

Association of *Viharaj Hetus* (External and Environmental Factors) with *Shirahshool* (Headache) – A cross sectional study

Research Article

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Abstract

Background- *Shirahshool* (headache) encompasses all the aches and discomforts associated in the *Shira(head)* region and is described under the caption of *Shiroroga* in Ayurveda texts. *Aharaj* (diet related) and *Viharaj* (external and environmental) *Hetus* are the main causative factors for any disease; yet the external and environmental factors also play an important role in *Shirahshool*. Aim-To observe the role of *Viharaj Hetus* for their association with *Shirahshool*. Study Design-This cross sectional study was conducted amongst the pre diagnosed *Shirahshool* patients, both male and females from the age group 20-60 years, who were suffering for more than one year and get *Shirahshool* for more than 30 minutes every time. A structured, pilot tested questionnaire with 15 questions validated by scientific committee was used to collect the information. Statistical analysis- The collected data is qualitative Pearson correlation test and Chi square test is used to test the association between *Viharaj Hetus* and *Shirahshool*. P- Value less than 0.05; which was considered as significant association. Result- Amongst *Viharaj Hetus*, *Shita Vayu Sewan* (cold air exposure-external environmental factor) was present in maximum number of patients i.e. 40 %, *Nidra Vega Vidharana* (suppression of the urge for sleep) in 36%, *Asatmya Gandha Sewan*(bad odour) in 31 % of total *Shirahshool* patients. Conclusion- The highest incidence of *Shiroroga* based on chronicity (59%) is in between 1-5 years with the duration for 30-60 minutes and based on severity 46% with moderate grade of *Shirashool*. Exposure to cold air and suppression of urge for sleep are the causative factors found as important with respect to duration of exposure whereas anger was noted as major, immediate *Hetu* of *Shirahshool*. Thus the association of *Viharaj hetus* with *Shirahshool* is of very much importance with respect to diagnosis, prevention and treatment.

Key Words: *Shiroroga*, *Shirahshool*, Headache, *Viharaj Hetus*, Cold air exposure, Excessive talking.

Introduction

In Ayurveda *Shira* (1) (Head) is *Uttamanga* (i.e. vital and uppermost part of the body). *Shira* is one among the three major *Marma* (Vital point) and also a *Sadyahpranhara Marma* (2). All the three *Doshas* (functional body components) are located in the *Shira* with the predominance of *Kapha Dosha*. So prime importance should be given to protect the *ShiraPradesh* from all types of diseases (3). The term *Shirahshool* (Headache) encompasses all the aches and the discomfort located in the *Shirah*(4) regions under the caption of *Shiroroga*.

Ayurveda is the science of life aimed to maintain the health and cure the disease. In Today's era, change in lifestyle and diet pattern leads to various diseases.

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Ahara(Diet factor) and *Vihara*(Lifestyle) mentioned in the Ayurveda for healthy persons; helps to overcome the diseases occurring due to faulty lifestyle.

According to modern science, Headache is one of the most frequent neurological symptoms. Headache term is commonly used for the pain felt anywhere in the head. The Classification and diagnostic criteria for Headache Disorder, Cranial Neuralgias and Facial pain was proposed by the International Headache society (IHS) in 1988. The classification helped standardise headache diagnosis and management throughout the world. There was the revision of IHS in 2004 and in 2013(5). Headache is divided into 2 groups: Primary Headache and Secondary Headache. Primary headache has unknown underlying cause. Secondary headache is the result of the condition, traction on or inflammation of pain sensitive structure.

Common Primary Headaches are Migraine, Tension-type headache, Cluster headache. Aetiology of Migraine is largely unknown(6). The cause of the Tension type of headache is obscure(7) and the exact cause of cluster headache is unknown(8), there are some triggering factors for Migraine(9) and Cluster Headache. In 2011 WHO published the Atlas of

headache disorders. Approximately 47% of the global population suffers from a headache(10) (Symptomatic at least once in last year). Primary headaches account for more than 90% of all headache complaints, and of these, episodic tension-type headache (11) is the most common. The lifetime prevalence of tension-type headache (12) is 30% to 78% based on various studies. The prevalence of tension-type headache is approximately 40% and Migraine 10%. Migraine is common between the age group 25- 55 years and it is 3 times more common in females (13).

