Romadhoni, D.L., Ramadhani, A.N
Fisiomu.2024,Vol 5(2): 101-106
DOI : https://10.23917/fisiomu.v5i2.3344

The Effect Of Providing The Chin Tuck Method With A Working Posture Correction On The Forward Head Posture (FHP) Conditions

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Submition : 2023-11-30 ; Accepted : 2024-02-16 ; Published : 2024-06-01

ABSTRACT

Introduction: Musculoskeletal Disorders (MSDs) are a form of complaint that occurs in muscles, bones, joints, ligaments and tendons. Globally, musculoskeletal disorders are the single largest cause of work-related health complaints with more than 33% of all newly reported illnesses. Risk factors that contribute to causing MSDs are social factors. This study aims to analyze the effect of providing the chin touch method with working posture correction on forward head posture conditions. **Methods:** This type of research is analytical observational with a cross-sectional method. The research subjects were 32 respondents. This research is quantitative research with an experimental research design with a One Group Pretest and Posttest Design research design. Conducted in April-August 2023. **Results**: The results of analysis using the Wilcoxon test showed that there was a significant effect ($p < 0.046$) by providing posture correction with the addition of Chin Tuck on reducing the degree of Forward head posture. **Conclusion**: The provision of working posture correction combined with the Chin Tuck method significantly reduces the degree of Forward Head Posture in respondents. This intervention can be an effective approach to addressing musculoskeletal complaints related to poor posture.

Keywords: *Worker, Musculoskeletal Disorders, Cervical Posture Changes, FHP*

ISSN 2722 – 9610
E –ISSN 2722 - 9629

INTRODUCTION

Musculoskeletal Disorders (MSDs) is a complaints in muscles, bones, joints, ligaments and tendons. Globally musculoskeletal disorders are the single largest cause of work-related health complaints with more than 33% of all new illnesses reported(Bodhare et al., 2011). MSDs complaints are also found in countries with high industrial rates and are the biggest cause of absenteeism from work due to illness. Research conducted in Saudi Arabia showed that at least 13% of workers took leave due to illness, 22% had to reduce working hours related to their job and 46% had to take regular medication.(Iqbal & Alghadir, 2015)This is in line with research in Hong Kong in 2016, around 39.2% of workers suffered from musculoskeletal pain(Yi & Chan, 2016). In Indonesia alone, 62.5% of all workers complained of low musculoskeletal disorders and 37.5% of workers complained of high musculoskeletal disorders (Prasetya et al., 2017). The impact of musculoskeletal disorders is that they can affect productivity and if maintained for a long time can affect changes in body posture such as forward head posture (FHP), scoliosis, kyphosis, lordosis, and torticollis (Kumar et al., 2017). Changes in posture caused by MSDs have a significant impact on finances and quality of life. Often patients who are referred with complaints of cervical MSDs are accompanied by FHP because they are directly connected by the vertebrae. FHP can be caused by social factors

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DOI : https://10.23917/fisiomu.v5i2.3344

that have been carried out by sufferers related to their work (Gray et al., 2020).

According to Octaviannoor et al., (2015), the risk factors that contribute to cases of MSDs are social factors. These social factors can include a person's type of work which influences how high the risk of developing MSDs is, namely workers with excessive physical activity are 76.2% at risk of developing MSDs (Mohamed, 2021), a work environment that is not ergonomic will increase the risk of MSDs by 20% and other research states that a poor work environment increases it by 34.4% (Kusumawardhani et al., 2023). Unergonomic work postures with a sedentary body position for several hours can increase MSDs by 62.8%(Chinyere N, 2014). Based on research from(Romadhoni et al., 2021)It was found that the prevalence of MSDs conditions with changes in cervical posture was 53% of the normal condition of office workers.

Judging from the description above, many workers complain of pain in the cervical area, especially during the current pandemic where workers, especially office workers, are required to work both offline and online for long periods and face the laptop without paying attention to the ergonomic position when working, thus this is the case. This will have a serious impact on work, productivity and well-being. Researchers have conducted a preliminary study and found that approximately 45% of workers complained about MSDs in FHP conditions, so researchers are interested in finding out whether there is an effect of giving a chin tuck with posture correction in workers with FHP conditions.

Interventions for this condition are still very rarely given, usually, physiotherapy intervention modalities are often given in hospitals but there are no interventions related to exercise, in this regard, the researchers used the Chin tuck intervention method with a combination of cervical posture correction. Chin tuck exercise is a form of strengthening exercise specifically for the deep flexor cervical muscles. This muscle is located in the neck and is responsible for stabilizing and maintaining the straightness of the cervical spine. Strengthening exercises are useful for improving muscle function and performance. A disturbance in forward head posture causes this muscle to experience weakness (Hasmar & Sari, 2022). Meanwhile, posture correction means that the body is positioned in an anatomical position and if deformity occurs in the spine, it will automatically make continuous improvements after being given posture correction (Carini et al., 2017)

This research aims to see the effect of giving chin tuck combined with posture correction to teachers to reduce the occurrence of FHP. Its benefits are as a method of reducing the risk of FHP.

