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Effect of selected Asanas and Physical Exercises on Cervical Spondylosis

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ABSTRACT

Objective of the study was to find out the effect of selected Asanas and physical exercises on Cervical Spondylosis. For this study subjects were selected purposely from Out Patients Department of Kayachikitsa, Sir Sundarlal Hospital and different play grounds of between the age of 20 to 70 years were selected for the study. All subjects were divided into 3 groups i.e. Group A, B and C. For each group 30 subjects were selected. Group A was considered as asanas and physical exercises group, group B was given ayurvedic drug and group C was considered as control group. The data was analyzed using the SPSS. In order to find out the Effect of selected asanas and physical exercises on Cervical Spondylosis, a statistical technique was employed at the 0.05 level of significance. Result of study showed significant changes in neck pain problem in pre and post-test condition of group A. In group B and C no significant difference were observed pre and post-test.

Keywords: *Neck pain, Asanas, Isometric neck exercises, Cervical spondylosis, Muscles, Nerves.*

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INTRODUCTION

Asana is a practice through which a child or performer attains awareness of the body, it releases tension and stress from different joints as well as muscle and comes to a state of relaxation in which performer is physically comfortable. These are the postures done with ease in yoga. A proper blend of Asana and approach should be adopted according to age, background and overall state of the performer. It includes breathing exercises and other yogic practices (Gahlaut, 2017)[1]. Similar to asanas, certain specific exercises are also helpful to cure the problem of cervical spondylosis. Therefore the use of cervical exercises has been advocated in patients with cervical spondylosis. Isometric exercises are often beneficial to maintain the strength of the neck muscles. Neck and upper back stretching exercises, as well as light aerobic activities, are also recommended. Exercise consists of activities that are planned and structured, and maintains or improves one or more of the components of physical fitness. Physical activity suggests a wide variety of activities that promote health and well-being. It is important for building healthy bones and strengthening muscles that support and protect joints.

The cervical spine consists of seven cervical vertebrae. The occiput, atlas and axis comprise the 'upper cervical spine'. The atlanto-occipital articulation accounts for 50% of cervical flexion-extension motion. The atlanto- axial articulation accounts for 50% of cervical rotation motion. The 'lower cervical spine' includes C3 through C7. Progressing down the spinal column, the diameter of the bony canal gradually narrows as the diameter of the spinal cord widens, thus reducing the space available for the cord in the inferior cervical spine.

Over many years, our neck is subjected to repeated stress and minor injuries. These injuries may not cause pain at the time of injury. However, repeated injuries add up and can eventually result in degeneration of the cervical spine, causing neck pain. Most of the neck pain is due to degenerative changes that occur in the neck. The overall condition of the cervical spine usually determines how fast one recovers from an injury, and whether our neck pain will become a chronic problem (Mishra, et al. 2012)[2].

Statement of the problem: - **"**Effect of selected asanas and physical exercises on Cervical Spondylosis".

Objective of the Study

1. To study the different Asanas and Physical exercises in reference to their benefits and implication for treatment of Cervical Spondylosis.
2. To find out the combined effect of Asanas and Physical exercises on cervical spondylosis.

3. To find out the effect of an Ayurvedic preparation on Cervical Spondylosis.
4. To compare the effect of Ayurvedic preparation, Asanas and Physical exercises in Cervical Spondylosis.

Delimitations

1. The study was delimited to the persons suffering from cervical spondylosis only.
2. Only 90 subjects (20-90 years) selected in this study.
3. Both male and female person suffering from cervical spondylosis were selected in this study.
4. In this study an Ayurvedic preparation, *Panchamrit lauha guggulu* was administered to Cervical Spondylosis patients

The study was delimited to following selected asanas only.

Ardha chakrasana, Ushtrasana, Gomukhasana, Ardha Matsyendrasana, Markatasana, Setu Bandhasana, Makarasana, Bhujangasana, Salabhasana.

For this study, following isometric and free hand exercises were selected.

Half neck rotation, Head tilt toward left and right side, Neck Extension, Shoulder Rotation, Back Stretch (both hands together pull down), Isometric neck extension, Isometric neck flexion, Isometric lateral flexion of neck.

Limitations

1. Diet, daily routine, and types of work were taken as limitation of the study.
2. Severely ill individuals were taken as limitation of the study.
3. Subjects' response was considered as limitation of the study.

Hypothesis of The Study: It was hypothesized that-

1. There shall not be any significant effect of asanas and physical exercises on cervical spondylosis.
2. There shall not be any significant effect of pre -test and post- test scores of subjects.
3. There shall not be any significant effect of Ayurvedic preparation on cervical spondylosis.

