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HEALTH-RELATED PREDICTORS OF SCHOOL EMPLOYEES' PERCEIVED PRODUCTIVITY

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ABSTRACT – This correlational study determined whether school employees' annual physical exam (APE) results, physical fitness, and stress level predicted their self-perceived work productivity level. Ninety (90) randomly selected teaching and non-teaching employees of a Philippine state university provided for use in the study the results of their APE, the standard fitness test, and self-administered questionnaires on work-related stress and work productivity. Majority of the participants failed the APE, were physically unfit, and reported low work stress. Parameter estimates of the analysis of cumulative odds ordinal regression with proportional odds indicated that employees with normal APE results had greater odds of being more productive. The analysis suggested that the APE offered some predictive value to employees' work productivity level. Physically unfit employees were likely to report negative decline of their work productivity. Lastly, low stress levels had a positive bearing on the employees' self-perceived work productivity.

Keywords: physical fitness, productivity, health, work stress, school employees

Introduction

The clear-cut relationship between health and work is a well-established fact. No one ever challenges the age-old proverb "Health is wealth" because it has been axiomatic since time immemorial. Nor is there further need to question the strong link between sufficient physical activity and health (Proper, et al., 2003), for such a relationship has already been established well by numerous studies.

The importance and significance of health and fitness grow in dimension when one thinks of teaching-learning institutions. Schools, colleges, and universities play an important role in nation building. Such role is specifically performed by a workforce that contributes to the continuous nurturing and molding of the minds of the present generation and the ones to come. These individuals are essential to the safeguarding of the learning conditions of young people.

As Kolbe, et al. (2005) illustrate, school teachers and administrators, clerical and support staff, school nurses and bus drivers, food service workers and those who maintain the buildings, and ground-workers figuratively and literally care for young people every school day, as well as before and after the school day.

Like any other worker, such employees are predisposed to varying degrees of work-related stress and are exposed to conditions that can potentially diminish their performance and productivity, the latter of which

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are crucial to their delivery of services. The school employees are the frontline figures of the school who need to be on top of their game, health-wise.

Moreover, learning institutions, regardless of funding source, are run just like any other business organization — and their coffers are never limitless. So, administrators of such institutions need to find solutions to ensure optimal use of such limited resources while maximizing gains. In the context of the education sector, maximum gains translate to quality instruction and education. One critical component of maximal gain — a task that never ought to deserve neglect — is that of ensuring a healthy, and therefore productive, workforce.

Health promotion is not the responsibility of just the individual, or of governments, or of the health sector, but also of employers (Journal of Occupational and Environmental Med, 2003) because the adverse effects of ill health, or sub-optimal health, can bring financial losses to organizations. In 1975, for instance, Canada lost about $3.8 billion worth of production hours because of lifestyle-related illnesses (Cox, Shephard, & Corey, 1981, as cited in Wattles & Harris, 2003).

A study by the California Center for Public Health Advocacy (2009) found that sedentariness led to $12.3 billion in losses in businesses. The results of the study prompted companies to integrate wellness programs in their business practices. Traditional programs were implemented for such needs as tobacco cessation, exercise and fitness, stress management, and weight loss. New programs were used, as well, including personal health records, online and mobile health information, and personal wellness coaching.

Just like any other business organization, academic institutions need to ensure that their teaching and non-teaching employees are at the peak of productivity and are working in conditions that do not place their lives at risk, whether because of immediate or long-term exposure to health hazards. Physical fitness caused by physical activity can improve and maintain employees' productivity by increasing their physical work capacity and lessening their fatigue, reducing minor illnesses, and relieving their boredom, anxiety, or pent-up aggression (Cox, Shephard, & Corey, 1981, as cited in Wattles & Harris, 2003).

In the context of the academe, Alker, et al. (2015) holds the view that health promotion programs targeting both teaching and non-teaching staff may indirectly influence the health of students who go under the care of such staff. For one, such staff can provide provide good examples of good health that students can imitate. Staff productivity also impacts job satisfaction and morale (Judge, et al., 2001, as cited in Alker, et al., 2015); yet, strong staff morale fosters student growth and learning (Miller, 1981; Virtanen, et al., 2009; as cited in Alker, et al., 2015). Ensuring a physically fit workforce in the academe can be achieved not just by incorporating physical education and physical activity into the school's health program but also paying attention to other essential components as enumerated by Kolbe, et al. (2005) in their framework for a 21st-century school health program.

