CHAPTER – V

SUMMARY, CONCLUSION AND RECOMMENDATIONS

Every developed nation gives first priority to the schools for their total national development. The role of school in child development is vitally important. 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.The school helps the children in imbibing the overall social, cultural and educational values and exposes them with the outer world for their betterment. 'Right of Education' is one of the fundamental rights of any citizen in India.

The state government has launched the district primary education program for making primary education compulsory and free for all students up to standard - 8. It has also taken up several measures for checking the rate of dropout at schools in Gujarat (3). Primary section includes students studying in standard 1 to standard 8. So the teachers teaching in the standard 1 to standard 8 were called Primary School Teachers.

In the state of Gujarat the primary school teacher teaches younger children standard 1 to standard 8. In some countries, the common term is elementary school rather than primary. The elementary or primary school program educates children to prepare them for the upper grades of high school. Primary school teachers typically create lesson plans for their grade level based on meeting government standards. Usually a primary school program places an emphasis on well-rounded activities such as reading, mathematics, language, arts and drawing, environment, physical education, craft and science.

The primary school teachers broadly perform various tasks every day. Teacher has to teach in all the areas of the primary curriculum. Keeping up to date with changes and developments in the structure of the curriculum is also their responsibility. Another task of teacher is of organizing the classroom and learning resources and creating displays to encourage a positive learning environment. Planning, preparing and presenting lessons that cater for the needs of the class. Motivating students, maintaining discipline and preparing and marking work to facilitate positive student development is an important task of the teachers.

The teacher have to organize and taking part in school events, do outings and activities which take place at weekends too. They have to work with parents and School Boards to maximize their involvement in the school and the development of resources for the school. In addition to teaching in school the teachers have to do other assignments given by the government like census survey, counting of population helping in election duty, exam duty in board exams.

The work environment is responsible for professional development of a teacher. Thus, it becomes important for the management to provide a better work environment at schools. The supportive work environment helps teachers to use their knowledge and skills in more effective manners. Therefore, the work environment plays an important role in fulfilling the objectives of school system and ultimately achieving the goal of sustainable development at large. The uncomfortable or unfavorable work environment may act as a barrier in teaching-learning process. It can cause musculoskeletal disorder among the teaching faculties and hamper the teaching process.

Musculoskeletal disorders (MSD) represent one of the most common and important occupational health problems in working

populations. 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. Musculoskeletal disorders decrease productivity at work due to sick leave, absenteeism and early retirement and are also costly in terms of treatment and individual suffering.

Research conducted in Norway had found that, “School teachers represent an occupational group among which there appears to be a high prevalence of MSD” (Erick and Smith, **2011**). A study conducted in China had confirmed that, “Hong Kong teachers showed a higher prevalence for neck, shoulder and low back pain. And added that the sample of Hong Kong teachers showed significantly higher prevalence in all musculoskeletal complaints” (Chong and Chan, **2010**).

The musculoskeletal disorder (MSD) is one of the most common occupational disorders observed across the globe by many researchers. It is more common in those professions that requires a person to be in one posture for longer duration like bank professionals, front desk operators, corporate employees and also among the teachers. Musculoskeletal pain may occur due to damaged tissues in the body caused by the routine activities. Other major causes could be trauma in a body part such as postural strain, repetitive movements, overtime at work, prolonged sitting and so on. Muscle pull, twitching or burning of muscles, fatigue, disturbed sleep are the common symptom of musculoskeletal pain and so of musculoskeletal disorder.

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 and take attendance. It was 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 future (Szeto, **2003**).

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 equipment).The researcher had come across a few reviews suggesting that psychosocial factors such as high workload/demands, high perceived stress level, low social support, low job control, low job satisfaction and monotonous work were mostly associated with Musculoskeletal Pain (MSP) among school teachers of United Kingdom (Zamri E. et. al., 2017).

Justification of the Study

Teacher's job is not an easy one. They have to spend long hours for imparting quality education to the students. The work environment of the primary 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 pain. 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. A healthy and intelligent population contributes significantly in the economy of the nation. There is an urgent need to intervene

through the research in tackling the health and psychosocial problems of the municipal primary school teachers so as to increase their productivity and thereby the quality of teaching to produce productive human resource at micro level.