DEFINITION AND EXPLANATION OF TERMS

Cervical spondylosis is a common degenerative condition of the cervical spine. It is most likely to cause by age-related changes in the intervertebral discs. Clinically, several syndromes, both overlapping and distinct, are seen. These include neck and shoulder pain, suboccipital pain and headache, radicular symptoms, and cervical spondylotic myelopathy (CSM). As disc

degeneration occurs, mechanical stresses result in osteophytic bars, which form along the ventral aspect of the spinal canal **(Rana, 2010)**[3].

Asana means holding the body in a particular posture to bring stability to the body and the poise to the mind. The practice of asana brings purity in tubular channels, firmness to the body and vitality to the body and the mind.

Physical exercise is any bodily activity that enhances or maintains physical fitness and overall health and wellness. It is the planned and repetitive bodily activity that is done to gain good health or to maintain physical and mental fitness.

MATERIALS AND METHOD

Selection of subjects:

For this study subjects were selected purposely from Out Patients Department of Kayachikitsa, Sir Sundarlal Hospital and different play grounds of Banaras Hindu University, Varanasi. A total no. of 90 subjects; male (31) & female (59) between the age of 20 to 70 years were selected for the study. All subjects were divided into three groups i.e. Group A, B and C. For each group 30 subjects were selected. Group A was considered as asanas and physical exercises group, group B was given Ayurvedic drug and group C was considered as control group.

Selection of variables:

The study was conducted on the basis of available literature on cervical spondylosis, experts' opinion in the field of yoga as well as physical exercise, exercise physiology and scholars own understanding. On the above background, following variables were considered.

1. **Asanas-** *Ardha Chakrasana, Ushtrasana, Gomukhasana, Ardha Matsyendrasana, Markatasana, Setu Bandhasana, Makarasana, Bhujangasana, Salabhasana*
2. **Physical Exercises-** Half Neck Rotation, Head Tilt Toward Left And Right Side, Neck Extension, Isometric Neck Extension, Isometric Neck Flexion, Isometric lateral Flexion of Neck, Shoulder Rotation, Back Stretch both hands together pull down
3. **Cervical Spondylosis-** Headache, Neck stiffness and vertigo.

CRITERION MEASURES:

The criterion measures for the test were as under:-

Age- Age of the subjects was measured in completed years.

Height- Height of the subjects was measured as nearest inches.

Weight- Weight of the subjects was measured in kilogram.

Collection of data:

The data was collected from Out Patients Department of Kayachikitsa, Sir Sundarlal Hospital and different play grounds of Banaras Hindu University, Varanasi, during May 2015 to June 2018. There were 30 subjects kept in each 3 different groups i.e. in group A (Male- 16 & Female-14), group B (Male-5& Female- 25) and group C (Male- 10 & Female-20). The test cum training programme was conducted preferably during morning hours i.e. before 8 am.

Experimental design:

For the study Pre-test, Post-test Random Group design was adopted as it seemed to be the most appropriate one. 90 subjects were randomly divided into three equal groups with 30 subjects in each i.e. group A, group B and group C. Among them A & B as experimental groups and group C as a control group was framed.

Administration of test:

Test was administered from the month of May 2015 to month of June 2018. All subjects were requested to present at the BHU IT ground in the morning time 6-8 am. Pre-test score was collected at OPD of Kayachikitsa, SSH and various play grounds of BHU. After Pre-test all the subjects of experimental groups were given selected asanas and physical exercises according to schedule for 12 weeks in the morning time from 6-8 am daily. After 12 weeks post test score was collected individually.

Training programme:

Selected Asanas and Physical Exercises were administered in experimental group A subjects preferably in morning hours. Before proceeding to asanas and physical exercises all subjects were asked to perform walk for a period of 15 minute as a measure to warming up.

The experimental group subjects were asked to perform asanas and physical exercises for a period of 12 weeks daily in the morning session. During training, the work out of first phase lasted for 24-30 minutes, second phase lasted for 34-48 minutes and the third phase lasted 51-65 minutes. Each phase was comprised of four weeks. Each asana and physical exercises had a gap of 30 sec to 1 min and at the end of each training session the subjects were made to steady in savasana for 10 minutes. The 12 weeks training program schedule of group A is presented in table 1

Table 1: Program Schedule of Asanas & Physical Exercises for 12 weeks (3 phases of each 1 week)

