

Prediction of employees' productivity in higher educational institutions based on the status of health related fitness awareness

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ABSTRACT

In recent years evaluation of employees' productivity status has become a challenge in every organization. There are ample of reasons that restrict employees' productivity. Chronic ill-health and low-fit abilities are on rise across all age groups, and these conditions reduce employees' productivity that generates significant financial losses to employers. The purpose of this investigation was, therefore, to record the impact of employees' levels of health related fitness awareness for prediction of their productivity in the institutes of higher learning. Research tools were two standard questionnaires viz., "health related fitness awareness" and "productivity" that were administered on 1235 employees, age: 30-40 yrs, working in four Universities in Pune city (India). The result of product moment coefficient of correlation revealed that the scores of "health related fitness awareness" had significant relationship with employees productivity ($r=0.75$, $p<0.01$). Further, the result of result of Multiple Step-up Regressions indicates that employees' status on "health related fitness awareness" can predict the "employees productivity" (adjusted $R^2=0.709$, $p<0.01$). This study, therefore, recommends that the employees must be provided facilities to participate in exercise and physical activities at working place to get rid of health related fitness problems, which in turn help to improve employees' productivity.

Key words: Health related fitness awareness and Employees productivity

INTRODUCTION

Education institutions face a myriad of critical challenges impacting their viability and productivity. Chronic health conditions are on rise across all age groups, and these conditions are creating significant financial losses to employers as they provide medical benefits to their employees. Most of the time employer has to spend significant amount on chronic conditions of employees.

Over the last decades, accelerating technological changes and new forms of workplace, the organizations have led to workers assuming increased responsibilities and more autonomy than ever before. Although this has increased overall productivity, flexible modern working practices have also increased daily job demands, requiring employees to multi-task and leading to increased levels of workplace stress and

unrealistic time pressures. These developments have not only led to increasing levels of sickness-absence but also to the emergence of a phenomenon called ‘presentism’, when employees attend work while in suboptimal health. It is estimated that presentism driven by mental ill-health costs the UK economy £15bn per year (Centre for Mental Health, 2011). What is more, there is growing evidence that problems related to modifiable health behavior are becoming more prevalent, driven by a lack of physical activity, by smoking, or by a rise in obesity levels in the wider population (Goetzel *et al.*, 2012). This creates economic costs not only to society at large but also, more specifically, to businesses / education in the form of lost productivity.

Past research studies indicate that most of the employees at educational institutes lead sedentary life and physical inactivity which, in turn, reduce employees’ performance, increase psychological problems and various metabolic disorders (Mummery *et al.*, 2005), and reduce life expectancy (Katzmarzyk & Lee, 2012). Moreover, lack of regular activity, health related fitness awareness and competitiveness need to be taken care-of along with well management of human resources to enrich global efficiency of the employees in any organization (Henry *et al.*, 2003). Further, in light of such substantive costs due to absenteeism and presentism, we would expect there to be a strong case for companies or educational organizations to invest in the health related fitness and wellbeing of their employees. Although there are several studies conducted so far indicating the importance of physical activity and employee productivity however, no investigation has been conducted so far to explore the relationship between the levels of health related fitness awareness and productivity of employees working in higher education institutions. Therefore, the researcher has planned this investigation with a view – 1) to assess the status of health related fitness awareness and productivity of the employees; 2) to find out the degree of relationship between the scores of health-related fitness awareness and productivity among the employees of higher learning institutes; and 3) to predict the role of health related fitness awareness on employees’ productivity.

METHOD

This is a survey study that evaluates the status of health related fitness awareness and productivity of the employees working in educational institutions situated in Pune city (India) by employing descriptive method of research. Two standard questionnaires on “health related fitness awareness” (Bera, 2005 revised version 2018) and “productivity” (Bera & Pishdar, 2018) were administered on the sample.

The sample

This study was conducted on 1235 employees, age: 30-40 yrs, working in the affiliated institutes of four Universities located at Pune city (India). Considering the constraint in availability of the employees, the researcher used purposive sampling technique.

