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Dr. Bhaskar Shejwal
Ex-HOD, department of
psychology, Pune University,
Maharashtra, India

Dr. Vrushali Raut
Industrial Psychologist, Pune,
Maharashtra, India

Ankit More
MA (Industrial psychology),
Pune University, Maharashtra,
India

Occupational self-efficacy among marathoners from software industry

Dr. Bhaskar Shejwal, Dr. Vrushali Raut and Ankit More

Abstract

The present study attempts to explore the occupational self-efficacy among marathoners and non-runners from software industry. A sample of 60 marathoners and 40 non-runners working in technical profiles was selected from Pune, Mumbai and Bangalore. This Sample was selected through personal interaction and online survey. Marathoners with minimum 2 years of running experience & completion of at least one full marathon were selected. Non-runners were technical professionals with sedentary lifestyle. Occupational Self-Efficacy Scale by Pethe, Chaudhari, and Dhar (1999) was used as an assessment tool. The data analysis was carried out using descriptive statistics, 't' test, and correlation method. Marathoners scored higher on occupational self-efficacy than non-runners. Marathoners scored higher on sub-factors including confidence, adaptability, command and personal effectiveness. Both groups scored normal on occupational self-efficacy scale and all sub-factors. Qualitative data showed that regular running and participation in marathon helped marathoners on various behavioural issues. Remarkable improvement in emotional stability, reduction in anger/aggression, improved sociability and decrease in risky behaviour. It had been observed that inadequacy in terms of achievement at workplace provoked few marathoners to compensate it by participating in various marathons. Thus, this piece of research serves as guideline to software industry that running helps in improving occupational self-efficacy as well as coping with daily stress and emotions related issues at the workplace. Thus, by encouraging employees to pursue scientific form of running, productivity can be improved as a healthy employee is the best performing employee.

Keywords: Occupational self-efficacy, marathoners, running, software industry

Introduction

Occupational Self-Efficacy

Albert Bandura (Bandura, Self-efficacy: The exercise of control, 1997) [3] introduced the concept of self-efficacy as, "the belief in one's capability to organize and execute the courses of action required to produce given attainments." In his opinion not only the skills the person possesses is an important aspect but the belief related to the skill is also equally significant (Bandura, 1986) [1].

It is concerned not with the skills one has, but rather with the belief of what one can achieve with the skills one currently possesses (Bandura, 1986) [1].

As mentioned by Albert Bandura (Bandura, Self-efficacy, 1994) [2] strong sense of efficacy enhances human accomplishment and personal well-being in many ways. People with high assurance in their capabilities approach difficult tasks as challenges to be mastered rather than as threats to be avoided. Such an efficacious outlook fosters intrinsic interest and deep engrossment in activities. They set themselves challenging goals and maintain strong commitment to them. They heighten and sustain their efforts in the face of failure. They quickly recover their sense of efficacy after failures or setbacks. They attribute failure to insufficient effort or deficient knowledge and skills which are acquirable. They approach threatening situations with assurance that they can exercise control over them. Such an efficacious outlook produces personal accomplishments, reduces stress and lowers vulnerability to depression.

In contrast, people who doubt their capabilities shy away from difficult tasks which they view as personal threats. They have low aspirations and weak commitment to the goals they choose

Correspondence

Dr. Bhaskar Shejwal
Ex-HOD, department of
psychology, Pune University,
Maharashtra, India

to pursue. When faced with difficult tasks, they dwell on their personal deficiencies, on the obstacles they will encounter, and all kinds of adverse outcomes rather than concentrate on how to perform successfully. They slacken their efforts and give up quickly in the face of difficulties. They are slow to recover their sense of efficacy following failure or setbacks.

It is observed that self-efficacy beliefs determine how people feel, think, motivate themselves and behave. Such beliefs produce these diverse effects through major processes. These processes include cognitive, motivational and affective orientations (Bandura, Self-efficacy, 1994) [2].

The effects of self-efficacy beliefs on cognitive processes take a variety of forms. Most courses of action are initially organized in thought. People's beliefs in their efficacy shape the types of anticipatory scenarios they construct and rehearse. Those who have a high sense of efficacy, visualize success scenarios that provide positive guides and supports for performance. Those who doubt their efficacy visualize failure scenarios and dwell on the many things that can go wrong. It is difficult to achieve much while fighting self-doubt (Bandura, Self-efficacy, 1994) [2].

