

Relationship between Physical Exercise and Job Performance among Office Workers

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Abstract - The objective is to study an individual's job performance and determine its relationship with physical exercise; among office workers in the region of Lahore, Punjab. This is a cross-sectional study. The setting selected to carry out this research were educational institutes i.e. University of Lahore and Imperial University as well as pharmaceutical industries i.e. HiMedic Pharmaceuticals. This research was carried out during a time period of 6 months. A cross-sectional study was conducted on a population of 130 office workers of the region of Lahore, Punjab in Pakistan. A sample population was selected by the means of convenient sampling. Global Physical Activity Questionnaire (GPAQ) was used to assess workers' physical exercise and a self-evaluation of work performance was measured by the Health Performance Questionnaire (HPQ). The setting-p-p selected to carry out this research were educational institutes i.e. University of Lahore and Imperial University as well as pharmaceutical industries i.e. HiMedic Pharmaceuticals. Using the Pearson's Correlation test on SPSS a relationship between employee's physical exercise and job performance were statistically measured. A mean age of the population was 31.82 ± 11.08 . As a result of the data collected and statistical analysis it was revealed that there was no correlation between an office worker's physical exercise on their job performance as the value of p is .299 and the correlation value was near zero $r=.092$. There were some percent of respondents (36.2%) who had a fairly low job performance but it wasn't due to the lack of an exercise regime. In conclusion of this report, it is observed and proved through data collection and statistical analysis that there was no relationship, whatsoever, between physical exercise and job performance; as measured through valid and reliable tools.

Keywords: Physical exercise, Job performance, Performance, Office Workers

INTRODUCTION

An employee's productive job performance is critical for the overall success of an organization. A workplace setting is an environment of prolonged sedentary time, mainly for long hour workers and the health risks attached to such longer period of idle sitting requires investigation of potential risk factors. (Alicia A Thorp, 2012) A neglected physical health negatively effects an employee's workplace performance and hence a strategic clog of the streamline. Insufficient physical exertion in daily life is believed to be linked with several chronic health issues among which the most common are diabetes, cardiovascular diseases such as atherosclerosis which can lead to stroke. Among the employee population the musculoskeletal disorders are fairly mainstream. As a result of which, along with experiencing an altered quality of life, the employees' work performance is greatly influenced resulting in multiple health leaves, reduced working hours and lower productivity rates during those working hours (Sitthipornvorakul, 2014). One cannot deny the fact that a workout session is not only great for the longevity of our muscle and bone health, it plays a major role in refreshing the brain making it more able for effective decision making and problem solving. Keeping the inactivity hazards in

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iKSP Journal of Business and Economics (2021) 2(1): 1-8



consideration, workplace fitness programs have gained a hype in the recent times because of a boost in job productivity, morale and comparatively lower health leaves (Matthew Wattles, 2003).

However, an assumed connection of exercise with increased worker productivity has encouraged and basically forced multinational companies to spend millions on health promotion programs in hope of observing a rise in productivity levels of their staff. But the question arises of whether such fitness programs really necessary and do they have a major impact on individual performance?

A survey report of the World Health Organization reveals alarming facts about the risk factors of physical inactivity. It is of the notion that prolonged or behavioral inactivity is marked as the fourth leading cause of majority deaths around the globe (WHO, 2011). And another study conducted at Metropolitan University revealed that employees which regularly went to the gym managed to be more efficient and comparatively more productive, as well as they had better interactions with colleagues and felt much more satisfied with their work ethic (Friedman, 2014). Without much thought about the statement an association of increased physical exercise is determined with increase worker productivity or performance especially in a work setting that is physically demanding and requires immense motor execution abilities for e.g., professions such as a fire-fighter, football coach or a dance teacher are required to maintain enough physical fitness to be the best at their profession. Nonetheless, a typical day at office for a non-executive employee does not necessarily demands a lot of moving around and rather requires sitting behind a desk. Hence, the question arises that in such a given scenario of the present-day job market, is there really a relationship between physical fitness or the level of exercise of an employee with their job performance?