Inclusion and Exclusion criteria

As there was no compulsion to fill the questionnaire and since there were no incentives or punitive measures to fill in the questionnaire, many of the identified participants did not fill the questionnaire. Such participants were excluded from this study. Moreover, the participants who have consented to fill up the questionnaires in English were included. The employees who have sufficient English knowledge to fill in the questionnaire were included.

Drops out

Data from 1235 employees, age group: 30-40 years, were given separate code numbers and made entry to excel sheet. Data screening led to elimination of 79 cases as most of them have not given answers to every question. Therefore, the data of these 79 employees was discarded and thus, the remaining number of employees retained for further analysis was **1121** (Table 1).

Table 1
Blue print of number of sample for the survey

Sr. No.	Name of Institute	No. of Subjects
1.	Bharati Vidyapeeth Deemed University, Pune City	483
2.	Savitribai Phule Pune University, Pune City	138
3.	Symbiosis Deemed University, Pune City	337
4.	Tilak Vidyapeeth Deemed University, Pune City	163
Total		1121

Methods of Data Collection

The investigator visited the authorities of affiliated institutes of the Universities in Pune city (India), and explained them about the purpose of this piece of research. Being a foreigner, the researcher took help from local academicians while visiting the authorities of the affiliated institutions of higher learning in Pune. After receiving permission, all the selected participants were requested to fill the respective questionnaires and provided research related information as asked for.

The researcher handed over the three structured questionnaires (viz., health related fitness awareness and employees' productivity scales) to the sample-subjects (n=1200) along with pencil and eraser. Prior to fill the questionnaires, the subjects were instructed to write their name, address (residential), contact number and demographic information (e.g., age, sex etc.). They were instructed to read the information as mentioned in the first page of the questionnaires. Then the researcher gave examples about the process of giving answers to the questions and also clarified all doubts, if any, for filling up the questionnaires. Finally, it was found that the questionnaires of 1121 employees were properly filled in and hence accepted for analysis.

Variables and Tools used

In any educational institute, proper curriculum transaction depends up on coordinated functions of the staff (teaching and administrative) and students. This leads to satisfaction of staff (employees) and students. The present investigation was delimited to employees' efficiency that leads to enhance their productivity. In fact, there were many factors influencing employees' productivity (Agaliotis *et al.*, 2013; Bernacki and Baun 1984; Goetzel *et al.*, 2010; Jensen, 2011; Luchak & Gellatly, 2007; Shephard, 1992; Voit, 2001). Considering these reviews of earlier studies, the present investigator has identified three main variables viz., *employees' health and fitness status that may enhance the employees' productivity* to create a lively teaching-learning environment in educational institutions. Thus, the main dependent variables were 1) Health related fitness awareness and 2) Employee productivity. To assess these variables two standard questionnaires viz., Health related fitness awareness scale (Bera, 2005) and Employees' Productivity Scale (Bera & Pishdar, 2018) were administered.

The *health related fitness awareness scale* was developed and standardized by Bera (2005). This test measures a person's awareness about his own status of health related fitness. It has four major dimensions viz., flexibility, body fat, muscular strength and endurance, and cardiovascular efficiency. All the questions have been formulated to represent the said four major dimensions of health related fitness. There are 25 questions in the scale and each question has three alternative answers known as 3-point scale. The test ensures an accepted level of reliability ($r=0.70$) and validity ($r=0.68$).

The *Employees' Productivity Scale* has newly been developed and standardized in this present investigation during 2017. This scale measures an employee's productivity level. It has six major dimensions viz., *Punctuality and absenteeism (A1)*, *Interpersonal communication skill (A2)*, *Health status (A3)*, *Motivation (A4)*, *Innovation (A5)*, and *Work performance (A6)*. All the questions have been formulated to represent the said six major dimensions of Employees' productivity. There are 48 questions in the inventory and each question has five alternative answers known as 5-point scale. The test ensures an accepted level of reliability ($r=0.70$) and construct validity ($r=0.75$).

Statistical Analysis

Pearson's product moment correlation was employed to find out the relationship between the scores of health related fitness awareness and productivity of the employees working in the higher learning institutions. Multiple step up regression was employed to predict employees' productivity based on the scores of health related fitness.

