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Awareness of Proper Posture Among Talisay Malayan Academy High School Students

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Abstract: Spinal pain and postural deviation are common due to the lack of awareness of students in observing proper posture upon performing daily activities. This research sought to determine the level of awareness of proper posture among the high school students. 70 students were gathered and were asked to answer the Q-BAPHYP to assesses the level of awareness of high school students when it comes to their posture. The respondents are frequently aware of their posture with a mean ranging from 2.3-3.5 with a standard deviation ranging from 0.4-1.1. Students lack the awareness of observing the proper posture.

Keywords: proper posture, high school students, awareness, activities of daily living

INTRODUCTION AND RATIONALE

Good posture consists of proper body alignment when standing or sitting. Training oneself to achieve a correct posture is a must to lessen possible strain or tension in the muscles. Proper posture decreases back and neck pain since it places less stress on the tendons, muscles and ligaments. It also aids in digestion, improves muscle and joint function, boosts one's mood and improves spine health.

Nowadays, spinal pain and postural deviations are quite common. These problems can lessen the productivity of an individual whether it may be for the activities of daily living or activities done at work, Dos Santos et al. [1] A lot of risk factors are present during the adolescents and these risk factors are the cause of the postural deviation present in these individuals. These risk factors may be physical inactivity, poor nutrition, the way of carrying a bag, posture in sitting and wearing uncomfortable shoes, Quka et al. [2]

Another factor that would also affect the posture of an individual is its weight. In Brazil the prevalence of overweight is from 4.1 to 13.9, in China it is from 6.4 to 7.7, and in the United States it is from 5.1 to 3.3, Wang et al. [3]. There were also about 340 million children and adolescents aged 5-19 were overweight or obese in 2016, World Health Organization [4]. In the study conducted by Rusek, W. et al, sex determines body mass and suboptimal posture of the pelvic area, Rusek et al. [5] illustrating that a body mass may be the reason of the development of an improper posture.

There is also a relationship between the school environment and a student's posture, specifically the lumbar lordosis. An example of this is the excessive weight of the school supplies that students need to bring at school, this results in lumbar hyperlordosis, Da Rosa et al. [6] and causes an increased prevalence in other postural complaints among the school children, Rai and Agarwal [7].

A lot of authors have also tried to create studies investigating the presence of postural deviation in children. Most of these authors used the age range of 8 to 15 years old. Batistão et al. [8] made a study about the relationship between postural deviation and age, type of school (private or public), parental education, body mass index and body posture associated with everyday situation. However, these studies only assessed the postural deviation present in the children. The researchers did not verify the level of awareness the children have.

There was also a high prevalence of scoliosis present in students from public schools in Santos with a percentage of 24.3%. The most common factors that influence the spine are obesity and the posture adopted by students to watch television, Ciaccia et al. [9].

If the students have decreased level of awareness in terms of the posture that should be adopted in performing any ADLs can result in postural problems that would last until adulthood. Early exposure of students to postural education program may result in a

positive change wherein students adopt the proper posture upon performing any activity Candotti et al. [10].

Thus, the objective of this study is to determine the awareness of high school students in terms of their posture.

LITERATURE REVIEW

Several researchers illustrated the lack of postural education in the students, Fonseca et al. [11] In this presented research, students were aware about proper posture due to the teachers. However, more than half of the population does not know the function and importance of these structures. That is also one of the reasons as to why students are not able to adopt the proper posture.

Having incorrect or bad posture will also develop different complications. A research was conducted to check the awareness of high school students in terms of their back-care discipline, Dissanayaka [12]. Students that participated in the said study were unaware of the proper posture to be observed in washing clothes manually and sleeping. Also, about half of the participants were not able to know the proper way of carrying backpacks or bags. The said research would prove the relationship of improper carrying of bags in developing postural deviation. School bags have direct and indirect factors affecting its weight.

