

TOOL 1: CLASSROOM OBSERVATION SHEET

- Size of the Class room: આશરે વર્ગ ખંડ નું માપ
Length લંબાઈ: Breadth પહોળાઈ: Height ઊંચાઈ:
- The colour painted on the Walls in the class room વર્ગ ખંડ ની દીવાલ નો રંગ :
.....
- The colour painted on the Ceiling in the class room વર્ગ ખંડ ની છત નો રંગ :
.....
- The colour of the Flooring in the class room ફ્લોરિંગ નું રંગ: and
Type of the Flooring ફ્લોરિંગ નું નામ:
- Number of doors in the class room દરવાજા ની સંખ્યા:
- Number of windows in the class room બારી ની સંખ્યા:
- Number of Artificial Lights in the class room લાઈટ ની સંખ્યા:
- Number of fans in the class room પંખા ની સંખ્યા:

The Existing Furniture in the Classroom

Sr. No.	The Existing Furniture in the Classroom	Number સંખ્યા	Size (In Inch)		
			Length લંબાઈ	Breadth પહોળાઈ	Height ઊંચાઈ
1.	Teacher's Table ટેબલ ની સંખ્યા				
2.	Teacher's Chair ખુરસી ની સંખ્યા				
3.	Teacher's Storage Cabinet કબાટ ની સંખ્યા				

Which type of writing board is being used in the class room?

વર્ગ ખંડ માં લગાવેલું લખવાનું બોર્ડ શેનાથી બનેલું છે?

No.	Type of writing board	Tick mark
1.	Wall painted with black colour દીવાલ પર કાળો રંગ કરેલ છે	
2.	Rolling board (plastic) પ્લાસ્ટિક નું કાળું રોલિંગ બોર્ડ છે	
3.	Black board (wooden) લાકડાનું કાળું બોર્ડ છે	
4.	Green board (Slate) ગ્રીન બોર્ડ છે	
5.	White board પ્લાસ્ટિક નું સફેદ બોર્ડ છે	

SECTION 1: BACKGROUND INFORMATION

1. Name of the teacher નામ:
2. Name of the school શાળા નું નામ:
3. Address of the school શાળા નું સરનામું:
4. What is your Gender? લિંગ ☐ Male: Female:
5. What is your Age? ઉંમર (In years)
6. What is your marital status? વૈવાહિક સ્થિતિ - Married પરણેલ: Single અપરિણીત: ...
Widow/Sep/Divorced વિધવા/ અલગ રહે છો/ છૂટાછેડા પામેલ: ...
7. Type of family કુટુંબ પ્રકાર સંયુક્ત Joint: _____ વિભક્ત Nuclear: _____
8. How many members are there in your family? કુટુંબ ની સંખ્યા _____
9. What is your monthly personal Income? આવક (In Rs.)
10. What is your monthly family Income? કુટુંબ ની આવક _____ (In Rs.)
11. Specify your years of experience in teaching profession? શિક્ષણ અનુભવ _____ (In years)
12. How do you travel to your work and back home every day? તમે રોજ શાળા એ કઈ રીતે આવો છો?

No.	Types of Transportations	Tick mark	Travel Time (in Minutes)
1.	Walking ચાલતી		
2.	By Bus બસમાં		
3.	By Cycle સાયકલ થી		
4.	By Rickshaw રીક્ષા થી		
5.	By two wheeler બાઈક થી		
6.	By Car કાર થી		

13. What is the approximate time and distance from your residence to the school?

ઘર થી શાળા વચ્ચે નું અંતર Distance in Kilo-meters:

14. Which standard and Subjects do you teach in the school? રોજ શાળા માં તમે કેટલા

ધોરણ, વિષય ભણાવો છો?

Sr. No.	Class ધોરણ	Name of the Subjects કેટલા વિષય ભણાવો છો?
1		
2		
3		
4		

15. How many hours you teach in the school? રોજ શાળા માં તમે કેટલા કલાક શૈક્ષણિક કાર્ય કરો છો?

Period	Total Hours કલાક
In a day	

16. How many hours do you teach in standing and sitting position during a whole day approximately?

એક દિવસ માં તમે કેટલા કલાક ઉભા , બેઠા ,કમર થી વળેલી સ્થિતિ માં ભણાવો છો?

No.	Type of position સ્થિતિ	Total time in hours in a day કેટલો સમય
1.	Standing position ઉભા રહીને	
2.	Sitting position બેઠા રહીને	
3.	Helping students in flexing posture કમર થી વળી ને	

17. Do you get recess? Number of breaks કેટલી વાર: ____ and Time of break કેટલો સમય: ____ (in Mins) per day.

18. How many hours do you work on computer at the work place per day? શાળા માં કોમ્પ્યુટર પર કાર્ય કેટલો સમય કરો છો? કેટલા કલાક (hrs): _____

19. Do you do physical exercise? if yes, how many hours per day approximately? તમે શારીરિક કસરત કરો છો? જો હા તો કેટલા કલાક (hrs): _____

20. How many hours are you working at home per day approximately? તમે ઘર નું કાર્ય કેટલા કલાક કરો છો? (hrs): _____.

21. How do you perceive your health status in general? તમારી આરોગ્ય ની સ્થિતિ કેવી છે?

No.	Health Status આરોગ્ય ની સ્થિતિ	Tick Mark
1.	Extremely Good ખુબ સારી	
2.	Good સારી	
3.	Average સામાન્ય	
4.	Poor ખરાબ	
5.	Extremely Poor ખુબ ખરાબ	

22. What efforts do you make for maintaining your physical fitness? સારા સ્વાસ્થ્ય માટે નીચે બતાવેલા કાર્યો માં થી તમે કયું કાર્ય/ ક્રિયા કરો છો?

Sr. No.	Activities ક્રિયા કરો છો?	Tick mark	Hrs. per Day/ Hrs.
1.	Do Yoga યોગ		
2.	Dance નૃત્ય		
3.	Play Hockey હોકી રમત		
4.	Play Cricket ક્રિકેટ		
5.	Play Badminton બેડમિન્ટન		
6.	Walk ચાલવા જવું		
7.	Ride Cycle સાયકલ ચલાવવું		
8.	Swim તરવા જવું		
9.	Any other બીજું કોઈ		

23. તમારી ઊંચાઈ? _____-સેમી cm

24. તમારું વજન ? _____કેજી KG

TOOL 1: CLASSROOM OBSERVATION SHEET

1. Size of the Class room: આશરે વર્ગ ખંડ નું માપ
Length લંબાઈ: Breadth પહોળાઈ: Height ઊંચાઈ:
2. The colour painted on the Walls in the class room વર્ગ ખંડ ની દીવાલ નો રંગ:
3. The colour painted on the Ceiling in the class room વર્ગ ખંડ ની છત નો રંગ:
4. The colour of the Flooring in the class room ફ્લોરિંગ નું રંગ: and
Type of the Flooring ફ્લોરિંગ નું નામ:
5. Number of doors in the class room દરવાજા ની સંખ્યા:
6. Number of windows in the class room બારી ની સંખ્યા:
7. Number of Artificial Lights in the class room લાઈટ ની સંખ્યા:
8. Number of fans in the class room પંખા ની સંખ્યા:

The Existing Furniture in the Classroom

Sr. No.	The Existing Furniture in the Classroom	Number સંખ્યા	Size (In Inch)		
			Length લંબાઈ	Breadth પહોળાઈ	Height ઊંચાઈ
1.	Teacher's Table ટેબલ ની સંખ્યા				
2.	Teacher's Chair ખુરસી ની સંખ્યા				
3.	Teacher's Storage Cabinet કબાટ ની સંખ્યા				

9. Which type of writing board is being used in the class room?

વર્ગ ખંડ માં લગાવેલું લખવાનું બોર્ડ શેનાથી બનેલું છે?

No.	Type of writing board	Tick mark	Size LXBXH
	Wall painted with black colour દીવાલ પર કાળો રંગ કરેલ છે		
2.	Rolling board (plastic) પ્લાસ્ટિક નું કાળું રોલિંગ બોર્ડ છે		
3.	Black board (wooden) લાકડાનું કાળું બોર્ડ છે		
4.	Green board (Slate) ગ્રીન બોર્ડ છે		

5.	White board પ્લાસ્ટિક નું સફેદ બોર્ડ છે		
6.	Digital board (Smart class) ડિજિટલ બોર્ડ છે.		

**SECTION: 2. Perceived Comfort Level of the Teachers
regarding the Existing Facility in the Class room. Kindly
rate your comfort level while using the following.**

વર્ગ ખંડમાં હાલની સુવિધા અંગે શિક્ષકોની કમ્ફર્ટ લેવલ. કૃપા કરીને નીચેનાનો ઉપયોગ કરતી વખતે તમારા આરામ સ્તરને રેટ કરો.

Sr. No.	Furniture Item and Miscellaneous items	Highly બહુજ Comfortable આરામદાયક	Fairly થોડું Comfortable આરામદાયક	Not at all Comfortable જરાય આરામદાયક નથી
	Writing Board બ્લેક બોર્ડ/ ગ્રીન બોર્ડ			
1.	Width of the writing board from side to side બોર્ડ ની પહોળાઈ			
2.	Height of the writing board from the ground Level જમીન થી બોર્ડ ની ઊંચાઈ			
	Storage Unit કબાટ			
3.	Wall mounted Shelf for storing notebooks દીવાલ પર લટકાવેલ કબાટ માં જગ્યા			
4.	The Depth of the shelf in Storage Unit. કબાટની ઊંડાઈ			
5.	Number of drawers in Storage Unit. કબાટ માં આપેલ ખાના			
6.	The Depth of the drawer in Storage Unit. કબાટ ના ખાના ની ઊંડાઈ			
	Chair ખુરસી			
7.	Height of the Chair seat ખુરસી ની ઊંચાઈ			
8.	Depth of the Chair seat from front to back ખુરસીના સીટ ની આગળ થી પાછળ ની લંબાઈ			
9.	Width of the Chair seat from one side to other ખુરસી ના સીટ ની પહોળાઈ			
10.	Back rest width of the Chair બેકરેસ્ટ ની પહોળાઈ			

11.	Height of the back rest બેકરેસ્ટ ની ઊંચાઈ			
12.	Arm rest height of the Chair ખુરસી ના હાથ ની ઊંચાઈ			
13.	The width of the arm rest હાથ ની લંબાઈ			
14.	The depth of the arm rest હાથ ની પહોળાઈ			
Writing Table ટેબલ				
15.	Height of the Writing table ટેબલ ની ઊંચાઈ			
16.	Width of the Writing table ટેબલ ની પહોળાઈ			
17.	Length of the Writing table ટેબલ ની લંબાઈ			
Miscellaneous				
18.	The placement of Fans પંખા ની ગોઠવણ			
19.	The placement of Lights લાઈટ ની ગોઠવણ			
20.	The natural light in the Classroom કુદરતી પ્રકાશ વર્ગખંડ માં			
21.	The effects by Low light in the Classroom			
22.	The extreme Light in the Classroom			
23.	The class room air circulation વર્ગખંડ માં હવા ની અવર જવર			
24.	The indoor class room temperature વર્ગ ખંડ નું તાપમાન			
25.	The noise in the class room વર્ગ ખંડ માં અવાજ			
26.	The smells in the class room વર્ગ ખંડ માં આવતી ગંધ અને સુગંધ			

SECTION: 4 સેક્સન ૪

Psychosocial Factors Related To the Musculoskeletal Pain among the Teachers

- 1) How tired are you generally at the end of a working day at school? Please rate your level of tiredness from 1 to 5 scores. 1 will be the lowest level of tiredness and 5 will be the highest level of tiredness.

તમે શાળામાં કાર્યકારી દિવસના અંતે સામાન્ય રીતે કેટલા થાકેલા છો? કૃપા કરી તમારા થાકનું સ્તર 1 થી 5 ના સ્કોર્સ સુધી રેટ કરો. 1 એ થાકનું સૌથી નીચું સ્તર અને 5 થાકનું ઉચ્ચતમ સ્તર હશે.

No.	Extent of Tiredness as Perceived	Not tired at all tired જરાય નહિ	Partially tired થાક ક્યારેક જ લાગે છે	Moderately tired થાક લેગ છે	Most of the times tired દર રોજ થાક લાગવો છે	Extremely tired ખુબજ થાક લેગ છે
		1	2	3	4	5
1.	Physically Tired શારીરિક થાક					
2.	Mentally Tired માનસિક થાક					

- 2) Mark listed below Psychological factors that you can relate to your work at school.

મનોવિજ્ઞાનાત્મક પરિબલોની નીચે સૂચિબદ્ધ ચિહ્નિત કરો કે જે તમે શાળામાં તમારા કામ સાથે સંબંધિત કરી શકો છો.

