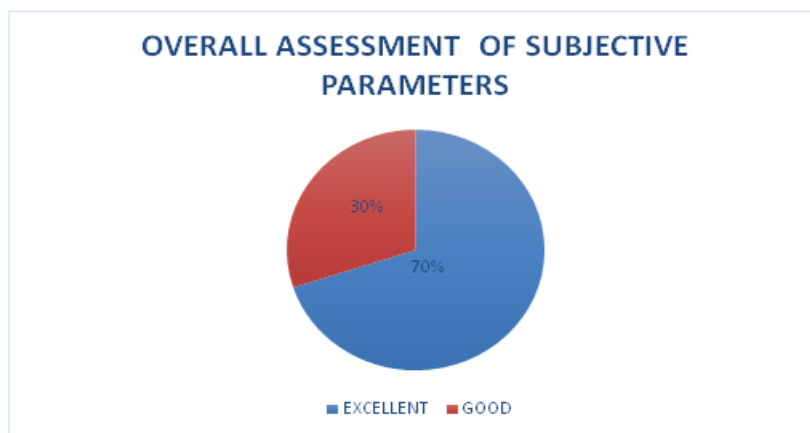


**RESULTS**

**Table 30: Overall assessment of subjective parameters**

RESULT	PERCENTAGE IN IMPROVEMENT	NO. OF PATIENTS	% OF PATIENTS
EXCELLENT	76-100 % relief in symptoms	21	70
GOOD	51-75% relief in symptoms	09	30
MODERATE	26-50% relief in symptoms	0	0
MILD	10-25% relief in symptoms	0	0
INSIGNIFICANT	Below 10%. relief in symptoms	0	0

Among the 30 patients selected for clinical study 21 patients (70%) got excellent result that accounts for 76 to 100 % relief in symptoms. 09 patients (30%) got good relief.



**STATISTICAL ANALYSIS**

The overall results of subjective parameters were subjected to Wilcoxon signed rank test and the p-value is obtained. The results of objective parameters were subjected to paired t test and p-value is obtained.

**Table 31: Total effect of treatment on subjective parameters**

Sr. NO	SYMPTOMS	df	Z value	p-value	RESULT
1	<i>Alpa Shukrata</i>	29	-4.1973	< 0.05	Significant
2	<i>Maithuna Ashakti</i>	29	-4.1973	< 0.05	Significant
3	<i>Chirat Shukra Praseka</i>	29	-4.0145	< 0.05	Significant
4	<i>Medhra Vrishana Vedana</i>	29	-4.7821	< 0.05	Significant

Hence the overall effect on subjective parameters by *Kokilakshadhi Yogam* (Internal) and *Baladhi Yapana vasthi* shows statistically significant.

**Table 32: Total effect of treatment on objective parameters**

Sr. No	SYMPTOMS	MEAN		S.D		SEM		Df	t value	p-value
		B.T	A.T	B.T	A.T	B.T	A.T			
1	SPERM COUNT	8.97	30.43	3.73	9.35	0.68	1.71	29	11.55	<0.0001
2	ABNORMAL FORMS	60.83	16.50	15.98	12.33	2.92	2.25	29	22.6378	<0.001
3	SPERM MOTILITY	27.33	65.33	10.06	10.33	1.84	1.89	29	24.285	<0.001

Hence the effect of *Kokilakshadhi yogam* and *Baladhi Yapana Vasthi* shows an extremely significance on objective parameters.

**DISCUSSION****KOKILASKSHA**

*Kokilaksha* is having the similar properties of *shukra* i.e., *Madhura rasa*, *Madhura vipaka*, *Guru* and *Snigdha gunas*. By virtue of these properties it aids in the formation of *Shukra* which can be explained by the *Ayurvedic* concept of *Samanya Vissha Siddantha*. *Kokilaksha* is *Vata Pitta Shamaka* which are the main *doshas* involved for the pathology of *Shukra Kshaya*. So *Kokilaksha* can be used to correct the underlying pathology of *doshas*. It is having *Shukra Sodhana* property as stated by *Acharya Charaka*, so it can be used to correct the abnormal form of sperms. In view of all the above said properties of *Kokilaksha* it can be regarded as a wonderful drug for the management of seminal disorders particularly in *Oligospermia*. *Kokilaksha* seeds are having much of *Pichila guna*, the *churna* prepared from the seeds when mixed in milk made the other powders used in the combination of *Kokilakshadhi yogam* also sticky. Even the *churna* of *Kokilaksha beeja* alone is also not easily palatable. The *churna* mixed with saliva in the mouth made it slimy and there by caused an obstruction by adhering in the throat which is cleared by much of fluid intake after the administration of the medicine.<sup>9</sup>

