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PARENTS' ROLE IN STUDENTS' EXERCISE HABITS AND ACADEMIC PERFORMANCE

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Abstract:
In the last more than six decades, through research, experiments, scholarly articles, thesis, and dissertations, it has been well known that sports and physical activities are closely associated with children's growth, physical fitness, mental fitness, health, academic performance, and overall personal development. To fully provide all the benefits exercise, sports, and sports-related physical activities contribute, parents play a very important role. It would be wrong to expect children to grow up physically and mentally fit and be successful in life leaving them alone without parents' support, encouragement, and time. Thus, parents need to be children's role models and need to encourage and support them constantly, at least until they enter the adult stage. This is very true, especially in instilling good exercise habits, study habits, and behavior among children and adolescents. Despite all the benefits regular exercise and sports activities contribute, only a very small portion of parents and students (children) are involved in sports and physical activities in Taiwan. The present study is a quantitative, synchronic, and descriptive study that investigated the impacts and influences parents give to their children's exercise habits, study habits, and overall academic performance based on their (parents') exercise habits and asking habits their children to do exercise. Data were collected through self-designed survey questionnaires from 303 senior high school and college students who were studying in three different educational institutes located in New Taipei City, Taiwan. Results: A very low percentage of parents were found to be role models to their children who were doing regular exercise and willing to spend time with their children. In general, out of 303 students surveyed, 21% of parents (either father or mother) did regular exercise (3 times and above per week). Among the 303 students surveyed, only 23% of students did regular exercise. Sharp differences in exercise habits were found between the students whose parents did regular exercise and those students whose parents never did any exercise. Among students whose parents did regular

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exercise, 40% of them did regular exercise compared to 13% among students whose parents never did exercise. In general, 59% of parents never asked their children to exercise, while only 14% of parents asked frequently. Parents who did regular exercise asked their children to do exercise far more (35% of parents) compared to (6% of parents) those parents who never did exercise. It was found that those students whose parents did regular exercise and asked them (children) to do the same also had better exercise habits and better study habits than those students whose parents never did exercise nor asked their children to do exercise.

Keywords: parents' exercise habits; parents' role; students' exercise and study habits; physical and mental fitness; overall personal development

1. Introduction

1. Background and Purpose of Study

In spite of the myriad benefits of regular exercise, sports, and sports-related physical activities and their significant positive links with children's academic achievement, a very small percentage of students are engaged in regular exercise and sports-related physical activities, especially among the adolescent and young adult student community in Taiwan. And, it is also a very well-known fact that parents play a very important role in instilling good exercise habits, good study habits, and overall good behavior in children (young as well as adolescent). However, sadly, a very small portion of parents could be role models for their children, especially in the field of exercise and physical activities, thus unable to provide time, encouragement, and support for their children physically, mentally, and for overall personal development. The purpose of the present study is to investigate how much parents can influence students' (their children's) exercise habits, study habits, academic achievement, and overall personal development.

1.1. Literature Review

A countless number of researches have already proved that doing regular exercise, sports, and related physical activities and taking part in such activities not only helps students to be fit, strong, and healthy but also helps them to perform better in academics. Above these benefits, in this digital age, such physical activities keep students away from unwanted sedentary lifestyles like excessive use of digital screens, being couch potatoes, and unwanted behaviors. Instead, such physical activities raise self-esteem, self-confidence, and self-respect among adolescents and young adults.

In their study "Associations between Physical Activity and Academic Competence: A Cross-Sectional Study among Slovenian Primary School Students" Joca Zurc and Jurij Planinšec (2022) state that children engage in physical activity most days a week, with moderate-intensity and unorganized activities showed significant associations, the highest levels of physical activity (PA) and the lowest levels of sedentary behavior were found in students with above-average academic competence. The frequency and intensity of physical activity, the absence of digital games, and attending

sports clubs seem to have the most beneficial effects in terms of academic competence in school children.

In his study about the correlation among exercise habits, study habits, and average grade points in students, Ngangbam (2023) found that students' study habits were closely associated with their exercise habits.

Studies have consistently demonstrated that physically active people are not only healthier but also perform better on tests of cerebral or intellectual ability. John J. Ratey, a Harvard University psychiatrist, in his book Spark: The Revolutionary New Science of Exercise and the Brain (2008), describes the increased volume in the hippocampus and frontal and temporal lobes, the regions of the brain associated with cognitive functioning, through MRI scans of the brains of sedentary people who have suddenly improved their fitness levels.

According to Gorton in James Coleman's classic work, "The Adolescent Society" (1961) students who participate in high school sports, on average, tend to perform better academically than their non-athletic peers. However, the positive impact of physical activities on academic performance on students also depends on the level and frequency of physical activities of the students.

Sitkowski (2008) also found that athletic participation had a positive impact on academic performance and that impact may be attributable to the difference between in-season and out-of-season performance. It was found that there was a significant difference between the GPA (Grade Point Average) scores during and after participating in school-sponsored sporting events for male students. It means regular and constant involvement in exercise and sports activities gives better results physically, mentally, and academically. Donnelly et al. (2016) also found evidence to suggest that there are positive associations among physical education, fitness, cognition, and academic achievement.

In a two-year, with three-time points longitudinal study of five public junior high schools in two suburban municipalities in Okinawa prefecture, Japan from April 2015 to July 2017, Kyan et al. (2018) detected a possibility that an increase in physical fitness leading to good academic achievement among junior high school boys, regardless of between-person differences of physical level.

In a two-semester study in a Shanghai high school to examine the effect of a strengthened physical education pilot program consisting of specialized sports training on students' academic performance in the high school context, Zhang et al. (2019) found that strengthened physical education had a significantly positive effect on overall academic performance among the high school students, especially in Chinese language and English language scores.

The World Health Organization defines physical activity as "*any bodily movement produced by skeletal muscles that requires energy expenditure. Physical activity refers to all movement including during leisure time, for transport to get to and from places, or as part of a person's work*". The WHO recommends that children and adolescents of 5–17 years of age engage in moderate-to-vigorous physical activities for an average of at least 60 minutes per day for a healthy and fit life, at least 3 days of physical activities per week. Unfortunately, the WHO G*lobal Status Report on Physical Activity* indicates that more than

80% of adolescents and 27% of adults do not meet these recommendations (Milton, K. et al., 2022).

According to the report of WHO, higher amounts of sedentary behavior are associated with the following poor health outcomes: increased adiposity; poorer cardiometabolic health, fitness, behavioral conduct/prosocial behavior; and reduced sleep duration in children and adolescents (Okely et al., 2021).

Similarly, in Taiwan, many adolescents do not meet WHO's recommendation for physical activities. In their study of 2235 adolescents (1157 boys and 1078 girls) aged 12-18 years based on the data from the 2001 National Health Interview Survey in Taiwan (Chen et al., 2007), it was found that only approximately 28.4% of the sample met WHO recommended guidelines although 80% of adolescents reported engaging in some physical activities.

According to Ngangbam's (2021) study on the perceived factors that keep students away from doing regular exercise, sports, and sports participation, out of 199 high school and college students, 82% of students knew doing physical activities could keep them physically and mentally fit and healthy, but only 28% of them did enough exercise which is very much in line with Chen et al.'s finding (28.4%).

Doing regular sports and related physical activities not only contributes to physical fitness and health, it is also a very good tool in various aspects of personality development. In their study on participation in sports and games as well as extracurricular activities and the development of personal and interpersonal skills in adolescents, Ivaniushina and Zapletina (2015) revealed that students who participated in sports and games activities offer a wide variety for developing various aspects of personality such as social skills, interpersonal skills, goal setting skills, self-identity, and competencies.

In their study "Rethinking the Role of Co-Curricular Activities in Developing Students' Talents in Secondary Schools in Tanzania" Lazaro and Anney (2016) found that students who participate in co-curricular activities such as sports and games are more advantageous to developing talents, including enriching students' language skills and self-confidence.

Massoni (2011), in his study, found that students who participated in extracurricular activities reduced behavior problems. Students who participate in these activities take pride in their accomplishments, hence they gain better self-respect, self-esteem, and self-confidence.

Elavsky (2010) also states that, regardless of weight, size, gender, or age, exercise can quickly elevate a person's perception of his or her attractiveness, that is, self-worth. Based on their study of 34 male and female high school students divided into - experimented (15) and control groups (19), Soyturk and Ozturk (2020) revealed that among the high school students' behaviors, sports-based games are effective activities that can be used in reducing high school students' behavior problems.

In their study "Extra-curricular activities and youth risky behaviors in South Africa" including a sample of 10,502,705 including both male and female youths aged between 12-22, Muloiwa and Odimegwu (2018), it was revealed that participation in

sports and games as well as extracurricular activities were found to be beneficial to youth self-esteem and discipline.