Self-beliefs of efficacy play a key role in the self-regulation of motivation. Most human motivation is cognitively generated. People motivate themselves and guide their actions anticipatorily by the exercise of forethought. They form beliefs about what they can do. They anticipate likely outcomes of prospective actions. They set goals for themselves and plan courses of action designed to realize valued futures (Bandura, Self-efficacy, 1994) [2].

In the physical activity domain, self-efficacy has been one of the strongest predictors of exercise behaviours (Hu L1, 2007); (Rovniak LS1, 2002).

Albert Bandura (Bandura, Self-efficacy: The exercise of control, 1997) notes that while physical skills and ability are important to the successful completion of a physical task, having the confidence to be able to apply those skills in a given situation is crucial. Self-efficacy beliefs influence individuals' efforts, affective experiences, and overall enjoyment of physical activities (Martin, 1995) [17]. People with high levels of self-efficacy are more likely to pursue challenging goals, cope with pain, and persevere through setbacks, while those with low self-efficacy avoid challenges and tend to give up when confronted with obstacles (Llewellyn David J, 2008) [16].

Moreover, Pethe and colleagues maintained that occupational self-efficacy consists of six underlying dimensions. The six constituent dimensions of occupational self-efficacy are: (i) confidence, (ii) command, (iii) adaptability, (iv) personal effectiveness, (v) Positive attitude, and (vi) individuality.

Stress due to various work-related factors has always been a challenge to Indian software industry still internal coping mechanism including support system to handle such workplace issues is not in place. Every passing year, along with attrition, health issues among Indian software professionals are on rise. Hypertension, type 2 diabetic, depression and anxiety are commonly found health issues and it is impacting business productivity. Recent study in Bangalore reported annual loss of 25,000 Cr. for Bangalore IT industry (Kajarekar, 2018) [12]. Reasons are many including poor time management, lack of proper planning, wrong estimation, and unhealthy management practices to name a few.

Careless attitude towards health (physical & emotional) reflects in various workplace practices including sitting arrangements, quality of served food, lighting and air

conditioning. Despite serious signs like soaring suicides and divorce rates among employees most business leaders fail to build strong system to address these workplace health issues.

Marathon Running

The marathon is a long-distance race, completed by running, walking, or a run/walk strategy. There are also wheelchair divisions. The marathon has an official distance of 42.195 kilometres (26.219 miles; 26 miles 385 yards), usually run as a road race. The event was instituted in commemoration of the fabled run of the Greek soldier Pheidippides, a messenger from the Battle of Marathon to Athens, who reported the victory. (Wikipedia, 2019) [29].

The marathon was one of the original modern Olympic events introduced in 1896, though the distance did not become standardized until 1921. More than 800 marathons are held throughout the world each year, with the vast majority of competitors being recreational athletes as larger marathons can have tens of thousands of participants. (Wikipedia, 2019) [29].

In India, 1st Marathon was held at Pune in 1983 & it has been successful to attract runners from the entire world. Mumbai International Marathon is also one of the celebrated running events in India; started in 2004, It is the most popular running event & and most Indian corporate employees take pride in participating it (Wikipedia, 2019) [29].

Still running has been an urban phenomenon and individuals who are predominantly working with multinationals are adapting it as way for de-cluttering, de-stressing and strategizing (Sengupta, Basu, & Mandavia, 2016) [25]. There are 400 running groups in India and many of them are organizing their own events.

India's most popular road marathon include Mumbai marathon, Chennai marathon, Bengaluru marathon, Hyderabad marathon & Kaveri trail marathon (a trail run).

RPG Group, Mahindra, TCS and Tata AIG General Insurance are among those that have had running teams for several years now, with their ranks surging in last two years or so (Sengupta, Basu, & Mandavia, 2016) [25].

Human endurance running performance capabilities compare favourably with those of other mammals and probably emerged sometime around 2 million years ago in order to help meat-eating hominids compete with other carnivores (Lieberman & Bramble, 2007) [15].

Running helps unclog pores in the skin through sweating, keeping the skin fresh and healthy. Running is liberating, and makes people experience a new sense of freedom. People find that running boosts their self-confidence and self-esteem. Setting big goals, such as running a full marathon, and ultimately attaining this goal leads to feelings of purpose and achievement, of doing more with your life. For many people, running helps relieve stress, because it boosts the brain's serotonin levels, making you calmer and more stress-resistant (Bhat, 2018) [5].