The review of literature had highlighted that many studies were undertaken on musculoskeletal pain for various professionals and others on population in general (Sim, et, al., **2006** and Lau, et, al., **1996**), Hospital Nurses (Josephson and Vingard, 1998, and Lagerström, et, al., **1998**), Teachers in schools and primary school teachers (**Yue**,et, al.,**2012**, Wong, et. al., **2009**, Chiu and Lam, **2007**, Erick and Smith, **2011** and Samad, et, al., **2010**), Nursery children (Erick and Smith, **2011**), Primary school children (Chan and Chong, **2010** and Geldhof and Cardon, **2007**), Academic staff in Institutes (Chiu, et. al. , **2002**), School personnel (Tsuboi, et. al., **2001**), Designing students (Chauhan, **2010**, Datar and Gandotra, **2010**), Garment makers (Vandyck and Fianu, **2012**), Construction workers (Holmstorm, et, al. , **1992**), Secretaries (Kamwendo, et, al., **1991**), Software Professionals (Neeraja, **2010**), Youth computer user (Szeto, **2003**) and Office workers (Janwantanakul, et, al., **2009**) .

Few studies conducted outside India focus more on the musculoskeletal pain related to specific body parts like neck, shoulder, low back, hand wrist and, knee (Yue, **2012**, Sim, et, al., **2006**, Thomsen, et, al., **2007**, Chiu and Lam, **2007,** Erick and Smith, et, al., **2014**, Bandpei, et, al., **2014**,Anuar,et, al., **2016**, Mingng, et, al., **2019**, Zamri, et, al., **2017**, Tai, et, al., **2019** and Tsuboi, et, al., **2001**).The literature reviewed further highlighted that some studies were also carried on the impact of workplace risk factors among the teachers (Samad, et, al,. **2010**, Wong, **2009** and Sim, et, al., **2006**). The researcher come across very few studies conducted in India on the musculoskeletal pain among the primary school teachers. This

became the assertion of planning to undertake the present study.

Researches on School teachers of 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 was assumed that the prevalence of musculoskeletal pain among primary school teachers might differ depending on the activities performed by them in different locale. Thus, the researcher became interested to undertake the present study. The aforementioned reviews gave an insight to the problem of musculoskeletal pain among the working population all over the world. However, this also highlighted the research gap that existed in the Indian context. Especially the musculoskeletal pain among school teachers in India had not researched so far. Thus, it indicates the high time to research the occurrence of MSD among school teachers. The researcher wanted to inquire whether the poorly designed work environment makes the teacher experience health problems resulting in musculoskeletal disorders and poor posture while carrying her teaching activities or not, whether the psychosocial factors have an impact on musculoskeletal disorders experienced by them or not, were some of the queries that will be answered by the findings of the present research. Thus, the present research is conceptualized.

Statement of Problem

The present research aims to assess the Perceived Comfort Level Regarding Existing Facility in the classroom, Postural Analysis, the identification of Psychosocial Factors induced Musculoskeletal Pain and Prevalence of the Musculoskeletal Pain experienced by the Municipal Primary School Teachers of Selected Two Cities of Gujarat State.

Objectives of the Study

1. To assess the existing Work Environment of the classroom of the selected Municipal Primary Schools of two cities of Gujarat state.

2. To find out the perceived comfort level of the Municipal Primary School Teachers regarding the Existing Facility in the Classroom while carrying out the related activities in their profession.

3. To conduct Postural Analysis of the Municipal Primary School Teachers while teaching in the classrooms.

4. To identify the Psychosocial Factors induced Musculoskeletal Pain among the Municipal Primary School Teachers.

5. To determine the prevalence of Musculoskeletal Pain experienced by the Municipal Primary School Teachers.

6. To develop and execute an Ergonomic Intervention Programme for the Municipal Primary School Teachers and the School Authorities in suggesting healthy

a. Teacher Friendly Postures,

b. Classroom Furniture Designs for the Teachers.

Hypotheses of the Study

1. The Musculoskeletal pain experienced by the respondents in past 12 months will vary with their personal variable (Gender, years of experience in teaching).

2. There exists a relationship between the Musculoskeletal pain experienced by the respondents in past 12 months with their personal variables (Body Mass Index, Teaching Experience

in years and Monthly Personal Income), family variables (Family Type, Family Size and Monthly Family Income), Psychosocial Factors and the problems faced by the respondents while carrying out various activities.