Despite all the benefits sports and physical activities provide, more and more adolescent and young adult students stay away from physical activities. Much research has proved that increasing time for physical activities in schools helps students to improve their academic performance. However, time for physical activity classes has been limited to less than 2 hours per week in the Taiwan region.

Concerning the factors that keep adolescent and young adult students away from doing exercise, sports, or related physical activities, there are two categories: internal and external factors. The main internal factors are students' opinions about themselves regarding physical activities, exercise, sports, laziness etcetera. The main external factors are school study work, part-time jobs, lack of facilities for physical activities, parental and social support and encouragement, etc.

Regarding the external factors which can greatly influence children, adolescents, and young adults, experts, and researchers have proved time and again the importance of parents in their children's lives. Parental support is very important in the lives of students, especially during childhood and adolescent periods, as the parents themselves are the ones to take care of the overall children's physical and intellectual development, till the point they get independent and ready to face the challenges of the society they live in. Parents are aware of the work on the development of children, but at the same time, they need pedagogical information on the right to education of their children. (Mojsovsja Koteva Tatjana (2006) as cited by Ceka (2016).

Parents are children's strongest role models and greatest influence. Children always adopt their parent's values and types of behavior (Kasapi, Gjylymsere, 2013 as cited by Ceka, 2016). However, if parents are a positive influence in their children's everyday lives, and most importantly in their everyday education, the future will be more beautiful and more successful. (Colanoiq, Vera, 1972 as cited by Ceka, 2016).

Several variables like biological, psychological, socio-cultural, and environmental reasons can influence children's physical activity (Sallis et al. 1992). Recent studies recognized that parents seem to be one of the most important socializing agents, influencing participation in physical activities (Butcher, 1983). Parental attitudes towards physical activity have shown a great responsibility for the encouragement of their children to engage in activity and sports participation.

Although the values attributed to sports are many and diverse (Fraleigh, 1990), the beliefs and expectations of parents are important for the behavior of children. Parents are instrumental in facilitating their children's development and endowing them with a rational system of beliefs and attitudes (Palkovitz and Copes, 1988).

In a study by Hosokawa et al. (2023) about the attitudes of 717 children (366 boys and 351 girls) aged 8-9 and their parents and children's actual physical activity level, it was found that direct parental assistance for physical activities such as logistic support encouraged children to engage in moderate-to-vigorous physical activities; in addition, parental use of community resources may encourage children to engage in moderate and light physical activity such as walking.

Thus, one of the most important factors why adolescent students stay away from exercise and related physical activities is the lack of encouragement and support from their parents. For every child, his/her parents are the role models to be followed. But the sad thing is that many parents fail to be role models for their children. Not only do they fail to be role models for their children, but they also fail to encourage and support their children and provide quality time, especially in the field of exercise and sports-related activities.

To support and encourage children and adolescents to be active in physical activities, parents must play an important role, especially when children enter their adolescent stage. Aerts et al. (1997) stated that while physical activities appear to be a natural part of children's everyday lives, they decline during adolescence.

Research also found that girls are less active than boys. In their study, Godin and Shephard (1986) found that females were less active than males. One reason could be that girls may not receive enough significant parental support to affect activity (Sallis et al. 1992). However, parents' activity can play an important role in changing the lack of participation among girls. Indeed, Colley et al.'s study (1992) showed that parental sports participation was significantly associated with sports participation of girls.

In their study of 1213 black girls and 1166 white girls from the ages of 9 or 10 to the ages of 18 or 19 years, Kimm et al. (2002) found that these girls' physical activity levels declined during adolescence. Casey et al. (2009) also reported that participation in sport and physical activity declines during adolescence. In this naturally declining period, parents need to constantly encourage and support their children in both physical activities and education, especially girls.

To decrease the effects of this declining nature during adolescence and adulthood, Crumbley et al. (2019) talked about the importance of instilling a habit of doing physical activities during childhood. They stated that as physical activity and sedentary behaviors are developed during the early childhood period, for physical activity to occur in children, parents should also be engaged in and model the physical activity behaviors, increasing the likelihood of young children learning to be physically active.

In another study by Hosseini et al. (2013), two main themes were found played by parents: developing interest in physical activity and providing support to adolescents for physical activity through role models and support.

Not only the parents' involvement in physical activities play an important role in supporting and encouraging children and adolescents to be involved in physical activities, but according to Qurban et al. (2018), those children and adolescents who are involved in physical activities regularly are found to be more supported by their parents. They continued that greater parental support will result in enhancing students' academic motivation, skills, and knowledge about school goals, thereby resulting in better academic achievement. Besides these benefits, physical activities also bring parents and children closer.

As the saying goes, seeing is believing, many children follow their parents as role models. If their parents do regular exercise, children also likely follow them. If their parents smoke, they also likely imitate them. Thus, parents should know what role

models they should be for their children. If they cannot be the role model, at least they can ask, encourage, support, and guide their children to do sports and related physical activities. These good habits of doing regular exercise and sports will also help students to have better study habits, to manage time properly, to be more responsible and more disciplined, which in turn can help them to do better in their academic fields. There is a close and inseparable link between exercise and sports-related physical activities and children's education.

Armstrong et al. (1990) stated that sports and related physical activities are an important part of a healthy lifestyle, and the increasing proportion of children and adolescents participating regularly in appropriate physical activities should be one of the main objectives of health promotion. Therefore, the challenge in this area is to find out how children and adolescents can be influenced towards establishing regular physical activity as a habit (Wold and Anderssen, 1992). Thus, parents' role in shaping children's exercise, sports habits, and study habits cannot be taken lightly.

2. Research Methodology

The present study is a quantitative, cross-sectional, synchronic, and descriptive research. It investigated the influence and impact of parents' role in students' exercise habits (exercise, sports, and sports-related activities) study habits, and academic performance.

2.1. Sample

The target population for the present study was the students and their parents as the main purpose of the study was to investigate how much parents could influence children's/students' exercise and sports habits. The present study used random sampling as it has the greatest freedom from bias (Brown, 1947 as cited by Taherdoost, 2016). For the present quantitative study, 303 senior high school and college students from three different educational institutes in New Taipei City were selected.

2.2. Data Collection and Analysis

In quantitative research, data collection is a very important step. Data collection is a real challenge for researchers and it requires much time and effort. The data sources can be either the existing data or the new data. Data can also be classified as primary data and secondary data. Primary data collection involves data collected directly from the study participants by the researcher or a trained data collector which includes surveys, questionnaires, interviews, observations, or other measures. Secondary data collection is the use of data that were collected for another purpose such as patient records, or government databases (Houser, 2011). For the present study, primary data were collected through a survey. Self-made survey questionnaires were distributed and 303 students belonging to senior high school and college students took part in the survey and returned their feedback. The following table shows the questions included in the survey questionnaires.

Table: 1: Questions included in the questionnaires

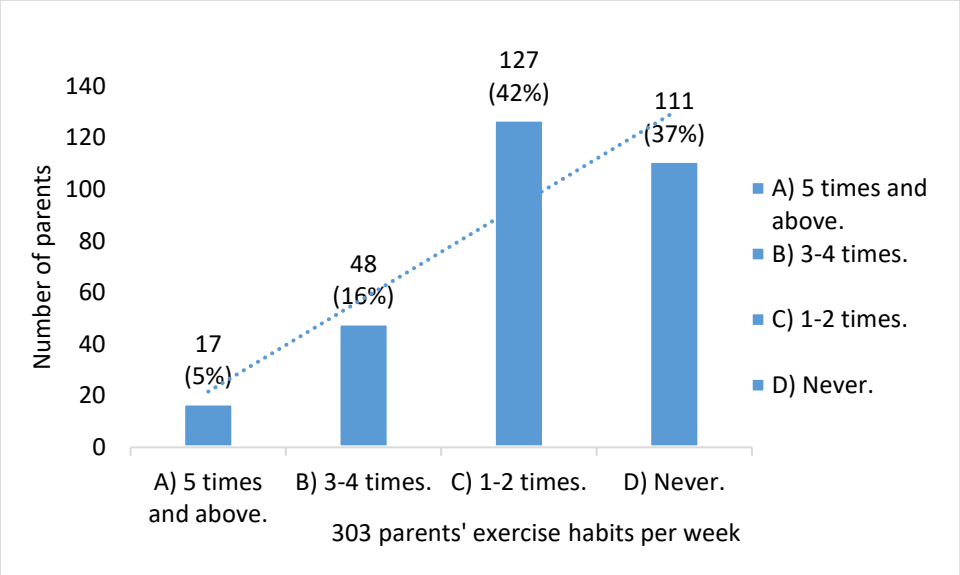
Qns1. How many times do your parents (father/mother) do exercise or sports per week? A) Above 5 times a week, B) 3-4 times a week, C) 1-2 times a week, D) Never
Qns2. How many times do you do exercise or sports per week? A) Above 5 times a week, B) 3-4 times a week, C) 1-2 times a week, D) Never
Qns.3. How many times do your parents ask you to do exercise or sports per week? A) Above 5 times a week, B) 3-4 times a week, C) 1-2 times a week, D) Never

After collecting the surveyed questionnaires, the data were then entered into Microsoft Excel and converted into statistical numbers. These statistical numbers were then converted into charts using Microsoft Pivot table, and then analyzed.