RESULTS AND DISCUSSION

The result of survey indicates that the status of "**health related fitness**" among the employees of the higher education institutions is poor. This result was obtained while analyzing the data on employees' awareness on flexibility (M=9.50, SD=±1.05), body fat (M= 18.27, SD=±2.13), muscular strength / endurance (M= 5.21, SD=±0.60) and cardiovascular efficiency (M=6.29, SD=±0.86). The status of "**Overall health-related fitness**" awareness was also lower (M= 39.12, SD=±4.22) and categorized as **poor**. Appearance of such result suggests that majority of these employees possess poor status of health and fitness and how can we expect better level of productivity? Thus, higher education institutions must conduct awareness programmers on health and fitness time to time exclusively for their employees. Moreover, these employees must be provided facilities to participate in the programmers of exercise and physical activities at worksite and thereby to get rid of health related fitness problems. Proper *et al.*, (2002) supported this suggestion and stressed the effectiveness of physical activity programs at worksites. Thus the result on health related fitness awareness as appeared in this investigation seems to be justified (Bernacki and Baun, 1984; Shephard, 1992; Tsai, Baun & Bernacki, 1987) and in turn suggests taking care of health related fitness that may help to enhance the employees' productivity.

Result revealed that the status of "**productivity**" among the employees is average. Such a result was obtained while analyzing the data from employees' *punctuality and absenteeism* (M= 26.2), *interpersonal communication skills* (M= 22.37), *health status* (M= 18.29), *motivation* (M= 20.76), *innovation* (M= 24.64), and *work performance* (M= 17.59). The overall status of "**productivity**" was (M= 130.58) and categorized as **average**. Such a result was obtained while analyzing the data from employees' *punctuality and absenteeism*, *interpersonal communication skills*, *health status*, *motivation*, *innovation* and *work performance*. In fact, lack of these attributes might have affected the status of "productivity" among the employees of higher education institutions and therefore the productivity level appears average. Earlier studies (Agalotis *et al.*, 2013; Brown *et al.*, 2013) support this logic and indicate that the affective attributes leads to decline the level of one's "productivity". This mechanism might have worked among the employees belonging to different higher education institutions and overall status of "productivity" reduced to average level.

Result of relational study revealed significant relationship between the scores of Health-related Physical Fitness (HRPF) awareness and productivities of the employees. In fact, high scores in Health-related Physical Fitness (HRPF) awareness are significantly associated with high scores of productivity ($r=0.75$, $p<0.01$). Moreover, average scores in Health-related Physical Fitness (HRPF) awareness are significantly also associated with high as well as average scores of productivity ($r=0.46$, $p<0.01$; $r=0.32$, $p<0.05$). These results appeared so far indicate that all the selected variables (Health-related Physical Fitness awareness and productivity) are significantly associated with each other. This, in turn, suggests that status of “productivity” may be predicted on the basis of the status of “health-related fitness awareness” of the employees working in the higher educational institutions. Thus, the result of Multiple Step-up Regressions revealed that “health-related fitness awareness” is the best predictor of “productivity” (adjusted $R^2=0.709$, $p<0.01$) (Table 2).

Table 2- Multiple Step Up Regression of Health Related Fitness awareness towards employees’ productivity

Parameters	Level	Employees’ Productivity		
		‘r’	Residual	Adjusted R ²
Health Related fitness	Low	0.37*	0.0064	0.132
Health Related fitness	High	0.75**	0.0859	0.709**
Health Related fitness	Average	0.46*	0.0780	0.618**
* $p<0.05$, ** $p<0.01$				

The result of regression analysis finally infers that once the employees’ **health related fitness awareness** status is assessed, it is possible to predict the level of employees’ **productivity**.

CONCLUSION

The result concludes that the employees’ status on “health related fitness awareness” was graded as poor, whereas their status on “productivity” was average. This, in turn, suggests that the selected employees need special care so that they can improve their health related fitness awareness so as to enhance productivity. The two variables viz., “health related fitness awareness” and “employees’ productivity” are significantly associated with each other. The regression analysis suggests that enhanced status on health related fitness and / or concentration of the employees can predict their status of productivity.