Delimitations of the Study

(1) The study was limited to the Municipal Primary School Teachers of Vadodara city and Anand city.

(2) The study was limited to the classrooms of the Municipal primary schools of Vadodara city and Anand city. (The standard 1 to 8 had similar classroom design for all the primary school classes).

(3) The study was limited to the teachers employed as teachers for a minimum duration of 2 years in the Municipal primary schools.

(4) The selection of the respondents was limited to the normal healthy teachers not suffering from any chronic illness (either by birth or otherwise).

(5) The Ergonomic Intervention Programme was limited to the selected Municipal Primary School Teachers and the Senior Management Personnel in the profession in the schools only.

Methodology

The Descriptive research design is most suitable for the present research. The researcher had selected Vadodara city and Anand city as locale for present study. The respondents for the present study included municipal primary schools teachers belonging to Vadodara city and Anand city. A total of 372 teachers who were selected as respondents for the present study having minimum of two years of teaching experience in primary school. During the data collection phase, the COVID-19

Pandemic and lockdown situation occurred. With the permission from the Municipal Primary Education Office (Nagar Prathmic Shikshan Samiti) during COVID-19 Pandemic and lockdown situation, the researcher had adopted the online interview schedule method to collect the needed information.

The Google form as the tool was developed by reviewing the literature pertaining to the objectives of the study. The interview schedule gathered information on demographic data. The information collected on perceived comfort level of the respondents was made on the psychosocial factors related to the musculoskeletal pain experienced by the teachers, the prevalence of musculoskeletal pain, postures adopted by the respondents at workplace. The observation sheet was also used to assess the existing work environment of the classrooms and the existing dimension of the furniture available in the classroom. The researcher had developed the observation sheet in Google form to retrieve needed information of the existing work environment of the classroom and the existing dimension of the furniture available in the classroom.

The observation sheet contained data regarding the illumination level and temperature of the classroom. The sheet had columns to record the level of illumination and temperature which were measured through sound level meter, lux meter and Temperature and Hygrometer. The levels of illumination and temperature were recorded for two municipal primary school shifts, in morning (9:30-10:30am) and in afternoon (2:30-3:30pm).

Demographic Data of the Municipal Primary School Teacher covered the questions regarding background information of the teacher and their family information such as Gender, Age, Marital Status, Family Type, Family Size, Years of experience, Monthly Income (in Rs.), Travel distance from home to school,

Subjects taught in school, School Working Hours, Number of recess undertaken, Duration of Recess (In Minutes), Working hours for computer work, Hours spent on Household work and Exercise under taken for Physical Fitness. This section contains questions regarding the Perceived Comfort Level of the Teachers regarding the existing facility in the classroom**.** The Municipal Primary School Teachers had given their response/views about existing facilities in the school classroom on three point continuum as 'Highly comfortable', 'Fairly comfortable' and 'Not at all comfortable' score.

Postural Analysis data of the Municipal Primary School Teachers were collected by the researcher on the working postures of the respondents while carrying teaching activities in the classroom. The researcher used Ovako Working Posture Analyzing System (OWAS) scale for the research.OWAS method was designed by Finish Occupational Health and Safety in 1992. The Ovako Working Posture Analyzing System (OWAS) method is being used worldwide since that time. In this method 4 codes are determined according to intensity of the postures.

Anthropometric Data of the Municipal Primary School Teachers included anthropometric measurements of the Municipal Primary School Teachers i.e. their body Height (stature), Eye Height, Cervical Height, Standing Shoulder Height, Horizontal Reach, Vertical Reach, Sitting Knee Height, Popliteal Height and Elbow Rest Height were recorded in present section. Psychosocial Factors induced Musculoskeletal Pain Scale among the Respondent was developed by the researcher. It was used to measure the effects of the Psychosocial Factors induced Musculoskeletal Pain of the Municipal Primary School Teachers. Musculoskeletal Pain experienced by the Municipal Primary School Teachers was gathered with the help of Modified Dutch

Musculoskeletal Pain Scale. The scale was modified to collect the needed information regarding Musculoskeletal Pain prevalent among the Municipal Primary School Teachers.