**KAPIKACHU:**

Researches has shown that *kapikachu* stimulates the secretion of L- Dopa which converts to the Dopamine. This dopamine stimulates the Pituitary to secrete FSH and LH. With the help of LH, secretion of the Testosterone may occur. Improved level of Testosterone lead to improvement in spermatogenesis and performance. It will be helpful to upgrade the general health also. *Mucuna pruriens*

is also found to inhibit the secretion of high Prolactin, high prolactin levels is one of the cause in erectile dysfunction and thus it will help to improve the sexual drive. *Tikta Rasa, Ushna veerya* and *Agnideepti* like properties of *Kapikachu* may improve metamorphosis of *Āhāra Rasa* and finally nourish all the *Dhātu*.<sup>10</sup>

**YASTMADHU:**

*Yastimadhu* is having *madhura rasa, Madhura vipaka, Guru Snigdha gunas*. It is *seeta veerya*. *Karmas* of *yastimadhu* are *tridosha hara, Vrshya*. It has also *rasayana* properties which thereby corrects the malnutrition to the *dhatu*. All these properties make *yastimadhu* to promote semen production.<sup>11</sup>

**SHATAVARI:**

*Shatavari* is having the properties of *madhura rasa, madhura vipaka, seta veerya* and *guru snigdha gunas*. It acts on pituitary gland in the production of hormones FH and LSH which act on Testosterone for the improvement of spermatogenesis and performance.<sup>12</sup>

**VIDARIGANDHA:**

*Vidari* reduces *vata* and normalises the *kapha* which are *doshas* involved in the etiology of *Shukra Kshaya*. *P. tuberosa* increases the level of LH, FSH, testosterone and also gonadotropin release hormone GnRH. thereby helps in the normal function of *shukra dhatu*. *Vidari* helps in the rejuvenation of male reproductive system. It helps to increase hard erections due to such qualities this drug is selected in the composition<sup>13</sup>

**SWETA MUSALI:**

This can be regarded as one of the potent drugs in the treatment of low sperm count. Researches done on the aqueous extract of dried roots of *Safed musali* is reported to have a potent aphrodisiac and spermatogenic potential.<sup>14</sup>

**GOKSHURA:**

*Goksura* having the properties of *madhura rasa, madhura vipaka Seeta veerya* which are the main properties needed for proper formation of *shukra*, It has *Vata pitta hara* properties, *Vrshya* and *Rasayana karma*. It is indicated in *Klaibya* as per classics. By these properties *Goksura* is used to treat the symptoms of *Medhra Vrishana vedana, Delayed ejaculation, improve the desire for sex*.<sup>15</sup>

**BRAHMI:**

It is a very good *Rasayana* which is necessary for the management of *Shukra Kshaya*. Various researches have been proved on *Bacopa Monnieri* action as anti-depressant and stress relieving. So *brahmi* is used in this combination to manage the stress related etiology of *Shukra kshaya*.<sup>16</sup>

**AMLAKI:**

*Amlaki* itself having the synonym *Vrshya* is *Amla rasa Pradhana, Pancha rasa* (except *lavana*), it has *madhura vipaka, tridoshahara* properties. Its *karma* are *Vayasthana, Vrshya, Rasayana*. It is rich source of Vit c which on deficiency leads to sperm depletion. There are many researches which proved its Anti-oxidant activity. Due to its anti-oxidant activity *amlaki* can combat with *sukra gata ama* there by decreasing anti sperm antibodies. Due to such qualities it has better role in the semen production and treat the underlying cause of *doshas* involved in *Shukra kshaya*. Thus it can be said *amlaki* is ideal in treatment of *Shukra Kshaya/ Oligospermia*.<sup>17,18</sup>

Overall combination of the above drugs have both the stimulatory effect and improve strength.

1. Stimulatory effect on Endocrine glands there by producing normal quantity of semen and other systemic effects like improved immunity and nutrition.

2. Improve Strength: Improved strength there by leads to improved metamorphosis of all the *dhatu*s and adapto immune endocrino modulator properties which finally increase the generalised health and improve sexual drive like erection and satisfaction also.