METHODS

Study Design

This research is quantitative research with an experimental research design with a One Group Pretest and Posttest Design research design. Conducted in April-August 2023.

Population and Sample

The target population in this research was Surakarta Muhammadiyah Middle School teachers. The source population in this study were Muhammadiyah Middle School teachers in Surakarta City with FHP conditions and the sampling method used was Fixed disease sampling. Research subjects were obtained by applying the inclusion criteria of Productive Age 23-58 years. The diagnosis of FHP was obtained based on the results of clinical examination, Male and Female. The exclusion criteria are having vertebral abnormalities, having injuries to the vertebrae, having a history of spinal surgery, and experiencing cognitive impairment.

Study Variables

The dependent variables in this research are FHP and functional ability. The independent variables in this study were posture correction and Chin tuck

Study Instrument

Data collection techniques using primary data. Primary data was obtained using a questionnaire containing the characteristics of the research subjects. Subject characteristic data was obtained through interviews and physical examination and then documented in a questionnaire sheet

Data analysis

ISSN 2722 – 9610
E –ISSN 2722 - 9629

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DOI : https://10.23917/fisiomu.v5i2.3344

Data analysis used the Wilcoxon test. This analysis is used to analyze whether there is a difference in the value of the vertebral curvature angle before and after the intervention in the treatment group. The test is said to be significant if the p-value is <0.05 and not significant if p>0.05. The significance limit used is p=0.05.

RESULTS

Respondent Characteristics

The research subjects were 36 people with an age range of 25-56 years who experienced FHP. The research results describe the characteristics of the research subjects including gender, age and degree of scoliosis. The characteristics of the research subjects can be seen in the following table:

Table 1. Characteristics of Research Subjects

Characteristics	Frequency	Percentage (%)
Age		
41-56 y.o	21	58.3%
25-40 y.o	15	41.7%
Gender		
Man	17	47.2%
Woman	19	52.8%

Table 1 shows that there were 21 (58.3%) research subjects aged 41-56 years and 15 (41.7%) aged 25-40 years. The research subjects were 19 (52.8%) female and 17 (47.2%) male.

Bivariate Analysis

This study uses the Wilcoxon test to determine the effect of providing posture correction on the degree of scoliosis which will be shown in Table 2 below:

Table 2. Effect test results using the Wilcoxon test

Pre-Post Value	Mean Rank	Asymp. Sig. (2-tailed)	Results
Posture Correction with additions *Chin Tuck*	2.50	0.046	There is Influence

Based on the results of the effect test, there was a significant effect (p <0.046) by providing posture correction with the addition of Chin Tuck on reducing the degree of FHP.

DISCUSSION

Based on Table 4.1, most research respondents were aged 41-56 years with a total of 21 respondents (58.3%) and the least aged 25-40 years (41.7%). The body will not experience growth as an adult. Therefore, poor posture habits can affect their posture when they grow up, which should be avoided from an early age. Poor posture during childhood and adolescence will have a negative impact on a person's adult life(Atia et al., 2023). A body posture that is not ergonomic when maintained for a long period results in an imbalance in the work of the muscles(Annisa Savitri et al., 2022.)This is caused by the position of the head facing the monitor screen influences MSDS complaints in office workers. The head position where the worker looks at the computer screen is low, resulting in excessive cervical flexion for a long time, changes in head position can increase the load on the musculoskeletal system so that it can increase the activity of the upper trapezius muscles and cervical spinal erectors. This is what can increase the occurrence of FHP which is one MSDs condition (Romadhoni et al., 2021)

Table 4.2 shows that the majority of research respondents were female with 19 respondents (52.8%) and 17 male respondents (47.2%).

According to research by Savitri et al., (2022)women with Forward Head Posture are 24.1% higher than men. Adolescent girls tend to experience forward head posture compared to boys. Women's necks are more flexed compared to men. This can be caused by several factors, including psychosocial factors such as stress or is a characteristic of secondary sexual development in adolescent girls. In addition, women's muscle strength is only around 75% of the muscle strength of men of the same age, which is believed to be due to hormonal factors. Men have ten times more testosterone than women, which is an anabolic steroid hormone that is responsible for growth. muscles, so men's muscle development is faster than women's(Moment et al., 2022).