Further, having health-promoting programs at worksites can reduce by as much as 25 percent the costs associated with absenteeism, health care, and worker disability compensation (Carnethon, et al., 2009; Chapman, 2005). Furthermore, programs as means of help and as ways to manage stress can reduce employees' anxiety, fatigue, depression, and burnout (Anderson, Levinson, Barker, & Kiewra, 1999). Such programs are useful, non-medical ways for them to relieve stress while having opportunities to become physically fit and to maintain a low-level stress environment in the workplace.

A report made in Healthy People 2020 indicated that among the leading factors for sound health is physical activity (USDHHS, 2010). Physical fitness programs in the workplace improves employees' physical activity, which improves their overall health and well-being, as well as their mental health. Physical activity can influence how they deal with stress, help them build resilience to it, and creates long-term effects that can prevent future stress episodes (Nagel & Brown, 2003). Engaging in physical activity, whether competitive or noncompetitive in form, lowers the stress level of teachers more than of those who do not (Austin, et al., 2005). It not only greatly improves their state of mind and lowers their stress level but also reduces inflammatory markers and other physical indicators of stress (Pedersen & Hoffman-Goetz, 2000).

The involvement of responsive fitness programs and other physical activities at school will greatly affect the productivity of the employees and limit their sick days. While it has been found that individuals who are more likely to engage in physical activities have high efficacy, (Kaewthummanukul & Brown, 2006), there is also a reduction in the risk for high blood pressure, high cholesterol (Thompson, et al., 2007), diabetes, cancer (Bernstein, et al., 1994; Peters et al., 2009) anxiety disorders (Mather et al., 2002), and depression (Blumenthal et al., 1990).

Conceptual Framework

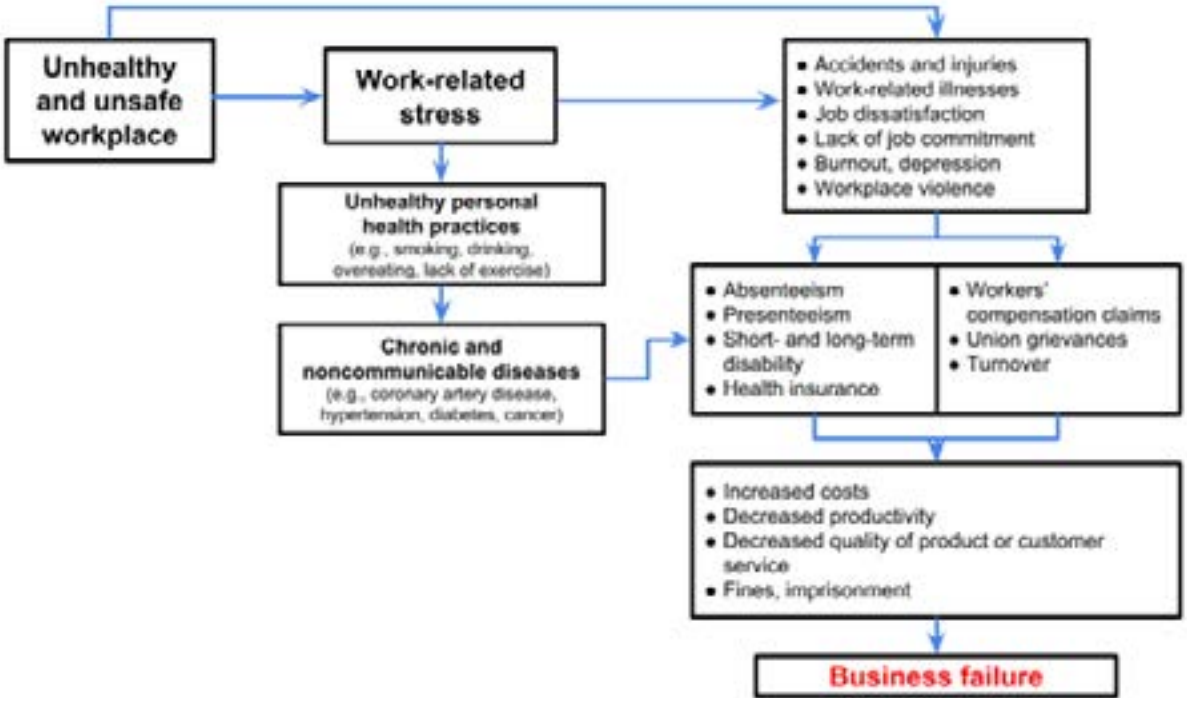

Figure 1. Business argument model of the World Health Organization's healthy workplace framework. Reproduced from WHO Healthy Workplace Framework and Model: Background Document and Supporting Literature and Practices (p. 6), by Burton, J. & World Health Organization, 2013, Geneva, Switzerland: World Health Organization.