The scale developed for the research was submitted to a panel of seven judges possessing expertise in the field of Ergonomics. The judges for the content validity of the present research included were experts of Academics from the Department of Family Resource Management, SNDT, Women's' University, Mumbai, Nirmala Niketan College of Home Science, Mumbai BMS College of Home Science, Mumbai, India. They were requested to check the clarity and relevance of the content complying with the objectives of the research. They were also requested to state whether each statement fell in the category under which it was listed. A consensus of 80% agreement among the judges was taken as a yardstick for the inclusion of the content in the final tool. Therefore no changes had done in the final tool.

During the data collection phase, the COVID-19 Pandemic and lockdown situation occurred. With the permission from the Municipal Primary Education Office (Nagar Prathmic Shikshan Samiti) during COVID-19 Pandemic and lockdown situation, the researcher had adopted the online interview schedule method to collect the needed information. The information from each scale of the interview schedule and record sheet were transferred on excel sheet. The data was tabulated from the coding sheet to a tabular form for arriving at the frequencies and percentages.

The data were analyzed by utilized descriptive as well as relational statistics. Descriptive statistics like frequencies, percentages, means and standard deviation were used to analyze the data. The data will be analysed by subjecting it to descriptive (frequencies, percentages & SD). Relational

Statistics like ANOVA, “t” test and Correlation of Coefficient were carried out to test the hypotheses postulated for the study.

One of the objectives of the present research was the development of an ergonomic intervention programme for the selected Municipal Primary School Teachers and the School Authorities in suggesting healthy Teacher Friendly Postures and proposed Classroom Furniture Designs for the Teachers. The online webinar was conducted on Ergonomic Intervention programme was planned for the School Authorities and teachers highlighting the findings and suggesting healthy teacher friendly postures and classroom furniture design i.e. table, chair, writing board and stepping stool. Details of existing conditions of the classroom were captured with the help of camera and dimensions of room and existing furniture were collected personally by the researcher. All the Existing Layout of the classroom and Proposed Layout Drawings of furniture detail drawings of table and chair will be presented on AutoCAD software. The researcher had given knowledge regarding the healthy teacher friendly postures for selected school authorities and teachers.

Major Findings

The major findings of the research are presented here.

Section 1A: Profile of the Respondents

The Gender wise data reflected that a higher percentage of the respondents (78.76%) were found to be females as compared to males (21.24%). The mean age of the respondents was 44.5 years.The data regarding the marital status of the respondents showed that majority of the respondents were married (90.30%).The data revealed that more than one-half of the respondents (52.2%) were living in nuclear family. The data shows that most of the respondents (63.20%) had small sized

family having four or less family members. The data on monthly personal income of the respondents depicted that higher percentages of them (45.70%) were earning between Rs. 25,000-50,000 per month.The 33.10 percent of the respondents were having their monthly family income ranging from Rs. 75,000 to Rs.1,00,000. The teaching experience of the respondent highlighted that 31.72 percent of the respondents were having their teaching experience ranging between 11 to 20 yrs, Majority of the respondents (76.61%) were using two wheeler vehicles to reach their workplace. It was found that most of respondents (65.86%) were travelling from 1-5 Kms to reach their workplace from home every day. The findings showed that more number of the respondents was involved in teaching subjects like Gujarati (51.34%) and Maths (45.97%). The data showed higher percentages of the respondents were teaching students of Standard-7 (34.67%), Standard-8 (32.25%), and Standard-6 (31.45%). The data regarding the work hours of the respondents in teaching showed that 59.41 percent of the respondents were spending at least 5 hours daily in teaching at their respective municipal primary school. The data shows that most of the respondents (68.82%) were getting at least one break in the municipal primary school. The higher percentages of the respondents (54.30%) were not using computers. It was also noticed by the researcher that 35.22% of the respondents were spending one hour of computer work. The data indicated that most of the respondents (60.75%) were spending one hour daily on routine physical exercises. The data reflected that comparatively a higher percentage of the respondents (24.19%) were not spending time on routine household work. The respondents were hiring maids to do their household work. The higher percentages of the respondents perceived their health status as good (55.11%) and 23.39% of them as extremely good.