Ayurveda has emphasised on strict and regular observance of *Ahara*, *Vihara* and *Achara* for healthy and long life. *Vihara* deals with the Physical, Verbal, Mental actions of the body(14). *Vihara* includes different regime as suggested in Ayurveda like *Dincharya*(Day regimen), *Ratricharya* (Night regimen), *Sadvritta* (Code of good conducts) (15).

The *Viharaj Hetus*(external and environmental factors responsible for disease creation) play major role in the pathogenesis of *Shirahshool*. These are namely *Shita Vayu Sewan*(Exposure to Cold air), *Nidra Vega Vidharana* (Suppression of Urge for Sleep), *Asatmya Gandha Sewan* (Exposure to Bad odour), *Atibhashana* (Excessive Talking), *Krodha* (Anger)(16)and so on. The present study was undertaken to find the association of these *Viharaj Hetus* with disease *Shirahshool*. Prevention of the disease /symptom *Shirahshool* will be possible by avoiding these *Viharaj Hetus* and strictly following regular *Ahara* and *Vihara* mentioned in Ayurveda classics.

Various clinical studies (17-21) are conducted on management of *Shirahshool* but no study has been conducted as observational study on *Viharaj Hetus* of *Shiroroga*. Two dissertation works on causative factors of *Shirahshool*(22-23)are also studied before proceeding for the present survey work, but both the works are of review type.

Aim

To observe the role of *Viharaj Hetus* for their association with *Shirahshool*.

Methodology

Setting: This cross-sectional study was conducted among 100 patients attending OPD of the Institutional Hospital, diagnosed by physicians of Kayachikitsa OPD suffering from *Shirahshool* for more than one year and with continuous pain for more than 30 minutes. Both male and female patients, who had various occupations and aged between 20-60 years and are willing to participate in the study were selected. Approval was obtained from the scientific committee and Institutional Ethics committee.

Design- *Vihara* *Hetus* namely *Shita Vayu Sewan* (exposure to cold air while driving / working in AC / otherwise for more than 3 hours per day for minimum 1-5 years), *Nidra vega vidharana* (suppressing urge for sleep at night by extending it for more than 3 hours for minimum 1-5 years), *Atibhashana* (excessive talking as in case of teachers for more than 3 hours per day for minimum 3-5 years),

Krodha (Anger pertaining to any reason for 3-5 times per week for minimum 3-5 years) were observed predominantly hence their chronicity, severity and duration is mentioned in the subsequent tables. Individuals suffering from *Shirahshool* as main symptom were included; while those who suffered from Hypertension, Cardiac diseases, Diabetes mellitus, Congenital and Immunological disorders were excluded from the study.

A structured questionnaire with 15 major questions was prepared on the basis of *Viharaj Hetus* mentioned in Charaka Samhita. The questionnaire was validated by research committee members and experienced consultants. *Viharaj Hetus* of *Shirahshool* mentioned in Charaka Samhita were categorised according to Environmental conditions, *Kayika Vihara* (Physical), *Vachika Vihara* (Verbal) and *Mansika Vihara* (Mental) and few predisposing causes were selected for the study. An open ended Questionnaire included general information of patient, present complaints, history of present and any past disease. It mainly contained the positive questions about presence of *Shirahshool*, its frequency, pain onset, duration of pain, intensity of pain as well as *Viharaj Hetus*. Researcher filled the proforma by verifying and cross examining questions. Negative response patients are not included in the study.

Only patients giving positive answer to exposure to particular hetu were enrolled. Observations were qualitative hence Chi-square test was used for the Statistical analysis of collected data to check the significant association of *Viharaj Hetus* with the *Shirahshool*. P value of <0.05 was considered as statistically significant.