There is a vast range of scholarly articles that support the relationship between the two variables and there are many studies that have proved the contrary and concluded a relationship between job performance and fitness levels only in extreme case scenarios. And some studies may notice a relationship but the strength of the relationship requires further research on the topic.

During this era of conducting meaningful research studies, it is crucial to understand the importance of separating the term 'Physical Exercise' from the term 'Physical Activity'. "Physical activity, exercise and fitness" are the terms which are mostly confused to have the same meaning although they are entirely distinct in meaning and concept. However, they are mostly mistaken with one another, and the terms are sometimes used interchangeably (Taylor, 1985).

The term physical activity may be assigned to the ordinary daily life movements that can be day-to-day tasks involving vocational activities such as, sports, swimming or even standard body movements throughout the day as such walking, climbing stairs etc. These are usual movements performed by our body to execute normal functions of daily living.

Exercise on the other hand is a "subgroup of physical activity which an individual plan to execute, the body movements are structured and repetitive; and are performed with a set of goals (such as physical fitness or muscle gain) in mind as a final objective."

Physical fitness is "a mental and physical state of health and wellness; well particularly, it is the ability to carry out sport, work and daily tasks with ease" (Alicia A Thorp, 2012; Gummelt, 2015). Having said that, and keeping in check the distinct difference in Physical Activity and Physical Exercise, both have mediating psychosocial and physiological effects, however, Physical exercise is co-related with physical fitness (Gummelt, 2015).

Another concept that needs clarity is the thin line of a difference between Job Productivity and Job Performance. Performance is the process of carrying out or accomplishing an action, task, or function. It's your ability to accomplish the expectations of your company. Usually performance is measured at the rate of how successfully you perform against a pre-set criterion such as: KPI, goals, objectives, etc. Productivity on the other hand concentrates on the output, i.e., what is produced as a result of what is input. As compared to which 'performance' is an observational phenomenon based on the set of activities (quantitative or qualitative) that a worker efficiently carries out in their set hours of work. Hence, this study measures the behavioral episodes that an individual carries out over a course of time, i.e., Job Performance, and its correlation with physical exercise. (Motowidlo, 2012) In relation to the above-mentioned measurement of Job Performance it has been found through researches that the self-reported job performance is more than adequate, but also that it is probably a better way to measure an employee's job performance as compare to an official annual performance evaluation that is received from immediate supervisors. In simpler words and clear concepts, self-evaluation of job performance may be better if it is anonymous. A supervisor's personal grudges and interest may hinder in providing accurate worker performance report. If an employee is keen on having an honest critic and is interested in self-improvement as well as health benefits through a conductive research; they may be unbiased in their survey report whereas, a supervisor's opinion about their employees may very much be inclined (Kock, 2017).

Increasing job satisfaction is another element linked to worker productivity. If workers are content with their work, it can be presumed that in their position they would want to be more determined to achieve greater quality of performance (Rudman, 1988).

Keeping the above-mentioned facts and figures in check, this study will reveal, through subjective measures, if there is in fact a relationship between how many times an employee exercises with his self-evaluated job performance; when in today's day and age, a typical office doesn't require large amount of physical exertion to complete an ordinary work day.

There are many article reviews and studies conducted to prove that physical exercise, along with other health benefits has significant increase in productivity, creativity and cognitive skills but the question of whether a lack of daily physical exercise has a large impact on individual worker performance, that isn't a physically demanding one, still requires a study of its own.

LITERATURE REVIEW

This section consists of a concise review of work done by researchers and published on online databases. The search for literature was done from March 2019 to June 2019.

Jim McKenna concluded a study that surrounded around his hypothesis of whether physical exercise has a beaming effect on worker performance. The results displayed an overall boost of 15% in individual employee job performance after the workers attended any kind of exercise regime (Coulson, McKenna, & Field, 2008).