	Psychological factors મનોવિજ્ઞાનાત્મક પરિબલોની	Yes હા	No નાં
	In general (Most of the times) સામાન્ય રીતે શું તમે		
1.	Do you often feel tensed? સામાન્ય રીતે શું તમે તનાવ કે હતાશા અનુભવો છો?		
2.	Do you feel nervous? સામાન્ય રીતે શું તમે નર્વસ અનુભવો છો?		
3.	Do you feel frustrated? સામાન્ય રીતે શું તમે તનાવ કે હતાશા અનુભવો છો?		
4.	Do you feel you have too much workload? શાળાનું કાર્ય શું તમને ખુબજ વધુ લાગે છે ?		
	At the place of work (school)		

5.	Do you feel exhausted by your work at School? શાળા ના કાર્ય થી શું તમે થાકી જાઓ છો?		
6.	Are you frustrated by your job at the school? શું તમે શાળા નું કાર્ય સાથે ખુબજ હતાશા લાગે છે ?		
7.	Do you think that you have too much to do at your School? શાળા નું કાર્ય શું તમને ખુબજ વધુ લાગે છે ?		
8.	Is your work in school interesting? શું શાળા નું કાર્ય તમને મનોરંજક/ રસપ્રદ લાગે છે?		
9.	Do you have variety of work in your School work? શું શાળા ના કાર્ય માં તમને વિવિધતા મળે છે?		
10.	Do you consider your school work too simple? શું શાળા નું કાર્ય ખુબજ સામાન્ય છે?		
11.	Do you have enough training to perform your tasks at your school? શું તમને શાળા નું કાર્ય કરવા માટે ટ્રેનિંગ મળેલ છે?		
12.	Do you mostly enjoy your work at the school? શું તમને શાળા નું કાર્ય કરવા થી ખુશી મળે છે?		
13.	Do you carry out same work (activity) the whole day? શું તમે આખા દિવસ માં એક સરખું કાર્ય કરો છો?		
14.	Does your work vary from day to day basis? શું તમારું કાર્ય દરરોજ બદલાતું રહે છે?		
Sr. No .	Psychological factors મનોવિજ્ઞાનાત્મક પરિબલોની	Yes હા	No નાં
15.	Does the work rotate between you and your colleague? શું તમારું કાર્ય તમારા સાથે કામ કરતા શિક્ષકો સાથે બદલાય છે?		
16.	Does your work involve repeated task? શું તમારા કાર્ય માં એક નું એક કામ કરવાનું હોય છે?		
17.	Do your tasks vary according to the season or time of the Year? શું તમારું કાર્ય સત્ર પ્રમાણે બદલાયા કરે છે?		

18.	Do you have a sedentary job? શું તમારું કાર્ય બેઠાળુ છે?		
19.	Do you get sufficient break-time? શું તમને પ્રમાણસર રીશેષ મળે છે?		
20.	Can you take a holiday when you wish? શું તમે તમારી ઈચ્છા મુજબ રાજા પડી શકો છો?		
21.	Is there a shortage of teaching staff at your School? શું તમારી શાળા માં શિક્ષક સ્ટાફ ની કમી છે?		
22.	Do you have to replace colleagues often in your school? શું તમને બીજા શિક્ષકો ની પ્રોક્ષી ભરવી પડે છે?		
23.	Is your supervisor cooperative and supportive? શું તમારા ઉપર સહકારી અને સહાયક છે?		
24.	Are you often annoyed by others at your School? શું તમે શાળા ના કામ થી નારાજગી અનુભવો છો?		
25.	Do you find the atmosphere in the school all right? શું તમારા શાળા નું વાતાવરણ સારું છે?		
26.	Does the principal have a correct picture of you in your school? તમારા આચાર્ય સામે તમારી છવિ સારી છે?		
27.	Do you supervise other people in your daily work at your school? શું તમે તાપસ કરનાર (અવેક્ષક) નું કાર્ય શાળા માં ભજવો છો?		
28.	Does the supervisor provide enough support in your work? શું તમારા સુપર્વાઇસર ઉપરી તમને સહાયક છે?		
29.	Does your colleague appreciate your work in your school in front of the other colleagues? શું શાળા ના બીજા શિક્ષકો તમારા વખાણ બીજા શિક્ષકો સામે કરે છે?		
30.	Does the principal appreciate your work in your school in front of the colleagues? શું તમારા આચાર્ય શ્રી તમારા કાર્ય ના વખાણ કરે છે?		
31.	Can you count upon the support of your colleagues if necessary?		

	શું તમે તમારી સાથે ના બીજા શિક્ષકો પર મદદ ની અપેક્ષા રાખો છો?		
32.	Are you kept informed on what is going on in your school? શું તમોને શાળા ના કાર્ય માં માહિતગાર રાખ્યા છે?		
33.	Are there circumstances in your school that adversely affect your private live? શું શાળા ના સંજોગો તમારી ખાનગી જીવન પર અસર કરે છે?		
34.	Do you take problems at school work with you to your home? શું શાળા ની સમસ્યા તમે ઘરે લઈ જાવ છો?		
35.	Do you feel that you are sufficiently valued in this school? શું શાળા માં તમારી બરાબર કિંમત થાય છે?		
36.	Do you think you are being paid is appropriate for the work you are doing at the school? શું શાળા માં તમારી બરાબર કિંમત થાય છે?		
Sr. No	Psychological factors મનોવિજ્ઞાનાત્મક પરિબલોની	Yes હા	No નાં
	At your Home		
37.	Do you feel tired when you wake up in the morning? શું તમે સવારે ઉઠતા થાક અનુભવો છો?		
38.	Do you regularly feel tired when getting up in the morning? શું તમે દરરોજ સવારે ઉઠતા થાક અનુભવો છો?		
39.	Are there circumstances in your private live that adversely affect your school work? શું તમારી ખાનગી જિંદગી તમારી શાળા ના કાર્ય પર અસર કરે છે?		
40.	Do you take problems of home with you to your school work? શું તમે તમારા ઘર ની ચિંતાઓ શાળા એ લઈ જાવ છો?		

સેક્શન-૫ SECTION: 5 Musculoskeletal Pain Prevalent Among the Teachers

Complete these questions if you had musculoskeletal pain in your body during the past 12 months. (તમને છેલ્લા 12 મહિના દરમિયાન તમારા શરીરમાં મસ્ક્યુલોસ્કેલેટલ પીડા હોય તો આ પ્રશ્નોને પૂર્ણ કરો.)

1. Have you experienced Musculoskeletal Pain in your body in the past 12 months?
શું તમે છેલ્લા 12 મહિનામાં તમારા શરીરમાં મસ્ક્યુલોસ્કેલેટલ પેઇનનો અનુભવ કર્યો છે?

Sr. No.	Body Parts	In the past 12 months તમે છેલ્લા 12 મહિનામાં તમારા શરીરમાં				
		Very Often વારંવાર	Often ઘણી વાર	Occasionally પ્રસંગોપાત	Rarely ક્યારેક	Never ક્યારેય નહિ
1	Neck ગરદન					
2	Upper Back અપર બેક					
3	Lower Back લોઅર બેક					
4	Shoulders ખભા					
5	Arms હાથ					
6	Elbows કોણી					
7	Wrists હાથનું કાડું					
8	Hands હાથ					
9	Fingers આંગળીઓ					
10	Hips હિપ્સ					
11	Thighs જાંઘ					
12	Knees ઘૂંટણ					
13	Calf પગની પીંડી					
14	Ankles પગની ઘૂંટી					
15	Feet પગ					
16	Toes અંગૂઠા					

3. Do you have radiating back pain to the legs during the past 12 months?
શું તમને પાછલા 12 મહિના દરમિયાન પગને પીઠ સુધીનો (કમરનો) દુઃખાવો થાય છે?

Sr. No.	Radiating pain till સુધી પીડા	Yes હા	No નાં
1	The right knee જમણો ધૂંટણ		
2	The left knee ડાબો ધૂંટણ		
3	The right ankle જમણા પગની ધૂંટી		
4	The left ankle ડાબી પગની ધૂંટી		
5	The right foot જમણો પગ		
6	The left foot ડાબા પગ		
7	The right foot toes જમણા પગના અંગૂઠા		
8	The left foot toes ડાબા પગના અંગૂઠા		

4. Do you have radiating Neck and shoulder pain till the arms during the past 12 months?

શું તમને પાછલા 12 મહિના દરમિયાન ગળા અને ખભામાં દુખાવો થાય છે?

Sr. No.	Radiating pain till સુધી પીડા	Yes હા	No નાં
1	The right upper arm જમણો ઉપલા હાથ		
2	The left upper arm ડાબી ઉપરનો હાથ		
3	The right elbow જમણી કોણી		
4	The left elbow ડાબી કોણી		
5	The right forearm જમણી કોણી ની આગળ		
6	The left forearm જમણી કોણી ની આગળ		
7	The right wrist જમણા કાંડા		
8	The left wrist ડાબી કાંડા		
9	The right Hand જમણો હાથ		
10	The left Hand ડાબી હાથ		
11	The right Hand fingers જમણા હાથની આંગળીઓ		
12	The left Hand fingers ડાબી હાથની આંગળીઓ		

5. How many days were you on sick leave during the past 12 months due to your musculoskeletal pain in your various body parts? (Tick mark)

તમારા શરીરના વિવિધ ભાગોમાં મસ્ક્યુલોસ્કેલેટલ પીડાને લીધે તમે છેલ્લા 12 મહિનામાં કેટલા દિવસો બીમારીની રજા પર હતા? (નિશાની કરો)

	Duration અવધિ (દિવસ)	Body Parts															
		Neck ગરદન	Upper Back અપર બેક	Lower Back લોઅર બેક	Shoulders ખભા	Arms હાથ	Elbows કોણી	Wrists કાસ્ટ	Hands હાથ	Hips હિપ્સ	Thighs જાંઘ	Knees ધૂંટણ	Calf પગની પીડી	Ankles પગની ધૂંટી	Feet પગ	Fingers આંગળીઓ	Toes અંગૂઠા
1	1-5 days																
2	6-10 days																
3	11-15 days																
4	16-30 days																
5	1-2 months																
6	3-4 months																
7	5-6 months																

6. Is your musculoskeletal pain causing you trouble while performing enlisted activities?

સૂચિબદ્ધ પ્રવૃત્તિઓ કરતી વખતે શું તમારી મસ્ક્યુલોસ્કેલેટલ પીડા તમને મુશ્કેલી પેદા કરે છે?

Sr. No.	Activities	Very Often વારંવાર	Often ઘણી વાર	Occasionally પ્રસંગોપાત	Rarely ક્યારેક	Never ક્યારેક થતું નથી
1.	Standing for a long periods લાંબા સમય માટે ઉભા રહે પડે					
2	Sitting for a long period લાંબા સમય સુધી બેસવું પડે					
3	Moving loads (more than 5 kg) વજન ખસેડવું (5 કિલોથી વધુ) પડે					
4	Performing jobs which require exertion of arms/hands એવા કાર્યો કરવા કે જેના માટે હાથનો પરિશ્રમ વધુ કરવું પડે					
5	Driving vehicles વાહન ચલાવવું					
6	Working in uncomfortable postures પીડાદાયક મુદ્રામાં કામ કરવું પડે					
7	Working in the same postures for a long period લાંબા ગાળા માટે સમાન મુદ્રામાં કામ કરવું પડે					

7. Please describe the last period of your musculoskeletal pain.

કૃપા કરીને તમારી મસ્ક્યુલોસ્કેલેટલ પીડાના છેલ્લા સમયગાળાને વર્ણવો.

Sr. No.	Descriptions	Neck	Shoulder	Arms	Wrists	Hands	Back	Legs	Hips	Thighs	Knees	Ankles	Feet	Fingers	Toes
1	Cured completely within a few days થોડા દિવસોમાં સંપૂર્ણપણે સાજા થઈ ગયા છે														
2	Cured completely but it took a few weeks સંપૂર્ણ રીતે સાજા થઈ ગયા પરંતુ તેને થોડા અઠવાડિયા લાગ્યાં છે														
3	Cured not entirely, sometimes symptoms do reoccur સંપૂર્ણ રૂપે સાજા થઈ ગયા છે, કેટલીકવાર લક્ષણો ફરીથી શરૂ થયા છે														
4	Not cured symptoms persisted સાજા થઈ ગયા નથી પરંતુ લક્ષણો ચાલુ રહે છે														
5	Not cured but symptoms started only recently સાજા થઈ ગયા નથી પરંતુ લક્ષણો તાજેતરમાં જ શરૂ થયા છે														

24. Tick-mark the postures that you regularly attempt while teaching during class time. (OWAS Sheet)

શિક્ષણ સમય દરમિયાન શિક્ષણ આપતી વખતે તમે જે મુદ્રામાં નિયમિતપણે કરો છો તેના પર નિશાની કરો.