A Harvard study noted that regular aerobic exercise will bring remarkable changes to human body, metabolism, heart, and spirits. It has a unique capacity to exhilarate and relax, to provide stimulation and calm, to counter depression and dissipate stress. It's a common experience among endurance athletes and has been verified in clinical trials that have successfully used exercise to treat anxiety disorders and clinical depression (Exercising to relax, 2011).

A study on relation of physical activity and exercise to mental health found that physical activity and exercise might provide a beneficial adjunct for alcoholism and substance abuse programs; improve self-image, social skills, and cognitive

functioning; reduce the symptoms of anxiety; and alter aspects of coronary-prone (Type A) behaviour and physiological response to stressors (Taylor, Sallis, & Needle, 1985) [27].

Rationale

Researcher’s work experience while working with software industry prompted to study relationship between marathoners & occupational self-efficacy as no study so far has attempted to explore this side of software industry. Based on the earlier researches present study was planned to find out whether marathon running is associated with the occupational self-efficacy in any way. Therefore, the following were the objectives of the study.

Objectives

- To study the difference on occupational self-efficacy between marathoners and non-runners working with software industry.
- To study the effect of marathon running on various aspects of behaviour among marathoners working with software industry.

Hypotheses

1. Marathoners working with software industry will have significantly higher level of occupational self -efficacy than non-runners working with software industry.
2. Marathoners will demonstrate better coping mechanism than non-runners for daily workplace challenges.

Method

The present study is the comparison between two groups of professionals from software industry and both groups which differ from each other on pursuing an organized physical activity and also participation in competitive sport (Marathon running) on regular basis.

Sample

A sample of 100 participants for this study was selected and the data was collected via personal interaction and by using

online survey. Sixty marathoners and forty non-runners working in technology profiles like software developers, software testers, project managers, delivery managers, business analyst in the age range of 22 to 50 from Pune, Mumbai, and Bangalore were selected. It included male (98) and female (2) participants.

Tools

The Occupational Self Efficacy Questionnaire developed by Pethe, Chaudhari and Dhar (1999), was used as a measure of occupational self-efficacy. This scale had been standardised with respect to Indian population using a sample of 220 subjects. It contains 19 items, for measuring six factors namely confidence, command, adaptability, personal effectiveness, positive attitude and individuality of the occupational self-efficacy. The reliability coefficient of the scale is .98 & validity is .99. Occupational self-efficacy constitutes of six sub-factors include confidence, command, adaptability, personal effectiveness, positive attitude & individuality.

1. Confidence is the dependence on one’s abilities
2. Command is sense of control over the situation
3. Adaptability is ability to adjust
4. Personal effectiveness is the inclination towards continuous development
5. Positive attitude is the ability to evaluate optimistically.
6. Individuality is independence in making decisions and setting standard for performance

Procedure of data collection

The researcher collected data via online survey and at times personal interaction was also used. Software professionals from Pune, Mumbai and Bangalore participated in this study. Researcher personally administered assessment tools as well as online data was collected by maintaining strict confidentiality.

Analysis

The data analysis was carried out using descriptive statistics, ‘t’ test and Pearson’s product moment correlation method.

Table 1: Means, standard deviation for occupational self- efficacy among marathon runners and non-runners software professionals, (N-100)

Variables	Groups	N	Mean	Std. Deviation	t
Confidence	Runners	60	17.15	1.990	3.094**
	Non- Runners	40	15.65	2.860	
Adaptability	Runners	60	12.78	1.451	2.143**
	Non- Runners	40	12.00	2.207	
Command	Runners	60	12.20	1.436	2.232**
	Non- Runners	40	11.45	1.921	
Personal Effectiveness	Runners	60	17.10	1.674	2.009*
	Non- Runners	40	16.20	2.803	
Positive Attitude	Runners	60	11.97	1.518	1.487
	Non- Runners	40	11.40	2.296	
Individuality	Runners	60	7.98	1.467	1.199
	Non- Runners	40	7.60	1.707	
OSE (Composite Score)	Runners	60	79.20	6.186	2.977**
	Non- Runners	40	74.03	11.150	

(** = p< 0.01, Significance at the level 0.01, * = p<0.05, significance at the level 0.05)

Table 2: Correlation between age, marathon experience and work experience among marathon runners and non-runners software professionals, (N-100)

Variables	Age	Marathon Experience	Work Experience
Age	1		
Marathon Experience	.328*	1	
Work Experience	.918**	.440**	1

(** = p< 0.01, Significance at the level 0.01, * = p<0.05, significance at the level 0.05)

According to the results elucidated above, it was found that the following variables do have a significant difference between the two groups.