The following are the results from the data analysis.

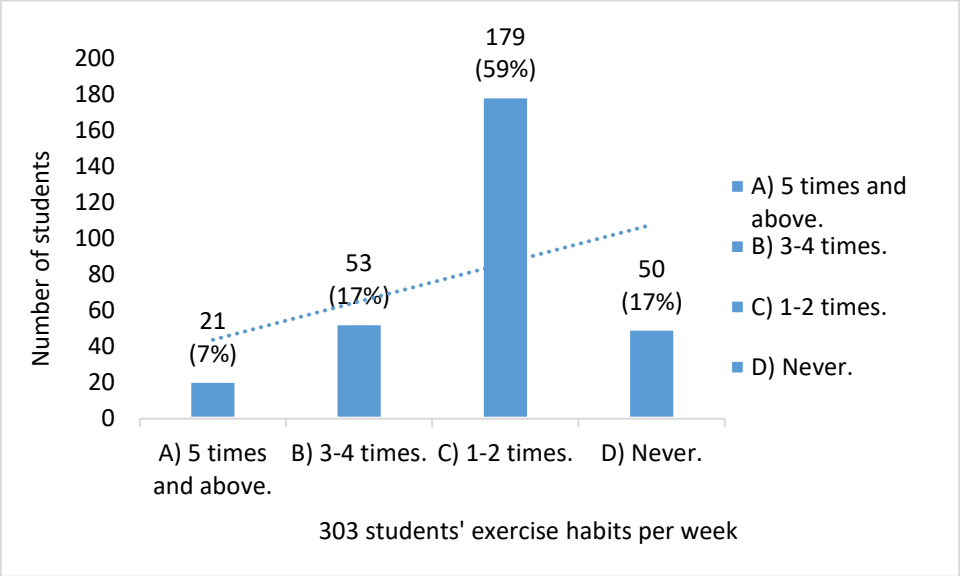
3. Results

Figure 1: 303 parents' exercise habits/frequencies per week



Based on the reports of 303 students surveyed, 5% (17 parents) of parents (either father or mother) did exercise 5 times and above per week. While 16% (48 parents) of parents did 3-4 times per week, 42% (127) of parents did 1-2 times per week. The remaining 37% (111) never did exercise as can be seen from the chart in Figure 1 above. The trend line forecasts the possible exercise habits of parents in the future.

Figure 2: 303 students' exercise habits/frequencies per week

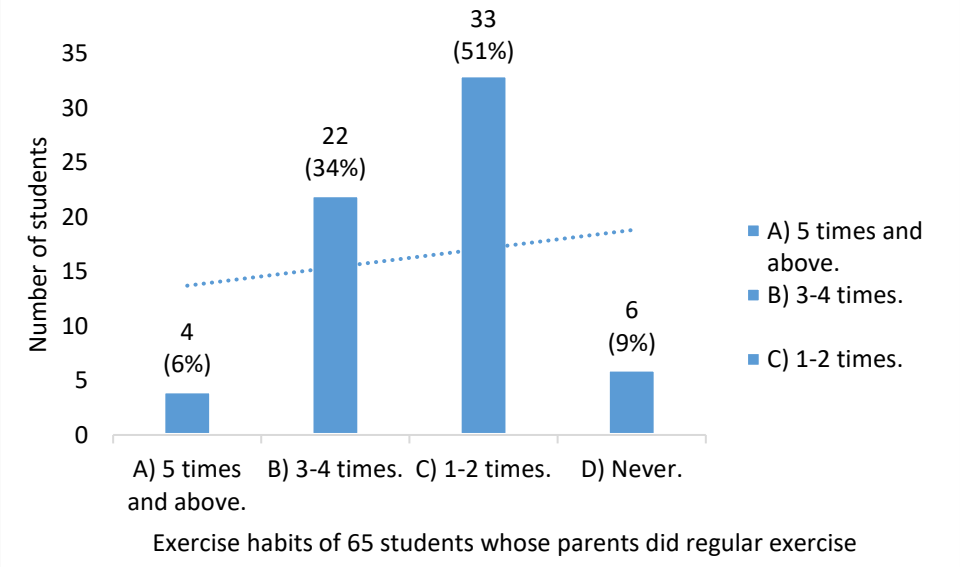


Regarding exercise habits of students, in general, out of 303 students, 7% (21 students) of students did exercise 5 times and above, while 17% (53 students) did 3-4 times per week. While 59% (179 students) of students did some exercise (exercise 1-2 times per week), the remaining 17% (50 students) of students never did any exercise. The trend line forecasts the possible exercise habits of parents in the future. The trend line forecasts the possible exercise habits of students in the future if nothing changes.

To investigate if there was any link/s between students' exercise habits and parents' exercise habits, 65 students whose parents did regular exercise (3 times and above exercise sessions per week) and 111 students whose parents never did exercise were extracted from those 303 students and compared their exercise habits.

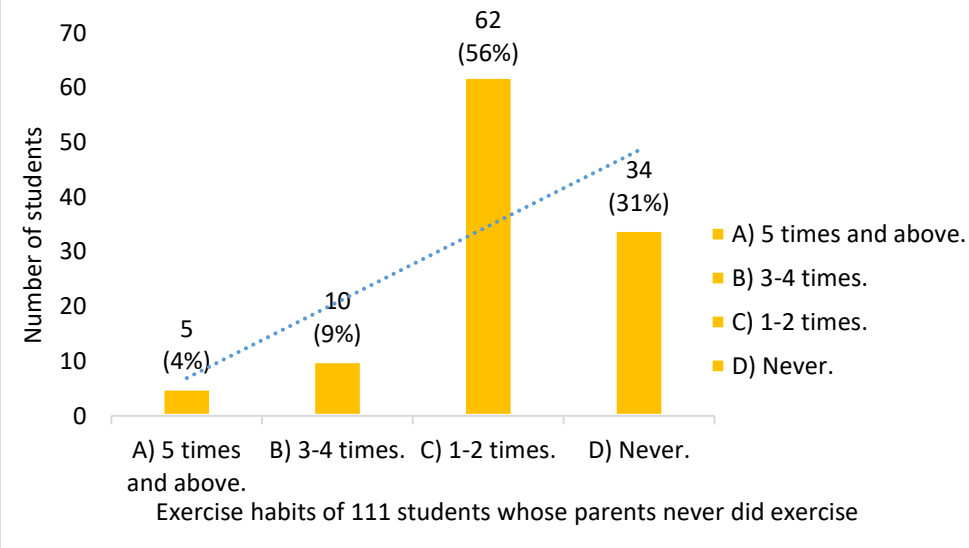
The following charts in Figures 3 and 4 display the exercise habits of those two groups of students.

Figure 3: Exercise habits of 65 students whose parents did regular exercise per week



Out of 65 students whose parents did regular exercise, 6% (4 students) did 5 times and above per week, while 34% (22 students) of them did 3-4 times. The remaining 51% (33 students) did 1-2 times and 9% (6 students) of them never did any exercise as can be seen from the above chart in Figure 3. The trend line forecasts the possible exercise habits of students based on their parents' exercise habits.

Figure 4: Exercise habits of 111 students whose parents never did any exercise



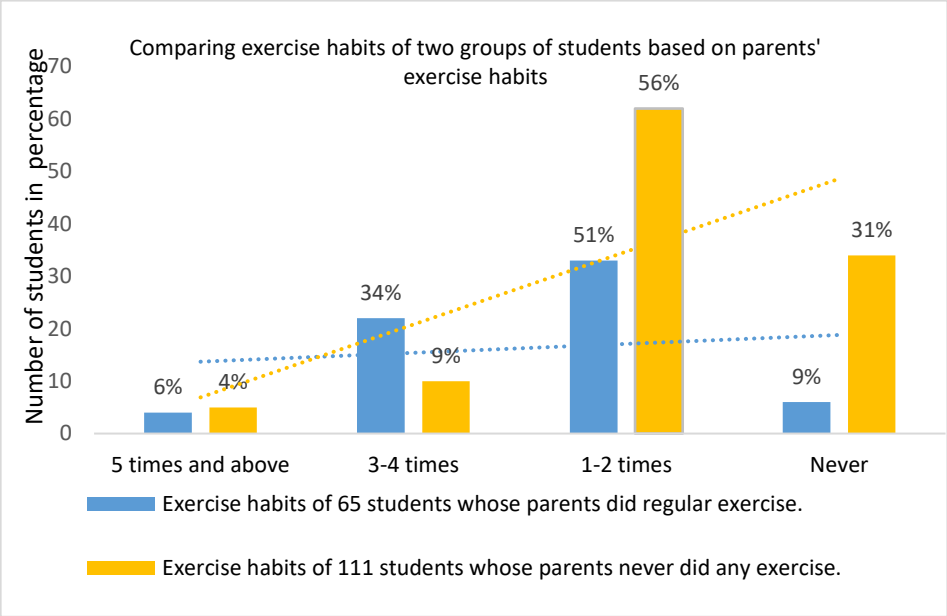
Out of 111 students whose parents never did any exercise, 4% (5 students) of students did 5 times and above per week, while 9% (10 students) of students did exercise 3-4 times per week. 56% (62 students) of them did 1-2 times per week, and the remaining 31% (34 students) never did exercise. For a clear picture and comparison, the above two results can be displayed in the following Table 1 and the bar chart in Figure 5. The trend line forecasts a possible sharp rising percentage of students completely staying away from exercise among the 111 students in the future.