These direct factors may be the number, size and weight of the textbook, and the additional weight coming from other stuff such as heavy pencil cases, lunch box, and even laptops, Abdul et al. [13]. The most common indirect factor is the student's unawareness of potential health risk that a heavy backpack can cause, Dockrell et al. [14]. Carrying a backpack that weighs more than 10% of the body weight may result in developing neck pain, shoulder pain, back pain, and wrist/hand pain which was 70% of the population [6]. Types of backpacks should be taken into consideration because there are backpacks that can cause dysfunction in the spine and bone especially since the body of a high school student is developing fast, Lashway et al.[15]

Development of poor posture among school children are slowly increasing due to the reason that children like to spend more time in watching TV or playing video games which compose 14 hours a week while only 4 hours a week is spent to participate in sport activities. There are muscle imbalances that occur in the spine due to the relationship of

the agonist-antagonist muscles. The muscles shorten because of prolonged improper sitting posture. Because of this muscle imbalance, the body tries to compensate to distribute the weight of the body causing the development of improper postures, Quka et al. [2]

Muscular imbalance is also a contributing factor in developing postural problems. Anterior pelvic tilt is being addressed. Ludwig et al. [16]. Presence of imbalanced posture may cause spinal imbalances such as posterior pelvic tilting and lateral pelvic tilting that result in kyphosis or scoliosis. Lee et al.[17].

Since one of the activities performed by the young population is using the computer, presence of postural abnormalities is inevitable. Students using the computer develop pain in the head, eyes, neck, shoulders, waist, wrist, fingers, pelvis, and knees. Significant risk factors are also one of the causes of the development of pain, these risk factors are using chairs that are unsuitable, improper sitting postures, and lack of movement such as stretching, Fathi [18].

Postural deviation is a problem that should be treated while the students are still young. It is because these postural deviations will soon develop to difficulty breathing and difficulty of the heart to pump blood. Development of kyphosis is due to exercising only once or twice a week, a sleeping time of greater than 10 hours, improper sitting posture, and improper transfer of objects; development of lordosis is due to asymmetric distribution of the weight in carrying a backpack; development of scoliosis is due to a sleeping time of more than 10 hours and practicing for a competitive sport, Sedrez et al. [19]

Excess of body weight is a significant contributor to postural abnormalities. It is because of the biomechanical constraints which are associated with compensatory actions of the body to change the center of gravity within the area of support. However, obesity is just a factor of postural deviation and not a main cause, Quka et al. [2].

Low back pain is the most common complication present when a person has postural problems. LBP is one of the causes of disability all over the world, Meziat Filho et al. [20]. It has a major negative impact on the life of 17-year-old which is the reason why these individuals seek medical help and causes absenteeism at school, O'Sullivan et al. [21]. This is a prevalent symptom among adolescents which decreases the quality of life

due to the pain it presents, O'Sullivan et al. [22]. Because of this symptom, limitation of motion will become evident since people are trying to do compensatory motions to prevent the pain from triggering. There will be a significant risk factor of developing chronic LBP if the onset starts during adolescents, Hestbaek et al. [23].

LBP is a common condition in children and teenagers. Pain felt by teenagers is directly proportional to their age. Female experiences more pain than male does. Recurrent episodes of LBP also occur in teenagers. In relation to LBP is the presence of spinal pain. Spinal pain also increases as age increases.

Postural deviation from high school can lead to chronic problems in adulthood. A research stated that even college students who are not taking any medical field courses are unaware of their posture, Kiruthika et al. [24]. A research that was conducted by Noll et al observed the prevalence of adequate sitting and sleeping postures after 3 years among male and female adolescents. This research showed a decreased prevalence in adequate sitting and sleeping postures among younger adolescents compared to older ones. This means that the early stage of adolescents is very critical in establishing good spinal health habits, Noll et al. [25].

From a study conducted in Thailand, the researchers found that female students have a higher prevalence of scoliosis compared to male, Sakullertphasuk et al. [26]. The increased prevalence of developing scoliosis among female students is because women grow more than men in ages 11- 13 years old and in this period of growth spurt starts the development of scoliosis in childhood and adolescents, Baroni et al. [27]. Screening for postural deviation, specifically scoliosis, is not highly prioritized in schools which lead to the increasing prevalence of these conditions, Sakullertphasuk et al. [26]. A total of 300 students were included from the age of 18 to 22 in a study conducted in Iran. Data were gathered through a questionnaire, a podoscope, a digital camera and software for corrective exercise. Results show that the prevalent abnormalities were cervical lordosis (18.66) and flat foot (17.66). Torticollis and knee hyperextension have less prevalence.

A study conducted in China was to identify the prevalence of faulty postures among adolescents. The students were asked to answer a questionnaire, on-campus postural screening which includes muscle strength test, flexibility test and digital photography. Results showed that there is a high prevalence in forward head posture (25%) and uneven shoulder level (36%). The incidence of forward head was also increased in males compared to the females, Cho [28].