Sr.No	Name of the Asanas / Physical Exercises	Repetition Phase wise distribution	Duration (seconds)	Total time taken (seconds)
		Phase 1/2/3	Phase 1/2/3	Phase 1/2/3
1.	*Ardh achakrasana*	2/3/4	10-20/20-30/30-40	20-40/60-90/120-160
2.	*Ushtrasana*	2/3/4	10-20/20-30/30-40	20-40/60-90/120-160
3.	*Gomukhasana*	2/3/4	5-10/10-20/20-30	10-20/30-60/80-120
4.	*Ardha Matsyendrasana*	2/3/4	5-10/10-20/20-30	10-20/30-60/80-120
5.	*Markatasana*	5/6/8	5-10/10-20/20-30	25-50/60-120/160-240
6.	*Setu Bandhasana*	2/3/4	25-30/30-40/40-50	50-60/90-120/160-200
7.	*Makarasana*	1/2/3	30-60/60-120/120-140	120-240/180-360/360-420
8.	*Bhujangasana*	2/3/4	5-10/10-20/20-30	10-20/30-60/80-120
9.	*Salabhasana*	2/3/4	5-10/10-20/20-30	10-20/30-60/ 80-120
10.	Half Neck Rotation	2/3/4	10-20/20-30/30-40	20-30/60-90/ 120-160
11.	Head Tilt Toward Left and Right Side	5/6/7	5-10/10-20/20-30	25-50/60-120/ 140-210
12.	Neck Extension	5/6/7	5-10/10-20/20-30	25-50/60-120/ 140-210
13.	Isometric Neck Extension	2/3/4	5-10/10-20/20-30	10-20/60-120/ 80-120
14.	Isometric Neck Flexion	2/3/4	5-10/10-20/20-30	10-20/60-120/ 80-120
15.	Isometric Lateral Flexion of Neck	2/3/4	5-10/10-20/20-30	10-20/60-120/ 80-120
16.	Shoulder Rotation	5/6/7	10-15/15-20/20-30	50-75/90-120/ 140-210
17.	Back Stretch (both hands together pull down)	2/3/4	5-10/10-20/20-30	10-20/30-60/ 80-120

Analysis of Data and Result of the Study

Each subject was pre tested by questionnaire and other clinical examinations along with X-Ray for diagnosis and to assess severity of disease. Post-test was taken after 12 weeks of training programs as well as drug treatment by the same Criterion measure under similar conditions. The finding and response of control group were also noted after similar duration of 12 weeks. To find out the effect of exercises and Asanas on Cervical Spondylosis, the collected data were analysed by descriptive statistics. Paired t Test was applied to compare the result (Pre-post) on the basis of mean and SD within the group. One Way ANOVA was applied to compare the result of the study between the groups. To be more specific, Post Hoc Test was implied to compare the result between two specific groups i.e. group A v/s Band group A v/s C and group B v/s C. Wilcoxon Signed Rank Test was applied to compare the result within group (Pre-post) on the basis of change in percentage of number of subjects in different grading i.e. 1,2,3,4. Kruskal Wallis Test was applied to compare the result of the study between the groups on the basis of change in percentage of number of subjects in different grading i.e. 1,2,3,4. To be more specific, Mann-Whitney Test was incorporated to compare the overall result between two specific groups i.e. group A V/S B group A V/S C and group B V/S C. Within the group Chi square Test was applied to analyse the data in demography.

Demography

Table 2: Prevalence of Cervical Spondylosis in different Age groups

Age Group	No. (%) of Cases			Total
	Group – 1	Group – 2	Group – 3	
21-30	5(16.7%)	2(6.7%)	8(26.7%)	15(16.6%)
31- 40	4(13.3%)	7(23.3%)	6(20%)	17(18.8%)
41-50	10(33.3%)	13(43.3%)	10(33.3%)	33(36.6%)
51- 60	11(36.7%)	8(26.7%)	6(20%)	25(27.7%)
Total	30(100%)	30(100%)	30(100%)	90(100%)

In this study on overall assessment we find that maximum subjects were from age group 41-50 years i.e. 36.66% that indicates C S is the disease of advancing age.

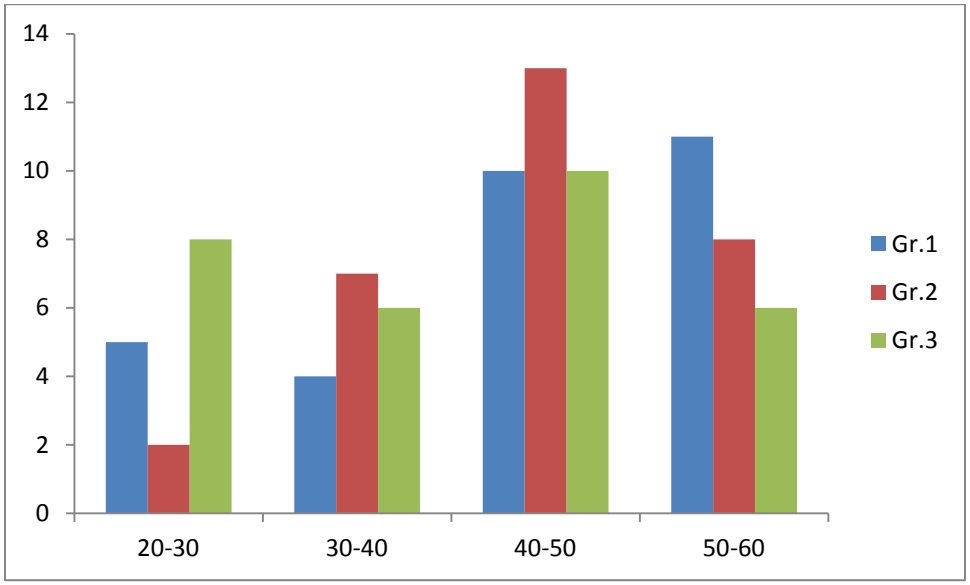

Figure 1: Graphical presentation of Age in different groups of Cervical Spondylosis