REFERENCES

- Agaliotis, M., Fransen, M., Bridgett, L., Nairn, L., Votrubic, M., Jan, S., Heard, R., & Mackey, M. (2013). Risk factors associated with reduced work productivity among people with chronic knee pain. *Osteoarthritis Cartilage*, 21(9),1160-9.
- Ansari, Renani Q., Sabzi, Ali., and Abadi, Sara. (2009). Orders of effective organizational factors on human resource promotion in small industries, *Business Studies*, new period, 7, 39, 49-64.
- Bera, T. K. (1993). *A study of physical performance in athletics and some of affective psychological determinants of teacher trainees in West Bengal*. (Doctoral Dissertation), University of Kalyani: West Bengal.
- Bera, T. K. (2018). General concentration inventory (GCI). Tagore Education & Research Foundation: Pune, India.
- Bera, T. K. (2018). Health related physical fitness awareness scale. Tagore Education & Research Foundation: Pune, India.
- Bernacki, E. J., & Baun, W. B. (1984). The relationship of job performance to exercise adherence in a corporate fitness program. *J Occup Med.*, 26(7), 529-31.
- Bhattacharya, D., & Bhattacharya, A. (1977). *Evaluation and measurement in education*. Blacki (India) Employees Cooperative Industrial Society Ltd.: Calcutta.
- Chiok Foong Loke, J. (2001). Leadership behaviours: effects on job satisfaction, productivity and organizational commitment. *J Nurs Manag.*, 9(4), 191-204.
- Coulson, J. C., McKenna, J., & Field, M. (2008). Exercising at work and self-reported work performance. *International J of Workplace Health Management*, 1(3), 176–197.
- Durden, E. D., Huse, D., Ben-Joseph, R., & Chu, B. C. (2008). Economic costs of obesity to self-insured employers. *J Occup Environ Med.*, 50, 991–997.
- Erickson, K. I., Voss, M. W., Prakash, R. S., Basake, C., Szabo, A., et al. (2011). Exercise training increases size of hippocampus and improves memory. *Proc Natl Acad Sci U S A.*, 108(7), 3017–3022.
- Falkenberg, L. E. (1987). Employee fitness programs: Their impact on the employee and the organization. *The Academy of Management Review*, 12(3), 511–522.
- Fonseca, V. R., Nobre, M. R., Pronk, N. P., & Santos, L. A. (2010). The association between physical activity, productivity, and health care utilization among employees in Brazil. *J Occup Environ Med.*, 52(7), 706-12.
- Gates, D. M., Succop, P., Brehm, B. J., Gillespie, G. L., & Sommers, B. D. (2008). Obesity and presenteeism: the impact of body mass index on workplace productivity. *J Occup Environ Med.*, 50(1), 39–45.
- Goetzel, R. Z., Gibson, T. B., Short, M. E., Chu, B. C., Waddell, J., Bowen, J., et al. (2010). A multi-worksites analysis of the relationships among body mass index, medical utilization, and worker productivity. *J Occup Environ Med.*, 52(Suppl 1), S52–8.
- Henry, H., Rezaeian, A., Koozechian, H., and Ehsani, M. (2003). The relationship between motive and human resource efficiency in physical education department in Islamic Republic of Iran. *Harkat Journal*, 27, 45-54.
- Howard, J., & Mikalachki, A. (1979). Fitness and employee productivity. *Can J Appl Sport Sci.*, 4(3), 191-8.