While several studies have been made to understand the relationships between health and productivity, most of the studies have focused on physiological or medical health. Those that did study the relationship between physical activity and productivity (such as absenteeism) tended to focus primarily on physical exercise in general but not exercise intensity (e.g., Shephard, 1992; Gebhardt & Crump, 1990; Falkenberg, 1987; Shephard, Cox, & Corey, 1981; Jasnoski, Holmes, & Solomon, 1981; as cited in Wattles & Harris, 2003), but very few studies explored the relationship between exercise and job performance (Pender, Smith, & Vernof, 1987; Falkenberg, 1987; as cited in Wattles & Harris, 2003). Further, only a few studies attempted measuring employees' actual fitness levels and comparing them with productivity (Wattles & Harris, 2003).

Wattles and Harris (2003) found that the more physically fit employees are, the better their productivity and job satisfaction, and the lower their gravitation towards absenteeism. As they noted, previous studies using subjective measures have also already found that regular exercise positively affects worker productivity (Durbeck, et al., 1972; Bernacki & Baun, 1984; Rudman, 1987; Pauly, et al., 1982; Leutzinger & Blanke, 1991; Robison, et al., 1992; as cited in Wattles & Harris, 2003) but the said studies used subjective data on exercise participation through self-evaluation rather than objective measures. Self-assessment can and does provide valuable insight, but the subjectivity can pose a challenge to reliability and validity.

While the generalizations in the Wattles and Harris study can be liberally used to represent those employee categories that the study included as participants, a separate study focusing on the education sector can yield insights that may be specific to this sector.

Alker et al. (2015) studied how the health of secondary school employees impacted their work productivity. They found that obesity, depressive symptoms, and smoking influence the forms of negative productivity known as absenteeism and presenteeism. Their research, however — except indirectly through the inclusion of obesity as a factor — dealt partially only with the overall notion of physical fitness. It excluded a more detailed examination of the associations of the four pillars of physical fitness (i.e., cardio-respiratory strength and endurance, muscular strength, flexibility, and body composition) with productivity among school employees.

But, health is not only physical or physiological. It also encompasses the human mind, and it affects work productivity. Studies on mental health risks have been carried out over the years, and in these studies, work-related stress remains a popular topic chiefly because this counterproductive behavior affects the progress of an organization (Steers, 1991, as cited in Ekienabor, 2016). Research by Anyi Einstein Moses (2016), for instance, found significant positive association between teachers' stress and their productivity. A multi-component study by Gillan, et al. (2013) determined that school employees who regularly performed vigorous physical activity not only tended to experience lower perceived stress but also use coping strategies considered more effective.

In the context of work, stress refers to the psychological and physical response caused by an individual's inability to cope with the demands imposed by an organization upon an individual (Ekienabor, 2016), and no school employee can ever escape it (Sten & Cutler, 2002). It can also arise from bad relationships with coworkers or from difficult situations that individuals encounter while adapting to the workplace (Bennett, 1994, as cited in Ekienabor, 2016).

High levels of work stress can negatively affect employee performance and productivity. It causes performance anxiety; it disrupts one's thinking ability, preventing the individual from focusing on a given task, which may result in attrition, absenteeism, and some disorders such as anxiety and depression as a form of physiological response (Austin, Shah, & Muncher, 2005; Hammond & Onikama, 1997). High levels of stress in the workplace influence employees to make decisions under heuristics (Klein, 1996), experience narrow thinking (Friedman & Mann, 1993), and decrease the ability to analyze information and situations (Larsen, 2001). Left unchecked for a protracted period, it can even negatively affect one's physical health. This study, then, aimed to determine whether three health-related variables (i.e., medical health, physical fitness, and stress level) associated with work productivity were predictors of productivity among those working in the academe. It focused on workers in educational institutions, determined the predictive value of obligatory annual physical exam results to employees' perceived productivity, examined employees' physical fitness using objective measures of the four components of physical fitness, and included work-related stress level as a variable.

