



Evaluation Of Ashwagandha Vati (Bimbimoola Swarasa Bhavita) In Shayyamutra W.S.R To Stress Induced Nocturnal Enuresis-A Clinical Study.

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Abstract: Shayyamutra is one most common but even most ignored and underestimated disease, whose clinical features, pathogenesis and management are not clearly described in Ayurvedic text. The only quotation by Acharya Adhamalla can be compared with Nocturnal Enuresis. Contemporary science and Research studies mention Stress as contributing factor in manifesting Nocturnal Enuresis. Ayurveda has upper hand in attenuating stress so, Ashwaganda a proven anti stress drug a Rasayana too and Bimbimoola Swarasa indicated in Shayyamutra was chosen for Stress induced Nocturnal Enuresis. Stress is often found to present in everybody's life in this era and it's noticed that children too have stress with different sources though the impact and intensity of stress differs in children than that of in adults. Adults can cope up and tackle the stress in one or the other way but it isn't possible in children because they can't take it as adults can. The stress thus has adverse effect manifesting psychological and physical ailments. Hence, its need to concentrate that stress could may play major role in any disease especially in psychological manifestation and behavioral disorders. NE with specific cause of Stress was reviewed from Journal and Internet sources, Research papers as there wasn't anything specific related to Stress induced NE was observed even though it has been considered as one of the underlying cause for SNE. Stress in children, causes and symptoms of stress in children is reviewed. Researches related to Stress causing NE also reviewed. Tips for Parents and teachers for coping children with stress and tips for children and Parents regarding do's and don'ts is reviewed.

Key words: Nocturnal Enuresis; Stress; CSDC; Re Experiencing; Numbing and Dissociation; Increased Arousal; Impairment in function; Bimbimoola Swarasa; Ashwagandha

I. INTRODUCTION

The word Shayyamutra is self-explanatory. Bed – wetting during sleep is only the symptom, which itself indicates its meaning. Perhaps, this simplicity is the main reason for lacking of a detailed description on the subject by ancient Ayurvedic scholars. But today due to awareness in the society, people are more concerned with their children so they show much more eagerness regarding this disorder. Enuresis is essentially a benign condition but may lead to great deal of psychological and emotional distress to the child and the family.

“ A Child is precious and beautiful, A Source of joy and happiness, A focus of love and care, A subject of dream for its future”- (child care)

Since last few years the life became very fast. People are becoming ambitious. They want their ambitions and material requirements to be achieved at early stage of life. In this competitive era, parents are also demanding excellent performance from child in both study and extra activities. So if child cannot fulfill the demand will leads to anxiety and stress. Child will suffer from Nocturnal Enuresis. Later on it will cause inferiority complex, chronic stress and depression. These are serious psychological disturbances and difficult to cure as age advances. It will also affect physical and mental growth of child.

Stress is unavoidable and can occur in all facets of life. At some level, stress can be seen as a natural part of development and of adaptation to a changing environment. Yet the implications of stress for children and youth can be far-reaching, depending on its level and persistence. Stress that is prolonged and managed poorly can result in negative physical, mental, and cognitive outcomes for children and youth¹

The stress being a causative factor in Secondary Enuresis², the further search in this direction was carried. It was found that stress also has role in Primary Nocturnal Enuresis too. The studies carried out in relation of Stress with Nocturnal Enuresis considering Primary NE^{3,4,5,6}, Secondary NE and School going children^{7,8} revealed that NE increased with increase in Stress. Studies revealed that Stress and Enuresis are Bidirectional i.e. Enuresis can cause and Stress too can cause Enuresis, increase in one leads to increase in other.^{9,10}

Child is having stress regarding studies, fear of failure, stress to fulfill parents desire, stress of extracurricular activity etc. Even the child cannot escape from psychological tension so that child remains in stressful condition, constantly persist in subconscious mind of child during sleep also. During sleep conscious mind is at rest but subconscious mind is always awake. These stresses, mental anxiety, fear, fight, worries are expressed on physical level child loses control over the voluntary muscles, sphincter of bladder during sleep which results in Nocturnal enuresis.

Who Is Most Vulnerable To Stress?