The following Table 2 displays the exercise habits of two groups of students based on their parents' exercise habits.

Table 2: Exercise habits of two groups of students influenced by their parents' exercise habits

Exercise habits (frequencies) of students per week	**5 times and above**	**3-4 times**	**1-2 times**	**Never**
Exercise habits of 65 students whose parents did regular exercise.	6%	34%	51%	9%
Exercise habits of 111 students whose parents never did any exercise.	4%	9%	56%	31%

Figure 5: Exercise habits of two groups of students based on their parents' exercise habits



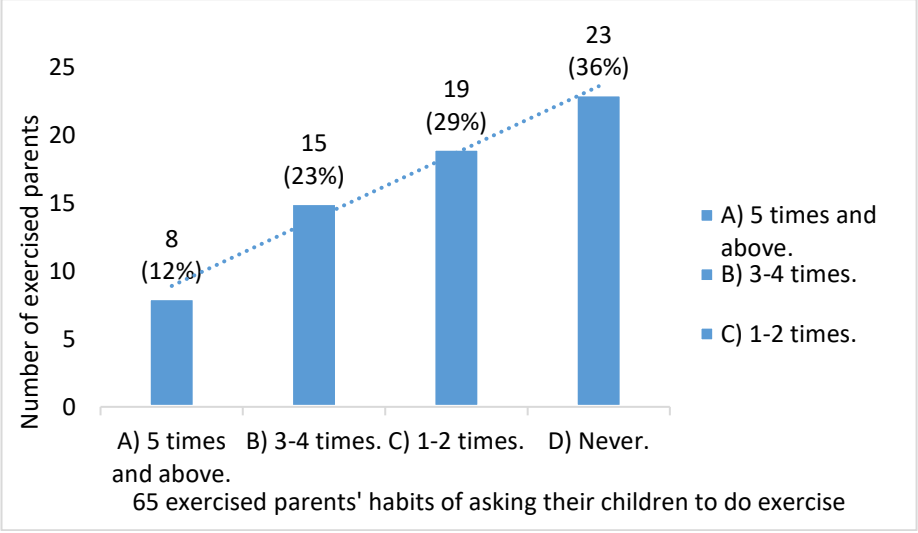
The above table and column chart clearly display the differences in exercise habits of those two groups of students based on their parents' exercise habits. The other factors that could have influenced students' exercise habits were not studied as the focus of the present study was to investigate the link/s between parents' exercise habits and students' (their children's) exercise habits.

The trend lines in the column chart above in Figure 5 forecast the possible future directions of exercise habits among the two groups of students based on the influences their parents contribute.

To further check if there were any links between parents' exercise habits and their habits of asking their children to do exercise, the researcher also investigated two groups of parents – one group who did regular exercise and another group who never did.

The following charts in Figures 6 and 7 display parents' habits of asking their children to exercise based on their own (parents') exercise habits.

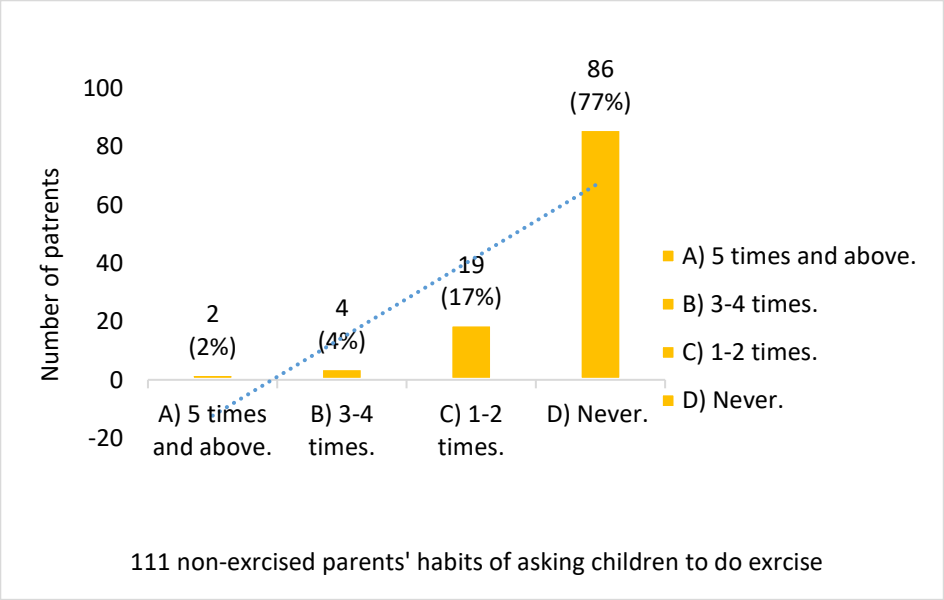
Figure 6: 65 regular-exercised parents' habits of asking their children to do exercise



The above chart in Figure 6 shows the habits of asking their children to do exercise by those 65 parents who did regular exercise. 35% (12+23) of them asked frequently (3 times and above per week) their children to do exercise, while 29% of them asked sometimes (1-2 times per week). The remaining 36% of parents never asked their children to do exercise.

Figure 7 below displays 111 non-exercised parents' habits of asking their children to do exercise. The trend line forecasts the possible habits of 65 parents' asking their children to do exercise in the future.

Figure 7: 111 non-exercised parents' habits of asking their children to do exercise

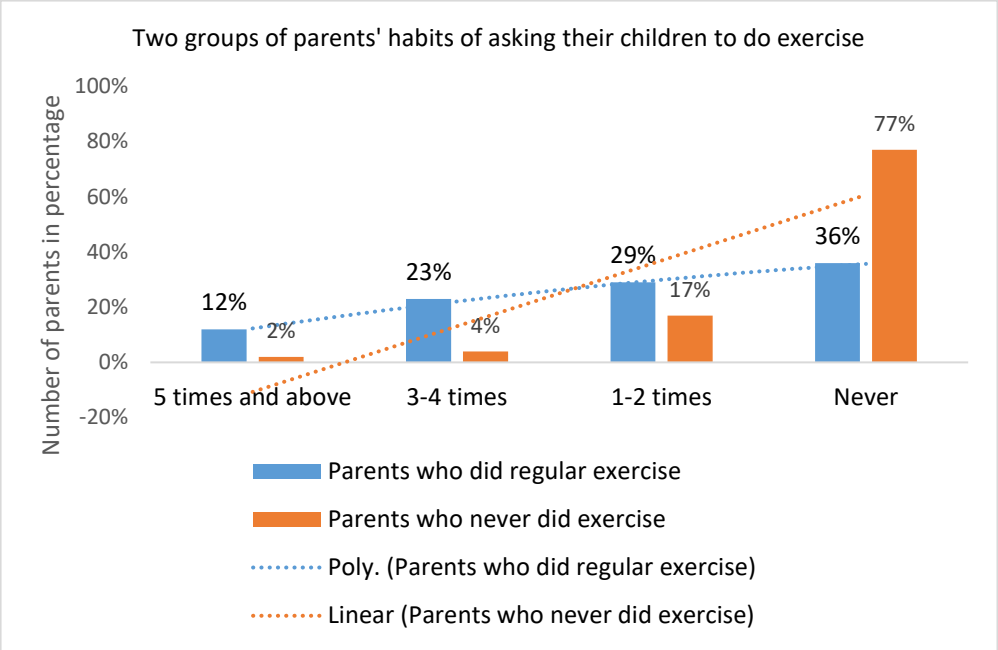


Out of 111 parents who never did exercise, 6% of them asked their children to do exercise quite frequently (3 times and above), while 17% of them asked only sometimes (1-2 times per week. The remaining 77% of the non-exercise parents never asked their children to do exercise. The following Table 3 and the column chart in Figure 8 display the differences clearly. The trend line forecasts the possible exercise habits of parents in the future. The trend line forecasts the possible habits of 111 parents' asking their children to exercise in the future.

