RISK FACTORS AND PREVALENCE OF FORWARD HEAD POSTURE COMPLAINTS DUE TO USE OF DEVICES DURING PANDEMIC

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Abstracts

Introduction: In March 2020, there were 1,528 confirmed cases of COVID-19 and 132 deaths, so the government implemented an online health and distance learning (PJJ) protocol. Due to the long use of this device, there are changes in the spine such as the Forward Head Posture. Objective To determine the prevalence rate and risk factors that cause Forward Head Posture complaints. **Methods**: This research is a quantitative research with analytical observational character which explains the correlation between variables through the Spearman Rank Statistical Test. The sample in this study were Physiotherapy students at UNISA Yogyakarta. **Results**: The prevalence of FHP in students (N = 87) was 61 people (70.1%) and the results from the Spearman Rank Statistical Test showed: (I) there was a correlation of FHP with posture p value of 0.004 (II) and a correlation in duration p value 0.000 (III) there is no correlation at age p value 0.142 and gender p value 0.920. **Conclusion:** There are 61 people out of 87 respondents experiencing Forward Head Posture and there is a significant correlation between posture and duration of using gadgets and there is no correlation between age and gender.

Keywords : device, posture, duration, age, risk factor, *Forward Head Posture*

1. Introduction

December 2019 Mysterious pneumonia cases were found in Wuhan, China. This case increased and spread in various other countries in less than a month. WHO declared CoronaVirus Disease 2019 (COVID-19) as a global pandemic on January 30, 2020 (Susilo *et al*., 2020). The spread of COVID-19 is considered very fast and has a wide impact, one of the impacts of COVID-19 is the closing of schools and universities. The Indonesian government made a decision by issuing a Joint Decree that learning during the Corona Virus Disease 2019 (COVID-19) pandemic is carried out with distance learning (PJJ) boldly (Kemendikbud RI, 2021).

Forward head posture is a change in the shape of the neck which is characterized by a change in the position of the head from normal and moving forward so that the center of gravity changes (Naz *et al*., 2018). Or posture abnormalities in the neck forward sagittal forward on the vertical line of the shoulder, marked by not aligning the ear with the shoulder (Hendra *et al*., 2021) (Puspitasari *et al*., 2018). One time at a time an average of 5-7 hours a day with the device with the wrong neck position causing FHP (Simamora & Ningsih, 2020).

In Asia, the prevalence of FHP reaches 66% (Janet *et al*., 2021). Forward Head Posture is a common postural defect among college students. The furniture used in the classroom is not standardized according to the body dimensions (anthropometry) of each student, and the load carried in the backpack exceeds 10% of body weight causing the risk of FHP (Puspitasari *et al*., 2018).

The tendency to the wrong sitting position will cause muscle imbalances that will cause pain, changes in the spine, rounded shoulders, biomechanical changes, decreased number of sarcomeres and shortening of muscle fibers that can affect muscle contraction, decreased ROM (Range of Motion) so that it affects the functional activity of the neck (Kim *et al*., 2018).

For every 2.5 cm of head movement forward, the neck will receive a weight of 4.5 kg. This results in disturbances in balance by shifting the center of gravity

of the body's Center of Gravity (COG) towards the front and will change the line of gravity of the body Line of Gravity (LOG) and the base of support (BOS) (Wijianto et al., 2019).

The role of physiotherapy in the efforts made on the Forward Head Posture problem is a preventive effort to maintain and develop body movements and functions so that everyone is socially productive, one of which is to prevent Forward Head Posture ("Regulation of the Minister of Health of the Republic of Indonesia Number 65 of 2015 concerning Service Standards Physiotherapy" (Maulana, 2015).

Based on the above review, there has been no research on the prevalence of FHP, so the authors designed a study to determine the prevalence of Forward Head Posture and risk factors for using gadgets in Indonesia during the pandemic. In order to be a useful initial data for the proper handling of physiotherapy in FHP caused by the use of gadgets in students.

2. Methods

21. Difference between Craniovertebral Angel (CVA) and Cross sectional

211 Craniovertebral Angel (CVA) using on protractor to ensure FHP interference.

212 Cross sectional namely the type of research that emphasizes the time of measurement or observation of independent and dependent variable data only once at a time

22. Data Analysis

This study uses a type of quantitative research that is observational analytic, The data that has been collected is processed in IBM SPSS 25 with the Spearman Rank Statistical Correlation Test with a significance level of p value (0.05) to test the relevant correlation between the dependent variable and the independent variable.

3. Results

The results of the data collection that has been coded in this study, performed a univariate analysis in the form of a frequency distribution based on characteristics and then performed bivariately using the Spearman Rank Statistical Correlation Test using IBM SPSS Statistic 25 to determine the correlation between variables with independent analysis.