Children and youth who have one or more of the following characteristics may be particularly vulnerable to stress.^{11,12}

Lack of economic resources;

A tendency to blame negative events on themselves;

Lack of sufficient amounts of sleep, food, nutrition, or exercise;

Prior history of psychological or behavioral disorder (such as attachment-related problems or anxiety), or a low tolerance for stress;

Lack of social support (from peers or parents);

Multiple co-occurring stressors; for example, living in a family environment with high conflict and in a neighbourhood with high crime; or

Residence in a socially isolated neighbourhood.

The behavioural problems like Shyism (Bed – wetting), Nail biting, Stammering, Sleepwalking etc. in young children are quite common and arise from a complex interaction between child and environment.

Many are transient disorders related to situational family stresses and respond to a number of brief intervention approaches or simply as the passage of time. As yet, we have no accurate way of predicting as a result of which children are likely to develop more serious problems in future. It should be born in mind that no single cause can ever produce a behavioral disorder, but a number of causative factors such as socio-psychological, organic and so many others contribute in the development of behavioral disorders. In this information age, the percentage of psychological disorders have increased significantly due to the increased stress.

The young are often among the most vulnerable or disadvantageous in society, and thus their needs require special attention.¹³ (K.S)

“A child cannot be considered as miniature adult”.

Though paediatrics as a science has evolved much since then, this basic observation still remains valid. No description about Shayyamutra is found in Brihat Trayis.

In Samgraha Kala, Shayyamutra being enumerated as one of the childhood disorders by Sharangadhara in Sharangadhara Samhita¹⁴, different herbs mentioned for treating Shayyamutra in Bhaishajya Ratnavali¹⁵ and Vangasena Samhita.¹⁶

As stressful conditions are the one of the most common precipitating cause, in this study an Ayurvedic approach to treat stress as well as bedwetting will be undertaken.

Shayyamutra Chikitsa mentioned in Bhaishajya Ratnavali¹⁵

Bimbimoola rasah peetah shayyamutra neevarayet. (Bh.R. Shayyamutra Chikitsa 165 – 167)

At the same time in RASAKAMADHENU¹⁷

Dourbalyatodakarshyeshu Shayymutre Ashwagandhaya

Ksheere Dashagune Sarpihi Siddham Pushtivardhanm | |

Kumar Santosh Sharma in Rasakamdhenu described Ashwagandha Saadhita Sarpi that relieves Shayyamutra and is Bala Pushti Vardhaka

Bhavaprakasha enumerates the action of Bimbi as MutraSangrahaniya¹⁸ Acharya Charak and Vagbhata described its use in Manasa Roga (Mano Vikaaras).^{19,20} Bimbi Guna karma: Madhura rasa, Madhura Vipaka and Mutrasangrahaniya.

Ashwagandha Guna Karma: Tikta, Kashya Rasa, Ushna Veerya, Rasayana, Balya and Brimhana.²¹

Researches carried out on Ashwagandha have proven its Anti stress property.²²

Management of Enuresis in modern is by Motivational therapy, Alarm therapy and Pharmacotherapy.² Here in the present study an attempt will be made to manage stress induced Shyyamutra with Ashwagandha Vati (Bimbimoola Swarasa Bhavita).

In Allopathy there are few drugs but having harmful side effects. Ayurvedic medicine such as Ashwagandha is proven Anti Stress drug can help child by relieving stress also potential alleviating Chronic stress induced Hyperglycemia.²³

STRESS IN PRIMARY NOCTURNAL ENURESIS

Primary nocturnal enuresis is a common problem among school-aged children. Most children with primary nocturnal enuresis have significant signs of stress and mental problems and most of the symptoms are anxiety disorders^{24,25,26}

Survey And Studies Related To Stress And Primary Nocturnal Enuresis²⁷ SURVEY: Conducted in 2012, Wolfe-Christensen et al performed a survey on “psychosocial problems in children referred to urology clinics” and reported that in total 15.2% of children had serious psychosocial and social problems.²⁸ However, children with functional urinary tract disorders and primary nocturnal enuresis had a greater risk of mental problems and with increasing mental-social problems the severity of urology disease also increased. It was shown that psychosocial stress during the sensitive time of learning for voluntary urination may cause primary nocturnal enuresis.