 Overhead View Diagram	 Overhead View Diagram	 Overhead View Diagram	 Overhead View Diagram
 Overhead View Diagram	 Overhead View Diagram	 Overhead View Diagram	 Overhead View Diagram
 Overhead View Diagram	 Overhead View Diagram	 Overhead View Diagram	 Overhead View Diagram
 Overhead View Diagram	 Overhead View Diagram	 Overhead View Diagram	 Overhead View Diagram
 Overhead View Diagram	 Overhead View Diagram	 Overhead View Diagram	 Overhead View Diagram

23. શિક્ષણ આપતી વખતે તમે આજ સુધી નીચેની કોઈપણ સમસ્યાનો અનુભવ કર્યો છે?
(નિશાની કરો)

મનોવૈજ્ઞાનિક પરિબલો સંબંધિત આરોગ્ય સમસ્યાઓ

1. વર્ટિગો- વર્ટિગો માથામાં ચક્કર આવે છે અને શરીરનું સંતુલન ગુમાવે છે. _____
2. આધાશીશી- તીવ્ર માથાનો દુખાવો અને પ્રકાશ અને ધ્વનિ પ્રત્યે સંવેદનશીલતા. _____

સ્નાયુઓ / અસ્થિ સંબંધિત આરોગ્ય સમસ્યાઓ

2. સર્વાંકલ પેઇન- ગળા અને ખભામાં દુખાવો જે તીવ્રતામાં બદલાય છે. _____
3. સર્વાંકલ સ્પોન્ડીલોલોસિસ- તમારી ગળામાં કરોડરજ્જુના ડિસ્કને અસર કરે છે અને પહેરો. _____
4. ઉપરની પીઠનો દુખાવો- ગળાના પાયાના ભાગ વચ્ચે રિબકેજની નીચેની વચ્ચે કરોડરજ્જુના વિસ્તારમાં અસ્વસ્થતા અને પીડા. _____
5. મધ્ય પીઠનો દુખાવો - ગળાના પાયાના ભાગથી રિબકેજની નીચેની વચ્ચે કરોડરજ્જુના ક્ષેત્રમાં અગવડતા. _____
7. નીચલા પીઠનો દુખાવો- સ્નાયુઓ અથવા અસ્થિબંધન કે જે કરોડના નીચલા ભાગને ટેકો આપે છે તેમાં દુખાવો. _____
8. શોલ્ડર ઇમ્પીજમેન્ટ સિન્ડ્રોમ- ખભાના બ્લેડ પર સળીયાથી જોડાયેલા પેશીઓ (કંડરા) ને કારણે ખભામાં દુખાવો. _____
9. દુઃખદાયક હીલ - પગની પાછળના ભાગમાં હીલની શારીરિક અગવડતાની નીચેની પીડા. _____
10. પ્લાન્ટાર ફાસીટીસ - તીવ્ર હીલનો દુખાવો. _____

અસ્થિ સંબંધિત આરોગ્ય સમસ્યાઓ

11. ફોઝન શોલ્ડર - ખભાના સંયુક્તમાં જડતા અને પીડા. _____
12. ગોલ્ફરની કોણી- તમારા કપાળના સ્નાયુઓના કંડરામાં દુખાવો તમારી કોણીની અંદરના ભાગમાં બોની બમ્પ સાથે જોડાય છે. _____
13. ટેનિસ કોણી - કોણીની બહારના ભાગમાં દુખાવો થાય છે. _____
14. હિપ અસ્થિવા - હિપ્સ જેવા સાંધામાં પેઇન અને સોજો. _____
15. ફેમોરેલેસ્ટેબ્યુલમ ઇમ્પીજમેન્ટ - હિપ સંયુક્તમાં દુખાવો અને નુકસાન. _____
16. ઘૂંટણની અસ્થિવા - ઘૂંટણની સાંધામાં દુખાવો, સોજો અને મુશ્કેલી. _____
17. પેટોલોમોરલ પેઇન લક્ષણો - જડતા અને ઘૂંટણની પીડા કે જે સીડી ચડતા અથવા બેસતા હલનચલનથી વધે છે. _____
18. કેલ્સાનાઇલ સ્પુર - હીલના અસ્થિના તળિયે કેલ્શિયમ થાપણો બને છે જેનાથી પીડા થાય છે. _____
19. હ લગક્સ વાલ્ગસ - મોટા પગમાં દુખાવો અને જડતા. _____

સ્નાયુ સંબંધિત આરોગ્ય સમસ્યાઓ

20. સુપ્રાસ્પિનેટિસ - ખભા અને રોટેટર કફમાં બળતરા અને પીડા. _____

21. દ્વિશિર ટેન્ડિનાઇટિસ - દ્વિશિર સ્નાયુના લાંબા માથાની આસપાસ કંડરાની બળતરા.

22. ડી કર્વેઇનની ટેનોસીનોવાઇટિસ - કાંડામાં દુખાવો અને માથા, ઘણીવાર અંગૂઠાના પાયા નીચે. _____
23. કાર્પલ ટનલ સિન્ડ્રોમ - એવી સ્થિતિ કે જે કાંડા, હાથ અને હાથમાં દુખાવો, સુન્નતા અને કળતરનું કારણ બને છે. _____
24. હંસના માળખાના ખામી - આંગળીની નજીકની સંયુક્ત કાયમી ધોરણે હથેળી તરફ વળેલી હોય છે જ્યારે હથેળીની નજીકનો સંયુક્ત તેનાથી દૂર વળેલું હોય છે. _____
25. બવોટોનીઅર વિકૃતિ - આંગળીઓ અથવા અંગૂઠાની વિકૃત સ્થિતિ. _____
26. ટેન્ડિનાઇટિસ - બળતરા, બળતરા, કંડરાનો દુખાવો. _____
27. પેરિફોર્મિસ ટાઇટનેસ - સ્નાયુઓનો દુખાવો જે તમારા સેકમથી તમારા જાંઘના હાડકા સુધી લાંબા સમય સુધી બેસીને કારણે ચાલે છે. _____
28. હેમસ્ટ્રિંગ્સ કડકતા - જ્યારે ચાલતી વખતે, પગને સીધો બનાવતા અથવા ઉપર વળાંક કરતી વખતે જાંઘની પાછળ અને નીચેના નિતંબમાં દુખાવો. _____

APPENDICES I A

Posture adopted by the Municipal Primary School Teachers during Teaching in the classroom (OWAS Posture Data Sheet)

OWAS Posture Data Sheet

Sr. No.	Postures attempted during teaching	f	Percent	OWAS Score
1	Standing Straight	277	74.5	1
2	Both Hands Relax	113	30.38	1
3	Both Below elbow Joint	150	40.32	1
4	Standing with Legs Upright	166	44.62	1
5	Sitting Position	220	59.14	1
6	Slightly bending	52	13.98	2
7	Leaning Froward	127	34.14	2
8	One Hand Above Elbow Joint	256	68.82	2
9	Standing with one Leg Upright	117	31.45	2
10	Standing with one Leg Bent	32	8.60	2
11	Walking	171	46.97	2
12	20' Neck Forward Bent	117	31.45	2
13	Full Bent Forward	62	16.66	3
14	Both Hands Above Elbow Joint	153	41.13	3
15	Both Hands Parallel to Shoulder	47	12.63	3
16	Standing with Legs Bent	46	12.37	3
17	60' Neck Forward Bent	107	28.76	3
18	Leaning Forward and Flexion	58	15.59	4
19	Kneeling on One or Both Knees	55	14.78	4
20	60' Neck Backward Bent	45	12.10	4

APPENDICES II

The illumination levels acceptable for different areas as given by Chauhan 2016.

Activity	Illumination (lux)
Public areas with dark surroundings	20 – 50
Simple orientations for short visits	50 – 100
Working areas where visual tasks are only occasionally performed	100 – 150
Warehouses, homes, theaters, archives	150
Easy office work or classes	250
Normal office work, study library, groceries, show-rooms, laboratories	500
Supermarkets, mechanical works, office landscapes	750
Normal drawing work, detailed mechanical workshops	1000
Detailed drawing work, very detailed mechanical work	1500 – 2000
Performance of visual tasks of low contrast and very small sizes for prolonged periods of time	2000 – 5000
Performance of very prolonged and exacting visual tasks	5000 – 10,000
Performance of special visual tasks of extremely low contrast and small size	10,000 – 20,000

Source: Chauhan (2016). *Ergonomics: Practical Manual for Beginners*

APPENDICES III

Name નામ:

School name શાળા નામ:

Kindly give your responses by ticking any one column against each statement while using the given stepping stool for your use in accessing the upper shelf of the storage unit (reaching higher places) of the classroom.

વર્ગખંડના સ્ટોરેજ યુનિટના ઉપલા શેલ્ફ (ઉચ્ચ સ્થાનો સુધી પહોંચવા) માટે તમારા ઉપયોગ માટે આપેલ સ્ટેપિંગ સ્ટૂલનો ઉપયોગ કરતી વખતે કૃપા કરીને દરેક નિવેદનની સામે કોઈપણ એક કોલમ પર ટીક કરીને તમારા પ્રતિભાવો આપો.

નંબર	Stepping Stool સ્ટેપિંગ સ્ટૂલ	Highly Comfortable અત્યંત આરામદાયક	Fairly Comfortable એકદમ આરામદાયક	Not at all Comfortable બિલકુલ આરામદાયક નહીં
1.	Are you comfortable with the Width of the stepping stool? શું તમને સ્ટેપિંગ સ્ટૂલની પહોળાઈ આરામદાયક અનુભવો છે?			
2.	Are you comfortable with the Height of the stepping stool? શું તમને સ્ટેપિંગ સ્ટૂલની ઊંચાઈ આરામદાયક અનુભવો છે?			
3.	Are you comfortable with the Depth of the stepping stool? શું તમને સ્ટેપિંગ સ્ટૂલની ઊંડાઈ આરામદાયક લાગે છે?			
4.	Are you comfortable with the number of steps on the stepping stool? શું તમે સ્ટેપિંગ સ્ટૂલ પરના પગલાઓની સંખ્યાથી સંતોષ અનુભવો છો?			
5.	Are you comfortable with the height of steps of the stepping stool? શું તમને સ્ટેપિંગ સ્ટૂલની પગલાઓની ઊંચાઈથી સંતોષ અનુભવો છો?			
6.	Are you comfortable with the Width of steps of the stepping stool? શું તમને સ્ટેપિંગ સ્ટૂલની પગલાઓની પહોળાઈથી આરામદાયક અનુભવો છો?			
7.	Are you comfortable with the surface texture of the stepping stool? શું તમે સ્ટેપિંગ સ્ટૂલની સપાટીની રચનાથી સંતોષ અનુભવો છો?			
8.	Are you comfortable with the colour of the stepping stool? શું તમે સ્ટેપિંગ સ્ટૂલના રંગથી સંતોષ અનુભવો છો?			
9.	Are you comfortable with the material of the stepping stool? શું તમે સ્ટેપિંગ સ્ટૂલની ઉત્પાદન સામગ્રીથી સંતોષ અનુભવો છો?			
10.	Are you comfortable with the overall design of the stepping stool? શું તમે સ્ટેપિંગ સ્ટૂલની એકંદર ડિઝાઇનથી સંતોષ અનુભવો છો?			
11.	Do you feel comfortable in using the stepping stool? શું તમે સ્ટેપિંગ સ્ટૂલનો ઉપયોગથી સંતોષ અનુભવો છો?			

**Table 69: Feedback regarding the usage of stepping stool
by the respondents**

Sr. No.	Stepping Stool	Highly Comfortable		Fairly Comfortable		Not at all Comfortable	
		f	%	f	%	f	%
1.	Are you comfortable with the Width of the stepping stool?	31	79.49	8	20.51		
2.	Are you comfortable with the Height of the stepping stool?	29	74.36	10	25.64		
3.	Are you comfortable with the Depth of the stepping stool?	32	82.05	7	17.95		
4.	Are you comfortable with the number of steps on the stepping stool?	29	74.36	10	25.64		
5.	Are you comfortable with the height of steps of the stepping stool?	27	69.23	12	30.77		
6.	Are you comfortable with the Width of steps of the stepping stool?	30	76.92	9	23.08		
7.	Are you comfortable with the surface texture of the stepping stool?	28	71.79	11	28.21		
8.	Are you comfortable with the colour of the stepping stool?	30	76.92	9	23.08		
9.	Are you comfortable with the material of the stepping stool?	32	82.05	7	17.95		
10.	Are you comfortable with the overall design of the stepping stool?	29	74.36	10	25.64		
11.	Do you feel comfortable in using the stepping stool?	32	82.05	7	17.95		

APPENDICES IV

જા.બા.નં ૭૮૮૭

નગર પ્રાથમિક શિક્ષણ સમિતિ,

વડોદરા- તા. ૩૧/૧/૨૦૨૦

૩/૨

પ્રતિ,

હેડ ઓફ ડિપાર્ટમેન્ટ એન્ડ ગાઇડ,

ડિપાર્ટમેન્ટ ઓફ ફેમિલી એન્ડ કોમ્યુનિટી રિસોર્સ મેનેજમેન્ટ,

ફેકલ્ટી ઓફ ફેમિલી એન્ડ કોમ્યુનિટી સાયન્સ,

એમ.એસ.યુનિવર્સિટી, વડોદરા.