The relation between health and productivity among those working in education is of notable importance because of the crucial role that educational institutions serve not only in the transmission of culture and knowledge to succeeding generations but also in nation building.

Methodology

Participants

Selected through simple random sampling, ninety (90) employees of a Philippine state university currently employed and on active duty (i.e., not on leave) at the time of the study participated in it. The respondents represented 22 different offices in the university. The non-teaching staff comprised 68.9 percent of the respondents, while the remaining 31.1 percent were faculty members.

Data Collection

The researchers collected four categories of data through a self-administered questionnaire, except for physical fitness, in which results of a standard fitness test suite were used. The participants gave their written consent before they answered the survey, which consisted of three parts: respondents' basic demographic information, the Endicott Work Productivity Scale, and the World Health Organization survey on work-related stress. Each participant took an average of about 15 to 20 minutes to complete the questionnaire. Each of these data sources is described in the following sections.

Productivity Scale

Data on perceived productivity came from the participants' responses to the Endicott Work Productivity Scale (EWPS) questionnaire developed by Endicott in 1997. Blau (1999) determined its coefficient alpha to be 0.89. For the current study, the proponents determined the scale's reliability coefficient to be 0.844.

Several studies have favored the EWPS because it is short and easy to use. Further, researchers found its measures to be sensitive enough for determining the effects of various disorders towards work performance. So, this study's proponents chose the EWPS as the instrument of choice.

The EWPS consists of 25 separate and negatively stated statements about productivity at work. Using a five-point scale, participants identified the degree to which each statement applied to them.

Physiological Health

For data on the physiological health (medical health), the researchers used the Annual Physical Examination (APE) results obtained from clinic records of the participants, who consented to the release and use of their medical records.

The university's APE consists of eight laboratory tests meant to help medical practitioners detect common infectious, non-infectious, and other debilitating conditions that could affect university employees' performance or affect students and other employees. These tests include the following: Complete Blood Count (CBC), Urinalysis (U/A), Posteroanterior Chest X-ray (Chest PA), Creatinine, Alanine Aminotransferase/ Serum Glutamic Pyruvic Transaminase Test (ALT/SGPT), Blood Uric Acid (BUA), Total Cholesterol, and Electrocardiogram (ECG).

Physical Fitness

The standard fitness tests conducted from May to June 2017 provided the data on physical fitness. The proponents included only the health-related components of the fitness test suite, namely:

1. cardio-respiratory endurance (3-Minute Step Test),
2. muscular strength and endurance (Push Up, Curl Up),
3. lexibility (Sit and Reach Test,), and
4. ody composition (measured using a bioelectrical impedance analysis calculator to determine the content of subcutaneous and visceral fat).

Work-related Stress

Finally, data on work stress were sourced from participants' responses to the Questionnaire for Workers Addressing Causes of Work-Related Stress published by the World Health Organization in 2007. In the current study, its reliability coefficient is 0.842.

The instrument itself has an inbuilt scoring mechanism, and the yielded scores underwent statistical treatment for the study, using the following score ranges and qualitative descriptors:

0-17	—	Low Stress Level
18-36	—	Average Stress Level
37-54	—	High Stress Level

Statistical Treatment of Data

Data on the three health-related variables (physical health, physical fitness, and stress level) were cross-tabulated vis-a-vis perceived productivity levels. To determine whether the health-related variables were significant predictors of perceived productivity, the data underwent ordinal regression analysis (cumulative odds ordinal regression with proportional odds using the logit link function). Version 22 of IBM SPSS Statistics software, licensed to the participating university, was used to perform the regression analysis.

Results

This study sought to determine whether medical health, physical fitness, and stress level were predictors of perceived productivity among employees in educational institutions. Table 1 reports the cross-tabulated results of the APE, standard fitness test, and stress level inventory vis-a-vis three grades of perceived productivity.