Another research study as follows :

Study By: Eapen et al. nocturnal enuresis was found to be very common in school-aged children and it was recommended for all children to be carefully evaluated for psychological damage.²⁹

Stress Classification In Children.³⁰

Generally, we can see three types of stress responses in children:

Positive stress response – is considered as a normal part of healthy development, for example, going to school camp or starting at a new school. When experienced in a supportive environment, it can provide important opportunities to learn and practice healthy responses to life changes.

Tolerable stress response – activates the body's alert systems to a greater degree as a result of more severe, longer-lasting stressors, for example, parental divorce, illness or injury, or bullying at school.

Toxic stress response – can occur when a child experiences strong and/or prolonged multiples stressful events without adequate adult support, for example, physical or emotional abuse, chronic neglect, parental mental illness, or exposure to violence. It can disrupt early brain development and lead to many health problems.

Stress may be a response to a negative change in a child's life. In small amounts, stress can be good. But, excessive stress can affect the way a child thinks, acts, and feels.

Children learn how to respond to stress as they grow and develop. Many stressful events that an adult can manage will cause stress in a child. As a result, even small changes can impact a child's feelings of safety and security. Pain, injury, illness, and other changes are stressors for children.

Stressors may include:

STRESS IN SCHOOL:

Worrying about schoolwork or grades

Juggling responsibilities, such as school and work or sports

Problems with friends, bullying, or peer group pressures

Changing schools, moving, or dealing with housing problems or homelessness

Having negative thoughts about themselves

Going through body changes, in both boys and girls

STRESS IN FAMILY

Seeing parents go through a divorce or separation

Money problems in the family

MEDIA STRESS AND ENVIRONMENTAL DANGERS

Some children can become worried about things they hear and see on the news or by a generalized fear of strangers, burglars and street violence.

Living in unsafe home or neighborhood.

SIGNS OF UNRESOLVED STRESS IN CHILDREN:31

Children may not recognize that they are stressed. New or worsening symptoms may lead parents to suspect an increased stress level is present.

Physical symptoms can include:

Decreased appetite, other changes in eating habits

Headache

New or recurrent bedwetting

Nightmares

Sleep disturbances

Upset stomach or vague stomach pain

Other physical symptoms with no physical illness

Emotional or behavioral symptoms may include:

Anxiety, worry, irritability or moodiness.

Not able to relax

New or recurring fears (fear of the dark, fear of being alone, fear of strangers)

Clinging, unwilling to let parents out of sight

Anger, crying, whining

Not able to control emotions

Aggressive or stubborn behaviour

Going back to behaviours present at a younger age(ie; thumb-sucking, bedwetting)

Doesn't want to participate in family or school activities.

School refusal.

PHYSICAL EXAMINATION :

External genitals for meatitis, vulvitis, phimosis, long foreskin, labial adherence or signs of sexual abuse. Bladder and bowel distended bladder, fecal impaction.

Neurological system- A careful observation of the child's gait, muscle tone, strength and deep tendon reflexes in the lower extremities may reveal a CNS etiology.

DISCUSSION ON RESEARCH METHODOLOGY AND STUDY DESIGN

Stress Is Examined As Follows

Child stress disorder checklist (csdc)32

1. Child seems irritable
2. Child seems angry
3. Child seems detached or distant from other people.
4. Child has difficulty falling asleep or staying sleep.
5. Child has difficulty getting along with friends, schoolmates or teachers.
6. Child does things that he or she outgrew. For example thumb sucking, bed wetting, nail biting or requests to sleep with parents.
7. Child is restless or doesn't sit still.
8. Child has difficulty getting along with family members.
9. Child has trouble concentrating.
10. Child appears confused about things that he or she should know.
11. Child seems spaced or daze.
12. Child seems on edge or nervous.
13. Child reports bad dreams.
14. Child has difficulty performing activities such as school works or cores.
15. Child appears slowed down. It takes him or her a long time to respond things.
16. Child reports physical symptoms Ex headache, stomach pain, nausea, lack of appetite, difficulty breathing.