**REASON BEHIND THE SELECTION OF KSHEERA AS ANUPANA: GO KSHEERA:**

Chemical Composition: Cow's milk contains an average albumin 4%, Fat 4%, Sugar 5% various salts 1% and water 86%. It also contains Calcium Phosphate, Potassium, Magnesium Phosphate, Sodium Chloride and traces of Phosphates of iron thus helps in correction of malnutrition. Pharmacological Properties: *Rasa : Madhura Guna : guru, Snigdha Veerya : Sheeta Vipaka : Madhura Karma :*

*Kinchitkleda, Balya, Vrishya, Stanya Doshakarma : Vata Pitta Samaka.* Ideal *anupana* is that does not have the opposite qualities of the drugs taken along with. So the *anupana* milk is ideal with *kokilakshadhi yogam* which have the similar properties and action of the combination. Also *ksheera* has the properties needed for the formation of the *shukra*. In view of all these qualities *ksheera* can be regarded as best *anupana* in the management of seminal disorders, especially in *Shukra kshaya*.<sup>18</sup>

## DISCUSSION ON BALADHI YAPANA BASTI:

### **Basti Karma and Shukra Kshaya:**

*Susruta* has mentioned *Basti karma* as routine procedure after *Vamana* and *Virechana* to the patients of *Shukra dusti*. *Charaka* also has mentioned *Basti Karma* to treat *Shukra dusti* and in *Siddhi sthana* has particularly mentioned *yapana vasti* as best *Rasayana* and *vajeekarana*. *Shukra Kshaya* type *Shukra dusti* have predominance of *Vata* and *Pitta*. *Basti* is the best remedy for *Tridosha* treatment according to *Ayurvedic* classics and particularly to *vata dosha*.

The probable mode of action of *Basti* is explained in the classics as follows: *Basti* is administered through *guda* into *pakwashaya*. *Pakwashaya* and *guda* have been considered as main seats of *Vata*. This *Basti* resides in *Pakwashaya* and through its *Veerya* eradicates morbid *doshas* from the entire body in the same way as Sun is quite away from the Earth but it absorbs the water content from the Earth. The term '*Veerya*' applied by *Acharya Shusruta* is commented by *Dalhana* as '*Shakti*' and '*Prabhava*'. '*Veerya*' is defined by *Acharya Charaka* as the potency of a drug by which action is carried out and in absence of it no action takes place. *Pakwashaya* is the *mula sthana* of *Vata*, so *Vata* pacification in this region pacifies *Vata* all over the body, in the same way as on cutting of the roots of a tree, the entire tree gets destroyed by itself. Also, *Basti* by its *Veerya* eradicates morbid *doshas* accumulated in the *Kati*, *Pristha* and *Koshta* region also. *Yapana vasti*: The type of *vasti* which sustains and maintain the life and provides longevity is called *Yapana vasti*.

1. This can be administered in all seasons at all the times and in all age groups.
2. It performs both the functions of *Snehana* and *Sodhana*, no necessity of prior *Vamana* or *Virechana*.
3. It is mainly indicated in *Dhatu Kshaya*, *Bala Kshaya*, *Shukra Kshaya*, *Ati vyavaya*, *Vandhyatva*, etc.
4. In *Shukra Kshaya Ati maithuna* is a prime cause, hence *Yapana Basti* may be indicated. It has also *Rasayana Guna*. *Rasayana* means which maintains the flow (*Ayana = gati/ path*) of *poshaka Rasa*. *Rasayana* generally is *Agnivardhaka* and *Sroto vishodhaka* in nature. At the same time it improves the quality of *Rasa dhatu* and *Dhatwagni*. As a result formation of better *Dhatu* takes place. *Yapana Basti* is nutritive and nourishing in nature as it is *Brimhana* also. It contains *Madhu* and *Taila*, which is highly appreciated by *Acharyas* for the treatment.
5. As a whole, all the *dhatu*s gets nourished by *Yapana Basti* enhancing body's own *Dhatwagni* to maintain *Dhatu samya* which ultimately corrects the *Shukra dhatu kshaya*.<sup>19</sup>

## CONCLUSION

The present clinical work with the title "A Clinical study of *Shukra Kshaya* w.s.r to Oligospermia and the effect of *Kokilakshadhi Yogam* and *Baladhi Yapana Basti*" was carried out in 30 patients.