Table 3: Occupation of subjects in different groups

Occupation	Group			Total
	1	2	3	
Teachers	11	6	7	24
	36.6%	20.0%	23.3%	26.66%
Business Men	7	3	4	14
	23.3%	10%	13.3%	15.6%
House Wife	3	17	11	31
	10.0%	56.7%	36.7%	34.4%
Students	4	2	5	11
	13.3%	6.7%	16.7%	12.2%
Defence Person	3	1	0	4
	10%	3.3%	0.0%	4.4%
Tailors	1	0	1	2
	3.3%	0.0%	3.3%	2.2%
Advocates	1	1	1	3
	3.3%	3.3%	3.3%	3.3%
Farmers	0	0	1	1
	0.0%	0.0%	3.3%	1.1%
Total	30	30	30	90
	100%	100%	100%	100%

Chi-square= 23.809 p= 0.161

In this study out of 90 subjects 26.66% were teachers, 15.6% business man, 34.4% house wives, 12.2% students, 4.4% defence persons, 2.2% tailors, 3.3% advocates and 1.1% farmer.

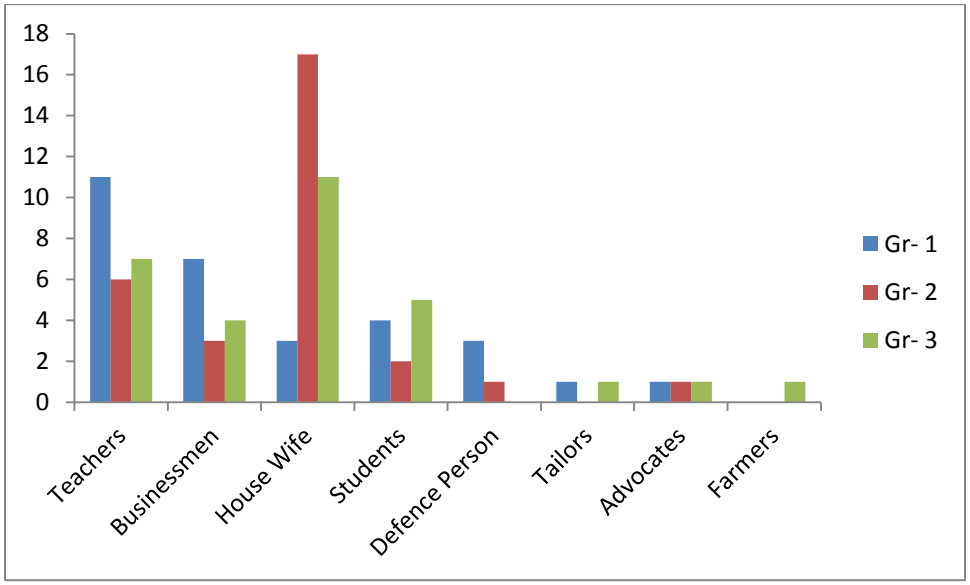

Figure 2: Graphical presentation of Occupation in different groups of Cervical Spondylosis

RESULTS AND DISCUSSION

The result pertaining to descriptive statistics and analysis of sign and symptoms among 2 experimental groups and 1 control group in subjects of Cervical Spondylosis have been presented here:

Table 4: Effect on Neck Stiffness in different groups

Group	**Grade**	**Neck stiffness** No. & % of cases		**Within group comparison (Wilcoxon Signed Rank Test)**
		Pre Test	**Post Test**	
Group - 1	1	1(3.3%)	20(66.7%)	z= 4.518
(Asanas/Exercises)	2	8(26.7%)	8(26.7%)	p= 0.000*
	3	7(23.3%)	2(6.7%)	
	4	14(46.7%)	0(0.00%)	
Group - 2	1	1(3.3%)	10(33.3%)	z= 4.159
(Drug)	2	10(33.3%)	17(56.7%)	p= 0.000*
	3	6(20.0%)	2(6.7%)	
	4	13(43.3%)	1(3.3%)	
Group - 3	1	0(0.00%)	0(0.00%)	z= 0.922
(Control)	2	6(20.0%)	3(10.0%)	p= 0.356
	3	14(46.7%)	16 (53.3%)	
	4	10(33.3%)	11(36.7%)	
Between group comparison		0.190	53.114	
(Kruskal Wallis test)		p= 0.909	p= 0.000	
(Mann-Whitney Test)			z= 2.409	
Group 1 vs 2			p= 0.016	
Group 1 vs 3			z=6.399	
			p= 0.000	
Group 2 vs 3			z= 5.815	
			p= 0.000	

*Significant at .05 level

On between group comparisons the study showed the value of (P) before treatment was (0.909) and after treatment it was (0.000) which was highly significant. On implementation of Man-Whitney Test it is observed that maximum relieve was found in group (1- Asanas & Physical Exercises group) followed by group (2- Drug group), whereas no relief was observed in group (3- Control group).