Table 3: Parents' habits of asking their children to exercise based on their own exercise habits

Exercise sessions per week	**5 times and above**	**3-4 times**	**1-2 times**	**Never**
Parents who did regular exercise	12%	23%	29%	36%
Parents who never did exercise	2%	4%	17%	77%

Figure 8: Comparison of two groups of parents' habits of asking their children to do exercise

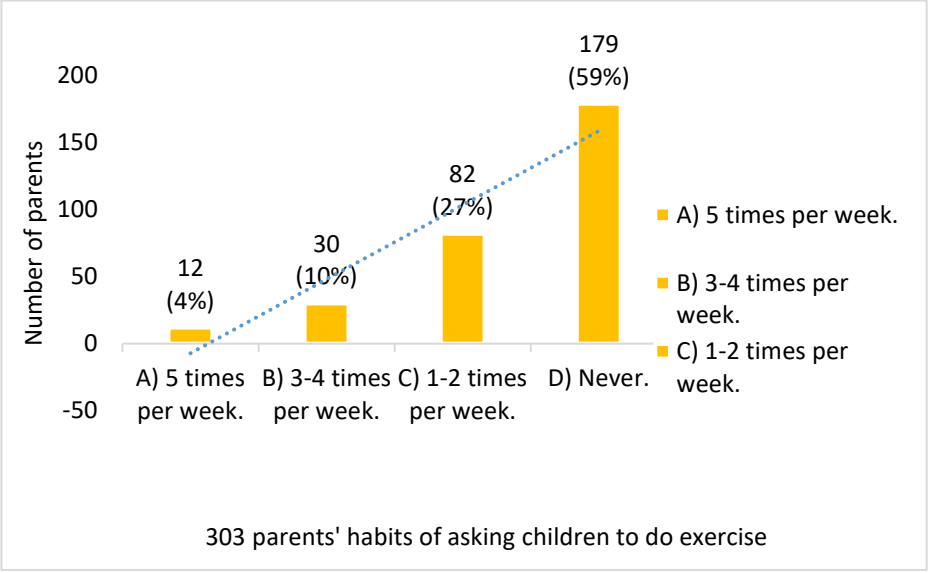


The above Table 3 and column chart in Figure 8, clearly show the percentage of parents asking their children to do exercise based on their own exercise habits. The two trend lines also clearly display the asking habits of asking their children to do exercise from the most positive sides on the left to the most negative sides (the most positive side being asking 5 times and above and the negative side being never asking per week).

The trend lines in the column chart above in Figure 8 clearly indicate the possible future tendencies of two groups of parents' habits of asking their children to exercise in the future.

As a general norm, whether the parents themselves did exercise or not, more than half of students' parents didn't ask their children to do exercise as can be seen from the column chart in Figure 9 below.

Figure 9: 303 parents' habits of asking their children to do exercise

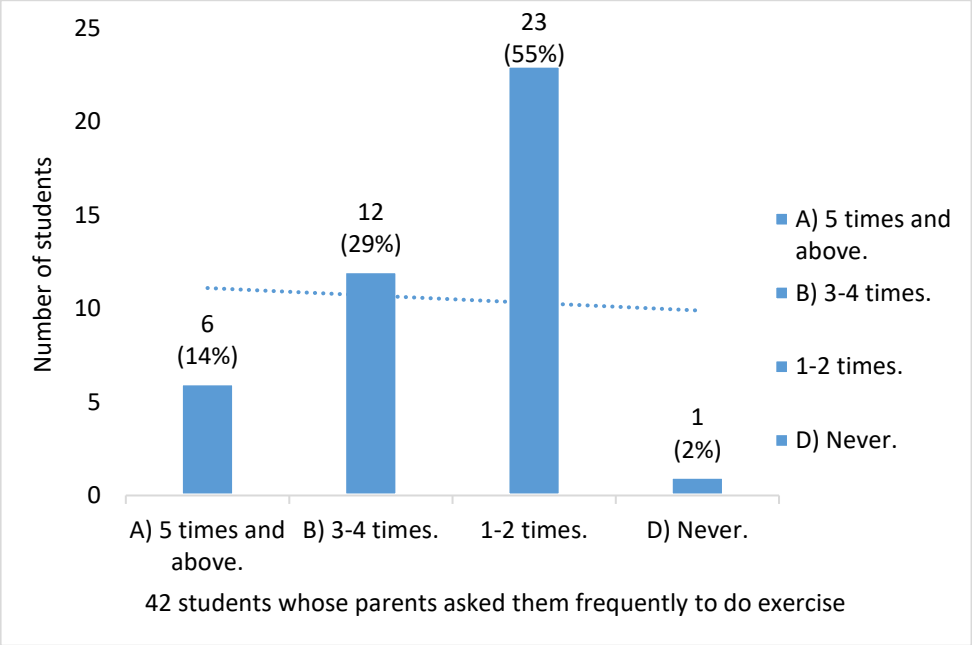


Out of 303 students surveyed, 59% (179 parents) of parents never asked their children to do exercise, while 27% of parents asked sometimes (1-2 times per week). The other remaining 14% of parents frequently asked their children to do exercise. The trend line forecasts the possible habits of 303 parents' asking their children to exercise in the future

Now, to see if there was any link between parents' habits of asking their children to do exercise and their children's exercise habits, the researcher compared the exercise habits of two groups of students – 42 students whose parents asked them to do exercise frequently with those 179 students whose parents never asked them to do any exercise. The following chart displays the results of the exercise habits of those 42 students whose parents frequently asked them to exercise.

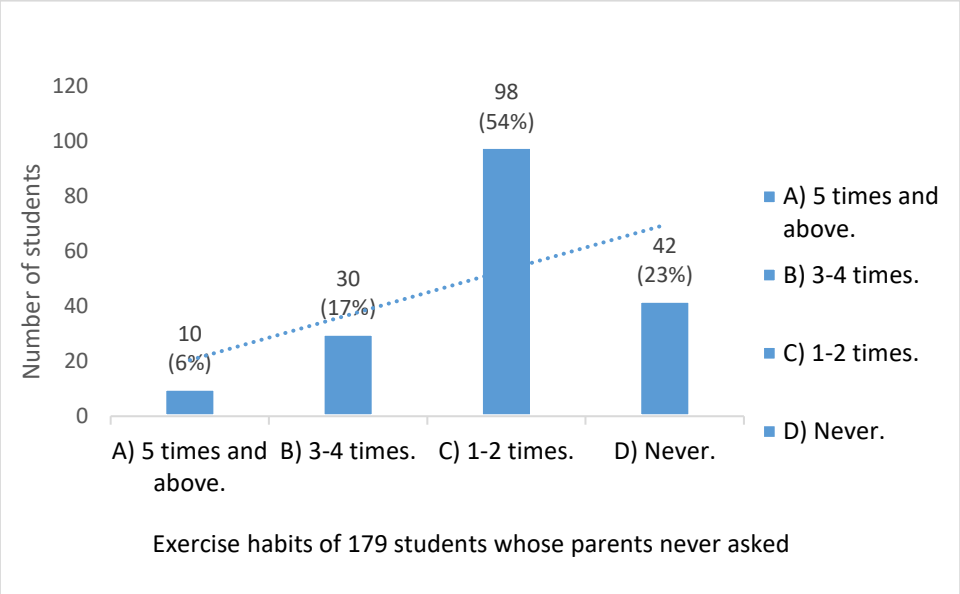
The following chart in Figure 10 displays the results of the exercise habits of those 42 students whose parents asked them to exercise frequently.

Figure 10: Exercise habits of 42 students whose parents asked them frequently to do exercise



Out of 42 students whose parents asked them to exercise frequently, 43% (14%+29%) of students did regular exercise (3 times and above per week), while the remaining 55% did 1-2 times per week and 2% never did any exercise. Now, let's see the exercise habits of those 179 students whose parents never asked them to do any exercise. In this chart, the trend line indicates a possible exercise habit of those 42 students whose parents frequently asked them to do exercise.

Figure 11: Exercise habits of 179 students whose parents never asked them to do exercise



Out of the total 303 students surveyed, 179 of them were never asked to do exercise by their parents. Out of these 179 students, 23% (6%+17%) of students did regular exercise, 54% of them did 1-2 times per week, while the remaining 23% (42 students) never did any exercise. In the chart above, the trend line forecasts the possible habits in the future of 179 students' exercise habits based on their parents' asking them to exercise.