1. **Study design:** The aim of this study is to carry out To Evaluate Efficacy Of Bimbimoola Swarasa with Ashwagandha in Shayyamtra w.s.r to Stress Induced Nocturnal Enuresis. This was the Single blind control clinical study, patients were selected by random sampling, after screening for exclusion and inclusion criteria that were treated in the O.P.D. of Shri. S.G.V.Ayurvedic Medical College Hospital Bailhongal and in conducted camps.

2. Study Plan:

All the selected patients fulfilling the criteria of selection were randomly divided into two clinical groups –

CLINICAL GROUPS AS FOLLOWS

- ☐ Group A : ASHWAGANDHA VATI (Bimbimimoola Swarasa Bhavita)
- ☐ Group B : MENTAT SYRUP(Control Group)

Diagnosis of Shayyamutra -Stress Induced Nocturnal Enuresis was made as follows:

Nocturnal Enuresis was given scoring³³

- 0- Nil
- 1- Occasional or once a month
- 2- More than once in a month
- 3- Once in a week
- 4- More than once in a week
- 5- Daily once
- 6- More than once daily

Stress was diagnosed by selecting 16 questionnaires from CSDC and the stress symptoms were grouped into 4 dimensions accordingly.³²

- Re experiencing – Child reporting bad dreams and reporting physical symptoms like head ache, stomach pain, lack of appetite, nausea.
- Numbing and Dissociation – Child seems detached or distant from other people. Child appears confused about things that he or she should know, Child seems spaced or daze, Child appears slowed down.
- Increased Arousal- Child seems irritable, Child seems angry, Child has difficulty falling asleep or staying sleep, Child is restless or doesn't sit still, Child has trouble concentrating, Child seems on edge or nervous.
- Impairment of function -Child has difficulty getting along with friends, schoolmates or teachers, Child does things that he or she outgrew. For example thumb sucking, bed wetting, nail biting or requests to sleep with parents, Child has difficulty getting along with family members, Child has difficulty performing activities such as school works or cores.

Above stress symptoms were grouped under four dimensions accordingly as mentioned in CSDC as follows:

- 1) Re experiencing: 13,16
- 2) Numbing and dissociation: 3,10,11,15
- 3) Increased arousal: 1,2,4,7,9,12
- 4) Impairment in functions: 5,6,8,14

RESULTS AND DISCUSSION

This clinical trial was conducted on 40 patients of Shayyamutra w.s.r to Stress induced nocturnal enuresis fulfilling inclusion criteria. The patients were randomly divided into 2 groups each comprising 20 patients.

Group A was treated with Ashwagandha Vati (Bimbimoola Swarasa Bhavita) for 90 days. Group B was treated with Syrup Mentat for 90 days.

The subjective parameters of all the patients were noted before treatment, on 30th day, 60th day and 90th day on the basis of mentioned assessment criteria. The results of the effects of the trial drugs are being presented statistically.

Effect of treatments on Nocturnal Enuresis:

According to percentage of change patients of Group A treated with Ashwagandha Vati (Bimbimoola Swarasa Bhavita) showed 37% relief in Nocturnal Enuresis and that of Group B treated with Mentat Syrup showed 39% relief.

Effect of treatment within the group both were statistically Highly Significant at $P < 0.001$.

When we compare both groups at end of treatment (90th day) day both were statistically Insignificant at $P > 0.05$.

As Ashwagandha and Bimbi have hypoglycemic activity, Bimbi is Grahi and Mutra Sangrahaniya these qualities might have worked, where as Syrup Mentat is proven in Enuresis.

Hence, H_0 is accepted.