વિષય : પી.એચ.ડીમાં અભ્યાસ કરતી તાલીમાર્થી પ્રાયોગિક કાર્યના ભાગ રૂપે સર્વે કરવા મંજૂરી

આપવા બાબત

સંદર્ભ : તમારો તા. ૬/૧/૨૦૨૦ નો પત્ર

જયભારતસહ ઉપરોક્ત વિષયના સંદર્ભથી લગત જણાવવાનું કે, સંદર્ભ દર્શિત પત્ર અન્વયે તમોએ પી.એચ.ડીમાં અભ્યાસ કરતી તાલીમાર્થી શ્રી ચેતાબેન ધનજીભાઈ મેસરીયાને પ્રાયોગિક કાર્યના ભાગ રૂપે નગર પ્રાથમિક શિક્ષણ સમિતિ, વડોદરાનાં શિક્ષકો ઉપર સર્વે કરવા માટે સમિતિની શાળામાં મંજૂરી આપવા માંગણી કરેલ છે.

જેના અનુસંધાનમાં સમિતિની પ્રાથમિક શિક્ષણ સમિતિની પ્રાથમિક શાળાનાં શૈક્ષણિક કાર્યને અસર ન થાય તે રીતે તાલીમાર્થીને તા. ૪/૨/૨૦૨૦ થી ૧૦/૩/૨૦૨૦ સુધી પી.એચ.ડીમાં અભ્યાસ કરતી તાલીમાર્થી શ્રી ચેતાબેન ધનજીભાઈ મેસરીયાને પ્રાયોગિક કાર્યના ભાગ રૂપે સમિતિના શિક્ષકો ઉપર સર્વે કરવા મંજૂરી આપવામાં આવે છે. આ અંગે શાળાનાં મુખ્ય શિક્ષક સાથે સંકલન કર્યા બાદ જ કાર્યવાહી કરવા તજવીજ કરવાની રહેશે.


શાસનાધિકારી

નગર પ્રાથમિક શિક્ષણ સમિતિ, વડોદરા

નકલ રવાના : તમામ મુ.શિક્ષકશ્રીઓ તરફ જણ તથા શાળાનાં શૈક્ષણિક કાર્યને અસર ન થાય તે રીતે તાલીમાર્થીને મદદરૂપ થવા સારું...

જા.બા.નં. ૪૧૬૦

નગર પ્રાથમિક શિક્ષણ સમિતિ

તા. ૦૩/૦૩/૨૦૨૦

પ્રતિ,

હેડ ઓફ ડિપાર્ટમેન્ટ એન્ડ ગાઇડ,

ડિપાર્ટમેન્ટ ઓફ ફેમિલી એન્ડ કોમ્યુનિટી રિસોર્સ મેનેજમેન્ટ,

ફેકલ્ટી ઓફ ફેમિલી એન્ડ કોમ્યુનિટી સાયન્સ,

એમ.એસ.યુનિવર્સિટી, વડોદરા.

વિષય : પી.એચ.ડીમાં અભ્યાસ કરતી તાલિમાર્થીને પ્રાયોગિક કાર્યનાં ભાગ રૂપે સર્વે કરવા

આપેલ મંજૂરી લંબાવવા મંજૂરી આપવા બાબત

સંદર્ભ : સંસ્થાના તા. ૨૧/૦૨/૨૦૨૦નો પત્ર

અત્રેની કચેરીનો પત્રાંક નં-૩૮૮૭ તા. ૩૧/૦૧/૨૦૨૦

જયભારત સહ ઉપરોક્ત વિષયના સંદર્ભ લગત જણાવવાનું કે, સંદર્ભ દર્શિત પત્ર અન્વયે શ્રી થેતાબેન ડી મેસરીયાને અભ્યાસનાં ભાગે રૂપે સર્વે કરવા અગાઉનાં જા.બા.નં:૩૮૮૭, તા. ૩૧/૦૧/૨૦૨૦ મંજૂરી આપેલ હતી જેનો.

તેઓશ્રીનો સર્વે માંગેલ સમયગાળામાં પૂર્ણ થયેલ ન હોવાથી, સમય મર્યાદા વધારી આપવાં વિનંતી કરેલ છે. તેઓના અભ્યાસ હેતુ તેમની સમય મર્યાદા વધારવાની વિનંતી મંજૂર કરવામાં આવે છે.

શાસનાધિકારી

નગર પ્રાથમિક શિક્ષણ સમિતિ

વડોદરા

નકલ રવાના : તમામ મુ.શિ.શ્રીઓ તરફ જણ તથા શાળાનાં શૈક્ષણિક કાર્યને અસર ન થાય તે રીતે તાલીમાર્થીને મદદરૂપ થવા સારું...

જા.બા.નં.શિ.સ/વહીવટ/ ૧૨૧૭
નગર પ્રાથમિક શિક્ષણ સમિતિ
તા. ૧૪/૧૨/૨૦૨૦

પ્રતિ,

✓ હેડ ઓફ ડિપાર્ટમેન્ટ એન્ડ ગાઇડ,
ડિપાર્ટમેન્ટ ઓફ ફેમિલી એન્ડ કોમ્યુનિટી રિસોર્સ મેનેજમેન્ટ,
ફેકલ્ટી ઓફ ફેમિલી એન્ડ કોમ્યુનિટી સાયન્સ,
એમ.એસ.યુનિવર્સિટી, વડોદરા.

વિષય : પી.એચ.ડીમાં અભ્યાસ કરતી તાલીમાર્થીને પ્રાયોગિક કાર્યનાં ભાગ રૂપે સર્વે કરવા
આપેલ મંજૂરી લંબાવવા મંજૂરી આપવા બાબત
સંદર્ભ : ૧// સંસ્થાના તા. ૨૧/૦૨/૨૦૨૦નો પત્ર
૨// અત્રેની કચેરીનો પત્રાંક નં-૩૮૮૭ તા. ૩૧/૦૧/૨૦૨૦
૩// અત્રેની કચેરીનો પત્રાંક નં-૪૧૬૦ તા.૦૪/૦૩/૨૦૨૦
૪// આપનો તા.૧૯/૧૧/૨૦૨૦ના પત્ર અન્વયે

જયભારત સહ ઉપરોક્ત વિષયના સંદર્ભે લગત જણાવવાનું કે, સંદર્ભે દર્શિત પત્ર અન્વયે
શ્રી ચેતાબેન ડી મેસરીયાને અભ્યાસનાં ભાગ રૂપે સર્વે કરવા અગાઉનાં જા.બા.નં: ૪૧૬૦
તા.૦૪/૦૩/૨૦૨૦ મંજૂરી આપેલ હતી.

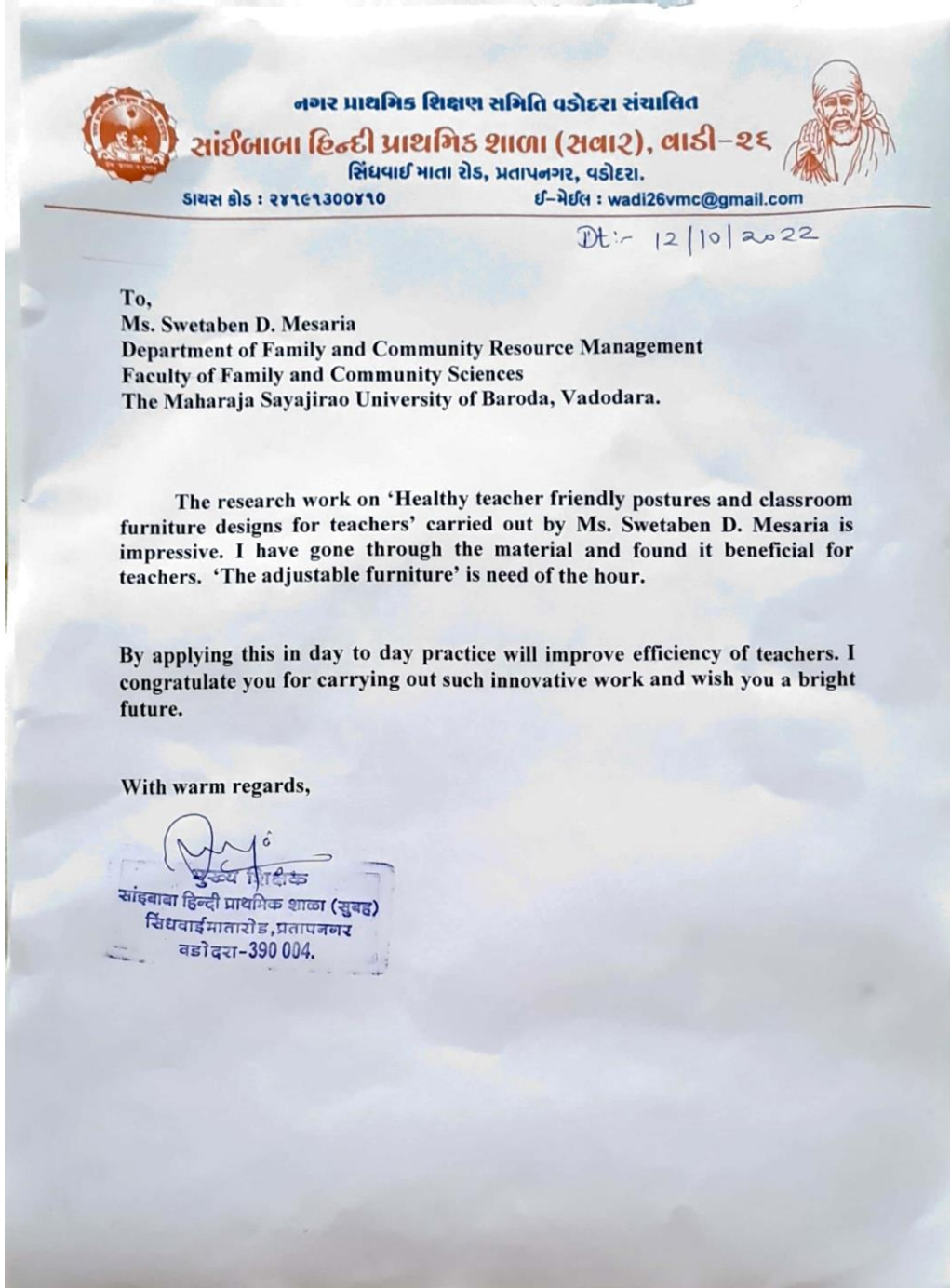
તેઓશ્રીનો સર્વે માંગેલ સમયગાળામાં કોવિડ-૧૯ની મહામારીના લોકડાઉનના કારણે પૂર્ણ
થયેલ ન હોવાથી, સમય મર્યાદા વધારી આપવાં વિનંતી કરેલ છે. તેઓના અભ્યાસ હેતુ તેમની
સમય મર્યાદા વધારીને તા.૩૧/૧૨/૨૦૨૦ સુધી સર્વે કરવા આપની માંગણી શૈક્ષણિક કાર્યને અસર
ન થાય તે શરતે મંજૂર કરવામાં આવે છે.


શાસનાધિકારી
નગર પ્રાથમિક શિક્ષણ સમિતિ
વડોદરા

નકલ રવાના : તમામ મુ.શિ.શ્રીઓતરફ જાણ તથા શાળાનાં શૈક્ષણિક કાર્યને અસર ન થાય તે રીતે
તાલીમાર્થીને મદદરૂપ થવા સારું...

D:\Nikita\Muniabhai\Manjuri Patr

APPENDICES V





॥ सा विद्या या विमुक्तये ॥

નગર પ્રાથમિક શિક્ષણ સમિતિ, વડોદરા.

બ.પા.સ.ક.શા.બં. ૧૬ ફતેગંજ (સલાર)

મહારાણા પ્રતાપ પ્રાથમિક કન્યા શાળા

મેથોડિસ્ટ ચર્ચ સામે, ચંગોલી હોટલ પાછળ, ફતેગંજ, વડોદરા-૩૯૦ ૦૦૧. ં- ૬



તારીખ : 12/10/22

To,

Ms. Swetabahan D. Mesaria

Department of Family and Community Resource Management,
Faculty of Family and Community Sciences,

The Maharaja Sayajirao University of Baroda, Vadodara.

I have been really interested and impressed by your sincere efforts on your project that is deeply touching with the motive of teachers' wellness.

The designs are the reflection of your hard work and smart work which are very creative and innovative. Your all the programmes are based on the comfortable and creative outputs of the teachers ultimately to society. Classroom furniture designs were extremely helpful and progressive for the purpose of Education. Programme for the municipal school board teachers. My opinion for your research work is strongly supportive because it has multiple aspects and noble purpose of serving the nation of bright future.