Jacob Drannan conducted a research in Bangkok Thailand to deeper study and understand the much talked about performance and exercise relationship. In addition to these two relating factors his study consisted of another hypothesis of whether exercise had any mediating effects on pleasant mood and overall subjective health. Currently, the amount of cash spent by the companies on health insurances and billings for businesses is rising dramatically. That leads us to believe that the reason behind it is the adaptive sedentary lifestyle that the usual office workers fall in trap of. An end result of such a lifestyle is obesity, which has now regarded as fourth largest cause of demise. The study Jacob carried out to prove that an employee which is physically more active and exercised more as compared to their colleagues performed better at their jobs, had comparatively good general health and were mostly in good mood. The researcher, through statistical analysis found his variables (physical exercise and job performance) to have a significant correlation. The questionnaire used by the researcher in this study was perceived productivity scale to measure whether exercise had any out-turn on job performance. This is one of the limitations that could be pointed out in his study because it isn't an actual measure of job performance and hence in truth just the employee's perception of productivity and their thoughts on whether exercise has any effect on their work performances (Drannan, 2016).

Mills and his colleagues carried out a study in 2007 that evaluated the changes that were brought about in worker's subjective health after the introduction of a fitness program in the office. The study was carried on for a year and the study type was a quasi-experimental due to the data recorded two times from a participant; one time before and the second time after the introduction of the health fitness promotion program. The population was of 618 office employees among which 266 finished the questionnaire survey before and after the fitness program. Out of 2500 employees in the control population only about 1242 participants completed their survey questionnaire in the time period of 12 months. Analysis of the data concluded a cumulative count of the variables, i.e., risk factors for health and the work performance measure using the WHO health performance questionnaire (HPQ). Mill concluded the results while discussing that the intervention group had greater improvements in terms of work productivity as compared to the control group. His results put forwards the idea that a well-constructed health and fitness promotion programs can result in a significant increase in better employee performance (Mills, 2007; Radhi & Doblas 2020).

Another study was held to determine what kind of relationship is present between multiple elements of an employee's fitness level and their perceived productivity along with their evaluated job satisfaction and absenteeism. In this study a population of 143 employees were asked to fill up a questionnaire which assessed their body fat percentages, BMIs, muscle strength and flexibility as well as endurance. The questionnaires were sent to the participants to study individually the multiple domains of cardiorespiratory fitness and relate it to job performance. A measure of productivity was absenteeism rate which was measured over a period of a year and compared to every participant's fitness level. Statistical tests of stepwise regression correlation were applied to determine the strength of the relationship and it turned out to be positive. A mandatory p-value was calculated and the study was concluded that worker performance as well as productivity were markedly increased in employees with higher fitness levels. Hence the findings were marked as statistically significant with a p-value of <0.01 (Harris, 2003).

In another study which had 53 certified anesthetists and anesthesiologists as its participants, it was measured if exercise had an impact of productivity of the anesthesia providers. A descriptive analysis involved applying the chi-square test of independence for association between variables. An association was typically present while comparing two questions of exercise and performance, the magnitude of correlation was minor ($r=.359$, $p=.049$) yet statistically significant. Hence, the number of people in the exercise group, had fewer sick leave days as compared to those who did not exercise. Although the strength of association is weak yet significant there is a wide opportunity for future researches. (Self, 2015)

Wayne N. Burton MD carried out a study with his colleagues Katherine T. McCalister EdD, Chin-Yu Chen PhD, and Dee W. Edington PhD and they studied 854 office workers that were enrolled in fitness center like gym, aerobic classes etc. and compared the data obtained by them with another 4543 employees that were not a member of any such fitness center. They observed marked differences in workplace productivity and performance between the two groups. A notice in overall loss of efficient working hours (presenteeism) in employees that did not had an exercise regime incorporated in their lifestyle. They had mental and physical limitations in producing efficient work output and a drastic decrease in productivity as compared to the employees in the second group which had the same gender, as well as age, race and work location (and were enrolled in a fitness center) (Burton WN1, 2005).