Table 1. Cross-Tabulation Between Productivity and Physiological Health, Fitness, and Stress Level

	Productivity			**Total (n=90)**
	Productive (n=7)	**More Productive (n=40)**	**Highly Productive (n=43)**	
APE				
Passed	4	9	5	18
Failed	3	31	38	72
Fitness Test				
Fit	0	2	7	9
Unfit	7	38	36	81
Stress Level				
Low	2	31	37	70
Average	5	9	6	20

The cross-tabulated results show that all participants reported perceiving themselves to be productive in various degrees. Less than half (47.8 percent) were highly productive, a little over two-fifths (44.4 percent) said they were more productive, and 7.7 percent indicated having been productive.

Annual Physical Exam (APE)

In an ideal workplace, 100 percent of employees ought to be in a perfect state of physical health, yet 72 of the participants (80 percent) failed in the Annual Physical Examination (APE) while only 18 passed.

Interestingly, more than half (52.7 percent, 38 participants) of those who failed claimed having been highly productive at work, while 43.1 percent reported having been more productive at work.

Of the 20 percent that passed the APE, 22.2 percent considered themselves productive, half believed that they were more productive, and 27.8 percent marked themselves as highly productive.

Physical Fitness Test

Based on the results of the fitness test, 81 respondents were labeled unfit. Out of these 81 unfit employees, seven (7) employees were productive, 38 were more productive and 36 were highly productive. Only two (2) considered themselves more productive and seven (7) highly productive in the group of fit employees.

Work-related Stress

In the work-related stress survey, no employees reported a high level of stress at all. There were 37

employees with low-level stress who scored "Highly Productive," 31 employees with low-level stress who scored "More Productive" and two (2) employees with low-level stress who marked themselves as "Productive." On the other hand, six (6) employees with average-level stress scored "Highly Productive," nine (9) employees with average-level stress scored "More Productive," and five (5) employees with average-level stress scored "Productive."

Tables 2 to 4 demonstrate the appropriateness of using ordinal regression on the data collected.

Table 2. Model Fitting Information

Model	-2 Log Likelihood	Chi-square	df	p-value
Intercept only	45.001			
Final	29.217	15.785	3	0.001

Table 2 shows the likelihood Chi-square ratio test. It determines if the model can predict the outcome. With a p-value of 0.001, the model has the ability to predict the outcome at 5.0 percent level of significance or even at 1.0 percent.

Table 3. Goodness-of-Fit

	Chi-square	df	p-value
Pearson	6.305	9	0.709
Deviance	7.599	9	0.575

Link function: Logit

Table 3 gives additional information for good model fit. The Pearson and Deviance Goodness-of-Fit tests yielded p-values of 0.709 and 0.575, respectively. They are both greater than the 5.0 percent level of significance, so we failed to reject the null hypothesis that the model is adequate relative to the perfect model.

Table 4. Pseudo R-square

Cox and Snell	0.161
Nagelkerke	0.192
McFadden	0.096

Link function: Logit

Table 4 shows Pseudo R-Square values among which the Nagelkerke result is the one usually interpreted. Its value of 0.192 means that the model explains 19.2 percent of the variance in the "perceived productivity" dependent variable. It implies that the model bears some worth.

The type of ordinal regression used in this study was the cumulative odds ordinal regression with proportional odds. Its fundamental assumption is to have proportional odds, illustrated in Table 5.

Table 5. Test of Parallel Lines

Model	-2 Log Likelihood	Chi-Square	df	p-value
Null Hypothesis	29.217			
General	27.204	2.013	3	0.570

The null hypothesis states that the location parameters (slope coefficients) are the same across response categories.
Link function: Logit.

A p-value of 0.570, which is greater than the 5.0 percent level of significance, failed to reject the null hypothesis that there are proportional odds. The proportional odds model maximizes the amount of information that one can get out of the data.

T**able 6.** Parameter Estimates

Model	Estimates	p-value
Annual Physical Exam (APE)	1.188	0.033
Physical Fitness Level (PFL)	-1.724	0.046
Stress Level (SL)	1.203	0.025

Table 6 shows that the parameter estimates of APE and SL are both positive while PFL has a negative parameter estimate. These three independent variables — APE, PFL, and SL — are all significant at 5.0 percent level since their respective p-values are all greater than 5 percent. This significance level means that the variables are predictors of perceived productivity.