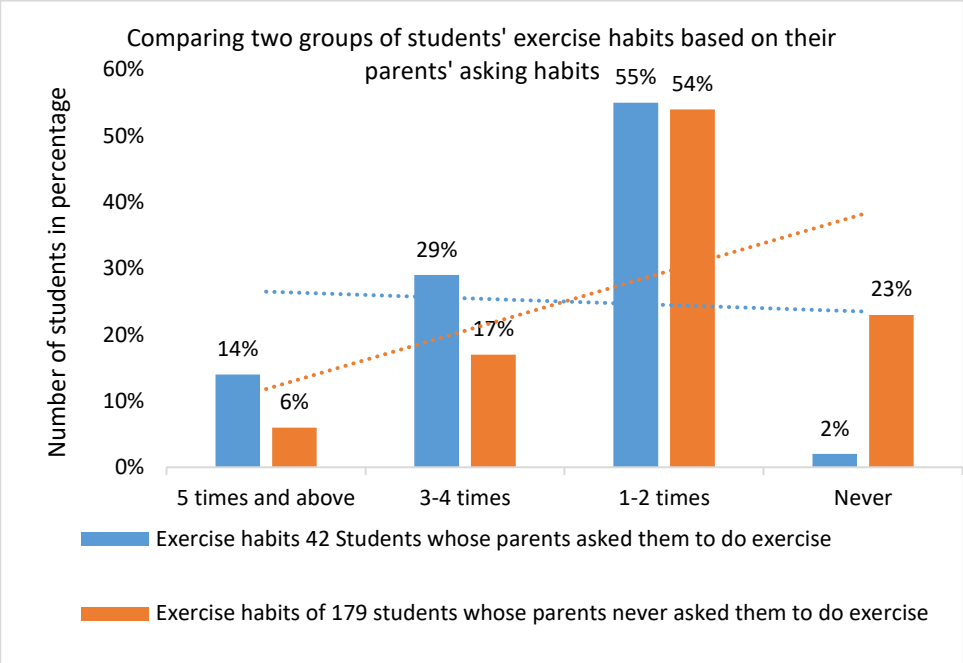
For a clear view of the differences in exercise habits of these two groups of students based on their parents' asking habits, the results are displayed below in Table 4 as well as in the column chart in Figure 12 below.

Table 4: Exercise habits of two groups of students based on their parents' asking habits in percentage

Exercise sessions per week	**5 times and above**	**3-4 times**	**1-2 times**	**Never**
Exercise habits 42 Students whose parents asked them to do exercise.	14%	29%	55%	2%
Exercise habits of 179 students whose parents never asked them to do exercise.	6%	17%	54%	23%

Now, let's see the differences in exercise habits of those two groups of students in the column chart below.

Figure 12: Exercise habits of two groups of students based on their parents' asking habits



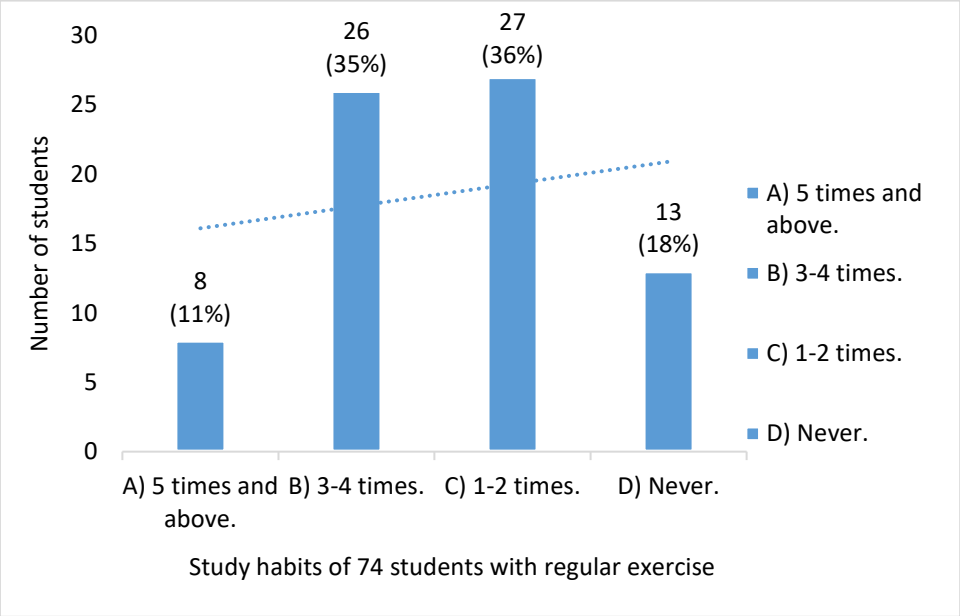
In the column chart above, 43% (14%+29%) of students whose parents frequently and consistently asked them to do exercise did regular exercise (3 times and above) compared to 23% (6%+17%) of students whose parents never asked them to do exercise. There was almost no difference in exercise habits between the two groups of students regarding doing exercise sometimes (1-2 times per week). Among the students whose parents asked frequently, 55% of them did 1-2 times per week, compared to 54% of students whose parents never asked. However, there was a sharp difference in the number of students who stayed away from exercise completely. Among the students whose parents asked them to do exercise frequently, 6% of them didn't do exercise at all compared to 23% among the students whose parents never asked them to do exercise.

The trend lines in the column chart above in Figure 12 also clearly indicate the future tendencies of exercise habits among the two groups of students if their parents show the same attitude in asking them to exercise or not.

Next, to check if there were any links between students' exercise habits and their study habits, the researcher extracted all those students who did regular exercise and those students who never did any exercise and compared their study habits. Though, doing exercise 1-2 times per week is much better than doing never, students who did 1-2 times per week were not included in this comparison as their exercise sessions were far below the recommended measures given by the World Health Organization.

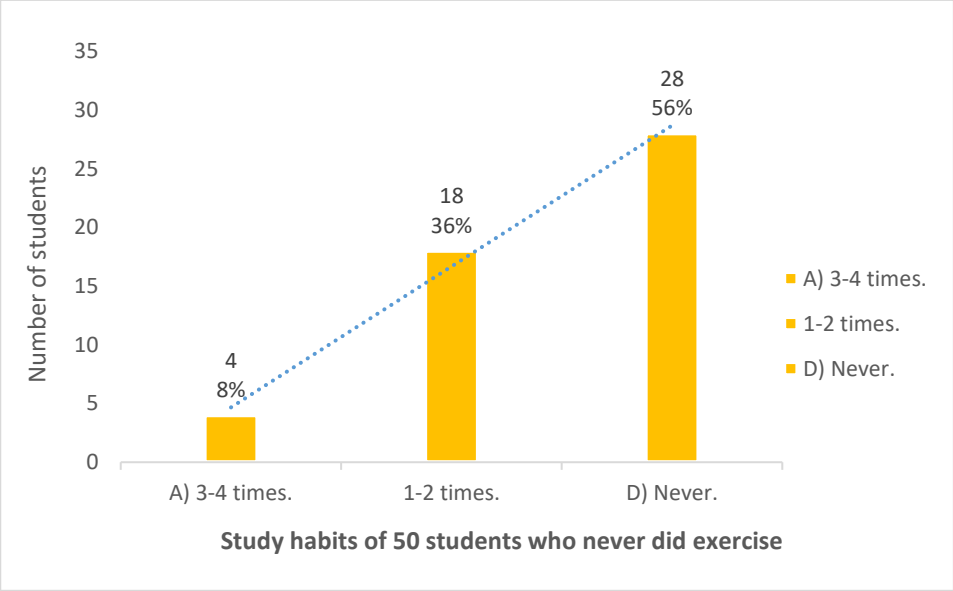
Out of 303 students, 74 students were found doing regular exercise (3 times and above), while another 50 students never did any exercise. Figure 13 below displays the results of the study habits of those 74 students who did regular exercise.

Figure 13: Study habits of 74 students who did regular exercise



Among the 74 students who did regular exercise (3 times and above per week), 11% (8 students) of students studied 5 times and above per week, 35% (26 students) students studied 3-4 times, 36% (27 students) students studied 1-2 times and 18% (13 students) of them never studied after school as can be seen from the above Figure 13. The trend line forecasts the possible study habits of 74 students in the future. Now, let's see below the study habits of those 50 students who never did any exercise.

Figure 14: Study habits of 50 students who never did exercise



Out of those 50 students who never did exercise, 8% (4 students) of them studied 3-4 times per week, 36% (18 students) of them studied 3-4 times per week, while 56% (28 students) of them never studied after school. Among those 50 students, there was no

single student who studied 5 times and above per week. The trend line forecasts the possible study habits of 50 students in the future.

