

Postural Awareness Among Architects with Musculoskeletal Pain - A Cross Sectional Study

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ABSTRACT

Musculoskeletal pain is a substantial health concern for architects. To meet a work requirement, the architect must adjust and adapt to various postures at work. So, the current research aimed to find postural awareness among architects with musculoskeletal pain. Material and Method: This cross-sectional study included 97 participants with backgrounds as architects. Both male and women participants were included in this cross-sectional study. Participants ranged in age and gender. A postural awareness scale is used to measure postural awareness. Results: Data were analyzed employing the Statistical Chi-square test and One-Sample-t test. In our investigation, the t-test produced a significant statistical result with a p-value below the 5% significance level (i.e., 0.001 < 0.05). Conclusion: Based on the current findings, it can be concluded that architects with musculoskeletal pain were significant awareness of their posture.

Keywords: postural awareness, musculoskeletal pain, architects

INTRODUCTION

Architects spend many hours each day in front of a computer screen, which entails sitting in prolonged static postures, bending and flexing the neck, and putting strain on the back, cervical region, and wrist area. The prevalence of musculoskeletal issues in architects is 80%. Arm and below shoulder level (77.4%), frequent bending (41.5%) and arm above shoulder activities (25.5%), and twisting (19.8) (1). Research in light on awareness and compulsory coping techniques for people who use excessive sitting positions for more than 8 hours can increase the risk for musculoskeletal diseases (2), Complaints of the neck and lower back area are more frequent among architects (3) The prevalence of musculoskeletal disorders in architects is higher.(4)

Many researchers raised the need for the awareness required for the architect's postural-related musculoskeletal pain and established the need for awareness based on posture in architects.(5)

Despite the higher prevalence rate, there is no study on postural awareness among architects with musculoskeletal pain. So, the present research intends to find the postural awareness among architects with musculoskeletal pain.

MATERIALS & METHODS

A cross-sectional, observational study was conducted in March- 2021, through an interviewer with pen and sheet form across Aurangabad city in India. The survey was administered to architects. The Institutional Ethics Committee provided permission for the study. Participants were informed regarding the study's aim and objectives and

screened for inclusion criteria and exclusion. Those fulfill the inclusion to participate were taken in the study. All the participants were evaluated for inclusion and exclusion. The final data comprised 97 participants who completed the study. The Postural Awareness Scale is used as an outcome measure.

STATISTICAL ANALYSIS

The collected data were tabulated and analyzed using SPSS version 23 (Statistical Package for the Social Sciences) software. The frequency and percentage tests were used for the age and gender complaints of the participants in the present study. The scores of the Postural Awareness Scale were analyzed using the One Sample t-test. The final data was analyzed using the One Sample t- Test.

RESULT

Based on the data collected and analyzed, on outcome scores received from all the participants, In the present study, participants, age category ranged from 21-30 years 40 and 41.2% of participants 31 to 40 age group, were 47 and 48.5%, 41 to 50 years 10 participated was 10.3% as shown in Table-I the age, frequency, and percentage of participants. Table- II demonstrates the Gender and participant's percentage of male 47 with percentage 47.4 and female participants were 51 with percentage 52.6. Chi-Square Test was applied to calculate age group distribution with pain region cross tabulation of total 97

participants with obtained p-value is 0.075 as shown in Table III.

Chi-Square Test was applied to calculate the Table IV Gender Distribution with Pain Region Cross tabulation significant P-value of 0.094 was obtained as shown in Table-IV, Postural awareness among the architectures was analyzed with the help of twelve statements. As shown in Table –V. The aggregate mean is 3.72 with a standard deviation of 0.45 shows reliable consistency among the respondents since the aggregate mean value is more than 3 as denoted in Table-VI. It indicates a partial awareness-oriented response on the listed statements over the scale interval and also falls within the upper and lower confidence intervals observed from the descriptive statistics.

Based on the results of the one-sample t-test, there is postural awareness among architects with musculoskeletal pain was accepted since the test revealed a significant statistical value with a t-value 5.873 and p-value less than the 5% significance level ($0.001 < 0.05$) in our study based on the one-sample t-test procedure as shown in Table-VII.

Age Group	Frequency	Percent
21 - 30	40	41.2
31 - 40	47	48.5
41 - 50	10	10.3
Total	97	100.0