EFFECT OF TREATMENTS ON STRESS DIMENSIONS :

Comparison of difference of all parameters between GROUP A and GROUP B after treatment										
PARAMETERS	Descriptive Statistics			Mann-Whitney U Test Ranks			Test Statistics			
	Group	Mean	± S.D.	N	Mean Rank	Sum of Ranks	U	Z	P	Remarks
RE-EXPERIENCING	Group A	0.10	0.31	20	20.00	400.0	190.0	0.47	>0.05	IS
	Group B	0.15	0.37	20	21.00	420.0				
NUMBING AND DISSOCIATION	Group A	0.50	0.69	20	17.60	352.0	142.0	1.71	>0.05	IS
	Group B	0.95	0.89	20	23.40	468.0				
INCREASED AROUSAL	Group A	0.75	0.97	20	16.33	326.5	116.5	2.36	<0.05	MS
	Group B	1.70	1.42	20	24.68	493.5				
IMPAIRMENT IN FUNCTIONS	Group A	0.50	0.61	20	16.95	339.0	129.0	2.07	<0.05	MS
	Group B	1.10	0.97	20	24.05	481.0				
NOCTURNAL ENURESIS	Group A	2.55	1.50	20	18.70	374.0	164.0	1.01	>0.05	IS
	Group B	2.85	0.93	20	22.30	446.0				
IS - Insignificant; MS - Moderately Significant; S - Significant; HS - Highly significant.										

Mean score of Re experiencing dimension of stress parameter after treatment in Group A was 0.10 and after treatment mean score in Group B was 0.15 which was statistically Insignificant at $P > 0.05$.

Mean score of Numbing and Dissociation of stress parameter after treatment in Group A was 0.50 and after treatment mean score in Group B was 0.95 which was statistically Insignificant at $P > 0.05$.

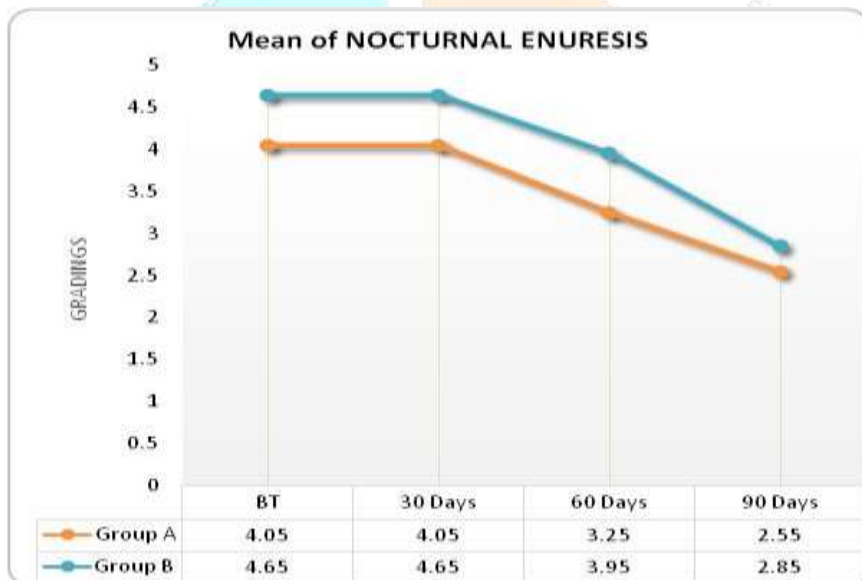
Mean score of Increased Arousal of stress parameter after treatment was 0.75 and after treatment mean score in Group B was 1.70 which was statistically Moderately significant at $P < 0.05$.

Mean score of Impairment in function of stress parameter after treatment was 0.50 and after treatment mean score in Group B was 1.10 which was statistically Moderately Significant at $P < 0.05$.

Mean score of Nocturnal Enuresis after treatment was 2.55 and after treatment mean score in Group B was 2.85 which was statistically Insignificant at $P > 0.05$.