Students aged 13-15 presented a compensatory mechanism in the spine and hip to minimize the misalignment in the head and trunk. However, this age group also manifested a forward head posture which may result in the increasing demands of the society. Also, it was seen in the study that the chairs and tables were too low for some of the students which means that the students have to maintain head and trunk flexion most of the time, Batistão et al. [8]. At home, students watch TV for their leisure for 10 hours or more which may develop a postural change in the sagittal plane.

Students that have knowledge about the spine and its function showed higher probability of following proper posture compared to those students who do not have any idea. Physical education teachers should be the one to teach students to observe proper posture in every activity done by the students. Therefore, teachers without educational training of posture should be given, Bettany-Saltikov et al. [29].

Having the awareness of posture, knowing one's own posture, and performing postural assessment are tools that can be used to identify if students are following the proper posture in every activity they perform. Most students know the importance of proper posture; however, it is difficult for them to follow. Also, about half of the participants from the study were aware of the posture the participants presented but have done nothing to address such problems. Postural assessment should be done for the students since they always carry heavy backpacks going to school which may alter the posture, they have due to the body trying to compensate for the additional load given, Baroni et al. [27].

Postural problems are a major challenge faced by the primary care and teaching environment. School nurses play a vital role in assessing or diagnosing the postural defects of students. The study aims to assess the frequency of postural defects in children and adolescents and the role of the school environment in prevention. The results showed numerous irregularities in the posture adopted by the patient.

According to Steel et al the aim of these postural educational programs is to decrease the prevalence of back pain, to improve body mechanics in performing various activities, to improve posture, to improve safety measures in carrying a backpack and to teach acceptable sitting posture. These programs also help in teaching students the proper lifting techniques and safe decisions in using the body to prevent presence of back pain or postural problems, Bettany-Saltikov et al. [29].

Giving educational programmes on preventing spinal complication can decrease the prevalence of developing any postural deviation, Lashway et al. [15]. Through this, young

people will be able to adopt the proper body postures in performing different activities, Ludwig et al. [16]. However, if this type of programme will only be done once then the maintenance phase will be hard. Students must constantly be reminded of observing the proper posture in whatever activity the students are doing. Postural education is slowly increasing as a strategy to target the problems present in the spine, World Health Organization [4]. These back health educational programmes aim to decrease the number of young individuals experiencing spinal, back problems or other problems that affect the bones and muscles, Bettany-Saltikov et al. [29].

Many strategies were given to implement the postural educational programs. One is the involvement of the teachers and the parents. Another is posting posters around the school campus and the classrooms. And lastly, adding this program as part of the curriculum of the students. The activities in this program must be active and fun for the children to really get their attention. The contents must have actual demonstrations and practices, workshops, individual lessons, group lessons, and curriculum lessons which vary according to the choice of the school. Even its duration and manner of delivery varies and matters.

The activities that are present in the postural educational program is more helpful if hands-on practice is being used. This allows the students to put into action what the teachers are asking them to do and at the same time the teachers will also perform what is being asked since they are the student's role model. Students that are engaged in having hands-on practice have an increased amount of recall of the task compared to students who only had demonstration, Bettany-Saltikov et al. [29]. There is also a need for preventive measures and appropriate guidelines in terms of safe load carriage in school children, Rai and Agarwal [30].

A researcher also used a rotating platform to thoroughly check the student's posture in different views: anterior, posterior, and lateral (left and right). Students were asked to relax in the platform to avoid any postural alterations. The researcher was debating what to use to gather the data and these were direct measurement and qualitative measurements. Direct measurement uses radiography and software-based instruments; however, these were complex and time consuming. Qualitative measurement, on the other hand, was simple, more affordable and required less preparation.

Prevention of the development of postural anomalies in early stage increases the opportunities to reinforce strategies that allow students to learn and be adequately trained. Young people are able to adopt the correct posture once early exposure is being given.

The teachers should also be aware of proper posture for them to include this in their everyday lesson. They will be able to ask the students to observe proper body mechanics while attending the class, Fonseca et al. [11]

CONCEPTUAL FRAMEWORK

INPUT	PROCESS	OUTPUT
Preparing the Questionnaire on Body Awareness of Postural Habits in Young People	Handing out the questionnaire to the high school students.	Identifying the level of awareness of proper posture among high school students.

The researcher will use the Questionnaire on Body Awareness of Postural Habits in Young People. The researcher then distributes the questionnaires to the selected high school students. The researcher starts to interpret the data gathered to identify the level of awareness about proper posture among these students.