1. Confidence was found significantly higher among marathoners than non-runners software professionals. 't' value for confidence was found to be 3.094, ($p < .01$).
2. Adaptability was found significantly higher among marathoners than non-runners software professionals.
3. 't' value for adaptability was found to be 2.143 which was significant at 0.01 level.
4. Command was found higher among marathoners than non-runners software professionals. 't' value for command was found to be 2.232 which was significant at 0.01 level.
5. Personal effectiveness was found higher among marathoners than non-runners software professionals. 't' value for personal effectiveness was found to be 2.009 which was significant at 0.05 level.
6. Positive attitude was not found to be significant higher among marathoners than non-runners software professionals. 't' value for positive attitude was found to be 1.487 which was not significant ($p > .05$).
7. Individuality was not found to be significant among marathoners than non-runners software professionals. 't' value for individuality was found to be 1.199 which was not significant at .05 level.
8. Occupational self-efficacy was found higher among marathoners than non-runners software professionals. 't' value for occupational self-efficacy was found to be 2.977 which is significant at 0.01 level.

Table 3: Age groups, frequency and percentage of participation

	Age	Frequency	Percent
Valid	26-35 years old	18	30.0
	36-45 years old	28	46.7
	46-55 years old	14	23.3
	Total	60	100.0

Table 4: Marathon Experience and number of participants

Marathon Experience			
	Experience	Participants	Percent
Valid	1-10 Marathons	55	91.7
	11-20 Marathons	4	6.7
	21-30 Marathons	1	1.7
	Total	60	100.0

Table 5: Years of work experience and number and percentage of participants

	Work experience (WE)	Participants	Percent
Valid	1-10 years WE	15	25.0
	11-20 years WE	28	46.7
	21-30 years WE	16	26.7
	31-40 years WE	1	1.7
	Total	60	100.0

Based on data from table 3,4 and 5, it concluded that age of participants does have a significant role in participation of marathon. The age category of 36-45 years has the maximum numbers of individuals participating in the marathon. There are maximum numbers of marathon participants in the category of 1-10 marathons. It is understood that, both age and work experience have a positive correlation and as age increases so does the work experience. It was found that the age was positively correlated with marathon experience; the coefficient value was .328, which was significant ($p < 0.05$).

Also, work experience was also found to be positively correlated with marathon experience, the coefficient value was .440, which was significant ($p < 0.01$). With age and work experience, marathon participation also increases.

Discussion of Results

The main objective of the study was to find out whether marathoners will differ in terms of their occupational self-efficacy compared to the non-runners. Therefore, the following hypotheses were proposed. The results showed support to the hypotheses that

1. Marathoners working with software industry will have significantly higher level of occupational self-efficacy than non-runners working with software industry.
2. Marathoners will demonstrate better coping mechanism than non-runners for daily workplace challenges.

Marathoners demonstrated significantly higher level of confidence, command, adaptability and personal effectiveness than non-runners but no significant difference had been found on individuality and positive attitude between two groups. Marathoners scored significantly higher than non-runners on occupational self-efficacy.

Quantitative and qualitative data showed that marathoners ventured into running after spending on an average 8-10 years in professional life. Many reported to pick it up as recreational activity/ improving health/ for weight management/stress busting. Runners reported several positive behavioural changes including notable decline in anger, aggression, impulsivity and risk-taking behaviour. Remarkable improvement in organizing capacity, patience, discipline and sociability were reported. Many marathoners admitted significant improvement in interpersonal relationships at work as well as on personal front and this positive behavioural change reflected in their professional life too.

Marathoners reported improvement in various areas including stress tolerance, emotional stability, cardiovascular Stamina, physical strength, cravings for food/alcohol/caffeine and sociability. They admitted that improved physical and emotional health helped them to perform better in work settings.

An interesting finding was related to reward and recognition. It was observed that those software professionals who could not perform as per their expectations at work had unknowingly used participation in marathon as way to compensate feeling of inadequacy; at times they felt addicted to preparation and participation for running which impacted their work performance also.