Review of another research carried out by Dané Marie Standish reveals that it had a population of 5114 office workers, and a relationship between lost productive time, that included both presenteeism and absenteeism of individual employees, to the amount of daily physical activity was performed. The criteria of a week's physical activity were evaluated according to the recommendation of the Center for Disease Control and Prevention. The results obtained from this survey revealed facts such as 32% of the employees were not physical active according to the CDC recommendations and those employees suffered one half-hour/week of lost productive time as compared to the office workers who were physically active according to the CDC recommendation Malik(2021), (Standish, 2016).

Lastly, a research paper conducted at the California State Polytechnic University Pomona by a renowned researcher named Mansour Sharifzadeh had results and conclusion that were completely contradicting to the other studies which looked into such a relationship of exercise and performance. He recorded the data from 355 office workers by a questionnaire designed to assess the amount of physical exercise they performed and a self-evaluation of their job performance. This research concluded that there was no correlation between the two. His observations of the research led to the idea that nowadays office workers do not have physically demanding jobs and hence can still be productive if they do not exercise regularly (Sharifzadeh, 2013).

METHODOLOGY

This research paper is a cross-sectional type of study that was carried out in order to understand the complex relationship that physical exercise has on job performance in the population of office workers. The sampling method used for this study is convenient sampling. A questionnaire was designed and distributed among 130 office workers of educational institutes and industries such as, University of Lahore, Imperial University and Himedic Pharmaceutical Industry. The questionnaire comprised of two separate portions, one section was to evaluate physical exercise of office workers; it had questions which were extracted from the GPAQ (Global Physical Activity Questionnaire) and it aimed at gaining data about the employees' fitness through means of Rate of Perceived Exertion scale as one of the elements. While the other section of the questionnaire was adapted from the HPQ (Health Performance Questionnaire) as a subjective measure for self-evaluation of individual job performance. The respondents were informed about the type and impact of this research to which they agreed before participating. The language of the questionnaire is English as it is a language known to the majority. The questions were keenly selected and it was made sure that they were accurate enough to convey about the type of information which was required. The population for this study comprised of full-time working population of Lahore, Pakistan. A total of 130 respondents participated in this study. The data which was obtained from the target population was then entered and later analyzed by the Statistical Package for the Social Sciences (SPSS). Final Statistical analysis was done by applying the Pearsons Correlation Regression test to check the strength and presence of a correlation between a respondents' physical exercise and job performance. For the display of results, graphs were used such as pie chart, histogram and bar chart. A scatterplot graph was used to display the correlation between the variables.

RESULTS

The results obtained from this particular study reveals a near zero correlation ($r=.092$, $p=.299$) of exercise with an employee's job performance. The scatterplot graph shows that points fall randomly on the plot, which indicates that there is no linear relationship between physical exercise and job performance (Figure 1) .

