

TITLE

**“Risk factors of neck pain in females -a
case control study”**

BY

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ABSTARCT

Background: Neck pain is a typical and real health issue in our general public. Neck pain is considered to be complex for its cause suggesting that a number of risk factors may promote its development.

Objective: The objective of the study is to determine the risk factors associated with neck pain in females.

Methodology: A case control study was carried out in the females of Gujrat using a purposive method to recruit a sample of 353 females. 113 females having neck pain and remaining 240 were in control group. The control group was also belonging to the same area and exposure. A semi structured questionnaire was used to collect data.

Results: The result has been obtained from 353 participants (females) 113 patients with neck pain (cases) while 240 with no neck pain (control). Their age range was 25- 60 years.

According to the results of bivariant analysis age ($P = 0.032$), time of prolong sitting and forward bending ($P = 0.035$) and work status ($P = 0.001$) have a significant association with neck pain.

While time duration of hand above the shoulder level activities did not have a significant association with neck pain.

Conclusion: Age, time of prolong sitting and forward bending and work status have a significant association with neck pain. These factors need to be addressed to prevent from the neck pain. Incidence of neck pain can be reduced by controlling these risk factors.

Key Words: Neck pain, Neck disability index, Work load, association

INTRODUCTION

Neck pain is a typical problem; about 66% of population faces this problem eventually at some part of their lives. (1)

Although the neck pain felt in the neck but it can be associated with spinal issues. Neck agony may be because of muscular spasm or tightness in the cervical or upper thoracic area and

squeezing of the nerves emerging from the cervical vertebrae. Disturbance in any of the cervical joint as well as upper thoracic joint can cause pain in the neck.

Neck agony is an irritation at any neck component. i.e. ., muscles, nerves, vertebrae or vertebral discs. Other surrounding areas like head, jaws, shoulder and arm also radiate pain to neck. When neck is hurt it usually seems to be more painful to move it especially side movements.

It is explained as solidified neck by many patients .If there is involvement of some neural tissue i.e., nerve then numbness, burning sensations and weakness in the respective shoulder and arm may be felt. (2-4)

Neck torment is common issue in our society. Around two third of individuals add to an episode of neck agony eventually in their lives. A study conducted in United Kingdom show that one female out of four and one male out of five are suffering from neck torment.

Nonspecific neck pain is the more prevalent pain in our everyday life. It may be called as 'simple' or 'mechanical' neck pain. Mostly the accurate cause of the pain is not known. Minor sprain or strain to the muscles or ligaments may be a cause. Poor or wrong posture may also be a contributing risk factor in many conditions. e.g., neck pain is more prevalent in individuals; spending most of their time in forward bending posture in their working hours.

Anxiety and stress might be a factor cause tension in neck muscles, which can lead to pain in neck.

Other causes of neck pain include RA, Cervical Spondylosis, Wryneck, spinal Stenosis, Slipped Herniated Disc, Wiplash injury etc

Neck pain is thought to be multifactor disease, suggesting that there are a number of risk factors contributing to its development.(5)

Risk factors can be divided roughly in three groups

- Physical
- Psychosocial
- Individual Related Risk Factors(6)

MATERIALS AND METHODS:

This case control study was conducted at private clinic in Gujrat, Punjab Pakistan.

The sample size for this study was 353 females, 113 cases and 240 controls. The subjects who had a continuous neck pain for more than three months duration and those who were aged 25 to 60 years were selected as cases. Patients who had neck pain due to causes such as spinal tumors,

infections, spinal trauma and any spinal surgery spine were excluded. While the females of same age and same area how had visit the clinic for the treatment of some other conditions were selected as control. Case and control groups were matched for their age, gender and area.

Data were collected through Non probability purposive sampling technique. Duration of this study was 6 months from 1st July to 30th December 2014.

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Data were collected by interviewing 353 females including teachers, doctors, nurses, other skilled females and house wives. Questionnaire was used as a tool for data collection. questionnaire include: Age in 3 groups(25-37 years ,38-49 years, 50-60 years),Time of hand above the shoulder level activities are grouped as (<1 hour/day, 1 hour/day, 2hours/day, 3hours/day, >3 hours/day), Work load status (House hold, Job and complete house hold, Job and some house hold), Prolong sitting and forward bending posture(<1 hour, 1 hours, 2 hours, 3 hours, >3 hours).

The data were entered and analyzed using SPSS. The categorical data were described using percentages. Multivariate analysis was done using the binary logistic regression model 95% level of significance. Odds ratios were calculated to determine the strength of association

RESULTS

According to the results of bivariant analysis age ($P = 0.032$), time of prolong sitting and forward bending ($P = 0.035$) and work status ($P = 0.001$) had a significant association with neck pain (Table 2). Mean \pm S.D of age in case and control groups is 39.51 ± 7.74 and 39.23 ± 9.40 respectively (Table 1)..