- Hughes, M. C., Girolami, T. M., Cheadle, A. D., Harris, J. R., & Patrick, D. L. (2007). A lifestyle-based weight management program delivered to employees: Examination of health and economic outcomes. *J of Occupational and Environmental Medicine*, 49(11), 1212–1217.
- Jensen, J. D. (2000). Can worksite nutritional interventions improve productivity and firm profitability? A literature review. Stein, A. D., Shakour, S. K., Zuidema, R. A. (2000). Financial incentives, participation in employer-sponsored health promotion, and changes in employee health and productivity: HealthPlus Health Quotient Program. *J Occup Environ Med.*, 42(12), 1148-55.
- Kamlesh, M. L.(1986). *Methodology of research in physical education and sports*. New Delhi: Metropolitan Book Co. Pvt Ltd.
- Katzmarzyk, P. T., & Lee, I. (2012). Sedentary behaviour and life expectancy in the USA: A cause-deleted life table analysis. *BMJ Open*, 2: e000828 doi:10.1136/bmjopen-2012-000828.
- Khalilian, S., & Rahmani, F. (2010). Effective factors on human resource efficiency in Iran agriculture, agriculture sciences and industries. *Journal of Agriculture Development*, 22, 1, 80-88.
- Koopmans, L., Bernaards, C. M., Hildebrandt, V. H., Schaufeli, W. B., de Vet Henrica, C. W., & van der Beek, A. J. (2011). Conceptual Frameworks of Individual Work Performance. *J Occup Environ Med.*, 53(8), 856–66.
- Kozasa, E. H., Sato, J. R., Lacerda, S. S., Barreiros, M.A.M., Radvany, J., Russell, T. A., et al. (2012). Meditation training increases brain efficiency in an attention task. *Neuroimage*, 59(1), 745–9.
- Lerner, D., Amick, B. C. 3rd, Lee, J. C., Rooney, T., Rogers, W. H., Chang, H., & Berndt, E. R. (2003). Relationship of employee-reported work limitations to work productivity. *Med Care.*, 41(5), 649-59.
- Luchak, A. A., & Gellatly, I. R. (2007). A comparison of linear and nonlinear relations between organizational commitment and work outcomes. *J Appl Psychol.*, 92(3), 786-93.
- Meerding, W. J., IJzelenberg, W., Koopmanschap, M. A., Severens, J. L., & Burdorf, A. (2005). Health problems lead to considerable productivity loss at work among workers with high physical load jobs. *J Clin Epidemiol.*, 58(5), 517-23.
- Mummery, W. K., Schofield, G. M., Steele, R., Eakin, E. G., & Brown, W. J. (2005). Occupational sitting time and overweight and obesity in Australian workers. *American J of Preventive Medicine*, 29(2), 91–97.
- Pronk, N. P., Martinson, B., Kessler, R. C., Beck, A. L., Simon, G. E., et al. (2004). The association between work performance and physical activity, cardiorespiratory fitness and obesity. *J of Occupational and Environmental Medicine*, 46(1), 19–25.
- Proper, K. I., Staal, B. J., Hildebrandt, V. H., van der Beek, A. J., & van Mechelen, W. (2002). Effectiveness of physical activity programs at worksites with respect to work-related outcomes. *Scand J Work Environ Health*, 28(2), 75-84.
- Puterman, E., Lin, J., Blackburn, E., O’Donovan, A., Adler, N., et al. (2010). The power of exercise: Buffering the effect of chronic stress on telomere length. *PLoS ONE*, 5(5), e10837.
- Ramezanijad, Rahim (2007). *Physical education principles* (1st ed.). Bamdad Publication.
- Ricci, J. A., & Chee, E. (2005). Lost productive time associated with excess weight in the U.S. workforce. *J of Occupational and Environmental Medicine* 47(12), 1227–1234.

- Schmidt, F. L. (2014). A general theoretical integrative model of individual differences in interests, abilities, personality traits, and academic and occupational achievement: A commentary on four recent articles. *Perspect Psychol Sci.*, 9(2), 211–218.
- Shephard, R. J., Cox, M., & Corey, P. (1981). Fitness program participation: its effect on worker performance. *J Occup Med.*, 23(5), 359-63.
- Sobhaninejad, M., Shahabi, B., and Youzbashi, A. (2006). The relationship between culture organization and managers' efficiency in physical education department of West and East Azerbaijan, *Harkat Journal*, 35, 143-158.
- Tsai, S. P., Baun, W. B., & Bernacki, E. J. (1987). Relationship of employee turnover to exercise adherence in a corporate fitness program. *J Occup Med.*, 29(7), 572-5.
- Vaziri, S., Mansouri, H., Adiban, A., and Mansouri, H. (2003). Analysis of effective factors on human resource efficiency promotion by using AHP technique: case study. 7th international conference of management, Education Department in Hormozgan, Tehran, Aryana research group.
- Voit, S. (2001). Work-site health and fitness programs: Impact on the employee and employer. *Work*, 16(3), 273-286.
- Wright, C. C. (1982). Cost containment through health promotion programs. *J Occup Med.*, 24(12), 965-8.