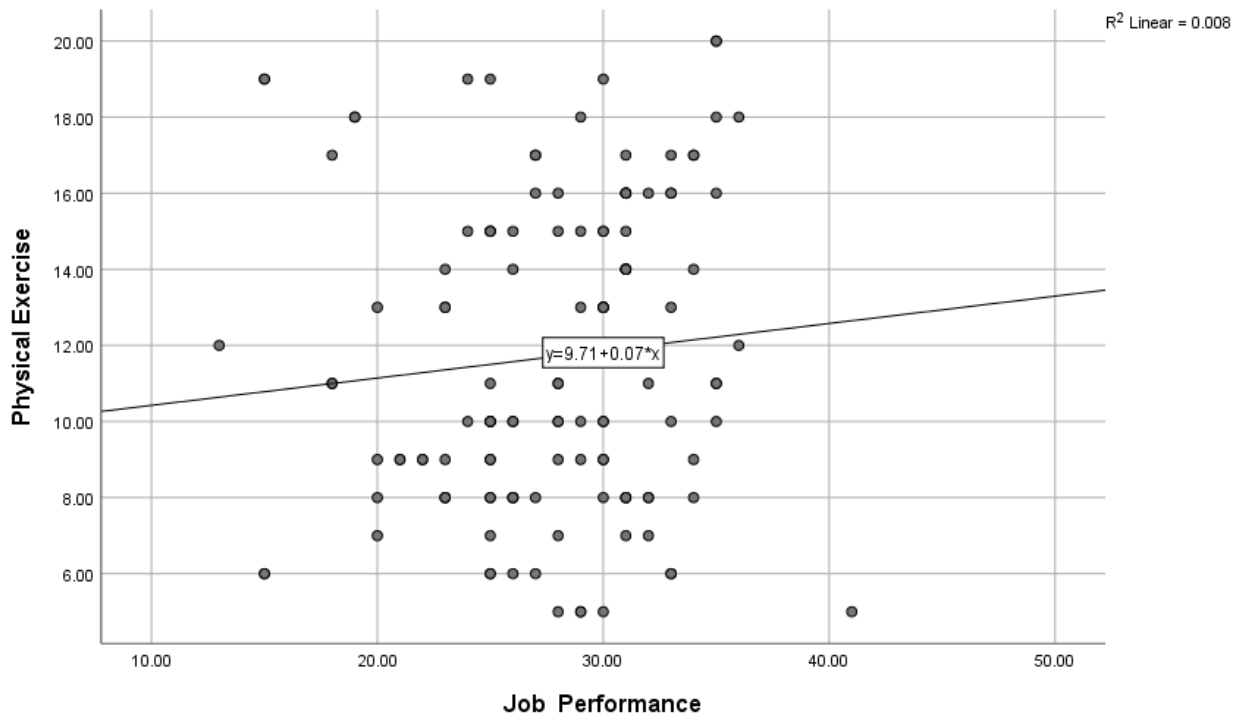


Figure 1: Relationship between physical exercise and job performance

The total number of respondents of this study were 130 among which 63.1% were males and 36.9% were female. The age range of the respondents varied from 20 years to 58 years with a mean value of 31.82 and standard deviation of 11.089. It was alarming to go through the result as the majority of the respondents of about 34.62% exercised only 0-1 times a week (Figure 2) which reveals an alarming reality of immobility among today's working population.