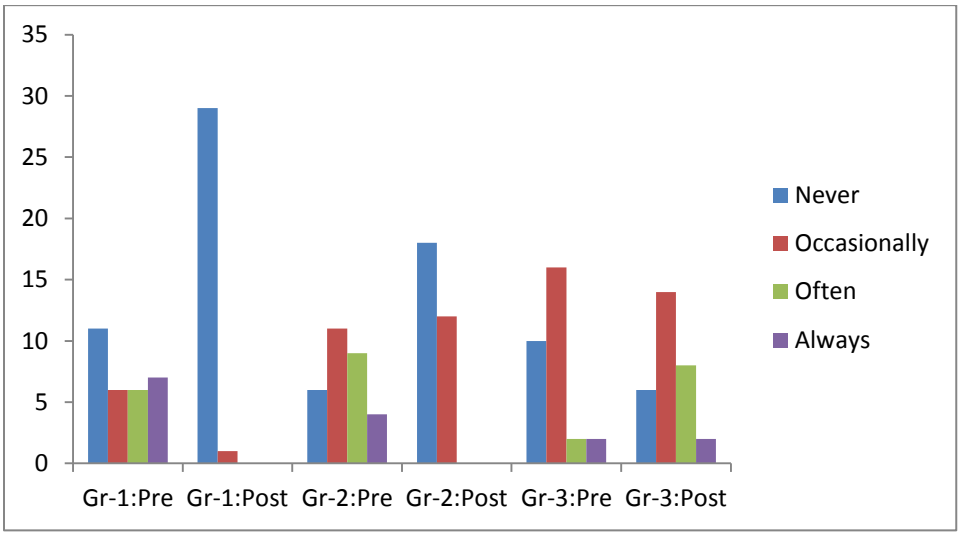

Figure 3: Graphical presentation of effect on Neck Stiffness in different groups

Table 5: Effect on Headache in different groups

Group	Grade	Headache No. & % of cases		Within group comparison (Wilcoxon Signed Rank Test)
		Pre Test	Post Test	
Group - 1	1	7(23.3%)	24(80.0%)	z= 4.323
(Asanas/Exercises)	2	10(33.3%)	6(20.0%)	p= 0.000*
	3	8(26.7%)	0(0.00%)	
	4	5(16.7%)	0(0.00%)	
Group- 2	1	1(3.3%)	8(26.7%)	z= 4.255
(Drug)	2	9(30.0%)	19(63.3%)	p= 0.000*
	3	13(43.3%)	2(6.7%)	
	4	7(23.3%)	1(3.3%)	
Group- 3	1	4(13.3%)	3(10.0%)	z= 0.832
(Control)	2	14(46.7%)	14(46.7%)	p= 0.405
	3	8(26.7%)	8(26.7%)	
	4	4(13.3%)	5(16.7%)	
Between group comparison		5.451	37.111	
(Kruskal Wallis test)		p= 0.066	p= 0.000	
(Mann-Whitney Test)			z= 4.179	
Group 1 vs			p= 0.000	
Group 1 vs 3			z= 5.614	
			p= 0.000	
Group 2 vs 3			z= 2.911	
			p= 0.004	

*Significant at .05 level

For between group comparisons we incorporated Kruskal Wallis test, that showed the value of (P) before treatment (0.066) and after treatment it was (0.000) which was highly significant. On implementation of Man- Whitney Test it is observed that maximum relieve was found in group (1- Asanas & Physical Exercises group) followed by group (2- Drug group), whereas no relief was observed in group (3- Control group), instead of that there was aggravation of headache in some subjects of group (3).