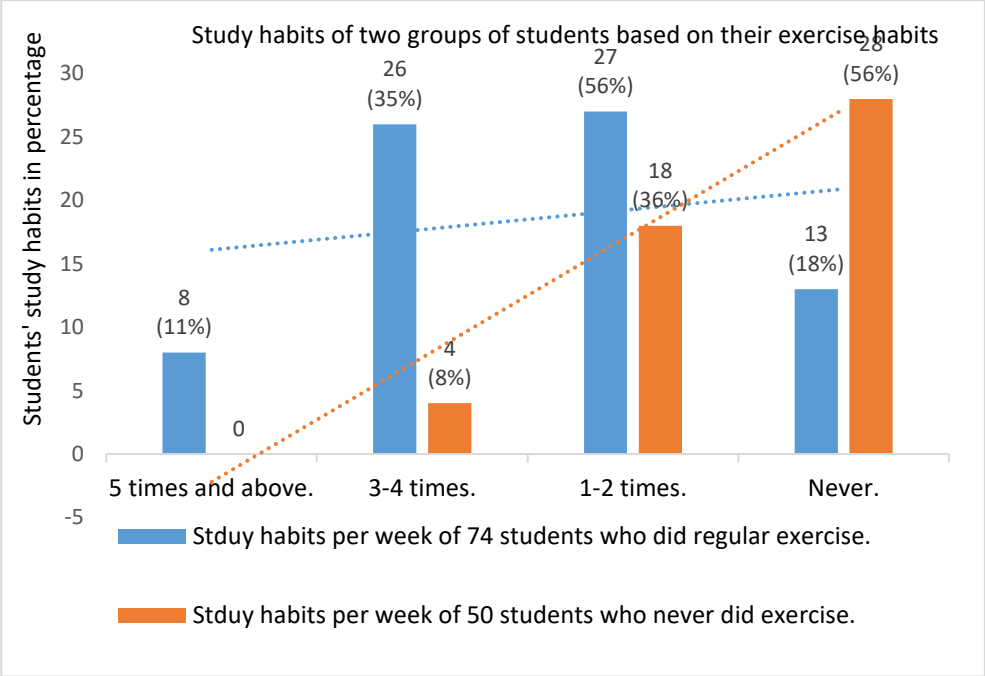
For a clear view and comparison, the results are displayed in the following Table 5 as well as in the column chart in Figure 15 below.

Table 5: Comparison of two groups of students' study habits per week

Exercise sessions per week	5 times and above	3-4 times	1-2 times	Never
Students who did regular exercise	11%	35%	36%	18%
Students who never did exercise	None	8%	36%	56%

The following bar chart in Figure 15 displays clearly the differences in study habits of those two groups of students based on their exercise habits.

Figure 15: Study habits of two groups of students based on their exercise habits



From the Table 5 and column chart in Figure 15 above, it can be seen that 11% of students who did regular exercise studied always after school compared to 0% among the students who didn't do any exercise. 35% of students who did regular exercise studied 3-4 times per week compared to 8% among those students who didn't do any exercise. While 56% of students who did regular exercise studied 1-2 times per week compared to 36% among the students who never did exercise, the remaining 18% of students who did regular exercise never studied after school compared to 56% among the students who never did any exercise.

The trend lines in the column chart above show the possible study habits of the two groups of students in the future based on their exercise habits.

4. Discussion

In general, most parents and students know doing regular exercise is good for both mental and physical health. According to Ngangbam's (2021) study, 82% of students knew that doing regular exercise and sports-related physical activities could keep them physically and mentally fit and healthy, however, sadly, only 28% of students did enough exercise which is very much in line with the findings by Chen et al. (2007). Based on the present study, out of 303 parents surveyed, only 21% of them did enough exercise (3 times and above per week). While 42% of parents just did 1-2 times per week, which is far from the general recommended sessions of 3 – 6 times per week, the remaining 37% of parents never did any exercise. From the present study's findings, in general, a small percentage (21%) of parents in Taiwan did regular exercise and thus, could be the role models for doing regular exercise and other related physical activities for their children. The remaining 79% of parents exercised either sometimes or never.

Regarding young adolescent and adult students' exercise and sports habits, out of 303 senior high school and college students (including night school college students), only 24% of them did 3 times and above per week which can be considered good enough to keep their body fit and healthy. The percentage of students involved in exercise and physical activities in the present study was found even lower (24%) than Ngangbam (2021) and Chen et al.'s (2007) findings where 28% of students were involved in regular exercise and sports-related activities. The main reason for this decreasing number of adolescents and young adults in doing physical activities could be due to the inclusion of night school college students in the present study sample who had little time to spend on exercise and physical activities due to their full-time jobs at day time and study at night. The declining tendency of doing exercise and physical activities is a natural phenomenon among adolescents and adults (Aerts et al., 1997; Kimm et al., 2002; Casey et al., 2009).

Among the 303 students who joined the survey, 59% of them just did 1 or 2 times per week which is far below the recommendation given by the World Health Organization. And another 17% of students didn't do any exercise or sports. It means, a huge 76% of adolescent and college students were not active enough to keep themselves fit and healthy physically. The other remaining 24% of them did regular exercise. Now, here comes the question of if parents play any important role in shaping and influencing children's exercise habits, study habits and academic performance.

Besides other factors which keeps students away from exercise and sports related physical activities (Ngangbam, 2021), parents play very important roles in influencing their children to do exercise or not (Godin and Shephard, 1986; Sallis et al., 1992; Colley et al., 1992; Hosseini et al, 2013; Crumbley et al., 2019).

To further check if there were any links between parents' exercise habits and their children's exercise habits, the researcher extracted two groups of students and compared. The following table (reproduced from Table 1) displays the differences in exercise habits in percentage among the two groups of students based on their parents' exercise habits.

Table 6: Exercise habits of two groups of students influenced by their parents' exercise habits

Exercise sessions per week	5 times and above	3-4 times	1-2 times	Never
65 Students whose parents did regular exercise	6%	34%	51%	9%
111 Students whose parents never did exercise	4%	9%	56%	31%

Based on the results displayed in the table, big differences in exercise habits were found among the two groups of students. Among the students whose parents did regular exercise, 40% of them did regular exercise (3 times and above per week) compared to only 13% among the students whose parents never did any exercise. On the contrary, regarding the percentage of students who stayed away from exercise completely, only 9% of students whose parents did regular exercise didn't do any exercise compared to a big 31% among the students whose parents never did any exercise. This clearly indicates that parents' exercise habits positively influenced children's (both adolescents and young adults) exercise habits.

The trend lines in the column chart in Figure 5 also forecast the possible future directions of exercise habits among the two groups of students based on the influences their parents contribute.

Another important finding was that whether parents ask their children to do exercise or not also depends a lot on their (parents') own exercise habits. The following table (reproduced from Table 3) clearly displays the differences in parents' asking habits of asking their children to do exercise.

Table 7: Parents' habits of asking their children to do exercise based on their own exercise habits

Exercise sessions per week	5 times and above	3-4 times	1-2 times	Never
Parents who did regular exercise	12%	23%	29%	36%
Parents who never did exercise	2%	4%	17%	77%

Among those parents who did regular exercise, almost six times more parents asked their children to exercise frequently (more than 3 times per week) than those parents who didn't do exercise. Among those parents who did regular exercise, 35% of them asked their children frequently to do exercise compared to only 6% among those parents who never did any exercise. Among the parents who did regular exercise, 29% of them sometimes asked their children to do exercise compared to 17% among the parents who never did exercise. The remaining 36% of parents who did regular exercise never asked their children to do exercise compared to a big 77% among the parents who never did exercise.

The trend lines in the comparison column chart in Figure 8 also clearly indicate the possible future tendencies of two groups of parents' habits of asking their children to exercise in the future.

The present study also found that parents' habits of asking their children to exercise also play a very important role in adolescent and young adult students' exercise habits. The following table (reproduced from Table 4) displays the findings.

Table 8: Exercise habits of two groups of students based on their parents' asking habits in percentage

Exercise sessions per week	**5 times and above**	**3-4 times**	**1-2 times**	**Never**
Exercise habits 42 students whose parents asked them to do exercise	14%	29%	55%	2%
Exercise habits of 179 students whose parents never asked them to do exercise	6%	17%	54%	23%

Based on the findings displayed in Table 8 above, out of the 303 students surveyed, among the students whose parents asked them to exercise frequently (3 times and above per week), 43% (14%+29%) of them did regular exercise (3 times and above per week) compared to 23% (6%+17%) among the students whose parents never asked them to do exercise). There was almost no difference in exercise habits regarding doing exercise sometimes (1-2 times of exercise sessions per week) among the two groups of students (55% and 54%). However, there was a big difference between the two groups of students regarding staying away completely from doing any exercise. Among the students whose parents asked them frequently to do exercise, only 2% of them stayed away from doing exercise compared to 23% among the students whose parents never asked them to do exercise.

The two trend lines in the column chart in Figure 12 also clearly show the possible future exercise habits among the two groups of students. For those students whose parents asked them frequently to do exercise, more and more of them will do regular exercise. On the contrary, those students whose parents never asked them to do exercise, more and more of them will stay away from exercise. So, these parents need to change their indifferent attitude towards the importance of exercise and their role in shaping their children's exercise habits, study habits, and academic performance.