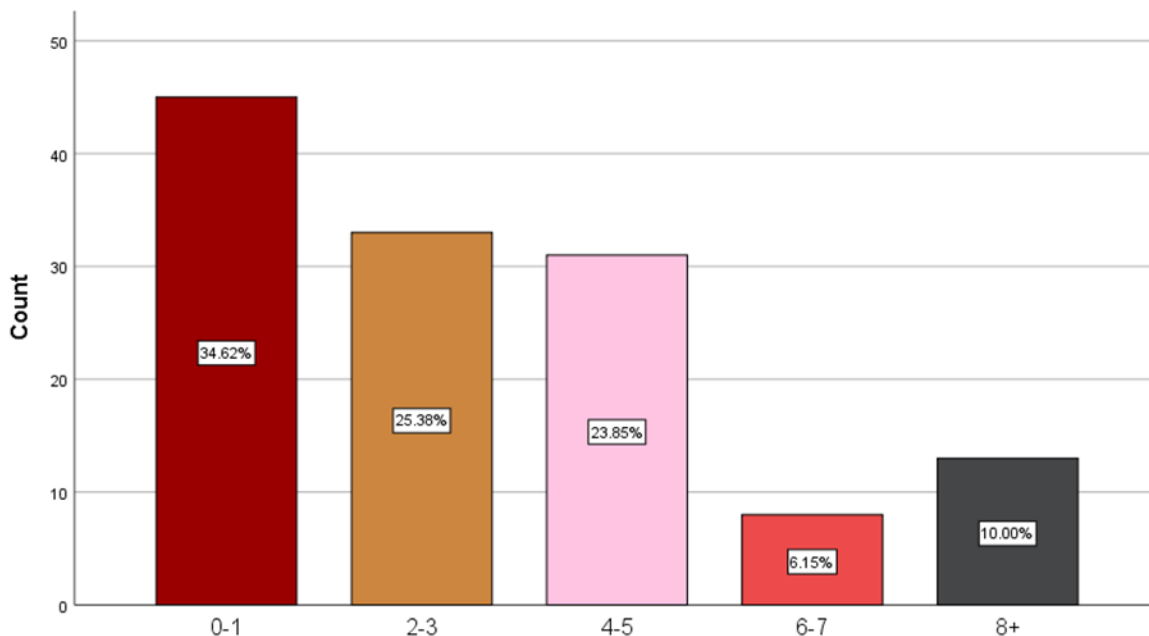


Figure 2: Demographics

When these office workers were asked to rate their perceived exertion, majority of the population i.e., 24.6% (Figure 3) marked the lowest score of 1 (Very weak- minimal, no perceptible sign) Although, these results represent a very low exercise levels of majority of the office workers but looking at the evaluation report of their job performance, it represented a higher quality of work performance of majority of employees. Although, these results represent a very low

exercise levels of majority of the office workers but looking at the evaluation report of their job performance, it represented a higher quality of work performance of majority of employees.