Based on data analysis tests before and after administering the Posture Correction intervention with the addition of a Chin Tuck, a significance result of 0.046 (p<0.5) was obtained,

FISIO MU: Physiotherapy Evidences

ISSN 2722 – 9610
E –ISSN 2722 - 9629

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which means that there was an effect of providing Posture Correction with the addition of a Chin Tuck to school teachers with forward head posture conditions.

Forward Head Posture (FHP) condition is the most common postural disorder in people of all ages, including school-aged children and adolescents. The prevalence of postural disorders is high in children and adolescents, accompanied by an increase in the prevalence of musculoskeletal pain(Schmidt et al., 2020.). Forward head posture can occur when someone does work with the wrong posture or attitude, namely bending the neck and leaning forward while working repeatedly over a long period, with an average duration of more than 1 – 4 hours per day. Types of work that often cause forward head posture are using gadgets, working in front of a computer and carrying heavy bags(Yani et al., 2020).

Forward head posture results in weakness of the cervical flexor muscles for scapular retraction and the middle and lower trapezius muscles. Forward head posture also results in shortening of the pectoralis major muscle and neck extension muscles. Upper trapezius muscle activity will increase in forward head posture from an anatomically correct position(Nitin Worlikar & Rajesh Shah, 2019). Forward head posture also results in lengthening of the anterior neck muscles and shortening of the posterior muscles. The muscles that experience shortening are not only the cervical extensor muscles but also the splenii, upper trapezius and sternocleidomastoid muscles. The muscles that experience weakness are the cervical flexors and scapular retractors such as the middle trapezius(Haryo et al., 2021).

Chin tuck exercise is a form of strengthening exercise used for the deep flexor cervical muscles which consist of the longus capitis, and longus coli muscles. Forward Head Posture sufferers, apart from decreasing muscle strength, also experience tightness and weakness in the deep flexors and extensors of the neck. (Song et al., 2021). Strengthening exercises are useful for improving the function and performance of the muscles in the neck which are responsible for stabilizing and maintaining the straightness of the cervical spine. A disruption in forward head posture causes this muscle to experience weakness. To increase muscle strength in the deep cervical flexor area, chin tuck exercises can be given, so that the Craniovertebral Angle will increase to normal(Yani et al., 2020).

CONCLUSION

The results of this study indicate that posture correction with the addition of the Chin Tuck method has a significant effect on reducing the degree of Forward Head Posture. This intervention helps improve head and neck alignment, which can minimize musculoskeletal complaints caused by poor working posture. The Chin Tuck method is a simple and effective exercise that can be applied as part of ergonomic interventions to prevent and manage Forward Head Posture in workers with prolonged sitting activities.

REFERENCE

Annisa Savitri, P., Zadah Faidlullah, H., & Annisa Savitri Email, P. (n.d.). *Annual Physiotherapy Scientific Meeting Proceeding Risk Factors And Prevalence Of Forward Head Posture Complaints Due To Use Of Devices During Pandemic*.

Atia, D. T., Elsayed, N. I., Abdelmonem, A. F., Mahmoud, S. M. S., Mahmoud, M. M. M., Mohamed, K. E. S., Turky, K. T. Y., Rashad, U. M., & Abdel Karim, A. E. (2023). Prevalence of Musculoskeletal Disorders among General and Technical Secondary School Students in Egypt. *International Journal of Environmental Research and Public Health*, *20*(2). https://doi.org/10.3390/ijerph20021465

Bodhare, T., Valsangkar, S., & Bele, S. (2011). An epidemiological study of work-related musculoskeletal disorders among construction workers in Karimnagar, Andhra Pradesh. *Indian Journal of Community Medicine*, *36*(4), 304–307. https://doi.org/10.4103/0970-0218.91420

Carini, F., Mazzola, M., Fici, C., Palmeri, S., Messina, M., Damiani, P., & Tomasello, G. (2017). Posture and posturology, anatomical and physiological profiles: Overview and current state of art. In *Acta Biomedica* (Vol. 88, Issue 1, pp. 11–16). Mattioli 1885 S.p.A. https://doi.org/10.23750/abm.v88i1.5309

ISSN 2722 – 9610
E –ISSN 2722 - 9629

This work is licensed under a Creative Commons Attribution-NonCommercial 4.0 International License.

Chinyere N, I. (2014). Influence of Workstation and Work Posture Ergonomics on Job Satisfaction of Librarians in the Federal and State University Libraries in Southern Nigeria. *IOSR Journal of Humanities and Social Science*, *19*(9), 78–84. https://doi.org/10.9790/0837-19947884

Gray, K., Dalal, R., Weaver, J. D., & Randolph, S. (2020). Quantitative Measurements of Forward Head in College-Aged Students: A Conformational Study of Intra-Rater and Inter-Rater Reliability of a Novel Posture Measuring Device. *Journal of Bodywork and Movement Therapies*. https://doi.org/10.1016/j.jbmt.2020.12.008

Haryo, G., Pangestu, B., Hendra, M., Nugraha, S., Ayu, P., & Saraswati, S. (2021). Faktor Risiko Terjadinya Forward Head Posture Risk Factors of Forward Head Posture. *Jurnal Fisioterapi Dan Rehabilitasi*, *5*(2).