Section 1B: Assessment of Existing Work Environment of the Municipal Primary School Classroom

The maximum size of the classroom observed was 700 sq. ft. and minimum was 88 sq. ft. The mean size of the classroom was 311.35 sq. ft.The maximum size of the classroom observed was 700 sq. ft. and minimum was 88 sq. ft. The mean size of the classroom was 311.35 sq. ft. Majority of the classrooms' ceiling were painted with white colour (91.94%). The higher percentage of the Municipal Primary School opted Kota stone (42.20%) for classroom flooring whereas Checker tiles were also found to be (35.20%) in the schools. Majority of the schools (84.40%) had only one door in the classrooms. The 60.80 percent of the schools had classrooms with three to four windows. The data showed that the 61.10% of the schools had one to two artificial lights in the classroom. The results revealed that 41.40% of the schools had at least two fans in their classrooms whereas 34.10% of them had four fans in their classrooms. Due to occurrence of COVID 19 and lockdown the data regarding level of illumination and temperature (in ˚C) were taken for 60 classrooms only. Majority (90%) of the Municipal Primary School Classrooms had illumination level below the recommended level i.e. 250 lux during teaching in the classrooms. majority of the classrooms (70.00%) had minimum temperature i.e. <=26.6 ^{0}C and also showcase minimal risk for moderate to hard work. The data regarding the number of tables for the teachers in the classrooms of the selected schools indicated that majority (96.80%) of the schools had only one table for the teacher in the classroom. The majority of the classrooms (97.04%) had only single chair for the teacher in the classroom. all of the classrooms had only single Writing Board for the teacher in the classroom. The majority of the classrooms (96.77%) had Green Writing Board for the teacher in the

classroom. A high percentage (96.24%) of the schools had only one storage unit for the teacher in the classroom.

Section2: Perceived Comfort Level of the Respondents Regarding the Existing Facility in the Class room

The comfort levels of the respondents were less with the height of the writing board as compared to its width. 8.33 percent of the respondents were not happy with the depth of the shelf of drawers provided to them in storage unit in the classroom. Very few of the respondents (9.40%, 9.95% and 8.60%) were not at all comfortable with the width and height of the back rest of the chair as well as the height of the arm rest of the chair they use in the classroom.The findings shows that 7.00%, 7.00% and 6.72% of the respondents were not comfortable with the height, width and length of the writing table respectively. 16.90 percent of the respondents were not comfortable while teaching in the classroom with the existing smell in the classrooms.

SECTION 3A: Postural Analysis of the Municipal Primary School Teachers

The data also revealed that 11.15 per cent of the respondents adopted harmful posture and must modify the postures as soon as possible. And 4.24 per cent of the respondents adopted very harmful posture. The teaching work done in these postures must be ceased and modification of the postures must be done immediately.

Section 3B: Anthropometric Data of the Respondents

The mean Height (Stature) of the respondents was recorded as 155.07 centimeters (5’-1”). The mean weight of the respondents was measured as 62.92 kilograms. It was observed that 38.44% of the respondents were falling under overweight category as confirmed from their BMI where 17.21% of the respondents

were found to be obese. During pandemic (COVID-19) only Selected Municipal Primary School Teachers had given consent to take their Anthropometric measurements. The mean Eye Height of the respondents was measured as 57.2inches. The mean Shoulder Height of the respondents was measured as 52.57 inches. The mean Acromion Height of the respondents was logged as 49.83 inches. The mean Mid Patella Height of the respondents was measured as 18.2 inches. The mean Elbow Rest Height of the respondents was recorded as 26.07 inches. The mean Sitting Knee Height of the respondents was logged as 19.1 inches. The mean Popliteal Height of the respondents was recorded as 15.88 inches. The mean vertical reach of the respondents was measured as 75.40 inches. And the mean horizontal reach of the respondents was logged as 60.55 inches.

SECTION 4: Psychosocial Factors Induced Musculoskeletal Pain among the Municipal Primary School Teachers

The data highlighted that 19.9 per cent of the respondents reported psychosocial factors induced Musculoskeletal Pain to the high extent, whereas, majority of the respondents (75.0 %) were found to have reported psychosocial factors induced Musculoskeletal Pain to medium extent. The findings indicated the psychological stress that the selected respondents were undergoing in their routine life.

SECTION 5: Musculoskeletal Pain Experienced by the Municipal Primary School Teachers

The findings of the weighted mean scores it was revealed that knees and lower back pain was found to be most prevalent musculoskeletal pain as perceived by the respondents was in knees and lower back followed by upper back pain, neck pain and shoulder pain in past 12 months. It was found that 30.60% of the respondents experienced radiating back pain towards

their right knee in past twelve months whereas; 26.50% experienced the same towards their left knee. The findings highlighted that among thoserespondents who experienced radiating back pain towards their legs was mainly towards their knees. The findings related to the radiating neck and shoulder pain till the arms as experienced by the respondents in past 12 months showed that some of them experienced the same in their right upper arms (14.10%), left upper arm (12.70%) and in right palm (11.30%). the findings related to the problems faced by teachers due to musculoskeletal pain while performing various activities. Standing for a long period was found to be most problematic activity to be performed in general as opined by the respondents followed by sitting for a long period and working in the same postures for a long period.