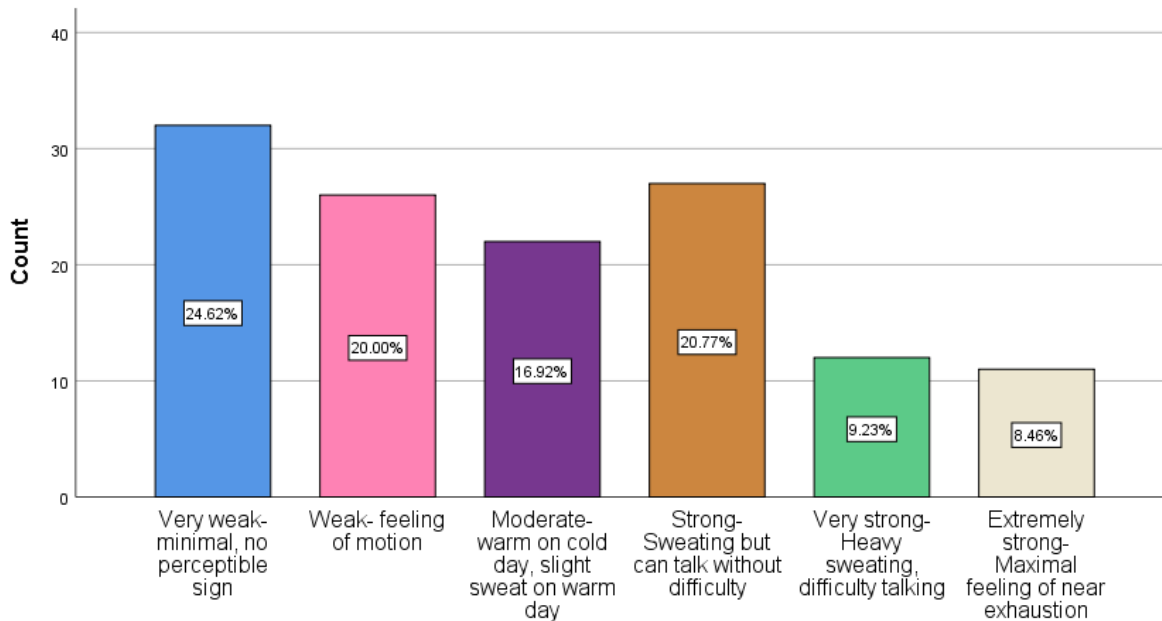


Figure 3: Perceived Exertion

Most of the population of about 50.8% had higher job performance as compared to their employees (Figure 4). Evaluation of the times the employees had lower job performance revealed 50.8% of the respondent's experienced the stoop in job performance a 'very little of times. At the end of the job performance evaluation each respondent were asked to rate their job performance in the last three years and a majority of population (46.2%) marked the rating of 8-9 out of 10 as their performance. This uneven distribution of responses regarding both the variable makes the relationship between them seem impossible. Most of the participants did not exercise enough to be categorized as physically fit and neither were their Rate of Perceived Exertion exceeded more than score 2.

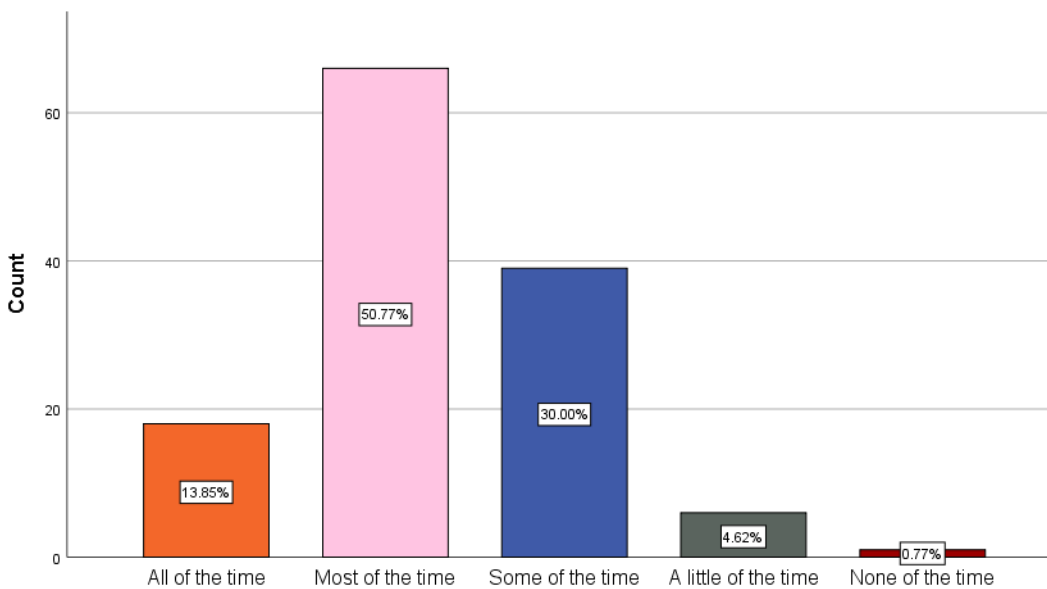


Figure 4: Job Performance

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between them seem impossible. Most of the participants did not exercise enough to be categorized as physically fit and neither were their Rate of Perceived Exertion exceeded more than score 2. Despite not being involved in vigorous exercise and regular fitness regime a large chunk of population i.e. 50.8% had higher job performance and about 46.2% (Figure 5) of respondents rated their job performance 8-9/10 in the past three years.