RESEARCH OBJECTIVES

The study would like to determine the awareness of Talisay Malayan Academy high school students about proper posture.

Specifically, the thesis aimed to:

1. Determine the level of awareness of high school students in terms of proper posture using the Questionnaire on Body Awareness of Postural Habits in Young People.

SIGNIFICANCE OF THE STUDY

This study will be favorable to the following:

1. **Physical Therapists**. It is good for physical therapists to introduce observation of proper posture to the young population to prevent the development of any postural deviation and low back pain.
2. **Students**. This study will help students understand the importance of proper posture.

3. **Health Government in Talisay City**. This will serve as a guide for the government to create different programs to address the needs of awareness of students about proper posture.
4. **Future Researchers**. This will aid as a guide to those who are interested in developing a study about proper postural.

SCOPE AND LIMITATIONS OF THE STUDY

The study primarily focused on high school students from Talisay Malayan Academy who have less or no knowledge about observing the proper posture.
The nature of the study went on about administering the subjective measures of awareness of high school students in terms of proper posture.

The scope area of the study is in Talisay City, specifically at Talisay Malayan Academy. Specific location may lead to problems in generalizing the results in other schools in Talisay City.

The study is limited on the time of implementation wherein the researcher is not able to perform postural assessment to thoroughly check what specific postural deviation is present among all the participants.

MATERIALS AND METHODS

Research Duration

The study started in January 2020 and ended in February 2020. The questionnaires were distributed and collected in February, 2020. The collection of data was only done once.

Research Design

This study utilized a quantitative survey-based research which seeks data about the awareness of high school students about proper posture.

Research Respondents

The subjects that were included in this study were high school students from Talisay Malayan Academy aged 14 to 16 who may or may not have awareness about proper posture.

Inclusion Criteria

The respondents were from both genders, male and female. Age must range from 14 to 16 years old. Have proof of enrollment such as identification card. Students who have the willingness to participate in the study.

Exclusion Criteria

Students who are absent on the day of data collection and clinically diagnosed with scoliosis, kyphosis or lordosis. Students whose age are younger than 14 and older than 16.

Power Analysis and Sample Size Determination

The researcher is using the G Power 3.1.9.4 and specifically utilized A priori, t-tests, and Wilcoxon signed- rank test (one sample case) with the following parameters to calculate the sample size required: effect size (0.5), alpha error probability (0.01), power (0.95), and tail (1). The total sample size for this study is 70.

Sampling Frame

The study was done by collecting subjects who are high school students from Talisay Malayan Academy. The researcher asked a specific year level to be the respondents.

Sampling Design

The researcher used purposive sampling from the chosen year level.

Site of the Study and Available Facilities

The researcher conducted the study at Talisay City, Cebu

Materials and Equipment

The researcher was using the Questionnaire on Body Awareness of Postural Habits in Young People. This questionnaire has a content validation of 0.28 and 72% and it also has an inter class correlation coefficient of 0.66 and 0.74 [20]. The questionnaire is a subjective instrument that evaluates the awareness of an individual regarding proper posture.

Study Plan and Data Collection

The researcher made sure that the participants met the inclusion and exclusion criteria and informed consents were given afterwards. Then, the researcher started distributing the questionnaires to the participants. After 15 to 20 minutes, the questionnaires were collected.

Data Processing and Analysis

The data gathered was analyzed using the Statistical Package for the Social Sciences. The data were presented in tables.

Work Plan Schedule

In January 2020, the researcher started to submit the transmittal letter to Talisay Malayan Academy's principal. The study was conducted on February 2020 wherein the researcher explained the study, distributed the informed consents and questionnaires and collected it at the same time.

Ethical Considerations

This research project subscribes to the ethical principles of the conduct of research involving human subjects mandated by the Philippine Health Research Ethics Board and relevant national and international organizations. It was approved by the Southwestern University PHINMA Research Integrity Board on December 7, 2019. Informed Consent Forms were provided, verbally explained, and signed by the respondents prior to the start of involvement in the study.

Budget

This study was entirely funded by the researcher. The researcher's budget was ₱210.00 which includes the questionnaire and the informed consent that were distributed to the respondents.

Informed Concept

Informed consent has been obtained from all individuals included in the study.

Ethical Approval

The research related to human use has been complied with all the relevant national regulations, institutional policies and in accordance the tenets of the Helsinki Declaration, and has been approved by the authors' institutional review board or equivalent committee.