Hasmar, W., & Sari, I. P. (2022). Efektifitas Chin Tuck Exercise Terhadap Peningkatan Aktifitas Fungsional Cervical Pada Pembatik. *Quality : Jurnal Kesehatan*, *16*(2), 96–101. https://doi.org/10.36082/qjk.v16i2.829

Iqbal, Z., & Alghadir, A. (2015). Prevalence of work-related musculoskeletal disorders among physical therapists. *Medycyna Pracy*, *66*(4), 459–469. https://doi.org/10.13075/mp.5893.00142

Kumar, G., Chhabra, A., Dewan, V., & Yadav, T. P. (2017). Idiopathic musculoskeletal pain in Indian children-Prevalence and impact on daily routine. *Revista Brasileira de Reumatologia*, *57*(1), 8–14. https://doi.org/10.1016/j.rbre.2015.07.015

Kusumawardhani, A., Djamalus, H., & Lestari, K. D. (2023). Ergonomic Risk Assessment and MSDs Symptoms Among Laboratory Workers Using SNI 9011-2021. *The Indonesian Journal of Occupational Safety and Health*, *12*(SI1), 2540–7872. https://doi.org/10.20473/ijosh.v12iSI1.2023.35-41

Mohamed, H. S. (2021). Prevalence of Musculoskeletal Disorders among Kasr-Alainy Hospital Medical Students. In *The Egyptian Journal of Hospital Medicine* (Vol. 85, Issue 2). https://ejhm.journals.ekb.eg/

Nitin Worlikar, A., & Rajesh Shah, M. (2019). Incidence of Forward Head Posture and Associated Problems in Desktop Users. *International Journal of Health Sciences & Research (Www.Ijhsr.Org)*, *9*(2), 96. www.ijhsr.org

Oktaviannoor, H., Noor Helmi, Z., & Setyaningrum, R. (2015). The Correlation between Smoking Status and BMI with the MSDs Complaints of Palm Farmers. *International Journal of Public Health Science (IJPHS)*, *4*(2), 140–144.

Prasetya, T., Rosanti, E., & Rahma, R. (2017). Analysis of Factors Causing Musculoskeletal Disorders using Rula (Rapid Upper Limb Assessment) Method in Computer Operators. *International Journal of Applied Environmental Sciences*, *12*(2), 323–340.

Romadhoni, D. L., Ramadhani, A. N., & Lidiana, H. (2021). Relationship of Work in Pandemic Era with Increased Risk of Musculosceletal Disorders that Lead to Change in Cervical Posture. *Journal of Epidemiology and Public Health*, *03*, 347–354. https://doi.org/10.26911/jepublichealth.2021.06.03.08

Saat, N. Z. M., Hanawi, S. A., Farah, N. M. F., Hanafiah, H., & Zuha, A. A. (2022). Relationship between physical activity and musculoskeletal disorders among low income housewives in Kuala Lumpur: A cross-sectional study. *PLoS ONE*, *17*(10 October). https://doi.org/10.1371/journal.pone.0274305

Schmidt, Kerstin., Friedrichs, Paula., Cornelsen, H. Christina., Schmidt, Paul., Tischer, Thomas., & European Agency for Safety and Health at Work. (n.d.). *Musculoskeletal disorders among children and young people : prevalence, risk factors and preventive measures : a scoping review.*

Song, J. H., Song, H. H., & Kim, S. (2021). Effects of school-based exercise program on obesity and physical fitness of urban youth: A quasi-experiment. *Healthcare (Switzerland)*, *9*(3). https://doi.org/10.3390/healthcare9030358

ISSN 2722 – 9610
E –ISSN 2722 - 9629

This work is licensed under a Creative Commons Attribution-NonCommercial 4.0 International License.

DOI : https://10.23917/fisiomu.v5i2.3344

Yani, F., Sari, A., & Atsilah, D. (2020). PERBEDAAN PENGARUH MCKENZIE EXERCISE DAN CHIN TUCK EXERCISE TERHADAP FORWARD HEAD POSTURE MAHASISWA ILMU KOMUNIKASI. *Jurnal Fisioterapi Dan Rehabilitasi (JFR)*, *4*(2).

Yi, W., & Chan, A. (2016). Health profile of construction workers in Hong Kong. *International Journal of Environmental Research and Public Health*, *13*(12). https://doi.org/10.3390/ijerph13121232

ISSN 2722 – 9610
E –ISSN 2722 - 9629

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