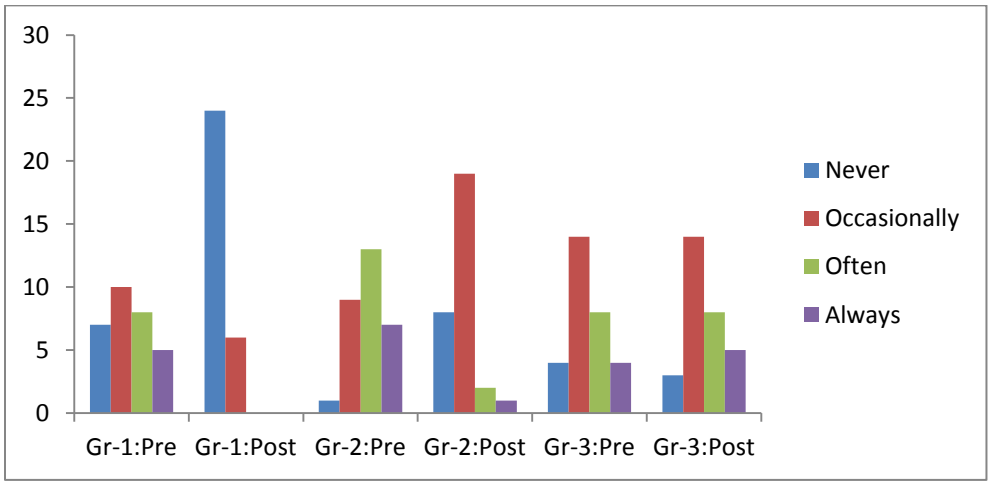

Figure 4: Graphical presentation of effect on Headache in different groups

Table 6: Effect on Giddiness or Vertigo in different groups

Group	Grade	Giddiness or vertigo No. & % of cases		Within group comparison (Wilcoxon Signed Rank Test)
		Pre Test	Post Test	
Group- 1	1	4(13.3%)	22(73.3%)	z= 4.594
(Asanas/Exercises)	2	10(33.3%)	8(26.7%)	p= 0.000*
	3	12(40.0%)	0(0.00%)	
	4	4(13.3%)	0(0.00%)	
Group- 2	1	4(13.3%)	16(53.3%)	z= 3.743
(Drug)	2	13(43.3%)	13(43.3%)	p= 0.000*
	3	9(30.0%)	0(0.00%)	
	4	4(13.3%)	1(3.3%)	
Group- 3	1	6(20.0%)	4(13.3%)	z= 0.943
(Control)	2	17(56.7%)	18(60.0%)	p= 0.346
	3	6(20.0%)	6(20.0%)	
	4	1(3.3%)	2(6.7%)	
Between group comparison		5.052	26.620	
(Kruskal Wallis test)		p= 0.080	p= 0.000	
(Mann-Whitney Test)			z= 1.657	
Group 1 vs 2			p= 0.097	
Group 1 vs 3			z= 4.882	
			p= 0.000	
Group 2 vs 3			z= 3.583	
			p= 0.000	

*Significant at .05 level

On between group comparisons it is found the value of (P) before treatment (0.080) and after treatment it was (0.000) which was highly significant. On implementation of Man- Whitney Test it was observed that maximum relieve was found in group (1- Asanas & Physical Exercises group) followed by group (2- Drug group), whereas no relief was observed in group (3- Control group).

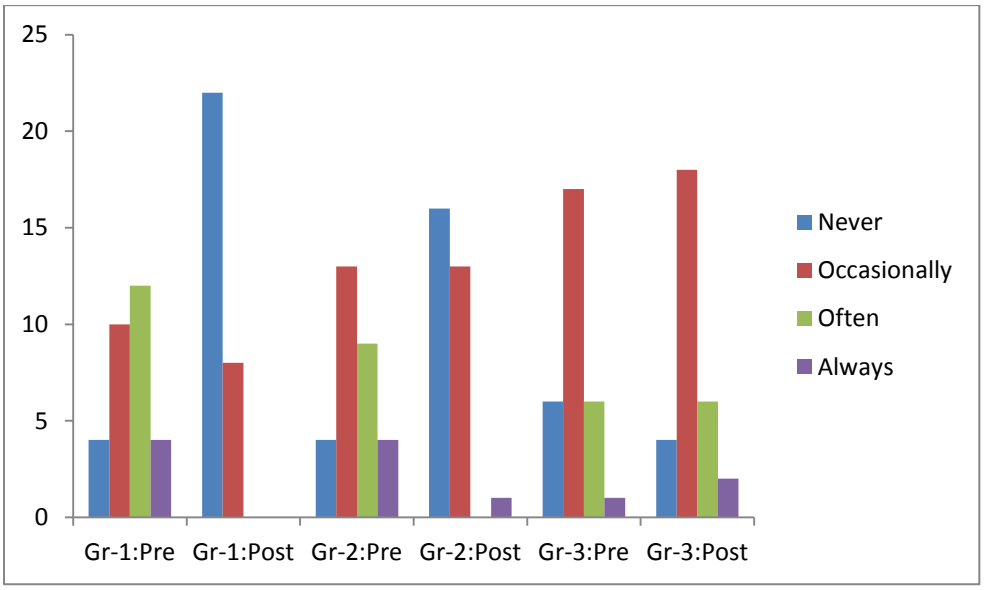

Figure 5: Graphical presentation of effect on Giddiness or Vertigo in different groups