Table showing effects of treatment within and between subjects

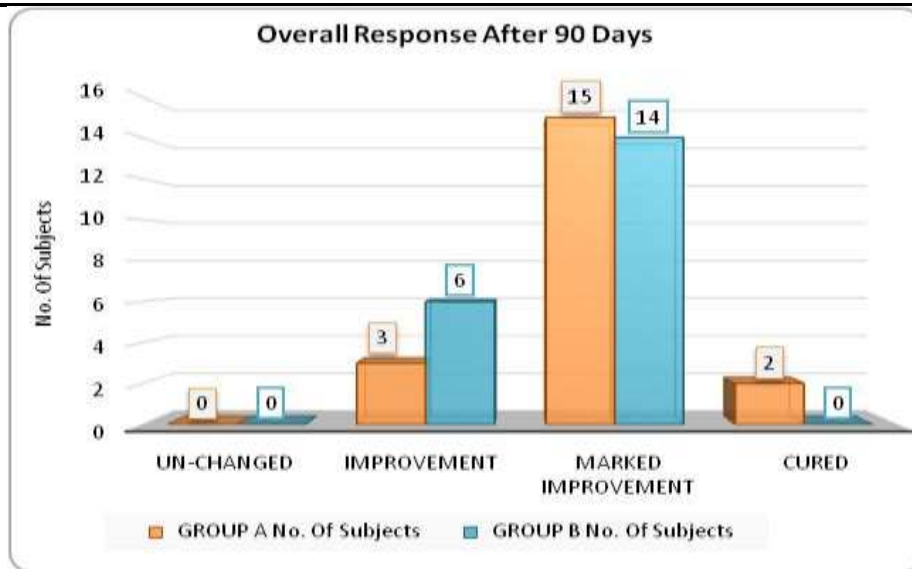
Table: Effect of Treatment within the Group on NOCTURNAL ENURESIS											
Assessment Observations Recorded on	Descriptives			Repeated measures of ANOVA test							
	Mean	±SD	N	Tests of Measure	Source of variation	Sum of Squares	df	Mean Square	F	P	Remarks
GROUP A (Trial drug -Ashwagandha vati-Bimbimoola swarasa bhavita)											
BT	4.05	1.468	20	Within-Subjects Effects	Time	31.35	3	10.45	89.57	<0.001	HS
30 Days	4.05	1.468	20		Residual(Time)	6.65	57	0.12			
60 Days	3.25	1.482	20	Between-Subjects Effects	Intercept	966.05	1	966.05	114.75	<0.001	HS
90 Days	2.55	1.504	20		Residual	159.95	19	8.42			
GROUP B (Control - Syrup Mentat)											
BT	4.65	0.875	20	Within-Subjects Effects	Time	43.35	3	14.45	198.47	<0.001	HS
30 Days	4.65	0.875	20		Residual(Time)	4.15	57	0.07			
60 Days	3.95	0.945	20	Between-Subjects Effects	Intercept	1296.05	1	1296.05	421.30	<0.001	HS
90 Days	2.85	0.933	20		Residual	58.45	19	3.08			
IS - Insignificant; MS - Moderately Significant; S - Significant; HS - Highly significant.											



The mean score of BT and on 30th day, 60th day and 90th was taken which was subjected to Repeated Measures of ANOVA test the calculated value was compared to F table which showed statistically Highly Significant at $P < 0.001$.

Table showing overall response of treatment after 90 days

Overall Response After 90 Days				
Response	GROUP A		GROUP B	
	No. Of Subjects	%	No. Of Subjects	%
Un-changed	0	0%	0	0%
Improvement	3	15%	6	30%
Marked Improvement	15	75%	14	70%
Cured	2	10%	0	0%
Total	20	100%	20	100%



GROUP A: After treatment of 90 days among 20 patients 3 patients showed improvement(15%) , 15 patients showed marked improvement(75%) and 2 patients were cured(10%).

GROUP B: After treatment of 90 days among 20 patients 6 patients showed improvement (30%), 14 patients showed marked improvement(70%).

DISCUSSION ON PROBABLE MODE OF ACTION OF ASHWAGANDHA VATI (Bimbimoola Swarasa Bhavita).