The data regarding the sick leaves taken by the respondents indicated that the teachers have taken leaves a duration on one day to three days or months. The findings reported that mostly the respondents had taken leaves for 1 -10 days due the musculoskeletal pain in their neck (3.78%), upper back (3.78%), lower back (4.47%) and knees (3.44%). The data regarding the details about the musculoskeletal pain among the respondents showed that very few of them agreed that musculoskeletal pain cured completely within few days or week of its occurrence.The data regarding the musculoskeletal pain related health conditions among the respondents revealed that among those who were experiencing musculoskeletal pain were suffering 19.00% from lower back pain and 13.00% from knee osteoarthritis.

SECTION 6: Testing of Hypotheses

- A significant variation was found in the musculoskeletal pain experienced by the respondents in past 12 months with the age groups.
- A significant variation was found in the musculoskeletal pain experienced by the respondents in past 12 months with their years of experience in teaching.
- The result showed a significant correlation between musculoskeletal pains experienced by the respondents in past 12 months with their monthly family income.
- A significant correlation was found between the musculoskeletal pain experienced by the respondents in past 12 months with their number of family members
- The study showed a significant relationship betweenin the musculoskeletal pain experienced by the respondents in past 12 months with their Psychosocial factors among the respondents
- The result showed a significant relationship betweenthe Musculoskeletal pain experienced by respondents in past 12 months with the problems faced by them while carrying out various activities

SECTION 7: Ergonomic Intervention Programme

- The Municipal Primary School Principals were contacted by the researcher fr conducting the Ergonomic Intervention Programme. As they all were busy with many tasks, upcoming events and exams as well the researcher had conducted the Ergonomic Intervention Programme more than once. The Principal of each school were briefed on the importance of healthy teacher friendly postures and Ergonomic Intervention Programme by the researcher.

- The researcher had requested Municipal Primary School Principals and teachers for using and testing the stepping stool designed by the researcher in the classroom setting as a part of implementing of intervention programme. The researcher designed and tested the stepping stool by the respondents in the classroom while teaching. The researcher also proposed adjustable writing board and writing table designs. The researcher also provided the details of chair manufactures and seller details along with price list and it detailed description which included links of online seller and other information.

Conclusion

The Perceived Comfort Level Regarding Existing Facility in the classroom, Postural Analysis Municipal Primary School Teachers, the identification of Psychosocial Factors induced Musculoskeletal Pain and Prevalence of the Musculoskeletal Pain experienced by the Municipal Primary School Teachers of Selected Vadodara and Anand City of Gujarat State. %). The mean age of the respondents was 44.5 years. Majority of the respondents (76.61%) were using two wheeler vehicles to reach their workplace and 65.86 percent were travelling from 1-5 Kms to reach their workplace from home every day.

The subjects like Gujarati and Maths were taught more by the respondents. Higher percentages of the respondents were teaching students of Standard-7, Standard-8 and Standard-6. The data showed that the respondents (59.41%) were spending at least 5 hours daily in teaching at their respective municipal primary school. And most of the respondents (68.82%) were getting at least one break in the municipal primary school every day.

Majority of the classrooms' ceiling were painted with white colour (91.94%). The Kota stone and Checker tiles were being used as classroom flooring in the schools. Majority of the schools had only one door in the classrooms. The 60.80 percent of the schools had classrooms with three to four windows. Majority (90%) of the Municipal Primary School Classrooms had illumination level below the recommended level i.e. 250 lux during teaching in the classrooms.

The comfort levels of the respondents were less with the height of the writing board as compared to its width. Less than one-tenth of the respondents were not at all comfortable with the width and height of the back rest of the chair they use as well as the height of the arm rest of the chair. The findings showed that respondents were not comfortable with the height, width and length of the writing table respectively. The respondents were not comfortable while teaching in the classroom with the existing smell in the classrooms.