Wishing you smooth and bright ways of your life.

આચાર્ય Brijopati

મહારાણા પ્રતાપ પ્રાથમિક મિત્ર શાળા
સયાજીગંજ મિત્ર શાળા બં.ક
મેથોડિસ્ટ ચર્ચ સામે, ફતેગંજ, વડોદરા.



નગર પ્રાથમિક શિક્ષણ સમિતિ, વડોદરા સંચાલિત
મહારાષ્ટ્રી લક્ષ્મીબાઈ પ્રા.શાળા - એકપાળી (સયાજીગંજ શાળા નં-14)
(ગર્લ્સ કોલેજની બાજુમાં, નિઝામપુરા મેઈન રોડ)



ફોન નં - 9925451444

EMAIL- npsayajigunj14@gmail.com

Dt: 22/09/2022

To whom it may concern

I have seen the design work of Ms. Swetabahen D. Mesaria on classroom furniture designs for teachers in detail. I am really impressed by the research work carried by Ms. Swetabahen D. Mesaria for municipal primary school teachers. The designs what you have concluded on the basis of the ergonomic requirements are really practical and innovative.

The Ergonomic Programme for the Municipal Primary School Teachers, Principals and the School Authorities in suggesting healthy teacher friendly postures was extremely helpful for the teachers and principals. Hope to see the studies like this in future as well. Wish you all the best.

I wish you a bright future.

Regards,

આચાર્ય
મહારાષ્ટ્રી લક્ષ્મીબાઈ પ્રાથમિક શાળા
ગર્લ્સ કોલેજની બાજુમાં, નિઝામપુરા, વડોદરા

Prof. Neerja Shailesh Jaiswal



Faculty: Faculty of Family and Community Science **Department:** Department of Family and Community Resource Management
Phone No.: 9825240330.00 **Designation** Professor(CAS)
Email: neerja.jaiswal-fcrm@msubaroda.ac.in

Educational Details

Sr. No.	Degree Name	University Name	State	Passing Year
1	PhD	The Maharaja Sayajirao University of Baroda, Vadodara	GUJARAT	01-Jun-1998
2	Post Graduate	The Maharaja Sayajirao University of Baroda, Vadodara	GUJARAT	01-May-1985
3	Graduate	Govind Vallabh Pant University of Agriculture & Technology, Pantnagar	Uttarakhand	01-Mar-1983

Published Articles/Papers in Journals/Edited Volumes

Sr. No.	Title	Journal Name	Volume No.	Page No.	Month- Year	Author Type	Edited Type	Level	ISBN
1	Festival of Colours 'Holi': A Study on Awareness, Consumer Behaviour and Eco Friendly Practices among People	Asian Journal of Organic & Medicinal Chemistry	7	651-658	Mar-22	Guide	Journals	International	
2	Professional Practices by Architects and Interior Designers During COVID-19 Pandemic 2020-2021	The Indian Journal of Home Science	34	91-97	Jan-22	First Author/Main Author/Principal Author	Journals	National	

3	Prevalence of Musculoskeletal Discomfort Among Banking Employees in Assam, India	Ergonomics for Design and Innovation Humanizing Work and Work Environment: Proceedings of HWWE 2021	391	1117-1121	Jan-22	Contributor	Edited Book Volumes	International	9783030942779.00
4	Musculoskeletal Pain Experienced by the Marble Cutting Workers in Marble Industries at Kishangarh District, Rajasthan	Ergonomics for Design and Innovation Humanizing Work and Work Environment: Proceedings of HWWE 2021	391	909-914	Jan-22	Guide	Edited Book Volumes	International	9783030942779.00
5	Analysis of Citizens' Opinions and Practices toward Individual Roles and Responsibilities in Environmental Protection	Biosc Biotech Res Comm	14	164-169	Jul-21	First Author/Main Author/Principal Author	Journals	International	
6	Impact of Sanitation and Hygiene Conditions of Selected Households on Health of Residents: A Study of Vadodara City	Shodh Sanchar Bulletin	10	390-398	Jun-20	Guide	Journals	International	
7	Assessment of the Workplace Environment of the Marble Cutting workers in Marble Industries at Kishangarh District, Rajasthan	Studies in Indian Place Names		164-169	Apr-20	Guide	Journals	International	
8	The Musculoskeletal Pain Experienced by the Primary School Teachers	International Journal of Research and Analytical Reviews	6	81-86	May-19	Guide	Journals	International	
9	Perceived Fatigue and Physiological Workload of the Marble Cutting Workers working in the Marble Industry of Kishangarh District	Remarking: An Introduction		246-248	Apr-19	Guide	Journals	International	
10	Stress among Business Travelers	Quarterly Journal of Management Development	49	104-107	May-18	Guide	Journals	International	
11	Online shopping among younger generation	Research Journal of Recent Sciences		6-11	Jul-17	Second Author/Corresponding Author	Journals	International	

12	A study on the awareness and usage of modular kitchen furniture by the Homemakers	Research Journal of Family, Community and Consumer Sciences	5-8	Jun-17	Second Author/Corresponding Author	Journals	International	
13	Ergonomic Evaluation and Redesigning of Sankheda Sofa Chair	Research Journal of Family, Community and Consumer Sciences	8-11	Jan-17	Guide	Journals	International	
14	A Gender Study on the Leisure Time Activities (LTA) Pursued by the Youth	Studies on Home and Community Science	26-33	Dec-16	First Author/Main Author/Principal Author	Journals	International	
15	Ergonomic Assessment of Office Chairs in Vadodara City, India	Research Journal of Family, Community and Consumer Sciences	15-19	Oct-16	First Author/Main Author/Principal Author	Edited Book Volumes	International	22772502.00
16	Awareness and Usage of Star Rated Electronic Appliances by the Home Makers Residing in Vadodara City	Asian Resonance (International Research Journal)	25-27	Oct-16	Guide	Edited Book Volumes	International	23499443.00
17	The Influence of Children Centric Programmes on Television: A Boom or a Curse	Remarking (A multi-disciplinary International Journal)	7-9	Oct-16	Guide	Journals	International	
18	Emergence of Interior Design as a Profession	Shrinkhla	19-21	Mar-16	Second Author/Corresponding Author	Journals	International	
19	Work related Musculoskeletal Disorders among Construction Workers of India	Research Journal of Family ,Community and Consumer Sciences	1-5	Feb-16	First Author/Main Author/Principal Author	Journals	International	
20	Practices Adopted For Eco- Driving by Youth	International Journal of Social Sciences and Interdisciplinary Research	199-206	Aug-15	First Author/Main Author/Principal Author	Journals	International	
21	Musculoskeletal Disorders among Teachers Residing in Various Nations: A Review	Research Journal of Recent Sciences (International Jr.)	23-27	Jun-15	Second Author/Corresponding Author	Journals	International	



Musculoskeletal Disorders among Teachers Residing in Various Nations: A Review

Mesaria S. and Jaiswal N.

Department of Family and Community Resource Management, Faculty of Family and Community Sciences, The Maharaja Sayajirao University of Baroda, Vadodara, Gujarat, INDIA

Available online at: www.isca.in, www.isca.me

Receivedth 2015, revisedth 2015, acceptedth 2015

Abstract

Every nation gives priority to their schools and the teachers. The teachers are responsible for the overall physical and mental development of their students. The researcher wanted to find out the musculoskeletal disorder among the school teachers residing in various nations and give recommendations for the teachers. The researcher had gathered information from primary and secondary sources regarding the books and researches published on teachers and prevalence musculoskeletal disorder published in various nations. The findings revealed that, the school teachers of Turkey, China, Australia, Brazil, Sweden, USA, Germany, Estonia, Japan, Malaysia, Philippines, France and Greece, have demonstrated relative to other occupational groups, a high prevalence of MSD. School teachers are among the group which appears to suffer from MSD. Due to long work hours, dissatisfaction from work, work environment, stress, low family and community support are related to Musculoskeletal disorders (MSD). The teachers reported respectively musculoskeletal pain at specific body parts like neck, shoulder, low back, hand, wrist and knees. The future education professional should be informed about the musculoskeletal risks associated with their future occupation.

Keywords: Musculoskeletal Disorders, Teachers.

Introduction

Every developed nation gives first priority to the schools for their total national development. School is a prestigious institution in the society, which can be called a place shaping the future citizens that can contribute productively in the Nation's economy¹. The role of education in child development is vitally important. The School provides a structured education and promotes a child's mental and psychological growth. The parents are the child's first teacher while teachers are their second parents. When kids begin their preschool or kindergarten education, children are in a way handed over to trained teachers and are ideally nourished and bestowed with support, and good teaching by these professionals².

Teacher: The teacher plays a key role in transforming young children into a productive adult. Teachers are undoubtedly the role models for their students. They have a moral responsibility in the overall physical and mental development of their students. Teacher's job is not an easy one. They have to spend long hours for imparting quality education to the students. A teacher that can get a student at a young age to realize the value in learning and a solid education is doing a great service not only to that child, but also to society in general³.

The Importance of Primary School Teacher: School teaching is one of the important profession in the world as it is the primary school teacher under whose guidance the young child is developed into a mature human resource that play a key role in

the development of the nation. Teachers pass on knowledge and values to children, prepare them for further education and for working life and are main contributors to good education. Teachers are one of the main pillars of a sound and progressive society. They bear the weight and responsibility of teaching and apart from parents are the main source of knowledge and values for children⁴.

Teacher is a person who is educating children and imparting awareness upon them in their vulnerable age. Whatever the children study from their educators at an early age is likely stay with them for the rest of their lives. Thus teachers surely have a substantial impact on the improvement of children and even older children similarly, The teachers are training them and assisting them to improve their knowledge so that they can use in life. And to become accountable and creative members of society teachers are required. One of the most vital parts of any society is the young children; they symbolize the upcoming time of the country and the course that civilization will take. Teachers can improve a new generation of youngsters so that the future is a safe and secure in the society³.

Teacher's activity during the day: During the day, teachers were performing various tasks that cause physical health complications. The activities of a teacher not just involve teaching students, but also construction of lessons, evaluating students' work and being involved in the other works such as innovative art and games. Teachers have to take part in

manyschool committees. It may cause teachers to suffer psychological and bodily health issues⁵.

In a single day a teacher has to perform tasks like teach specific subject to children, check the note-books of students, maintain class discipline, write on the black board, dictate notes to students and take attendance. Szeto found that in many schools non-adjustable furniture were used which made it more difficult to match the students as well as teachers (who can be in all sizes) leading to poor posture and negative physical health effects that had long term implications on their musculoskeletal growth and health in their future⁶.

Grandjean and Hunting reported that, sometimes, while doing such tasks they feel pain in different body parts. One of the common and frequently occurring illness resulting from abnormal posture over a period of time are Musculoskeletal problems, such as low back pain, pain in the neck/ shoulder, arm, pain in joints, bones and muscles. It is often noticed in many working situations (in schools) that teachers are forced to assume bad working postures due to poor design of work, workplace and tools⁷.

The Work Environment of the School Teachers: The work environment of the school teachers is their classroom. The teacher is forced to adjust in their existing work environment while teaching. The poorly designed work environment of the classroom might have a direct impact on the productivity of the teacher resulting in their poor health and quality of teaching. At the same time the teacher might also experience discomfort in the posture adopted by them while teaching, leading to several musculoskeletal disorders. If this situation is prolonged for longer span of time, it might have its serious consequences for the teacher as an employee and as well as for the students too.

Young students look to their teachers when determining how to interact as adults. Primary school teachers develop and foster the appropriate skills and social abilities to enable the optimum development of children, according to age, ability and aptitude⁸. At this point of time when the role of teacher is so vital, the teacher cannot perform her duties perfectly well if she is suffering from health problem especially associated with musculoskeletal disorders. These are number of risk factors involved in the prevalence of musculoskeletal disorder that need to be identified.

Problems associated with Musculoskeletal Disorders: "Musculoskeletal disorders (MSD) are injuries and disorders of the musculoskeletal system where as exposure to various risk factors present in the workplace may have either contributed to the disorders' development, or aggravated a pre-existing condition." (OHSCO MSD Strategy Development Committee, Wells, 2005). The Musculoskeletal disorder is the disorder of the muscles, joints and bones of the body. This disorder causes pain and it restricts movement of human body. Musculoskeletal disorders can differ in severity from mild, periodic symptoms to

severe, chronic and debilitating conditions. Symptoms like aching, burning, cramping, loss of colour, numbness, swelling, pain, stiffness, tingling and weakness occur in developing stage of this illness. When the musculoskeletal disorder affects a person for a longer period of time it causes different bone problems to person.