Results

In present study of *Shirahshool*; important findings regarding demographic variables like Age, Sex, Marital status, Occupation and working hours were noted.

Age

It was found that according to age, maximum number of patients 29 % belonged to age group 20 to 30 years.

Sex, Occupation, Working Hours

There were 84 females and 16 males amongst 100 patients of *Shirahshool*. 82 patients out of 100; were married and 18 were unmarried. It was reported that maximum i.e. 43% patients belonged to Housewife category, followed by 28% from other occupational groups and out of remaining 29% maximum i.e. 11% were student. Majority of the patients (57%) were recorded as working for 6-8 hours.

The frequency distribution of *Viharaj Hetus* is mentioned in Table 1 according to environmental conditions, *Kayika Vihara*, *Vachika Vihara*, *Mansika Vihar* in *Shirahshool* patients.

Table 1: Distribution of 100 patients of *Shirahshool* according to *Viharaj Hetus*

Sr.No.	Viharaj Hetu	Frequency
1	Environmental Cause, <i>Shita Vayu Sewan</i> -Exposure to Cold Air	40
2	<i>Kayika Vihara, Nidra Vega Vidharana</i> Suppression of natural urge for sleep	36
3	<i>Kayika Vihara, Asatmya Gandha Sewan</i> - exposure to bad odour	31
4	<i>Vachika Vihara, Atibhashana</i> -excessive talking	27
5	<i>Manasika Vihara, Krodha</i> - Anger	29

Table 2: Distribution of Shirahshool Patients as per duration of exposure in years

Environmental or External cause / Number of Patients	Duration of exposure in years					
	1-5 Years N	Percentage	6-10 Years N	Percentage	More than 10 Years N	Percentage
Exposure to Cold Air / 40	27	67.5%	8	20	5	12.5
Suppression of urge for sleep / 36	20	55.5	8	22.2	8	22.2
Exposure to Bad odour / 31	17	54.8	6	19.4	8	25.8
Excessive talking / 27	9	33.3	8	29.6	10	37.0
Anger / 29	10	34.5	10	34.5	9	31.0

Table 2 tells that among the five *Hetus* of *Shirahshool* maximum result in category of 1 to 5 years i.e, 67.5% in Exposure to cold air; 55.5% in Suppression of urge for sleep and 54.8% in exposure to bad odour. In case of Anger (69%) and Excessive talking (37%) as a *Hetu*, population was exposed to it for more than 10 years.

Table 3: Distribution of Shirahshool patients as per severity of Shirahshool

Environmental /External cause	Severity of Shirahshool					
	Mild N	Percentage	Moderate N	Percentage	Severe N	Percentage
Exposure to Cold Air / 40	4	10.0%	22	55.0%	14	35.0%
Suppression of urge for sleep / 36	1	2.8%	16	44.4%	19	52.8%
Exposure to Bad odour / 31	2	6.5%	15	48.4%	14	45.2%
Excessive talking / 27	1	3.7%	16	59.3%	10	37.0%
Anger / 29	1	3.7%	16	59.3%	10	37.0%

Severe grade of *Shirahshool* (52.8%) was present in patients with Suppression of urge for sleep while

moderate severity was noted in patients with excessive talking and anger 59.3% each. Exposure to cold air also showed moderate severity in 55.0% patients.

Table 4: Distribution of Shirahshool patients as per aggravation of Shirahshool

Environmental or External cause / Number of Patients	Present Immediate (Within 30 min.)		Otherwise (After 30 min. up to 1hr.)		Absent N
	N	%	N	%	
Exposure to Cold Air / 40	13	32.5	11	27.5	16
Suppression of urge for sleep / 36	14	38.9	3	8.3	19
Exposure to Bad odour / 31	11	35.5	6	19.4	14
Excessive talking / 27	14	51.9	7	25.9	6
Anger / 29	19	65.5	4	13.8	6

Immediate aggravation in headache (i.e. within 30 min.) was observed amongst patients who had *Viharaj Hetus* like Anger (65.5%) and Excessive talking (51.9%). Due to cold air exposure maximum no. 27.5% patients showed aggravation within 30 min. to 1 hour followed by excessive talking in 25.9%.