The data regarding OWAS revealed that 11.15 per cent of the respondents adopted harmful posture category and 4.24 per cent of the respondents adopted very harmful posture. Majority of the respondents were found to have reported psychosocial factors induced Musculoskeletal Pain to medium extent. The findings revealed that knees and lower back pain was found to be most prevalent musculoskeletal pain as perceived by the respondents followed by upper back pain, neck pain and shoulder pain in past 12 months.

The study showed a significant relationship betweenin the musculoskeletal pain experienced by the respondents in past 12 months with their Psychosocial factors among the respondents A significant relationship betweenthe Musculoskeletal pain experienced by respondents in past 12 months with the problems faced by them while carrying out various activities.

Implications of the study

The findings of the present study had the following implications:

For the Field of Family and Community Resource Management

- The Department of Family and Community Resource Management, Faculty of Family and Community Sciences, The Maharaja Sayajirao University of Baroda, offers courses on “Advance Ergonomics” and “Ergonomic” at Ph. D. and Master’s level. Hence, the information gathered through the present research would widen the data base and help in strengthening the curriculum.
- The study would help the students of Family and Community Resource Management to gain insight into the area of ergonomics related to psychosocial health problems caused by the work environment, work-related discomforts caused by repetitive tasks, existing furniture and awkward postures of the teachers in the school. The students will also gain some understanding regarding the Musculoskeletal pain among the Municipal Primary School Teachers.

For the Interior Designers

- The findings of the present research would act as a feedback for Interior Designers to know perceived comfort level of the teachers regarding the existing classroom furniture. The poor classroom environment condition that may have impact on teacher’s health at the school. The Interior Designers can consider such problems related to the teachers and her work environment (Classroom) while designing the interior of any school classrooms.

For Libraries

- The findings of the present research would be used as reading material and can be documented on the related subject. It can be used as reference material for future researches in the similar field.

For the Nagar Prathmic Shikshan Samiti

- The data in the present research revealed that existing classroom furniture's are not teacher friendly and in deteriorating condition. The results also added that Municipal Primary School Teachers are in an immense need of newly design classroom furniture's Table, Chair and Writing Board.
- The attention of the Nagar Prathmic Shikshan Samiti should be drawn towards the renovation of school buildings as well as infrastructure development of the school.
- The findings of the present research revealed that the Municipal Primary School Teachers experienced Musculoskeletal pain and Psychosocial Factors induced Musculoskeletal Pain while working in the Municipal Primary School. Therefore further research in similar field should be encouraged throughout the nation to obtain the detailed status of teachers' health.
- The Musculoskeletal pain in knees was found to be most prominent one followed lower back pain, upper back pain, neck pain and shoulder pain in past 12 months. This reflected the need for the Nagar Prathmic Shikshan Samiti to take steps for the protecting the Municipal Primary School Teachers by providing new furniture to ease the pain.
- The attention of the Nagar Prathmic Shikshan Samiti should be drawn towards the health of Municipal Primary School Teachers as they were suffering from the musculoskeletal pain on day to day basis.

For Municipal Primary School Teachers

- The finding of the research revealed that Municipal Primary School Teachers suffering from the musculoskeletal pain. The data also highlighted that they were also affected by Psychosocial Factors induced Musculoskeletal Pain while teaching in the Municipal Primary School. Hence, the Municipal Primary School Teachers will reduce their Musculoskeletal pain and Psychosocial Factors induced Musculoskeletal Pain by adopting Healthy Teacher Friendly Postures while teaching in Municipal Primary School.

- The designed furniture will be useful for the Municipal Primary School Teachers in maintaining Healthy Teacher Friendly Postures while teaching in Municipal Primary School.

- The Municipal Primary School Teachers will be benefited by increasing their aware regarding adjustable classroom furniture designsfor the Municipal Primary School Classrooms.

Recommendations of the study

1. A similar kind of study can be undertaken with larger sample size.
2. A similar kind of study can also be carried on Private Primary School Teachers.
3. A similar kind of study can be conducted in different states within and outside India.
4. Study on similar kind can be conducted for the cleaners and helpers working the School.
5. A similar kind of study can also be conducted for the school going children too.
6. A similar study can be conducted for secondary and Higher secondary Municipal School Teachers too.

7. A systematic comparative study can be conductedbetween Municipal and Private School Teachers.
8. A similar kind of study can also be conducted between the individuals of different age group.