Musculoskeletal Disorders (MSD): Musculoskeletal disorders (MSD) are one of the common work-related health complications in working people. A musculoskeletal disorder (MSD) is responsible for a considerable impact on quality of life and affecting a major financial burden in compensation costs and lost salaries(Samad, et. al, 2010)⁹. The disorders reduce efficiency at job cause of sick leave, nonattendance and giving up work and are also costly in terms of treatment and separate pain. According to National Occupational Research Agenda (NORA) in USA says, "that work-related MSD is a major reason for work-related illnesses in the United States. Current assessments of the cost related with MSD range from \$13 to \$54 billion annually in United States"¹⁰.

Musculoskeletal disorders (MSDs) affect the body's muscles, joints, tendons, ligaments and nerves. Most work-related Musculoskeletal disorders (MSDs) develop over time and are caused either by the work itself or by the employees' working environment. For this reason the researcher become eager to find out the musculoskeletal disorder in teachers living in various countries. Regardless of this, the influence of Musculoskeletal disorders (MSD) within the profession of imparting knowledge has not been given importance consideration in the studies that the researcher had come across. The researcher wanted to know that these teachers have musculoskeletal disorder or pain in different body parts which is caused by their profession and to find out the availability of researchers published in journals on musculoskeletal disorder in teachers living in various nations.

Objectives of the Study: i. To search and gathered the available studies, researches and reports on Musculoskeletal disorders (MSD) in teaching profession. ii. To provide recommendations for the teaching professionals for prevention of Musculoskeletal disorders (MSD).

Methodology

The researcher had gathered information from secondary sources on teachers and prevalence musculoskeletal disorder published in various nations. The information about the musculoskeletal disorder was derived from books, researches and electronic media (internet). The researcher had gathered detailed information on musculoskeletal disorder of teachers in this paper.

Findings of the Study

The school teachers of Turkey, China, Australia, Brazil,

Sweden, USA, Germany, Estonia, Japan, Malaysia, Philippines, France and Greece have proven that related to other working groups, a great occurrence of MSD was noted between 40% and 95%¹¹. It has been found by Pillastrini, et. al., that Nursery school teachers, also perform an inclusive range of tasks joining basic childcare and education duties. They have to perform activities which require sustained load and continuous trunk movement. The nursery school teachers were found to have a high occurrence of neck, shoulder, arm and low back complaints and lower-extremity MSD due to actions and tasks which require continuous periods of kneeling and bending¹².

Erick and Smith from Norway have found that, "School teachers represent an occupational group among which there appears to be a high prevalence of MSD"¹¹. Chong and Chan (2010) in their study conducted in China have confirmed that, "Hong Kong teachers showed a higher prevalence for neck (68.9%), shoulder (73.4%) and low back pain (59.2%) (5). It is worth noting that the sample of Hong Kong teachers showed significantly higher prevalence in all musculoskeletal complaints".

In relations of bodily signs it was noted that nursery school teachers of Turkey, China, Australia, Brazil, Sweden, USA, Germany, Estonia, Japan, Malaysia, Philippines, France and Greece were possible to be involve in continuous activities like kneeling, bending over, sitting on the heels which meant that they were possible to suffer from lower back pain⁴. Approximately 4,000 patients in UK were registered in 2010 making musculoskeletal disorder a common illness for the whole mass⁸. Chiu and Ku, from Hong Kong found that, "The academic staff in colleges makes frequent use of computers and their daily work involve repetitive movement such as reading, writing and prolonged static posture¹³." Academic staffs are also required to read for significant amounts of time. Lau, Sham and Wong indicated that subjects with neck pain spent more time in reading¹⁴.

The nature of university academic works is also stressful. This is supported by the SW190 Survey in Britain which found that, teachers, professionals, and other educational and welfare workers were found to be significantly above average in the rates of self-reported stress, depression, and anxiety as stated by Health and Safety Executives¹⁵.

The demanding working situations due to large classes, shortage of resources and inadequate payment for the job were the possible cause of the high occurrence of self-reported musculoskeletal disorders (MSD) among school educators of Turkey, China, Australia, Brazil, Sweden, USA, Germany, Estonia, Japan, Malaysia, Philippines, France and Greece⁴. The educated intelligent population of the country was exposed to these occupational hazards from the first day of the work and from the young age from school. This will gradually transform into a major health concern in various nations soon. Hence, there is a need to find out the reasons for the problem and workout suitable solutions¹⁶.

A study conducted by Thomsen, et. al, in 2007 found that, the strength but not continuity and location were related to hand-wrist pain and possible tendonitis in the analyses. Probabilities ratios for the hazard of hand discomfort was 1.7 (95% CI 1.3 to 2.2) and for possible tendonitis 1.9 (95% CI 1.1 to 3.3). In the follow-up analyses force remained a risk factor for hand discomfort (OR 1.4, 95% CI 1.1 to 1.8) and for possible tendonitis. Repetition was also a risk factor for the onset of hand-wrist discomfort¹⁷. Increasing levels of force were associated with prevalent and incident hand-wrist pain and possible extensor tendonitis.

Psychosocial factors have been related to Musculoskeletal disorders (MSD) among the primary school teachers. The current analyses suggested that psychosocial factors such as job demands, high stress level, low support of community and society, job dissatisfaction and repetitive work are mostly related to musculoskeletal disorders in educators of United Kingdom. According to the Health and Safety Executive had reported that around 175 million employed days were lost of the UK economy due to sick leave with one in eight patients detected with Musculoskeletal disorder signs like neck, back and shoulder pain estimating the UK economy between £103-129 billion⁸.

Few studies conducted outside India focus more on the musculoskeletal disorders related to specific body parts like neck, shoulder, low back, hand wrist and, knee¹⁸⁻²¹. The literature reviewed further highlighted that some studies were also carried on the impact of workplace risk factors among the teachers^{9,19}.

Recommendations for Prevention of Musculoskeletal Disorders (MSD) in Teaching Professionals

Based on the reviews collected, the researcher suggested the recommendations listed below: i. The musculoskeletal disorders result from fractures sustained in accident which affect the back, neck, shoulders and upper limbs so the researcher recommends performing tasks without injuring one's self. ii. The schools should purchase and use adjustable furniture which is more easy to match the students as well as teachers (who can be in all sizes) leading to proper posture and physical health that gives long term benefits on their musculoskeletal growth and health. iii. The researcher recommends the teachers should focused on assuming proper working postures in performing various tasks during working hours based on design of work, workplace and tools used in that task. iv. The teachers are recommended to perform activities like kneeling, stooping, squatting or bending with ease in movement and for nominal period of time to avoid musculoskeletal problems of neck, shoulder, arm and low back disorders and lower-extremity. v. The teachers performing repetitive movement such as reading, writing in prolonged static posture are advised to take rest periods and perform easy

exercise between the tasks to avoid pain, fatigue and discomfort. vi. Applying nominal force, right posture and proper position are helpful in preventing hand-wrist pain and possible tendonitis in teaching professionals. vii. Yoga and proper breathing exercises can help the teachers with musculoskeletal problems resulted from job environment, stress, dissatisfaction from job, longer work hours and job demands. viii. Avoiding working in awkward posture and avoid writing with elevated arm on the board can prevent musculoskeletal symptoms. ix. The educational authorities of every nation needed take preventive actions to focus on identifying and reducing psychological stresses in education professionals. x. Occupational injuries should be avoided by finding ways to reduce standing position sustained for long periods by the teachers. xi. The researcher recommends Ergonomic and individually tailored measures in terms of work time control and specific relaxation techniques may improve the stress management in teachers.

Conclusion

Researches on School teachers of various nations like Turkey, China, Australia, Brazil, Sweden, USA, Germany, Estonia, Japan, Malaysia, Philippines, France and Greece have demonstrated the existence of musculoskeletal problem in teaching occupation. It is observed that the prevalence of musculoskeletal disorder differ depending on the locale of the research. The findings of the study would be useful for the school authorities to become aware of the impact of poor design of the classrooms and the resulting affect of it on the teachers and students. The findings of the present study also will strengthen the data base for conducting similar studies on teachers and other occupations. The researcher recommended that it would be essential to better inform future education professional (teachers) about the musculoskeletal risks associated with their future occupation.

References

1. <http://www.preservearticles.com/201102244172/7-essential-functions-of-a-school-as-an-agency-of-education.html>, (2012)
2. <http://www.child-development.html>, (2012)
3. <http://www.schooldee.com/importance-of-teachers-in-our-society.php>, (2012)
4. <http://www.teachersfirst.nl/Teaching/TheImportanceofTeachers/tabid/236/Default.aspx>, (2012)
5. Chan E. and Chong A., Subjective health complaints of teachers from primary and secondary schools in Hong Kong, *International Journal of occupational safety ergonomics (JOSE)*, **16(1)**, 23–39 (2010)
6. Szeto G., Potential health problems faced by an Asian youth population with increasing trend for computer use (2003), cited in Joshi, S. Walter N. and Qureshi M., Proceedings of the National Seminar on Ergonomic Research Techniques, Delhi. Wisdom Publication (2010)
7. Grandjean E. and Hunting W., Ergonomics of Posture: Review of Various Problems of Standing and Sitting Posture, Applied Ergonomics, Vol. 8, London. London Publication, (1997)
8. http://wiki.answers.com/Q/What_are_the_role_of_the_teacher_in_the_community, (2012)
9. Samad N., Abdullah H., Moin S., Shamsul B., Tamrin M. and Hashim Z., Prevalence of Low Back Pain and its Risk Factors among School Teachers, *American Journal of Applied Sciences*, **7(5)**, 634-639 (2010)
10. Marras W., Cutlip R., Burt S. and Waters T., National occupational research agenda (NORA) future directions in occupational musculoskeletal disorder health research, *Journal of Applied Ergonomics*, **40(1)**, 15–22 (2009)
11. Erick P. and Smith D., A systematic review of musculoskeletal disorders among school teachers, *Journal of BMC Musculoskeletal Disorder*, **12**, 260 (2011)
12. Piliastirini P., Mugnai R., Bertozz L., Costi S., Curti S., Mattioli S. and Violante F., Effectiveness of an at-work exercise program in the prevention and management of neck and low back complains in nursery school teacher, *Journal of Health*, **47(4)**, 349-354 (2009)
13. Chiu W., Ku Y., Lee H., Sum, K., Wan, P., Wong, Y. and Yuen, K., A Study on the Prevalence of and Risk Factors for Neck Pain among University Academic Staff in Hong Kong, *Journal of Occupational Rehabilitation*, **12(2)**, 77-91 (2002)
14. Lau E., Sham A. and Wong K., The prevalence of and risk factors for neck pain in Hong Kong Chinese, *Journal of Public Health Med*, **18(4)**, 396–399 (1996)
15. Health and Safety Executives, Health and safety statistics 1996/1997. London, London. HSE Books Publication (1996)
16. Neeraja T., Musculoskeletal discomfort and work stress among software professionals, cited in Joshi S., Walter N. and Qureshi M., Proceedings of the National Seminar On Ergonomic Research Techniques, Delhi. Wisdom Publication (2010)
17. Thomsen J., Mikkelsen S., Andersen J., Follentin N., Loft I., Frost P., Koergoard A. and Bonde J., Risk factors for hand-wrist disorders in repetitive work, *Journal of Occupational Environment Medicine*, **64(8)**, 527–533 (2007)
18. Yue P., Liu F. and Li L., Neck /shoulder pain and low back pain among school teachers in china, prevalence and risk factors, *Journal of BMC Public Health*, **14(12)**, 789 (2012)

19. Sim J., Lacey RJ. and Lewis M., The impact of workplace risk factors on the occurrence of neck and upper limb pain: a general population study, *Journal of BMC Public Health*, **19(6)**, 234 (2006)
20. Chiu TT and Lam PK., The prevalence of and risk factors for neck pain and upper limb pain among secondary school teachers in Hong Kong, *Journal of Occupational Rehabilitation*, **17(1)**, 19-32 (2007)
21. Tsuboi H., Takeuchi K., Watanabe M., Hori R. and Kobayashi F., Psychosocial Factors Related to Low Back Pain among School Personnel in Nagoya, Japan, *Journal of Industrial Health*, **40**, 266–271 (2002)

The Musculoskeletal Pain Experienced by the Primary School Teachers

¹Swetabehen D. Mesaria, ²Prof. Neerja Jaiswal

¹Research Scholar, ² Professor - HOD

Department of Family and Community Resource Management, Faculty of Family and Community Sciences
The Maharaja Sayajirao University of Baroda, Vadodara, Gujarat, India.

Abstract: The Musculoskeletal Pain is one of the most common and expensive occupational health problems in both developed and developing countries. The symptoms of Musculoskeletal Pain were in the form of pain, discomfort and inability to perform the task. Despite this, the impact of Musculoskeletal Pain specifically within the teaching profession had not been given sufficient attention in the literature. Furthermore, comparatively little research had investigated on the prevalence of Musculoskeletal Pain in teaching profession. The researcher was curious whether teaching profession was affected by Musculoskeletal Pain like other profession or not. For the current study 122 Primary School Teachers working in Anand city of Gujarat state, India were the respondents. The researcher wanted to find out the prevalence of musculoskeletal pain among the primary school teachers. The data was collected with the help of modified Dutch Musculoskeletal Pain questionnaire. The findings of the present study will benefit researchers, students, academicians and Primary school teachers in general as well.