Table I. Age and numbers of participants with percentage

Gender	Frequency	Percent
Male	46	47.4
Female	51	52.6
Total	97	100.0

Table II. Gender and participant's percentage

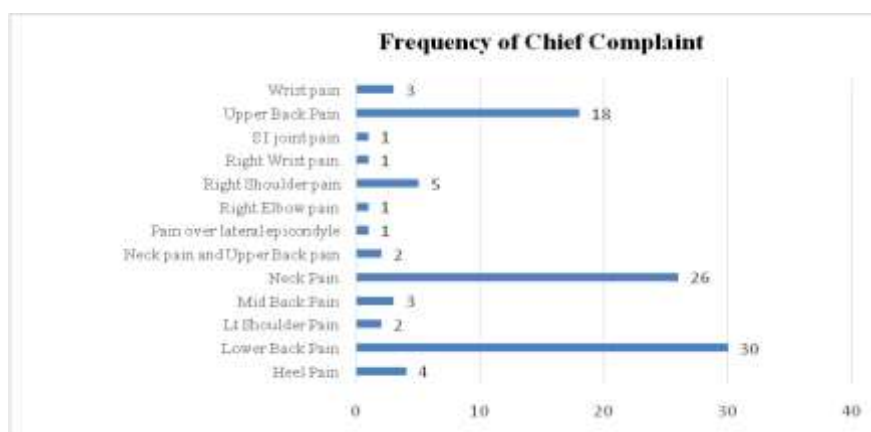


Figure 1 Graphical Representation of Complaint of the Participants

Pain Region	Age Group Distribution with Pain Region			Total	p-value
	Age Group between 21 to 30	Age Group between 31 to 40	Age Group between 41 to 50		
Heel Pain	2	2	0	4	0.075
Lower Back Pain	19	9	2	30	
Left Shoulder Pain	0	1	1	2	
Mid Back Pain	2	1	0	3	
Neck Pain	8	16	2	26	
Neck pain and Upper Back pain	0	2	0	2	
Pain over lateral epicondyle	1	0	0	1	
Right Elbow pain	0	0	1	1	
Right Shoulder pain	0	3	2	5	
Right Wrist pain	0	1	0	1	
Sacroiliac joint pain	0	1	0	1	
Upper Back Pain	7	9	2	18	
Wrist pain	1	2	0	3	
Total	40	47	10	97	

Table III. Age Group Distribution with Pain Region Cross tabulation

Pain Region	Gender Distribution With Pain Region		Total	p-value
	Male	Female		
Heel Pain	1	3	4	0.094
Lower Back Pain	11	19	30	
Left Shoulder Pain	1	1	2	
Mid Back Pain	0	3	3	
Neck Pain	11	15	26	
Neck pain and Upper Back pain	0	2	2	
Pain over lateral epicondyle	1	0	1	
Right Elbow pain	1	0	1	
Right Shoulder pain	5	0	5	
Right Wrist pain	1	0	1	
Sacroiliac joint pain	1	0	1	
Upper Back Pain	11	7	18	
Wrist pain	2	1	3	
Total	46	51	97	

Table IV. Gender Distribution with Pain Region Cross tabulation

Sl. No.	Postural Awareness Scale Statements	Mean	SD	95% CI	
				Lower	Upper
S1	I need to concentrate very much in order to become aware of my body posture	4.27	0.78	4.11	4.43
S2	When I assume a poor body posture, I often do not notice it until I develop pain	4.67	0.89	4.49	4.85
S3	When sitting, I often slump without being aware of it	4.75	1.02	4.55	4.96
S4	When I am concentrating on a specific activity, I often assume a certain body posture without knowing it	4.28	1.34	4.01	4.55
S5	It is difficult for me to consciously assume a specific body posture	3.87	1.45	3.57	4.16
S6	While I am working, I regularly check my body posture	3.19	1.33	2.92	3.45
S7	Through my body posture, I can actively influence the impression I make on other people	3.18	1.32	2.91	3.44
S8	Throughout the day, I am continually aware of how I am currently sitting or standing	2.90	1.15	2.67	3.13
S9	I often call into my awareness how I am currently sitting or standing	2.82	1.25	2.57	3.08
S10	Even during focused work, I am continually aware of my body posture	3.10	1.37	2.83	3.38
S11	Through my body posture, I can consciously control my mood	3.34	1.46	3.05	3.63
S12	I notice whether or not my body posture is good for me only when I concentrate on it	4.36	1.02	4.15	4.57

Table V. Postural awareness among the architects was analyzed with the help of twelve statements Cross tabulation

Particular	Mean	SD	SEM
Mean	3.72	0.45	0.046

Table VI. One-Sample Statistics

Test Value = 4					
t-value	Df	p-value	Mean Diff	95% Confidence Interval of the Difference	
				Lower	Upper
5.873	96	0.001*	-0.27	-0.36	-0.18

Table VII. One-Sample Test

DISCUSSION

We correctly hypothesized at the beginning of the research and found significant awareness of posture among architects with musculoskeletal pain. In the current study, the 97 participants were architects who fulfilled the inclusion and exclusion criteria. According to (Tamkanat et al.,) research finding Musculoskeletal diseases had a high frequency among female architecture students due to prolonged awkward

posture.(6) The responses recorded from the Postural Awareness Scale stipulated that among the varied complaints, the frequently present were lower back pain (30.9%), neck pain (26.8%), and upper back pain (18.6%). According to (Holger Cramer et al.,) Postural awareness is associated with pain intensity and physical and mental impairment in patients with chronic pain improvement in pain intensity through multimodal intervention.(7) Present research findings suggest that upper back, neck, and lower back pain are chief complaints respectively in architects. According to (Mouloud Vali pour Noroozi et al.,) a significant association between work experience and age with musculoskeletal disorders and an individual's education and knowledge improvements regards to ergonomics risk factors correction of work posture is very important.(8) According to (Syedshauzab Abidi et al.,) observation regarding the work posture of architects and students adopted bad posture, hence pain in several parts of the body.(9)

Implication of study: We suggest clinicians and researchers conducting future research on architects working on the task at the work site with postural consciousness and maintaining ideal posture while sitting at work are important factors regarding the awareness of posture for preventing musculoskeletal pain in architects.

CONCLUSION

Based on the results obtained after the completion of the present research concludes that there is significant postural awareness among architects with musculoskeletal pain, of which several participants are conscious of their body posture while working.

Declaration by Authors

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Conflict of Interest: The authors declare no conflict of interest.

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