### **The present clinical study leads to following conclusions:**

1. *Shukra* denotes whole testicular and accessory gland secretion i.e., semen and androgens. Whereas, *Retas* has been specifically used for ejaculate and *Veerya* for androgens.
2. *Stree Shukra* can be compared with some glandular secretions along with hormones.
3. On the basis of observations it can be concluded that predominance of *Vata* and *Pitta dosha* in predisposing disease *Shukra Kshaya* is collaborated clinically by its mode of presentation i.e. majority of patients were from *Madhyama vaya*, in which *Pitta* predominance is observed, maximum were possessing *Vata Pitta prakriti*.
4. *Shukra Kshaya* is a *vyadhi* in which *Shukra Dhatu* is quantitatively and qualitatively vitiates.
5. *Shukra* have multi functional identity, out of which *Dhairya*, *Chyavana*, *Preeti* are interdependent and also related to sexual act.

6. The word *Kshaya* has different meanings. When we correlate with *Ksheena* we can conclude that it may be taken as either low volume of ejaculated or low sperm count. When we correlate with low sperm count it can be effectively compared with Oligospermia.
7. There is a definite relationship between present day fast life, food habits, dressing habits and *Shukra Kshaya*.
8. There is high prevalence in the persons who have psychological stress.
9. According to pathogenesis there is relationship between *agni*, addictions/ habits and *Shukra kshaya*.
10. The line of treatment of *Shukra Kshaya* should be based on *Brimhana Chikitsa* and *Vrishya* drugs having *Shukra Vriddhikara*, *Shukrasrutikara* and *Shukravriddhisrutikara* properties.
11. As a matter of fact the *yapana vasti* administered to the patients for *rasayana* purpose to regain the strength lost due *dhatu kshaya* or due to *athi maithuna*.

#### **CONCLUSION ON RESULTS:**

1. The combination *Kokilakshadhi yogam* and *baladhi yapana vasthi* have effective contribution in the management of *Shukra Kshaya* supported for its part to the final results.
2. Statistical analysis on improvement of subjective parameters showed significant results ( $< 0.05$ ) with the above said combination of internal medicine and *vasti*.
3. Statistical analysis on improvement of objective parameters showed highly significant results ( $p < 0.00001$ ).
4. No adverse effects have been reported by the patients during the present study.

#### **OBSTACLES FOUND IN THIS STUDY:**

Initially *Kokilakshadhi yogam* preparation is planned for *bhavana* with *Amlaki churna kashaya*. But due to excessive stickiness of the drug, it did not become possible to do even after many attempts. So ultimately it was decided to give it in powder form without *bhavana*.

#### **LIMITATIONS:**

The size of the sample was small to draw generalized conclusions on some of the observations made in the present clinical study.

The period of the study is limited.

#### **RECOMMENDATIONS ON MAINTAINING HEALTHY LIFE STYLE:**

1. **Stop Smoking:** Smoking is linked to low sperm counts and sluggish motility, and recent findings suggest a 64 percent increase in miscarriage when both partners smoke or when the man smokes. [11]
2. **Give up Marijuana and other recreational drugs (Cocaine etc):** Long term use of these in men results in low sperm count. [12]
3. **Ease up on intense exercise:** Men who exercise excessively may be reducing their sperm count due to the heat that builds up around the testicles during strenuous exercise.
4. **Up your C:** Low Vit C levels may cause sperm to dump together, rendering as many as 16 percent of all men infertile.
5. **Check your antibiotics:** Some groups of antibiotics have been shown to affect sperm quality temporarily by decreasing count and motility.
6. **Stay clear of environmental poisons and hazards:** These includes pesticide / insecticides, organic solvents, lead, ionizing radiation heavy metals Sand toxic chemicals.
7. **Check your nutrients:** If you are malnourished or not getting enough of the right foods and nutrients, sperm count could be lowered.
8. **Maintain scrotum temperature lower:** Watch out for excessive heat in the scrotal area, avoid tight fitting jeans/ jogging pants. Avoid hot tubs, and hot working environments.
9. **Abstain but not too long:** Brief periods of sexual restraint (3-6 days) seem to increase both the volume and potency of semen. Prolonged abstinence on the other hand, will result in higher volume of older sperm, which exhibit decreased motility.

#### **RECOMMENDATIONS IN VIEW OF CLINICAL ASPECTS:**

1. Similar studies can be conducted with larger sample and longer duration. Studies can be conducted with other therapeutic regimens as *Ayurveda* has rich soure and wider range of medicines, which may be

equally or more effective.

2. Awareness should be created in the society regarding life style described in *Ayurveda* which can prevent *Shukra kshaya/ Oligospermia*.and the potentiality of *Ayurveda* to treat such conditions.
3. Necessary importance should be given to this condition, Government *Ayurvedic* specialised hospitals for Infertility should be started at least at the district levels.

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