According to the results of logistic regression analysis age group of 38-49 ($OR = 1.947$, $P = 0.017$), less time of work with hands above the shoulder level that is 1 hour per day ($OR = 0.78$, $P = 0.019$) and work status of the female with job and house hold ($OR = 0.778$, $P = 0.001$) had a significant association with neck pain. (Table 3)

Age matching of Case and Control groups:

Group		N	Minimum	Maximum	Mean	Std. Deviation
Case group	Age	113	25.00	60.00	39.5133	7.73572
	Valid N (listwise)	113				
Control group	Age	240	25.00	60.00	39.2333	9.40643
	Valid N (listwise)	240				

Table #1 Mean \pm S.D of age in case and control groups is 39.51 ± 7.74 and 39.23 ± 9.40 respectively.

Demographic factors of case and control

Factors		Cases n (%)	Control n (%)	P-Value
Age (Years)	25-37	43(38.1)	127(52.9)	0.032
	38-49	47(41.6)	74(30.8)	
	50-60	23(20.4)	39(16.2)	
Time of work with hands above shoulder level (hours/day)	<1	40(35.4)	89(37.1)	0.085
	1	30(26.5)	54(22.5)	
	2	22(19.5)	32(13.3)	
	3	13(11.5)	24(10.0)	
	>3	8(7.1)	14(17.1)	
Time of prolonged sitting posture and possible forward bending (hours)	<1	13(11.5)	47(19.6)	0.035
	1	19(16.8)	64(26.7)	
	2	27(23.9)	41(17.1)	
	3	15(13.3)	25(10.4)	
	>3	39(34.5)	63(26.2)	
Work Status	house hold	69(61.1)	76(31.7)	0.001
	job & complete household	22(19.5)	73(30.4)	
	job & some household	22(19.5)	91(37.9)	

Table # 2: Results of Bivariant Analysis

Variables	Odds Ratio (95%C.I.)	P value
Age		
25-37	1.00	0.017
38-49	1.947(0.985-3.85)	
50-60	0.898(0.453-1.781)	
Hands above the shoulder level		
<1 hour/day	1.00	0.019
1 hour/day	0.775(0.299-2.01)	
2hours/day	0.358(0.134-0.959)	
3hours/day	0.293(0.106-0.808)	
>3 hours/day	0.338(0.113-1.009)	
Time duration of prolong sitting and forward head posture		
<1 hour	1.00	0.124

1 hours	2.105(0.943-4.702)	
2 hours	2.269(1.082-4.755)	
3 hours	1.198(0.593-2.422)	
>3 hours	1.018(0.449-2.309)	
workload status		
House hold	1.00	<0.001
Job and complete house hold	0.285(0.154-0.527)	
Job and some house hold	0.778(0.375-1.613)	

Table #3 Results of logistic regression analysis

DISCUSSION

Results of current study show an association between the age and neck pain. Also it is concluded that neck pain is more common in females between the age group 38 to 49years.females at this age group are 1.9 times more likely to develop neck pain as compare to other age groups.

B. Cagnie et al., (2007)also suggests in their study that persons older than 30 years have 2.61 times more chance of having neck pain than younger individuals.(7)

OSH Research Report, (2006)published a survey report which showed age is a significant risk factor in developing neck pain (8)

This study shows that the females having prolonged sitting posture are almost 2 times more risk of developing neck pain as compare to those who have not expose to prolong sitting posture. A significant association is found between the duration of prolong sitting and forward bending. B. Cagnie et al., (2007) also concluded in their study that a significant association exists between neck pain and often holding the neck in a forward bent posture for a prolonged time, often sitting for a prolonged time (7)

Chiu TT et al., (2002) investigated the 1-year prevalence of neck pain and possible risk factors among university academic staff. They found a significant association between head posture during computer processing and neck pain ($p = 0.02$). According to them among those with neck pain during computer processing, 60.5% had a forward head posture(9).G A M Ariëns et al., (2001)demonstrated that Sitting at work for more than 95% of the working time seems to be a risk factor for neck pain and there is a trend for a positive relation between neck flexion and neck pain (5)

The current study shows an association between the work load status ($P=0.001$) and neck pain in females. Females who are doing their jobs and also do house work are more likely to

develop neck pain. The odd ratio shows that females doing job and house hold are at more risk of developing neck pain as compare to only job doing females.

E Viikari-Juntura et al., (2001) research results show association with radiating neck pain in both analyses were sex, age, body mass index, smoking, duration of work with a hand above shoulder level, mental stress, and other musculoskeletal pains(6). This study also suggests that the females who do not do activities with hands above shoulder level are at more risk of developing neck pain as compare to those who do hands above shoulder level activities

CONCLUSION:

Age, time of prolong sitting and forward bending and work status have a significant association with neck pain. The hands above shoulder activities should be encouraged to prevent the neck pain. This study was done on risk factors for neck pain provides details of some risk factors and how these risk factors contribute to the development of neck pain. These factors need to be addressed to prevent from the neck pain. Incidence of neck pain can be reduced by controlling these risk factors.

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