RESULTS AND DISCUSSION

Socio-demographic Feature

The total of 70, out of 70 high school students aged between 14-16 years with a mean age of 14.8 years were completed and returned the questionnaire to the researcher with a response rate of 100%. There were 34 males and 36 females.

Level of Awareness of Posture using Q-BAPHYP

The analysis of Q-BAPHYP was based on its level of measurement, using the Statistical Package for the Social Sciences, since the questionnaire is a Likert scale. The result showed that the respondents are frequently aware of their posture since it yielded a mean ranging from 2.3-3.5 with a standard deviation ranging from 0.4-1.1. In table 1 the minimum and maximum answers of the respondents were shown, most of the respondents had a minimum answer of 1 (Never) and a maximum answer of 5 (I don't know) through this the researcher was able to find out that the respondents does not know the proper posture that should be observed.

In respect to the body posture in the classroom, 44% of the students are frequently aware of the proper posture that should be followed in class at all times. In respect to the body posture at home, 40.57% of the students are frequently aware of the proper posture that should be portrayed at home. In respect to carrying objects, student's are always observing the proper posture with a percentage of 62.

This research had similar results with the research conducted by Dissanayaka wherein the level of awareness of young population about back care discipline is low. However, in terms of carrying objects the results were different. In this study the students were aware of correct posture upon carrying but in the study by Dissanayaka, the students do not know the correct posture in carrying.

CONCLUSION

Being aware of one's posture is beneficial since it prevents the development of postural deviation and low back pain. Students often bring heavy bags due to all the stuff that students need in school. At home, students like to be comfortable that they neglect observing the proper posture. Since the students are still young, these individuals carry a lot of heavy stuff wherein proper posture should be observed to prevent any complications.

Results show that students lack the awareness of observing the proper posture at home and at school, however in carrying stuff students are observing proper posture. Most of

the students are observing improper posture which makes students susceptible to developing a postural deviation and low back pain.

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Table I. Descriptive Statistics.

Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation
Q1	70	1.00	4.00	2.9571	.66889
Q2	70	1.00	5.00	2.7714	.88746
Q3	70	1.00	5.00	2.4286	1.17426
Q4	70	1.00	5.00	2.4571	1.00269
Q5	70	1.00	5.00	2.8143	1.05354
Q6	70	1.00	4.00	2.6714	.79348
Q7	70	1.00	5.00	2.5857	.98530
Q8	70	1.00	4.00	2.0857	.44209
Q9	70	2.00	5.00	3.0857	.81192
Q10	70	1.00	5.00	2.8857	1.17391
Q11	70	1.00	5.00	3.5714	1.08443
Q12	70	1.00	5.00	3.0857	.82958
Q13	70	1.00	5.00	2.4857	.91276
Q14	70	1.00	5.00	2.3571	1.12978
Q15	70	1.00	5.00	2.5714	.86093
Q16	70	1.00	5.00	2.7000	1.01224
Q17	70	1.00	4.00	2.7857	.89916
Q18	70	1.00	5.00	2.9286	1.09441
Q19	70	1.00	5.00	2.6000	1.15971
Q20	70	1.00	5.00	2.9714	1.08976
Q21	70	1.00	5.00	3.3571	.76207
Q22	70	1.00	5.00	2.9857	.98530
Q23	70	2.00	5.00	3.7429	1.15075
Q24	70	1.00	5.00	2.7857	.97643
Q25	70	2.00	5.00	3.2571	.79282
Q26	70	1.00	5.00	2.9143	.84687
Q27	70	1.00	5.00	2.8714	1.02039
Q28	70	1.00	5.00	2.8286	1.15434
Q29	70	1.00	5.00	2.6714	.97388
Q30	70	2.00	4.00	3.5714	.73369
Q31	70	1.00	4.00	3.2714	.88336
Q32	70	1.00	5.00	3.1714	.93206
Q33	70	1.00	5.00	3.4571	.79282
Q34	70	1.00	5.00	2.9857	.98530
Valid N (listwise)	70				

Table II. Percentage.

Response	Proper Posture (%) "Classroom"	Proper Posture (%) "Home"	Proper Posture (%) "Carrying objects"	Improper Posture(%) "Classroom"	Improper Posture(%) "Home"	Improper Posture(%) "Carrying objects"
1	9.1	4.43	1.5	1.7	10.5	7.5
2	29.7	24.14	17	40.5	32.1	26
3	44	40.57	19	30	31	35.5
4	20.3	37.43	62	13	16.8	28
5	4	3	0	7.13	8.5	2.5