Note that the productivity-related questions posed to the respondents were "negatively" stated. Thus, the results of Table 6 can yield the following interpretations:

1. If the employees have normal physical examination results, then they are more productive.
2. If the employees are physically unfit, then there is a negative effect on their productivity.
3. If the employees are low stressed, then it has a positive effect on their productivity

Discussion

Physiological health and productivity

Educational institutions in the Philippines require their employees to undergo the Annual Physical Examination (APE). For applicants, it is initially done as a pre-screening requirement to determine infectious diseases (e.g., Hepatitis B and tuberculosis) that might affect prospect employees' productivity and personal and professional relations with colleagues. For those in active service, the physical examination is done yearly to check whether an employee has acquired a disease or debilitating condition caused by harmful or stressful elements within the work station. The institution's physician certifies applicants' or active employees' fitness for work, classifies their health levels, and specifies medical attention if needed.

While the APE does identify employees' medical health status — specifically, whether or not they are disease-free — it is not designed to screen for counter-productivity health conditions. Rather, it is meant to follow-up on previous medical findings, to determine the effects of exposure to health hazards, and to allow early detection of common infectious and non-infectious diseases and other debilitating conditions that could endanger students and employees or hamper their performance.

Despite the limited scope and coverage of the APE, this study aimed to determine whether it can predict applicants' and active employees' self-perceived work productivity.

While the data seem to suggest that majority of the university's employees are seriously sick with productivity-affecting conditions, a closer examination of the APE's components and the very nature of the APE would leave out such possibility. Besides, the APE only deals with physiologic conditions, not the entire gamut of physical health.

Thus, even though 80 percent of the participants failed in their APE, regardless of any identified infectious or non-infectious disease and debilitating conditions that they are suffering from, they still are capable of perceiving themselves as being productive in various levels. The statistical model used in this study revealed that if employees passed their APE (i.e., all component diagnostic tests returned normal results), then the said employees perceive themselves to be more productive.

Although one can argue that the participants' productivity levels are self-perceived, it remains a fact for these employees that mentally and physically, they are capable of carrying out their respective daily routine and performing different tasks. Most importantly, they can produce output based on their daily assignments.

Physical fitness and perceived productivity

Among the leading factors for sound health is physical activity (U.S. Department of Health and Human Services, 2010). Sufficient and regular physical activity results in physical fitness, the general benefit of which is well-established: improvement of overall health and well-being, including mental health.
In this study, one is not considered physically fit if she or he fails in even just one of the health-related components of physical fitness (i.e., cardiovascular endurance, muscular strength and endurance, body fat percentage, and flexibility). So, one is either physically fit or physically unfit.

Majority of the participants (81 participants or 90 percent) were labeled physically unfit. One would presume that they would report zero or low self-perceived productivity, yet the data show that all of them indicated having remained productive at varying degrees, with the percentage of those claiming more productivity almost equal to the percentage of those claiming high productivity (46.9 percent and 44.4 percent, respectively). In the physically unfit group, the percentage of those who reported above-average productivity is very high at 91.4 percent.

Further, the parametric estimates reported in Table 6 show that physical fitness (i.e., fitness or unfitness) does predict self-perceived productivity among university employees. Specifically, their physical unfitness negatively affects their productivity, or positively stated, their physical fitness increases their self-perceived productivity.

One important explanation for the association found in this variable is that physical activity (resulting in physical fitness) is strongly associated with improved response to stress and with improved physiological health. Physical fitness affects how individuals deal with stress, improves their resilience to it, and helps prevent future stress episodes in the long term (Nagel & Brown, 2003). Engaging in physical activity, whether competitive or noncompetitive in form, lowers the stress level of teachers more than those who do not (Austin et al., 2005). It not only greatly improves their state of mind and lowers their stress level but also reduces inflammatory markers and other physical indicators of stress (Pedersen & Hoffman-Goetz, 2000), increases their efficacy (Kaewthummanukul & Brown, 2006), and reduces their risk for high blood pressure, high cholesterol (Thompson et al., 2007), diabetes, cancer (Bernstein, et al., 1994; Peters, et al., 2009) anxiety disorders (Mather, et al., 2002), and depression (Blumenthal, et al., 1990).

While the fit-unfit dichotomy worked conveniently for the model used in this study, it left out the possibility of intermediate levels of physical fitness, at which levels individuals may still be able to work productively, perhaps even more or highly so, depending on the load and nature of the work assignment. Even sick persons may still be fit for certain types of work (Sharifzadeh, 2013), provided that their physical fitness allows them to perform the required tasks.