Index Terms - Musculoskeletal pain, Primary School Teachers.

INTRODUCTION

Musculoskeletal Pains are the injuries or illnesses to soft body tissue such as Muscles, Nerves, Tendons, Ligaments, Joints, Cartilage and Spinal Discs. According to National Research Council and the Institute of Medicine (2001), Musculoskeletal Pain are associated with employer's absenteeism at work, loss of productivity and increase worker's health problems. MSD cases are more severe than the average nonfatal injury or illness (1). The results were also same in the reviews and research conducted by Erick and Smith (2011) and (2015).

The Primary school teachers are more susceptible to the development of MSP and MSD. At present times of competition when the role of teacher is so vital in imparting education to students through interesting and innovative methods. The teacher cannot perform her duties perfectly well if she is suffering from health problem especially associated with Musculoskeletal Pain. Teachers have a full working day; they spend 30 to 34 hours per week. In a single day a teacher has to perform activities (tasks) like teach specific subject to children, check the note-books of students, maintain class discipline, write on the black board, dictate notes to students, maintain classroom discipline, take exams and take attendance. Szeto (2003) found that in many schools non-adjustable furniture were used which made it more difficult to match the students as well as teachers (who can be in all sizes) leading to poor posture and negative physical health effects that had long term implications on their musculoskeletal health in near future.

The Center for Disease Control and Prevention's (CDC) National Institute for Occupational Safety and Health (NIOSH) in 1997 released a review of evidence for work-related Musculoskeletal Pain. The working conditions that may cause work-related Musculoskeletal Pain include routine lifting of heavy objects, daily exposure to whole body vibration, routine overhead work, working with the neck in chronic flexion position and performing repetitive forceful tasks. The report identified positive evidence for relationships between work conditions and work-related Musculoskeletal Pain of the neck, shoulder, elbow, hand and wrist and back (2).

Grandjean and Hunting (1997) reported that, sometimes, while doing such tasks they feel pain in different body parts. One of the common and frequently occurring illness resulting from abnormal posture over a period of time are Musculoskeletal problems, such as low back pain, pain in the neck/ shoulder, arm, pain in joints, bones and muscles. It is often noticed in many working situations (in schools) that teachers are forced to assume bad working postures due to poor design of workplace (classroom) and tools (furniture and equipments). The working conditions due to large classes, lack of educational resources and limited reward for their work cause of the high prevalence rates of self-reported musculoskeletal pain (MSP) among teachers of various nations. The researcher wanted to find out the prevalence of musculoskeletal pain among the primary school teachers working in Anand city of Gujarat state, India.

Objective of the study:

- To assess the Prevalence of Musculoskeletal Pain among the Primary School Teachers.

Limitation of the study:

- The present study was limited to Primary School Teachers only.
- The present study was limited to Primary School Teachers working in Anand city of Gujarat state, India.
- The present study was limited to Primary School Teachers having minimum of two years of experience.

METHODOLOGY

Research Design: The research design of the present study is descriptive in nature.

Sample Size: The study was conducted on 122 Primary School Teachers working in Anand city of Gujarat state, India were the respondents in the current study.

Locale of the study: The locale of the study was Anand city of Gujarat state, India.

Sampling Method: The data were collected personally by the researcher on a pre-validated interview schedule. The questionnaire was prepared by the researcher for Primary School Teachers working in Anand city. The data of the present study was based on the subjective responses of Primary School Teachers working in Anand city of Gujarat state, India. The questionnaire also contained questions concerning their gender, age, number of family members, type of family, work experience and daily working hours.

Musculoskeletal Pain Data: The researcher had collected data with the help of modified Dutch Musculoskeletal Pain tool was selected. The modified Dutch Musculoskeletal Pain tool covered body parts from neck to toes of the Primary Schools Teachers. The data were analyzed by applying descriptive statistical tests. Descriptive statistics (percentages, frequencies and means and standard deviations) were utilized to analyze the data statistically.

FINDINGS OF THE STUDY

The Basic Profile of the Primary Schools Teachers

The finding reflected that a higher percentage of the Primary Schools Teachers were found to be females (76.2%) as compared to males (23.8%). The mean age of the respondents were found to be 43.53 in years. The data highlighted that higher percentages (67.2%) of the Teachers were found to be in the age group of 41 years and above. The data regarding the marital status of the Primary Schools Teachers showed that majority (88.5%) of the Primary Schools Teachers were married. And also indicates that more than one-half of the Primary Schools Teachers (49.2%) were living in nuclear family whereas, a little less one-half (50.8%) were living in joint family.

The data regarding the monthly personal income of the Schools Teachers showed that more than fifty percentages (55.7%) of them were earning Rs. 25,000-50,000 per month. One-third (32.8%) of the Primary Schools Teachers were earning Rs. 50,000 -75,000 per month. Only one-tenth (8.2%) percent the new teachers who were still in contractual appointments were earning less than or equal to Rs. 25000 per month. The findings regarding the years of experience in teaching profession clarified that more than one-third (34.4%) of the Schools Teachers had 21 to 30 years of work experience. A little less than one-third (29.5%) percent of the respondents had 11 to 20 years of teaching experience. The data regarding the work hours of the Schools Teachers showed that 42.6 percent of the teachers were spending 5 hours daily in teaching at their respective schools. However, nearly one third of them were spending 6 hours (36.1%) on the same.

The data regarding the mode of conveyance used by the teachers to reach their respective schools reflected that higher percentages of the primary schools teachers were using two wheeler vehicles (67.2%) to reach their workplace. A little more than one-tenth (15.6%) were using auto rickshaw as their conveyance. Whereas, very few of them were reaching their respective schools by walking (6.6%), by car (8.2%) and by bus (2.5%). The daily distance covered by the primary schools teachers between their home and respective schools shows that majority of them were travelling 1-5 Km (64.8%) to reach their workplace from home every day. However, one-fifth (19.7%) of them were covering 6-10 Km for the same every day. Few of them were covering more than 10 Km (15.6%) travelling distance every day.

It was also reflected that, nearly half (44.3%) of the primary schools teachers go for a daily walk to maintain their physical fitness. However, one fourth (25.4%) of them were doing Yoga to stay fit. Very few of them were involved in other activities to maintain their fitness, viz. riding bicycle (7.4%), dancing (3.3%), playing cricket (1.6%), swimming (0.8%) and playing badminton (0.8%). A little more one tenth (16.4%) of them were doing nothing in the name of physical fitness. The data regarding time spent by the primary schools teachers on routine physical exercise revelled that the majority (70.5%) of the teachers were spending one hour daily on routine physical exercise. It also highlights that a little more one tenth (11.5%) of them were spending two hours daily on routine physical exercise.

The Musculoskeletal Pain Experienced by the Primary School Teachers

The pain and discomfort in various body parts muscles, ligaments and tendons, and bones are named as musculoskeletal pain. The findings will throw light upon the type of musculoskeletal pain that primary schools teachers were facing mainly due to their teaching profession. This section presents the data regarding Musculoskeletal Pain experienced by the Primary School Teachers while teaching during past 12 months in various parts of their body.

Table 1: Musculoskeletal Pain Experienced by School Teachers in Past 12 months (n=122)

Sr. No.	Body Parts	Yes %	No %
1	Neck	55.7	44.3
2	Upper Back	43.5	56.6
3	Lower Back	41.8	58.2
4	Shoulders	44.4	55.7
5	Arms	30.3	69.7
6	Elbows	13.9	86.1
7	Wrists	20.5	79.5
8	Hands	23	77
9	Fingers	22.9	77
10	Hips	7.3	92.6
11	Thighs	7.3	92.6
12	Knees	36.9	63.1
13	Calf	27	73.0
14	Ankles	18.9	81.1
15	Feet	32.8	67.2
16	Toes	9.8	90.2

Table 1 shows the data regarding the musculoskeletal pain experienced by the teachers in past 12 months. It indicated that respondents had experienced pain in their lower back (41.8%), knees (36.9%), neck (55.7%), upper back (43.5%), shoulders (44.4%) and arms (30.3%), from past one year. Moreover, it was found that very few of them were experiencing pain in hips (7.3%), thighs (7.3%). Very often but nearly less than ten percent of them experienced such pain occasionally.

Furthermore it also revealed that teachers had experienced occasional pain in their elbows (13.9%), wrists (20.5%), hands (23%), fingers (22.9%), calf muscles (27%), ankles (18.9%) and feet (32.8%). However, higher percentage of them reported that they never experienced musculoskeletal pain in past one year. The finding indicates that teachers were mainly experiencing pain in their neck, back, shoulders and knees. These types of pain usually occur due to the bad postures and sitting or standing in one position for long period. Teaching for long hours, forces one to stand for longer duration in order to remain audible and visible to whole class. This situation might cause musculoskeletal pain in various body parts among teachers

Abdulmonem et.al (2014) also investigated the prevalence of musculoskeletal pain and its associated factors among female teachers. The findings of that research suggested the female teachers suffered the musculoskeletal pain related to back, knees, heels, shoulder and neck. The positive association of musculoskeletal pain was found with body mass index (BMI), Vitamin D deficiency, level of teaching and co existence of any chronic disease. Solis-Soto et.al. (2017) also found the prevalence of MSD in most of the selected school teachers in past one year and among them the pain in neck was most common and the least common MSD was pain in wrist and hand.

Table 2: Radiating Back Pain towards legs Experienced by Teachers in Past 12 months (n=122)

Sr. No.	Radiating Back Pain towards the legs	Yes %	No %
1	The right knee	18.9	81.1
2	The left knee	16.4	83.6
3	The right ankle	5.7	94.3
4	The left ankle	7.4	92.6
5	The right foot	15.6	84.4
6	The left foot	14.8	85.2
7	The right foot toes	3.3	96.7
8	The left foot toes	4.1	95.9

Table 2 indicates the radiating back pain that leads towards the legs among teachers. The data showed that one-fourth of the teacher experienced radiating back pain towards their right knee (18.9%) in past twelve months whereas, a little more than one fifth of them experienced the same towards their left knee (16.4%). Furthermore, it was found that some of them experienced radiating back pain towards their right ankle (5.7%), left ankle (7.4%), right foot (15.6%), and left foot (14.8%). Although, very few of them experienced the same in their right foot toes (3.3%) and left foot toes (4.1%).

However, a very high percentage of teachers responded that they did not experience radiating back pain towards their legs. The findings highlight that among those teachers who faced radiating back pain towards their legs mainly experienced towards their knees. The pain in knees causes problems while bending knees, sitting, standing and walking. A teacher needs to sit, stand and walk during the classroom teaching sessions. Therefore, it would not be wrong to say that the teachers might be facing troubles in teaching due to their radiating back pain towards their legs.

Table 3: Radiating Pain till the Arms Experienced by Teachers in Past 12 months (n=122)

Sr. No.	Radiating pain till Arms	Yes %	No %
1	The right upper arm	8.2	91.8
2	The left upper arm	9.0	91.0
3	The right elbow	3.3	96.7
4	The left elbow	2.5	97.5
5	The right forearm	4.1	95.9
6	The left forearm	2.5	97.5
7	The right wrist	6.6	93.4
8	The left wrist	4.9	95.1
9	The right Hand	8.2	91.8
10	The left Hand	6.6	93.4
11	The right-Hand fingers	7.4	92.6
12	The left-Hand fingers	8.2	91.8

The findings related to the radiating neck and shoulder pain till the arms experienced by teachers in past 12 months shows that some of them experienced the same in their right upper arms (8.2%), left upper arm (9.0%) and in right hand (8.2%). It can be inferred from this finding that a very few of the teachers were experiencing the radiating neck and shoulder pain till their arms. The teachers were using blackboards while teaching and need to check the assignments, notebooks and answer sheets of the students that involve the movement of arms observed by the researcher. The constant engagement of arms can induce neck and shoulder pain that may radiate till their arms in long run.

Table 4: Problems faced due to Musculoskeletal Pain while Performing Various Activities (n=122)

Sr. no.	Activities	Often %	Rarely %	Never %
1.	Standing for a long period	21.2	37.8	41
2	Sitting for a long period	23.8	36.9	39.3
3	Moving loads (more than 5 kg)	4.9	31.2	63.9
4	Performing jobs which require exertion of arms/ hands	17.2	21.3	61.5
5	Driving vehicles	8.2	18.8	73
6	Working in uncomfortable postures	17.2	32.8	50
7	Working in the same postures for a long period	24.6	25.4	50

Table 4 shows the findings related to the problems faced by teachers due to musculoskeletal pain while performing various activities. It showed that more than twenty percent of the teachers were often facing problems while standing (21.2%), sitting (23.8%) and working in the same postures (24.6%) for a longer period. The teachers were rarely facing problems while standing (37.8%), sitting (36.9%), working in the same postures (25.4%) for a long period; moving loads more than 5 kg (31.2%); performing jobs which require exertion of arms/ hands (21.3%) driving vehicles (18.8%) and working in uncomfortable postures (32.8%).