These findings show that not only parents' exercise habits can influence their children's exercise habits, but also parents' habits of asking their children can influence their children's exercise habits. It means parents should ask and encourage their children to exercise frequently. Thinking children will do by themselves will not help much, especially among adolescents and adults as declining in physical activities is a natural phenomenon during adolescent and adult stages.

Thus, based on the present study, in general in Taiwan (based on the present study), only 21% of parents did regular exercise as presented in Figure 1. Whether parents themselves did exercise or not, only 14% (4%+10%) of parents frequently asked their children to do exercise, while 27% of parents asked sometimes (1-2 times per week). The remaining 59% of parents never, never asked their children to do exercise as could be seen from the column chart in Figure 9. From these, it is clear that as a general norm, a very small percentage of parents in Taiwan could be role models for their children in

influencing their children to do regular exercise, and very few of them cared if their children were doing exercise, or if their children are healthy and fit.

However, the truth is that those children (students) whose parents did regular exercise and asked their children frequently to do exercise had far better exercise habits than those students whose parents never did exercise nor asked their children to do exercise as discussed above. The following table (reproduced from Table 4) displays the differences in exercise habits among the two groups of students based on their parents' habits of asking them to exercise.

Table 9: Exercise habits among the two groups of students based on their parents' habits of asking them to do exercise

Exercise sessions per week	**5 times and above**	**3-4 times**	**1-2 times**	**Never**
Exercise habits students (42) whose parents asked them frequently to do exercise	14%	29%	55%	2%
Exercise habits of students (179) whose parents never asked them to do exercise	6%	17%	54%	23%

From table 9 above, it can be seen that parents' habits of asking their children to do exercise can influence children's (students') exercise habits. Among the students (42) whose parents asked them to exercise frequently, 43% (14%+29%) of them did exercise 3 times and above compared to 23% (6%+17%) of students whose parents never asked them to exercise. It means, in terms of percentage, the number of students who did regular exercise was almost double the number of students whose parents never asked them to do exercise. On the other hand, in a negative way, among students whose parents never asked them to do exercise, 23% of them never did any exercise compared to only 2% among the students whose parents frequently asked them to do exercise, meaning, among the students whose parents never asked them to do exercise, 11 times more of them never did exercise compared to those students whose parents asked them frequently to do exercise.

The trend lines also clearly show what direction the two groups of students will possibly go in the future regarding their exercise habits. For those students whose parents frequently or always ask them to exercise, their exercise habits will get better and better, and fewer and fewer of them will stay away from exercise in the future. However, on the contrary, for those students whose parents never cared about asking them to do exercise, their exercise habits will go down and down, thus, more and more of them will stay away from these good habits of exercise and physical activities as time goes on if their parents don't change their attitude.

From the results above, it can be seen that frequently asking and encouraging children to do exercise is much better than leaving them alone. It would be wrong to think that adolescents and young adults will exercise by themselves as they used to do when they were young children as there is a natural tendency to decline physical activities during adolescence and after (Aerts et al.,1997; Kimm et al., 2002; Casey et al., 2009).

Another very important finding is about students' study habits. From the study, it was found that students' exercise habits also influenced their study habits as could be seen in the comparison chart in Figure 15. The following Table 10 (reproduced from Table 5) shows the differences in study habits based on their (students') exercise habits.

Table 10: Study habits of two groups of students based on their exercise habits

Exercise sessions per week	**5 times and above**	**3-4 times**	**1-2 times**	**Never**
Students who did regular exercise	11%	35%	36%	18%
Students who never exercise	None	8%	36%	56%

As can be seen from the table above, it was found that 46% (11% +35%) of students who did regular exercise studied frequently (3 times and above per week) after school compared to only 8% among the students who didn't do any exercise. On the contrary, regarding staying away completely from study, a big 56% of students who never did exercise never studied after school compared to only 18% among the students who did regular exercise.

The trend lines in the comparison chart in Figure 15 also forecast the possible sharp differences in study habits among the two groups of students in the future. While the study habits get better for those students who did regular exercise, the study habits get worse and worse for those students who never exercised.

These findings of students' better study habits among the students who did regular exercise and sports-related physical activities are very much in line with the findings of other researchers and scholars like James Coleman (1961 as cited by Gorton), Sitkowski (2008), Donelly et al. (2016), Kyan et al. (2018), and Zhang et al. (2019), So, it can be assumed that in general, students who have better exercise habits will also have better study habits, and of course, better academic performance.

Even though there might be other factors that could influence students' exercise habits, study habits, academic performance, self-confidence, discipline, and behavior, from the present research findings, it can be assumed that parents play a very important role in shaping children's (students') exercise habits, study habits, academic performance, discipline, and overall personal development. From the present study, it was found that parents' exercise habits, and parents' asking habits their children/students to do exercise positively influenced their children's/students' exercise habits, study habits, and academic performance. It was also found that those students whose parents did regular exercise themselves also asked them (their children/students) frequently to do exercise, got better study habits than those students whose parents never did exercise nor asked their children to do exercise.

Thus, the present study results clearly show that parents play a very important role in influencing their children physically, mentally, and academically. From the findings, it can be assumed that parents who do regular exercise have a higher tendency to influence their children to do exercise than those parents who don't do any exercise. Parents who do regular exercise are also more likely to ask their children frequently to

do exercise. Because of these two factors (parents' exercise habits and their asking habits of children to do exercise), their children also have more chances to do exercise and sports-related physical activities than those students whose parents never exercise nor ask their children to do the same. And students who have better exercise habits will also have better study habits. Thus, when parents have good habits of doing regular exercise and become role models for their children, their children will also have good habits of doing exercise. These good habits of doing regular exercise will create good study habits among adolescent and young adult students (Ngangbam, 2023). Eventually, when students have good habits of study, of course, they will have better grades and better academic performance than those who don't have the good habits of doing regular exercise and don't have good study habits.

Not only have better exercise habits, better physique, better study habits, better grades, these students will also have better mood, better discipline and better behavior (Palkovitz and Copes, 1988; Fraleigh, 1990; Kasapi and Gjylymsere, 2013; Soyturk and Ozturk, 2020), better self-image, better self-esteem, better self-confidence and self-worth (Elavsky, 2010; Massoni, 2011; Ivaniushina and Zapletina, 2015; Muloiwa and Odimegwu, 2018), more successful and better life in the future (Colanoiq, Vera, 1972). Students who exercise regularly are also the ones loved more by their parents than those students who do not do regular exercise (Qurban et al., 2018). Thus, parents can influence their children's exercise habits, study habits and help their children to do better in academic performance. Besides these, parents also can play very important roles in their children's overall personal development.

4.1. Limitations

The present research has its own limitations. The samples were focused on students studying in New Taipei City areas. The result may be more authentic and reliable if the study samples covered the student population from the entire island of Taiwan. Another limitation is the small number of samples. A bigger sample size might give better and more reliable results.

5. Conclusion

The present study is a quantitative, synchronic, and descriptive study that investigated the impacts and influences parents give to their children's exercise habits, study habits, and overall academic performance based on their (parents') exercise habits, and parents' asking habits their children to do exercise. In general, out of 303 students surveyed, only 21% of their parents did regular exercise (3 times and above per week), and among students, only 23% of them did regular exercise. Regarding differences in students' exercise habits based on their (students') parents' exercise habits, sharp differences were found between the students whose parents did regular exercise and those students whose parents never did any exercise. Among students whose parents did regular exercise, 40% of them did regular exercise compared to only 13% among students whose parents never did any exercise. Among parents who did regular exercise, they also asked their children

to exercise far more (35% of parents asked) than those parents who never did exercise (only 6%).

Another interesting finding was that those students whose parents did regular exercise and asked their children frequently to do exercise also had better exercise habits, and better study habits than those students whose parents never did exercise nor asked their children to do exercise.

Thus, the findings from the present quantitative study clearly indicate that parents can play a very important role in instilling, shaping, encouraging, and supporting their children to have a good habit of doing exercise and sports-related physical activities, and study, thus, helping them physically, mentally, academically, and in overall personal development.

In general, every parent likes their children to be healthy, disciplined, obedient, and successful, but sadly, more than 70% of parents do not spend enough time to encourage, guide, encourage, and support their children. Parents need to change their indifferent attitude towards exercise and sports-related physical activities and their role in shaping their children's exercise habits, study habits, discipline, and behavior.

The researcher hopes that through this research findings, parents can change their indifferent attitudes on the benefits and positive impacts of doing regular exercise, and sports, and their roles in shaping their children's exercise and sports habits which can lead their children to better academic performance as well as positive overall personal development. The researcher also wishes that parents can spend more time with their children whether at home or the playground with their children.

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