It is believed that the drugs, which possess properties, like Stambhana (especially Mutrasangrahaniya) and Brumhana (Medhya and Balya) may help in breaking down the Samprapti of Shayyamutra here in this study w.s.r to Stress induced Nocturnal Enuresis and thereby it is expected that it can arrest the progress of the disorder. Because Shayyamutra is a disease caused due to vitiation of Tridosha especially Vata and Kapha and Manasika dosha Rajas and Tamas, so it was decided to evaluate the efficacy of hypothetically formed Ayurvedic compound i.e. Tab. Ashwagandha Vati (Bimbimoola Swarasa Bhavita). The drugs chosen are Ashwagandha Medhya, Rasayana, Balya, Dhatuvardhaka, kashaya in rasa and sitoindosides VII-X and Withaferin-A34,35 have antistress activity which possess varying degree of anxiolytic activity that helps to reduce the stress, Ashwagandha indicated in Shayyamutra Chikitsa in Rasakamadhenu might have also worked in relieving the disease, another drug is Bimbimoola Swarasa which is Kashaya rasa pradhana so does Sthambhana Action, Mutrasangrahaniya, Meha nashana and indication of Bimbi in Mano Vikara must have supported the study. Chemical constituents in Bimbimoola, Triterpenoid, Flavonoid Glycoside, β -amyrin, β -sitosterol have hypoglycemic effect.^{83,131} As they are having Medhya(brain tonic), Mutrasangrahaneeya (improves the retaining capacity of bladder) properties, might be enhancing the sphincteric tone of neck of bladder and might also be improving coordination between the higher and lower centers, reducing stress.

CONCLUSION

The present study “Evaluation of Bimbimoola Swarasa with Ashwagandha in Shayyamutra w.s.r to Stress induced Nocturnal Enuresis- A clinical study” can be concluded as follows:

1) Modern science states stress as cause in secondary nocturnal enuresis. Research studies imparted Stress and Nocturnal Enuresis are bidirectional.

2) Satwa is cause for health and disease here the etiological consideration of Shayyamutra can be under Aharaja, Viharaja Karanas but more specifically Manasika kaaranas.

3) Pathogenesis of Shayyamutra w,s,r to Stress induced Nocturnal Enuresis.is understood in terms of Vitiation of Manasika Doshas by Manasika Nidana like Bhaya,Krodha, Duhswapna etc which are root for

Stress manifestation which cause Prakopa of Rajo and Tamo guna leading to aggravation of chala guna of Vata and Kapha prakopa which cause Tamobhava Nidra inducing Akale Mutra Tyaga at night.

4) Use of Bimbi in treating Mano Vikara as explained in Charaka Samhita and Ashtanga Hridaya and indication of Ashwagandha in Shaiyamutra both must have supported the study.

5) Children of age between 9 to 12 years were contributing 35% as children between this age are stressed because of competition, lack of interest towards studies, being bullied, restrictions turning them aggressive causing stress inducing Nocturnal Enuresis. Mean age of 8 to 9 years was observed in study which is indicator of probable age under risk of stress.

6) Eye catching observation was found that patients with Awara Satwa were 60% indicative of individuals with Awara satwa are mostly prone to undergo stressed.

7) In present study it was observed that 70% were living in Joint Family this child may undergone different circumstances related to stress and lack of moral support further aggravated the problem.

8) 60% of patients in present study were from urban area where there is more stress given on being disciplined, being competitive, involved in multi activities, lack of communication, parents towards materialistic life imposing their thoughts on children earlier to their age can trigger stress in children inducing Nocturnal enuresis..

9) In present study effect of both drugs on Nocturnal Enuresis having 37% of improvement with Ashwagandha Vati (Bimbimoola Swarasa Bhavita) and 39% improvement with Mentat Syrup. 2 patients in Group treated with Ashwagandha Vati (Bimbimoola Swarasa Bhavita) attained dry nights.

10) In present study both drugs have given Moderately significant effect in Stress symptoms under Increased Arousal and Impairment in function and has provided Insignificant effect in Stress symptoms under Re Experiencing, Numbing and Dissociation.

11) Group of patients treated with Ashwagandha Vati (Bimbimoola swarasa bhavita) showed improvement in general appearance, weight gain, intellectual, sleep issues were found to corrected, quick responding, decrease in nervousness with increase in attentiveness, anger and irritability found to be in control.

12) Group of patients treated with Mentat syrup showed improvement in memory, anger, irritability, sleep issues were found to corrected, physical symptoms reduced, hyperactivity decreased.

13) It can be concluded that Ashwagandha Vati(Bimbimoola Swarasa Bhavita) and Syrup Mentat showed better improvement in Nocturnal Enuresis (Stress induced). Ashwagandha Vati(Bimbimoola Swarasa Bhavita) is cost effective than Mentat Syrup.

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