Table 5: Sick leave taken during the past 12 months (n=122)

Sr. No.	Musculoskeletal pain in Various Body Parts	1-10 days %	11-20 days %	21-30 days %	2 months %
1	Neck	1.6	-	-	0.8
2	Upper Back	0.8	-	-	-
3	Lower Back	3.2	0.8	-	-
4	Shoulders	0.8	-	-	-
5	Fingers	0.8	0.8	-	-
6	Knees	0.8	-	-	0.8
7	Calf	-	-	0.8	-

Table 5 shows the data regarding the sick leaves taken by the teachers due to their musculoskeletal pain during the past 12 months. Mostly the teachers had taken leaves for 1 -10 days due the musculoskeletal pain in their neck (1.6%), upper back (0.8%), lower back (3.2%) and knees (0.8%). Moreover, the table 13 also indicated that overall the teachers had taken leaves for 1-10 days (1.6%), 11-20 days (0.8%), 21- 30 days (0.8%), 2 months (1.6%) due to their musculoskeletal pain in various body parts. Among them higher percentage of the leaves were taken due to the pain in neck, back and knees.

These kinds of pain caused problems in performing various activities at their workplace and at home. The ignorance towards these musculoskeletal pains may cause severe issues. Therefore, in some cases people have take leaves and opt for complete rest to cure musculoskeletal pains. It indicates that the teachers have taken leaves from one day to three or more months. Although, the figures are small but it indicates the severity of the problems caused by the musculoskeletal pain that the teachers had to take leaves for several months.

Table 6: Details about Musculoskeletal Pain among Teachers (n=122)

Sr. No.	State of Affairs of Musculoskeletal Pain	Yes %	No %
1.	The Musculoskeletal Pain was associated with the work	42.6	57.4
2.	The Musculoskeletal Pain was associated with leisure time activities.	4.9	95.1
3.	The Musculoskeletal Pain started during the current work.	32.8	67.2
4.	The Musculoskeletal Pain got worse.	8.2	91.8
5.	The severity of the musculoskeletal pain was varying widely.	10.7	89.3
6.	The Musculoskeletal Pain started suddenly.	12.3	87.7
7.	The Musculoskeletal Pain hindered the sleep.	16.4	83.6
8.	The Musculoskeletal Pain persisted during holidays.	12.3	87.7
9.	There was stiffness in the body parts after getting up in the morning.	9.0	91.0
10.	Undergone medical treatment due to musculoskeletal pain.	9.8	90.2
11.	Hospitalized due to musculoskeletal pain.	4.1	95.9
12.	Partly disabled due to musculoskeletal pain.	5.7	94.3
13.	Changed the work in past due to musculoskeletal pain.	2.5	97.5
14.	The workplace, tools or working hours were adjusted due to the musculoskeletal pain.	4.1	95.9
15.	Had dead or twinkling feeling in various body parts.	16.4	83.6

Table 6 shows the data regarding the association of musculoskeletal pain of teachers with their work and personal life. The data revealed that two fifth percent of them agreed that Musculoskeletal Pain was associated with the work (42.6%) and Musculoskeletal Pain started during the current work (32.8%). It was also found that a little less than one-fourth of them agreed that the severity of the musculoskeletal pain was varying widely (10.7%) and Musculoskeletal Pain started suddenly (12.3%).

It can be inferred from these data that the musculoskeletal pain slowly increased due to the incorrect body postures while working and was also affecting the work of the teachers at their school. Furthermore, the table 15 also showed that the teachers also agreed that they had to adjust the workplace (4.1%), tools and change their work in past (16.4%) due to their musculoskeletal pain. It was also found that less than one-fifth (16.4%) of them had dead or twinkling feeling in various body parts and some of them felt stiffness in their body after getting up in the morning (9%) and they were partly disabled (5.7%) due to their musculoskeletal pain. Further, the data indicated that less than one-fifth (16.4%) of the teachers agreed that musculoskeletal pain hindered their sleep. An affirmation was also noted for the association of musculoskeletal pain with leisure time activities (7.80%) and its persistence during holidays (13.40%). Solis-Soto et.al. (2017) also suggested for identifying the risk factors related with musculoskeletal pain among teachers in order to control it.

CONCLUSION

The present findings indicated that teachers have been experiencing musculoskeletal pain in their various body parts especially in their neck, upper back, lower back, shoulders, arms, knees and feet. They were also experiencing radiating back pain towards their arms and legs. The results also highlighted that the musculoskeletal pain was affecting the personal and professional life of selected teachers. Although the reasons for musculoskeletal pain could be their ill body posture while working, lack of rest, overburden of work and stress. This was also affecting their health and hence the productivity at certain level. The musculoskeletal pain also caused other problems among teachers. They were facing problems in driving, moving loads and so on. Thus, it is clear from the findings that these musculoskeletal pains can cause long term illness. These findings are buzzing the alarm to frame immediate plan of actions to address the root causes for these musculoskeletal pain among teachers.

IMPLICATION AND RECOMMENDATION OF THE STUDY

The findings of the study can be utilized to plan projects to control and reduce the occurrence of musculoskeletal pain among Indian teachers. The results can also be help in carrying out the similar research studies for further exploration by other researchers, students and academicians in different cities, states or countries. The study presented the musculoskeletal pain and related issues faced by the primary school teachers. Hence, a similar study can also be carried out with different sample viz. secondary school teachers, college professors as well. It is recommended to study the factors associated with musculoskeletal pain among teachers.

REFERENCES

1. Abdulmonem, A., Hanan, A., Elaf, A., Haneen, T., & Jenan, A. (2014). The prevalence of musculoskeletal pain & its associated factors among female Saudi school teachers. *Pakistan journal of medical sciences*, 30 (6), 1191–1196. <https://doi.org/10.12669/pjms.306.5778>
2. Bernard BP, editor. U.S. Department of Health and Human Services, Centers for Disease control and Prevention, National Institute of Occupational Safety and Health. Musculoskeletal disorders and workplace factors: a critical review of epidemiologic evidence for work-related musculoskeletal disorders of the neck, upper extremity, and lower back. July 1997. DHHS (NIOSH) Publication No. 97. Pp. 141.
3. Erick PN, Smith, BH. (2015). Musculoskeletal disorders in the teaching profession: an emerging workplace hazard with significant repercussions for developing countries. *Ind Health*. Vol. 53:385-386.
4. Erick, P., Smith, D. (2011). A systematic review of musculoskeletal disorders among school teachers. *Journal of BMC Musculoskeletal Disorder*. 12. Pp. 260.
5. Grandjean, E. and Hunting, W. (1997). Ergonomics of Posture: Review of Various Problems of Standing and Sitting Posture. *Applied Ergonomics*. Vol. 8. London. London Publication.
6. Kothari, C. (2012). *Research methodology: Methods and techniques*. New Delhi. Vishwa Prakashan.
7. National Research Council and the Institute of Medicine (2001). Musculoskeletal disorders and the workplace: low back and upper extremities. Panel on Musculoskeletal Disorders and the Workplace. Commission on Behavioral and Social Sciences and Education. Washington, DC: National Academy Press. Available from: <https://www.nap.edu/read/10032/chapter/>
8. Solis-Soto, M.T., Schön, A., Solis-Soto, A. *et al.* (2017). Prevalence of musculoskeletal disorders among school teachers from urban and rural areas in Chuquisaca, Bolivia: a cross-sectional study. *BMC Musculoskeletal Disorder* 18. Pp. 425.
9. Szeto, G. (2003). Potential health problems faced by an Asian youth population with increasing trend for computer use. Cited in. Joshi, S. Walter, N. and Qureshi, M. (2010). *Proceedings of the National Seminar on Ergonomic Research Techniques*. Delhi. Wisdom Publication.

Document Information

Analyzed document	THESIS 01.docx (D146856492)
Submitted	2022-10-19 07:52:00
Submitted by	Prof. Jaiswal Neerja S.
Submitter email	neerja.jaiswal-fcrm@msubaroda.ac.in
Similarity	4%
Analysis address	neerja.jaiswal-fcrm.msub@analysis.orkund.com

Sources included in the report

SA	Professor Jayashankar Telangana State Agri Uni / Research article of VV 24.2.2021.docx Document Research article of VV 24.2.2021.docx (D97302018) Submitted by: vijjikeetu@gmail.com Receiver: vijjikeetu.pjtsau@analysis.orkund.com	1
SA	For Plagiarism Check Hemani Ph.D - Aug 05, 2022.pdf Document For Plagiarism Check Hemani Ph.D - Aug 05, 2022.pdf (D142674590)	4
SA	Assam Agricultural University, Jorhat / 1Geetashree Bori Ph.D. (C.C.Sc.) Thesis 2021.pdf Document 1Geetashree Bori Ph.D. (C.C.Sc.) Thesis 2021.pdf (D111793451) Submitted by: geetashree.bori.hd17@aaau.ac.in Receiver: geetashree.bori.hd17.aau@analysis.orkund.com	2
SA	plag check sidharth.docx Document plag check sidharth.docx (D143305332)	3
W	URL: https://amzn.eu/d/59e14s5 Fetched: 2022-10-19 07:52:00	1
W	URL: https://amzn.eu/d/h819AVy Fetched: 2022-10-19 07:52:00	1
W	URL: https://amzn.eu/d/6J8tl9b Fetched: 2022-10-19 07:53:00	2
W	URL: https://amzn.eu/d/3TfRNsC Fetched: 2022-10-19 07:53:00	1

Neerja
Guide
DR. NEERJA JAISWAL
Associate Professor
Department of Fly. & Comm. Res. Mgt.
Faculty of Family & Community Sciences,
The Maharaja Sayajirao University of Baroda,
Vadodara.

Entire Document

<https://secure.orkund.com/view/140061557-239082-106274/#/exported>

neerja.jaiswal@crm.msub@analysis.urkund.com (12) v [document icon] → [folder icon] v [folder icon] → [folder icon] v + Ne

☐ [up/down arrow] [down arrow] [up/down arrow]

☐ ✓ [hand icon] [envelope icon] [document icon] 4% D146856492 THESIS 01.docx

Guide
DR. NEERJA JAISWAL
~~Associate~~ Professor
Department of Fly. & Comm. Res. Mgt.
Faculty of Family & Community Sciences,
The Maharaja Sayajirao University of Baroda,
Vadodara.

The Maharaja College, Vadodra.									
<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	4%	D146856492 THESIS 01.docx	Thesis - 01	9 MB	46016 word(s)
<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	9%	D146855584 Review of Literature - 4 final.docx	Review of Literature	351 KB	6718 word(s)
<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	2%	D146747494 INTRODUCTION Draft 7.docx	Introduction 02	49 KB	6053 word(s)
<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	2%	D146501439 Findings Re7.docx	Findings 01	8 MB	28388 word(s)
<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	0%	D146258054 Methodology draft 8.docx	Methodology 01	204 KB	5950 word(s)

Fwd: [Ouriginal] 4% similarity - neerja.jaiswal-fcrm@msubaroda.ac.in

Inbox



Neerja Jaiswal <neerja.jaiswal-fcrm@msubaroda.ac.in>

11:34 AM (43 minutes ago)

to me

----- Forwarded message -----

From: <noreply@urkund.com>

Date: Wed, 19 Oct, 2022, 11:24 am

Subject: [Ouriginal] 4% similarity - neerja.jaiswal-fcrm@msubaroda.ac.in

To: <neerja.jaiswal-fcrm@msubaroda.ac.in>

Document sent by: neerja.jaiswal-fcrm@msubaroda.ac.in

Document received: 10/19/2022 7:52:00 AM

Report generated 10/19/2022 7:54:16 AM by Ouriginal's system for automatic control.

Student message: Thesis 01

Document : THESIS 01.docx[D146856492]

About 4% of this document consists of text similar to text found in 43 sources. The largest marking is 27 words long and is 100% similar to its primary source.

PLEASE NOTE that the above figures do not automatically mean that there is plagiarism in the document. There may be good reasons as to why parts of a text also appear in other sources. For a reasonable suspicion of academic dishonesty to present itself, the analysis, possibly found sources and the original document need to be examined closely.

Click here to open the analysis:

<https://secure.urkund.com/view/140061557-239082-106274>

Click here to download the document:

<https://secure.ouriginal.com/archive/download/146856492-282190-792263>

Guide
Dr. NEERJA JAISWAL
Associate Professor
Department of Fly. & Comm. Res. Mgt.
Faculty of Family & Community Sciences,
The Maharaja Sayajirao University of Baroda,
Vadodara.