Table 7: Overall Effect of Study on Cervical Spondylosis

Group	**Total score of 15 items (Questionnaire base) Mean ± SD**		**Within the group comparison**
	Pre test	**Post test**	**Paired t test, Pre- Post**
Group A	35.5000 ± 6.5534	18.4667 ± 2.5694	17.03333 ±6.21724 t= 15.006, P= 0.000
Group B	34.9667±6.82027	21.6667 ±3.95085	13.30000 ±6.56611 t= 11.094, p= 0.000
Group C	31.2333 ±5.67926	32.7333±5.78901	1.50000 ± 4.49329 t= 1.828, p= 0.078
Between the group comparison one way ANOVA	F= 3.996 p= 0.022	F= 90.513 p= 0.000	
Post Hoc Test	p= 1.000	p= 0.015	
Group A vs Group B			
Group A vs Group C	p= 0.033	p= 0.000	
Group B vs Group C	p= 0.077	p= 0.000	

*Significant at .05 level

This table reveals that in group (A) pre-test mean and SD was 35.5000 ± 6.5534 and post test it became18.4667 ±2.5694. The difference was 17.03333 ± 6.21724. It was statistically highly significant (P= 0.000). In group (B) the difference of Mean & SD was 13.30000 ± 6.56611

(p=0.000) it was highly significant. In group (C) the difference was 1.50000 ± 4.49329. This data was statistically no significant (P= 0.078).

For between group comparisons we incorporated one way ANOVA test. The study showed the value of (F) pre-test was (3.996) and post-test it was (90.513) & P value was (0.000). On implementation of Post Hoc Test we observed that maximum relieve was found in group (A- Asanas & Physical Exercises group) followed by group (B- Drug group), whereas no relief was observed in group (C- Control group).

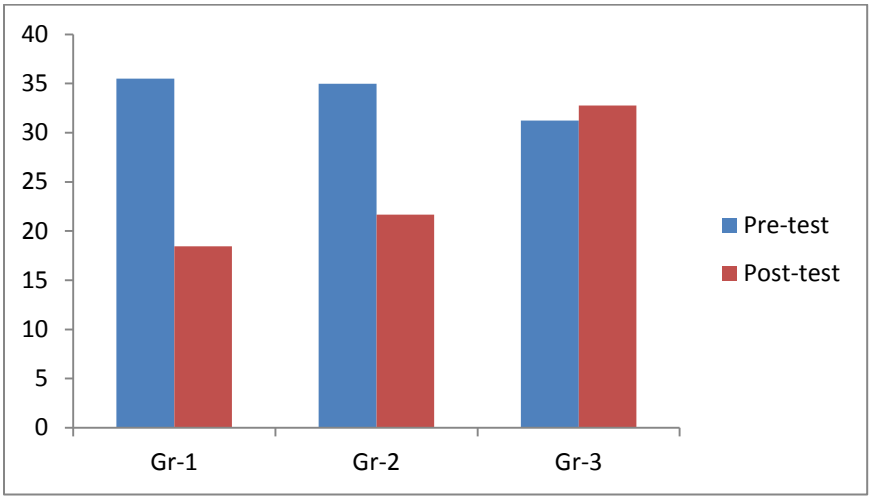

Figure 6: Graphical presentation of Mean of total score of symptoms in different groups

Cut-Off Total Score (Questionnaire)

Scale was developed to deterring to severity grade of Cervical Spondylosis. A 4 point scale was prepared on 15 symptoms for determining the overall severity of symptoms based on all 15 symptoms. The minimum and maximum score a person can obtain was 1 and 4. Thus the total score was ranging from 15 to 60. The Mean, Median, Mode, Standard Deviation of total score of pre-test observed data on 90 subjects were determent which is given as below

N = 90, Mean= 33.90, Median= 33.00, Mode= 32.00, SD = 6.58

Assuming data to be following the normal distribution as Mean, Median and Mode are closed to each other and observing the histogram and normal curve observe data it was decided to consider Mean ± 1Sd as cut of value for total score in the following manner.