Discussion

No previous observational study on *Shirahshool* is found where cause and effect association of *Viharaj Hetus* with *Shirahshool* is established. Hence comparison of results with previous works is not possible. In the present cross-sectional study, maximum number of patients i.e. 29 % belonged to age group 20 to 30 years. This is the *Pitta* dominant period of life. This age group is busy in study, jobs with Shift duty and women with hectic home & work schedule. They do not follow the proper *Dinacharya, Ratricharya*, rules for natural urges and essential care to be taken at the time of exposure to climatic conditions. This *Mithya vihara* leads to the vitiation of *Doshas* especially *Vata & Pitta dosha* and *Rakta Dhatu* in *Shirah* region to cause the disease. In this study there were 84 females, which relates to prevalence survey of Headache according to modern studies, which shows the predominance of Headache in Females (13). 57% patients found to be working for 6-8 hours per day.

The highest incidence (59%) of *Shiroroga* based on chronicity is in between 1-5 years with the duration for 30-60 minutes. The highest incidence of *Shirahshool* based on Severity is 46% with Moderate *Shirahshool* and 42 % with severe pain at head region. The distribution of patients based on relief shows maximum (68%) got relief by rest and 36% get relief by unctuous and warm regimen. In this survey, associated symptoms present in 83% patients is with excessive pain at temporal region and 57% with excessive pain and burning sensation at forehead and between eyebrows.

The *Kayika* (Physical), *Vachika* (Verbal) and *Manasika* (Mental) activities are described under the caption *Vihara* (24). *Vihara* also includes the important

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concepts of *Dinacharya*, *Rutucharya*, *Ratricharya* and *Sadvritta*(25). One can maintain the health and prevent the diseases, by following these regimens. According to Ayurveda *Mithya Vihara*(26)(Improper behaviour) conducted for continued longer period produces disease. The *Viharaj Hetu* causes aggravation of *Vatadi Doshas* in the body and ultimately leads to vitiation of *Rakta* (blood) in head region and produces *Shirahshool*.

In this study the highest noted *Viharaj Hetu* amongst all *Hetus* of *Shirahshool* is Exposure to Cold Air. Cold air exposure without covering head region causes the *Vata* and *Kapha Dosha Vriddhi* (increase) due to *Sheeta Guna* present in air. Recurrent condition of vitiated *Vata* and *Rakta* in the head region leads to the *Shirahshool*. The patients got exposed to cold air during travelling or AC for 7-8 hours during their job and household works. Early morning walk, not following the *Ratricharya*, avoiding the use of Turbans led to *Shirahshool*. In Charak Samhita Sutra Sthana Chapter 9 there are some direct reference related to *Shirahshoola* occurring due to *dharana* of these 4 *vega* like *Mutravega dharna*, *Purisha vega dharana*, *Kshavathu vega dharana* and *Nidra vega dharana*. Suppression of natural urges especially of sleep aggravates *Vata*(27)*dosha*. Aggravated *Vata* produces the severe pain in the head region. Shift duties, study during night hours, household chore are the major factors found as responsible for suppression of urge for Sleep in this survey. The Suppression of urge for Sleep shows statistically significant association with *Shirahshool*.

Exposure to Bad odour vitiates *Vata* and *Rakta* in the head region and causes *Shirahshool* (28). In present study, patients exposed to the perfumes found to be suffering from *Shirahshool*. Exposure to strong perfume smell may act as Bad odour, which disturbed mental component of those persons. Result shows statistically significant association with *Shirahshool*.