Female participation is found to be negligible in full marathon category, so it cannot be generalized to female employees. They may not be able to enjoy physiological and psychological benefits of running. Since, female employees have to juggle between professional and personal front thus they experience higher level of job stress (Kumari, Joshi, & Pandey, 2014) compared to their male counterparts, investing in physical activity especially running on regular basis can help to cope up with many health issues related to stress.

Positive correlation among years of work experience as well as age and no of marathons has various reasons. Participants admitted several facts including coping with mid-life crisis, work demands, health issues and search for new kind of excitement (dopamine surge) as few reasons to participate in competitive running event after reaching certain age and work experience.

In a study on sources of self-efficacy among long distance running (Samson, 2011) and self-efficacy, self-efficacy demonstrated an upward trend throughout the marathon training program.

A study conducted by Bupa health clinics (Reporter, 2018) mentioned that becoming vegan and signing up for any competitive event are key signs of midlife crisis.

An article from Research Digest (Warren, 2017) ^[28] published on the British Psychological Society reported several findings on running. Running changes brain wiring in positive direction improving cognitive capacity and flexibility as runners found to be better at adapting switches in task instructions in a keypress task on a computer. It also reported that a short jog regulates human emotions and calms down the human mind.

Occupational Self efficacy determines one's belief in own ability to execute work relevant behaviour successfully on timely basis and its relatively stable due to its correlation with personality characteristic as mentioned by (Schyns Birgit, June 2002) ^[24].

According to (Stajkovic Alex, 1998) ^[26] self-efficacy in occupational setting has been found strongly correlated with work performance.

Occupational self-efficacy mediated the relationship between job insecurity, work engagement, job satisfaction and health on employees in the private and public sectors as observed by (Guarnaccia Cinzia, 2016) ^[10].

A study (Boudreu, 2010) ^[6] featuring two marathon runners mentioned that women underwent a mental change that improved their self-confidence and enhanced relationships with their selves and others.

Running, even 5 to 10 min/day and at slow speeds <6 miles/h, is associated with markedly reduced risks of death from all causes and cardiovascular disease. This study may motivate healthy but sedentary individuals to begin and continue running for substantial and attainable mortality benefits (Lee, *et al.*, 2014) ^[14].

There is evidence that an individual with a higher level of self-efficacy will persist longer and be more robust in their efforts than an individual with a lower level of self-efficacy (Feltz, Short, & Sullivan, 2008) ^[9]. Thus, it follows that a high level of self-efficacy would be essential for success in a strenuous sport such as distance running. Although the role of self-efficacy in distance running has not been thoroughly explored, this context seems to be well-suited to provide a clearer understanding of self-efficacy in the physical activity domain.

More recently, researchers have continued to explore the reasons behind participation in distance running and have largely supported previous findings that personal health and attainment of a long-term goal are the primary motivators for running a marathon (Ogles & Masters, 2003) ^[18].

Research on mass running by (Poczta & Moško, 2018) ^[19] discovered that the desire to win was not important for the respondents. All respondents reported that what was very important for them was the need to experience strong emotions related to participation, the desire to feel unity and integration with other people, and the desire to test them. In general, the results show that people participate in running events not only for physical activity, but also for mental well-being and socio-psychological effects. They experience strong emotions, adrenaline, pleasure, relaxation, and an escape from the duties and hardships of everyday life and have an opportunity to build social relationships thanks to mass sports events organized in urban agglomeration.

Another study (Praag Van & Vivar, 2017) stated that running not only increases the number of new neurons but it also affects their inputs and synaptic plasticity. These modifications involve a complex and dynamic network of neurotransmitter systems that impinge onto the new neurons, including a previously unappreciated contribution of glutamatergic and cholinergic signalling, very early in their development.

Several studies showed that occupational self-efficacy has positive impact on job satisfaction (Bannarjee, 2016) ^[4] and work performance (Cetin & Askun, 2017) ^[7].

Suggestions

1. Many studies including this study on marathon running showed numerous positive outcomes can be achieved through running and preparation as well as participation in marathon. Thus, running can be used as therapy to bring positive change on physical as well as emotional level within an individual.
2. By encouraging running, organizations can help employees to improve well-being and help them to perform better. This also adds to brand value of organization.
3. Female marathoners could not be studied properly but a separate study can be planned for female marathoners.
4. Various other work behaviours including leadership, emotional intelligence can be studied in reference with marathon running.

Limitations

1. This study on conducted on two unequal groups of participants so it can be extended to equal number of two groups.

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