Total Score	Severity
15-26	Mild
27-40	Moderate
41-60	Severe

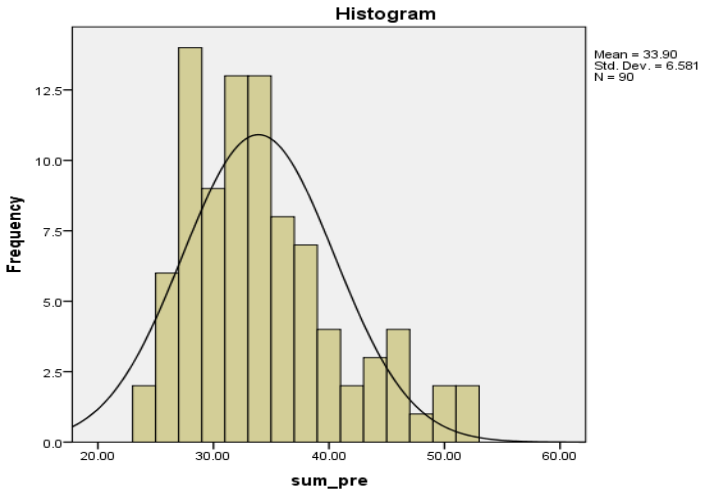

Table 8: Showing pre- test severity in different groups

Sum of Pre test		Group			Total
		1	2	3	
Mild	Score	2	2	4	8
	% within Group	6.7%	6.7%	13.3%	8.9%
Moderate	Score	20	24	24	68
	% within Group	66.7%	80.0%	80.0%	75.6%
Severe	Score	8	4	2	14
	% within Group	26.7%	13.3%	6.7%	15.6%
Total	Score	30	30	30	90
	% within Group	100.0%	100.0%	100.0%	100.0%

Chi square= 5.471 p= 0.242

This table reveals that in group (A) pre-test 2, 20 and 8 subjects were present in mild, moderate and severe category respectively. In group (B) pre-test 2, 24 and 4 subjects were present in mild, moderate and severe category respectively whereas in group (C) pre-test 4, 24 and 2 subjects were present in mild, moderate and severe category respectively. On overall view prevalence of severity in different groups was mild 8 (8.9%) subjects, moderate 68 (75.6%) subjects and severe 14 (15.6%) subjects.

Table showing post- test severity in different groups

Crosstab					
Sum of Post test		Group			Total
		A	B	C	
Mild	Score	30	26	3	59
	% within Group	100.0%	86.7%	10.0%	65.6%
Moderate	Score	0	4	23	27
	% within Group	0.0%	13.3%	76.7%	30.0%
Severe	Score	0	0	4	4
	% within Group	0.0%	0.0%	13.3%	4.4%
Total	Score	30	30	30	90
	% within Group	100.0%	100.0%	100.0%	100.0%

Chi square= 63.149 p=.000

This table reveals that in group (A) post test 30, 0 and 0 subjects were present in mild, moderate and severe category respectively. In group (B) post test 26, 4 and 0 subjects were present in mild, moderate and severe category respectively whereas in group (C) post test3, 23 and 4 subjects were present in mild, moderate and severe category respectively. On overall view prevalence of severity in different groups post test was mild 59 (65.6%) subjects, moderate 27 (30.0%) subjects and severe 4 (4.4%) subjects. This finding was statistically highly significant (p=0.00).

DISCUSSION OF FINDINGS

The researcher aim was to ascertain the characteristics of neck stiffness, giddiness/vertigo and headache etc. among cervical spondylosis patients attended at Banaras Hindu University Varanasi premises. A variety of characteristics had been found from the selected samples whether it was acute, subacute or chronic type of cervical spondylosis by a categorized variable outcome that are socio-demographic, pattern of physical activity, posture, specific sign and symptoms related information.

The popular belief that “progress is the most important product” has great significance in physical education. By assessing at the beginning and at the end of study period, it is possible to compare the individual grades of sign and symptoms to show progress or retrogression. The analysis of data revealed that all two experimental groups trained by combined asanas and exercises, Ayurvedic drug showed significant relief in sign and symptoms of cervical spondylosis. The mean effect achieved by combined asanas and exercises groups was better than mean relief achieved by ayurvedic drug group. The control group did not show any significant relief in sign and symptoms.

CONCLUSION

Within the light of the demographic observations and results obtained following conclusions are made The problem of Cervical Spondylosis is the disorder of each and every age group excluding childhood but in this study maximum affected people were from age group of 40-59 years. In this study maximum subjects were female it may be just coincidence. No conclusive inference can be drawn by this data regarding prevalence of Cervical Spondylosis among different genders. In each and every occupation and activities of body the neck needs to be bend in different direction. Subjects who bend forward their neck more frequently and continuously like teachers, students, house wives and tailors affected predominantly. The relief in Cervical Spondylosis sign and symptoms can be improved by asanas / exercises and ayurvedic drug. Evidence has been found to indicate statistically significant difference in the grades of selected

sign and symptoms of Cervical Spondylosis e.g. stiffness, headache, vertigo etc at 0.05 level of confidence. Evidence also has been found that the mean gain achieved by Ayurvedic drug was also statistically significant but the mean gain achieved by yogic Asanas/Exercises group was higher in Cervical Spondylosis subjects. The importance of Asanas / Exercises / Drug in controlling sign and symptoms of Cervical Spondylosis was quite evident from above data analysis. Contrary to this in control group certain symptoms like; neck stiffness, headache, vertigo were increased after time period of study particularly the number of subjects in grade 4 was increased showing worsening of these symptoms.

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