Excessive, loud and continuous talk is included in unhealthy act by Ayurvedic compendia, which should always be avoided. Excessive talking aggravates the *Vata Dosha*. Aggravated *Vata Dosha* vitiates the *Sira*(blood vessels) in head region and causes the *Shirahshool* (29) . Patients were using mobile phone for extensive talking with relatives, some had teaching profession and some had talkative nature. Excessive talking aggravates *Vata* in the head region leads to *Shirahshool*.

Mansika (Mental) factors plays important role in maintaining the health. Psychological factors like *Shoka*, *Bhaya* and *Krodha* are mentioned as *Hetus* of *Shirahshool*. *Krodha* aggravates *Pitta Pradhana Vatadi Doshas*, further vitiates the vessels in head region. *Krodha* directly vitiates the *Pitta* and *Rakta* at the head region and causes *Shirahshool*(30). Most of patients are Angry in nature. Anger has been mentioned in suppressible urges by Charaka Samhita but avoidance to suppression of this urge causes aggravation of *Pitta* and *Vata Dosha*, vitiation of *Rakta Dhatu* and leads to *Shirahshool*. Anger shows statistically significant association with *Shirahshool*.

Table 5: Association of Viharaj Hetus with patients of Shirahshool

	Value	df	P-Value
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Exposure to <i>Shita Vayu Sewan</i>			
Pearson Chi-Square	12.741	6	0.047
Likelihood Ratio	5.603	6	0.469
Linear-by-Linear Association	1.045	1	0.307
Suppression of Urge for Sleep			
Pearson Chi-Square	10.212	4	0.037
Likelihood Ratio	1.078	4	0.898
Linear-by-Linear Association	0.747	1	0.388
Exposure to Bad Odour			
Pearson Chi-Square	10.915	4	0.028
Likelihood Ratio	7.132	4	0.129
Linear-by-Linear Association	0.006	1	0.940
Excessive Talking			
Pearson Chi-Square	9.592	4	0.048
Likelihood Ratio	2.025	4	0.731
Linear-by-Linear Association	0.165	1	0.684
<i>Anger</i>			
Pearson Chi-Square	9.594	4	0.048
Likelihood Ratio	3.869	4	0.424
Linear-by-Linear Association	0.765	1	0.382

This study shows the association of *Viharaj Hetus* with the *Shirahshool* and significant role in the pathogenesis of *Shirahshool* (Table 5). P- Value less than 0.05; which was considered as significant association between *Viharaj Hetus* and *Shirahshool*. P-Value calculated for Excessive talking and Anger is 0.048 where as for Exposure to Cold Air is 0.047 followed by 0.037 and 0.028 for Suppression of urge for sleep and Exposure to Bad odour respectively. Hence, it can be concluded that there is significant association between all five *Viharaj Hetus* and Headache.

According to Ayurveda *Nidana Parivarjana*(31) (avoidance of causative factors) is the first and important aspect of the treatment. Avoiding the causative factors of *Shirahshool* will really help in the management of the disease.

Limitations- The topic selected for the study contains the large number of *Viharaj Hetus*, so it is quite difficult to focus on the each and every aspect of each *hetu*. But still effort was taken to cover every aspect of the *hetu*. To observe the exact duration and frequency of *Viharaj Hetus* gradation can help to the statistical part and easy interpretation of results. Also a study on large number of population can strengthen the work importance.

Conclusion

The present cross sectional study showed the significant association of *Viharaj Hetus* with *Shirahshool*. Average of 1-5 years of exposure to foresaid *hetus* and continued contact for more than 30 minutes at a time; led to expression of *Shirahshool*. The etiological factors observed in this work cannot be totally avoided due to current scenario. Anger was found to be more immediate and important cause apart from other environmental and external causes. Depending upon exposure, duration and intensity of these causative factors, aggravation mostly of *Vata Dosha* and vitiation of *Rakta Dhatu* in head region,

takes place, which further can lead to *Shirahshool*. Proper knowledge of these *Viharaj Hetus* will definitely help in prevention and management of the disease *Shirahshool*.

Always prevention is said to be better than cure, hence preventive aspect is very important in treating the disease and maintaining the health.

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