So, for instance, physical inflexibility can render employees physically unfit under the fit-unfit absolute dichotomy, yet they can still perceive themselves as productive in work not needing physical flexibility to carry out a task, such as a job chiefly needing mental skills (e.g., strategic marketing or strategic planning).

Employees' physical fitness — i.e., their cardiovascular endurance, muscular strength and endurance, body fat percentage, and flexibility — may work to the employees' advantage in improving their physical disposition and may benefit other aspects of their daily routines, but such components, partially or as a composite, may not necessarily be useful in accomplishing tasks not needing such conditions. Work assignments heavy on communication or intellectual skills, for example, would rarely demand superb muscular strength and endurance and flexibility.

Work-related stress and productivity

Work stress refers to the psychological and physical response arising from a worker's inability to cope with the demands imposed by an organization upon the worker (Ekienabor, 2016; Naqvi, et al., 2013). It is an inevitable part of work life (Sten & Cutler, 2002), regardless of industry. Work stress can come from social relationships. Relations with workmates can also drive stress at work, as can management style, workload, and economic factors.

People can normally cope with work stress fairly well, but a high level of work stress can negatively affect employee performance and productivity. It causes performance anxiety; it disrupts one's thinking ability, preventing the individual from focusing on a given task, which may result in giving up the job, absenteeism, and some disorders (e.g., anxiety and depression) as a form of physiological response (Austin, Shah, & Muncher, 2005; Hammond & Onikama, 1997). Moreover, high levels of stress in the workplace influence employees to make decisions under heuristics (Klein, 1996), experience narrow thinking (Friedman and Mann, 1993), and decrease the ability to analyze information and situations (Larsen, 2001).

This study's parametric estimates found that low stress levels positively affected employees' self-perceived productivity. It is a predictor variable to the self-perceived productivity of university employees. Among the participants who indicated low stress levels, 97.2 percent reported having been either more productive or highly productive. None of the participants showed above-average or high stress levels. Had any of them indicated so, one can deduce that they would report low self-perceived productivity.

Although stress at various levels may predispose an employee to lose interest in his or her work, or eventually suffer from a breakdown, employees would generally find means to counteract stressful situations at work.

Conclusion and Recommendations

This study has determined that the self-perceived productivity of teaching and non-teaching employees of educational institutions may be positively influenced by their physiological health as determined by the mandatory Annual Physical Exam, their physical fitness, and by their work-related stress level. The study's results essentially affirm and uphold what previous studies have found relative to the three predictor variables involved in this study.

Parameter estimates of the analysis of cumulative odds ordinal regression with proportional odds (using the logit link function) revealed that school employees with normal APE results have greater odds of describing themselves to be more productive. The study's findings likewise suggest that the APE, despite its limited coverage of physiological conditions, offers some predictive value to employees' work productivity level. Further, school employees deemed physically unfit are likely to report negative decline (i.e., there is a negative effect) of their self-perceived productivity at work. Meanwhile, low stress levels of school employees have a positive bearing on their self-perceived work productivity.

If they have not done so as yet, educational institutions can use the findings of this study to implement programs that improve their employees' physiological health, bring them up to physical fitness standards, and lower their work-related stress. For instance, one possibility is for educational institutions to encourage employees' achievement and strictly monitor their compliance of the standard prescription for physical activity; that is, of getting at least 15 minutes of light to moderate physical activity per day. Another possible action would be to voluntarily integrate the standard physical fitness tests into the Annual Physical Examination and provide fitness counseling especially to those who need to reach the standards.

One possible area for further inquiry is the interesting outcome of the APE and fitness test vis-a-vis stress levels. Table 1 shows that majority of the participants failed in the APE and fitness test, yet majority reported low stress levels. Further study could try to determine the factors that helped keep school employees' stress levels low despite their being deemed physiologically and physically unfit. Although it is speculative to say so at this point, such scenario could indicate the existence of effective methods or conditions of coping with stress, or of factors that help mitigate the counterproductive effects of stress, among school employees.

Moreover, since the participants of this study work in a state university, it might be interesting to also conduct a similar study among those who work in private learning institutions.
Despite the limitations of this study, any program that educational institutions promptly implement to compel their employees to stay physiologically healthy, physically fit, and low stress can bring in a lot of improvement in the productivity of its employees over the long run.

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