Table 1: Risk Faktors and Prevalence Of Forward Head Posture Complaints Due To The Use Of Devices

No	Variabel	FHP	NHP	Frek (N)	Pers (%)	*P* Value
1	**Posture**					
	looking down	19	10	19	21,8	
	Bending	21	9	30	34,5	
	Looking up	13	4	17	19,5	**0,004**
	Crooked	9	2	11	12,6	
	Rotation	9	1	10	11,5	
	Total	**61**	**26**	**87**	**100**	
2	**Duration**					
	24 hours	0	17	17	19,6	
	5 – 7 hours	28	7	35	40,2	
	8 – 10 hours	23	2	25	28,7	**0,000**
	11 – 13 hours	10	0	10	11,4	
	Total	**61**	**26**	**87**	**100**	
3	**Age**					
	18 years	4	2	6	6,9	
	19 years old	6	2	8	9,2	
	20 years	5	4	9	10,3	**0,142**
	21 years	17	6	23	26,4	
	22 years	19	15	34	39,1	
	23 years	5	2	7	8,0	
	Total	**61**	**26**	**87**	**100**	

4. Discussion

In the table, the results of the relevance analysis between the posture of using the device and the Forward Head Posture are divided into 5 categories of posture. Among them, 19 people chose a bent posture, while 10 people with Normal Head Posture bowed down with a total of 19 people (21.8%).

Respondents who chose a slouching posture were 21 people, while people with Normal Head Posture who slouched were 9 people with a total of 30 people who chose a slouched posture when using gadgets (34.5%). Respondents who chose the looking up posture were 13 people, while the people with Normal Head Posture who looked up were 4 people with a total of 17 people who chose the looking up posture when using gadgets (19.5%).

Respondents who chose the tilted posture were 9 people, while the people with Normal Head Posture who chose the tilted posture were 2 people with a total of 11 people who chose the tilted posture when using gadgets (12.6%). Respondents who choose rotational posture are 8 people, while people with Normal Head Posture who choose rotational posture are 2 people with a total of 10 people who choose rotational posture when using gadgets (11.5%). The results of statistical tests between Forward Head Posture and posture using gadgets obtained a p value of 0.004 so that it has significant relevance because the p value < significant value (0.004 < 0.05).

The test results between the duration of the use of the device with Forward Head Posture that took 2-4 hours did not exist, while people with Normal Head Posture who spent 2-4 hours were 17 people with a total of respondents who spent 2-4 hours as much as 17 people (19.6%). The test results between the duration of using the device with Forward Head Posture that spent 5-7 hours as many as 28 people, while people with Normal Head Posture were 7 people with a total of respondents who spent 5-7 hours as many as 35 people (40.2%).

The test results between the duration of the use of the device with Forward Head Posture that spent 8-10 hours were 23 people, while people with Normal Head

Posture were 2 people with a total of 25 respondents who spent 8-10 hours (28.7%). The test results between the duration of the use of devices with Forward Head Posture that spent 11-13 hours as many as 10 people, while people with Normal Head Posture did not exist, with a total of respondents who spent 11-13 hours as many as 10 people (11.4%). The results of the statistical test between Forward Head Posture and the duration of using the device obtained a p value of 0.000 so that the results have significant relevance because the p value < significant value (0.000 < 0.05).

The test results between the ages of respondents with Forward Head Posture aged 18 years were 4 people, while people with Normal Head Posture were 2 people with a total of respondents aged 18 years as many as 6 people (6.9%). The test results between the ages of respondents with Forward Head Posture aged 19 years were 6 people, while people with Normal Head Posture were 2 people with a total of respondents aged 19 years as many as 8 people (9.2%). The test results between the age of respondents with Forward Head Posture aged 20 years were 5 people, while people with Normal Head Posture were 4 people with a total of respondents aged 20 years as many as 9 people (10.3%).

The test results between the age of respondents with Forward Head Posture who are 21 years old are 17 people, while people with Normal Head Posture are 6 people The test results between the age of respondents with Forward Head Posture aged 22 years were 19 people, while people with Normal Head Posture were 15 people with a total of respondents aged 22 years as many as 34 people (39.1%). The test results between the age of respondents with Forward Head Posture aged 23 years were 5 people, while people with Normal Head Posture were 2 people with a total of respondents aged 23 years as many as 7 people (8.0%). The results of the statistical test between Forward Head Posture and age obtained a p value of 0.142 so it has no significant relevance because the p value > significant value (0.618 > 0.05).

5. Conclusions

The following are the results obtained including:

1. There were 61 students out of 87 respondents who experienced FHP with a prevalence of 70.1%.
2. There is a relevant correlation between the posture of using gadgets and FHP with a p value of 0.004.
3. There is a relevant correlation between the duration of the use of the device with FHP with a p value of 0.000.
4. There is no relevant correlation between the age of gadget users and FHP with a p value of 0.142.
5. There were 35 male respondents (40.2%) and 52 female respondents (59.8%) with a total of 87 respondents.

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