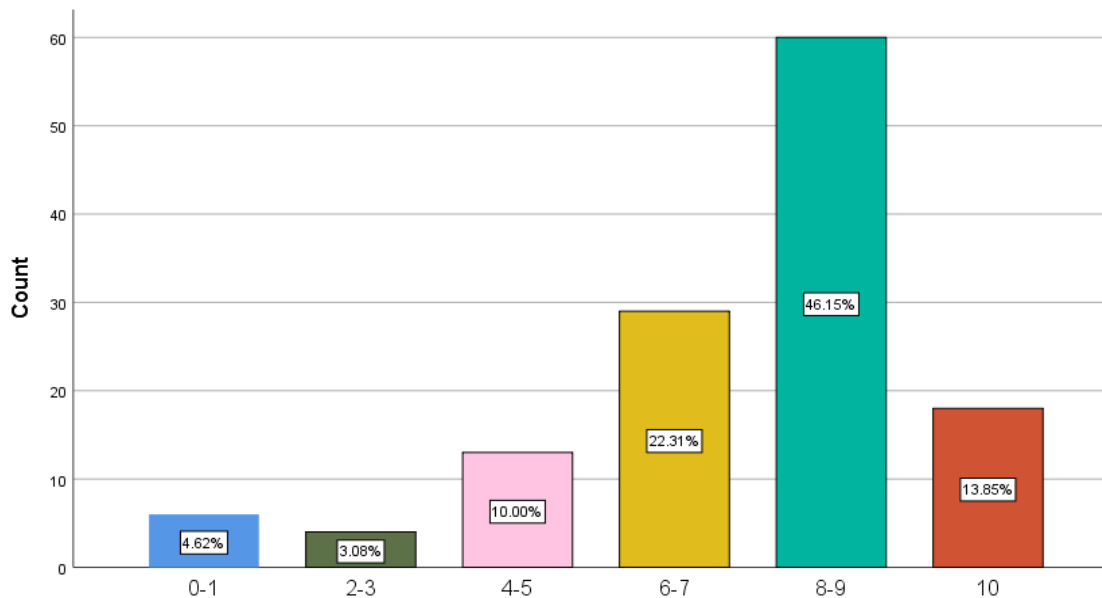


Figure 5: Job Performance

DISCUSSION AND CONCLUSION

The longstanding debate of whether a relationship exists between fitness levels with a person's job performance is never ending. Although, it is an undeniable fact that improved health of an employee results in positive increase of GDP (Fatime Khaliq, 2018) but does improvement in health can only be done by means of regular exercise? Through the review of many literatures it was noticed that work done on this topic was mostly experimental and the authors measured productivity levels at two separate times i.e. before an employee lived a sedentary lifestyle and after they adapted to a significant lifestyle change which involved higher levels of mobility. Other than this, the researchers measured employee performance through a perceived productivity scale. Such a scale does not exactly measure an employee's quality of work rather it provides evidence of an employee's perception of the relationship. Both these ways of evaluating results might be the right way but there were significant limitations in every study. There is no doubt that there are several positive effects of performing regular exercise on an individual's performance (Ketchum) but compared to those who do not exercise; they still aren't significant enough and especially in the present day and age of work ethic where a job is not physically demanding and to be physically active and fit is not an essential or a job requirement for most office workers.

A major limitation of this research is that the job performance measure is a subjective one and the office workers are asked to self-evaluate their performance. To put it in a summary, an objective measure of job performance is not readily available among every organization who hires employees. Although, they do have a set of objective assessment tools for worker performance but they are not very reliable enough to be used on a broader spectrum of study. Another instrument which can be used to assess job performance was the Individual Work Performance Questionnaire (IW PQ) but the issue with that is it has a lesser reliability and validity than the standard Health Performance Questionnaire (HPQ), (Koopmans et al., 2013) One more way an individual performance could be assessed was by the use of special performance-based test, but again they're more centered on observing how able an individual is to perform a certain task rather than how they performed. (Kessler et al., 2003) Keeping all of these assessment tools in consideration, a self-assessment of job performance was, in fact, the most convenient and had the most feasibility in providing accurate and required results. The results in this study are subjected to future research by using various assessment tools for performance. It was observed by the researcher that an accurate tool for the measurement of job performance requires more study than its relationship with physical exercise. Despite the use of most reliable tools of measure, there still wasn't any relationship found between physical exercise and job performance in office workers.

In conclusion of this report, it is observed and proved through data collection and statistical analysis that there was no relationship, whatsoever, between physical exercise and job performance; as measured through valid and reliable tools.

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