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THE EFFECT OF MINDFULNESS TRAINING ON EMPLOYEES IN A DYNAMIC ORGANIZATIONAL SETTING

UDK 159.9:65.012 / JEL J53, M54 / REVIEW ARTICLE

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ABSTRACT

The access to information and multiple sources of communication has changed the way we work, and relate to our work day. The boundaries between work and home often disappear, increasing potentially employees' stress level, diminishing cognitive capabilities, and splitting attention between numerous tasks. The consequences of multitasking have been widely studied, as well as individual differences. Based on other studies, mindfulness based stress reduction (MSBR) method appears to have a positive effect e.g. on attention, working memory, stress and empathy. Thus, this experiment introduces an intervention in the form of mindfulness training, which lasted for 12 weeks for all 110 employees, who are located in 13 countries world wide. In addition, employees attended a seminar per week during 10 weeks. These seminars were mainly based on positive psychology. In order to collect data three surveys were sent out (before the intervention, 12 weeks after the first seminar and 6 months later). Two specific measurements were used, which are Mindfulness Awareness Scale (MASS) and Perceived Stress Scale (PSS). Findings showed a significant increase in MAAS, and diminishing values in PSS, meaning that treatment, in the form of MBSR had an affect on the perceived stress in the firm.

KEYWORDS: mindfulness training, mindfulness based stress reduction (MSBR), perceived stress

1. INTRODUCTION

The words such as multitasking, "continuous partial attention", "email apnea", have become an every day representation of working demands and expectations. Throughout the history, philosophers, scholars and writers such as Socrates, Peter Drucker, and Lord Chesterfield, pointed out the importance of focusing on one thing at the time. (Drucker, 2007; Rosen, 2008) With the introduction of technology, access to massive amount of information has tempted and stimulated workers to change their working habits. According to Lindbeck and Snower, (2000) the shift occurred from "Tayloristic" organization, which emphasized focus on a single task specialization to "holistic" organization, featuring job rotation, learning new tasks and integration of tasks.

The possibility to access large amounts of information and numerous possibilities to communicate with others have often moved and changed the boundaries between work and home. During working hours, employees might also be occupied by their private things e.g. checking private email and social media accounts. On the other hand, constant checking work email and the possibility to be always reached, e.g. available for an important question has created a feeling of constantly being "on". Mark and Gonzalez (2005) observed knowledge workers, who switch every 3 minutes between single tasks, or every 11 minutes between working spheres, which Mark and Gonzalez defined as a group of related tasks. Thus, multiple projects require constant switching between tasks, which create a fragmented working day, where they often need to switch their attention. The intensity of working environment and job demands on individuals has led to a discussion on the effects of multitasking on productivity. (Appelbaum, Marchionni, & Fernandez, 2008; Freedman, 2007)

However, psychology researchers mostly focus on diminishing cognitive capabilities (Ophir, Nass, & Wagner, 2009a) information technology (Czerwinski, Horvitz, & Wilhite, 2004; Spink, 2004) education (Jenkins, Clinton, Purushotma, Robinson, & Weigel, 2006) and consequences of those on learning (Poldrack, 2006), creativity (Madjar & Shalley, 2008), and other concepts. Each of these fields has framed

multitasking in their own context. The most concern raise problems with concentration, diminishing cognitive capabilities, problems with learning, general consequences of split attention. However, it is important to mention individual differences related to the ability to multitask. According to Konig, Buhner and Gesine (2005) working memory is one of the predictors on how well one can multitask. Thus, it is not those who believe that are good at multitasking that perform well (Ophir, Nass, & Wagner, 2009b) but those who have better working memory.

However, one of the consequences of constant switching between tasks and being available to be disrupted leads to increased stress levels. Linda Jones, the former executive at Microsoft named the condition "email apnea", which she discusses in her article in Huffington Post, describing it as "*Shallow breathing or breath holding while doing email, or while working or playing in front of a screen,*" which lately has been verified in a study by Mark, Voida and Cardello (2012).
According to Jensen et al. (2012) study, they point out the effects of mindfulness training (MT) and its potential positive effect on working memory, stress reduction and empathy. Although various studies have reported positive effects of MT on stress and empathy, most of these studies were done on either medical (Sibinga et al., 2011) and nursing students (Beddoe & Murphy, 2004), or patients, who are struggling with different stress related problems, traumatic experiences, and chronic disorders.

Contrary to previous research, which aimed at testing MBSR's effect on various stress-related disorders, this paper presents an experiment within a dynamic organizational setting, where all employees were encouraged to participate, independently of their health problems, stress level, motivation, attitude and need.

2. LITERATURE REVIEW

2.1 Multitasking

The problem of multitasking has been discussed in decades by management scholars, psychologists and lately education professionals and neuroscientists. Their concerns and focus of studies are different depending on the interest of their field. Studies within management field have been mostly concerned with the effects on productivity. However, increasing number of studies shows the stress related problems due to highly demanding working environments.

Brillhart (2004) went even so far to name the type of the stress caused by technology, technostress. He defines it "a*s the minds attempt to deal with change, malfunctions, multitasking issues and the over abundance of technology and data that keeps employees working harder and giving them less down time when away from work.*" Further on, he explains for different types of stress, where multitasking madness is its own category. The consequences are increasing stress that may cause stress related problems, such as headaches etc.

In their latest study, Mark, Voida and Cardello (2013), looked at the effect of email on multitasking and stress level at work. Interestingly, they found out that removing the email from a working setting decreased the level of multitasking and positively affected a focus on a task. Equally, the removal of email led to less stress.

Santora and Esposito (2010)point out that it is to expect in dual-income families to struggle with stress, when trying to balance the multitasking demands with work and home life. Thus, multitasking takes a place of a major source of stress in finding a balance between work and home. Offer and Schneider (2011) suggest that for mothers, multitasking at home and in public leads to an increase in negative emotions, stress, and work-family conflict and psychological distress.

Although multitasking is a more complex concept with a wide range of consequences, this paper solely focuses on stress related to multitasking. In dynamic environments, where real-time information has an impact, multitasking and continuous presence might be necessary, but also costly.

2.2. Mindfulness

Mindfulness is an ancient practice belonging to the Eastern Wisdom Traditions, particularly Buddhism, and as such it goes back at least 2500 years in time. The original term for "mindfulness" is *sati* (Pali), or *smrti* (Sanskrit), which connotes "memory" or "recollection," but as a spiritual or psychological faculty it signifies an attentive awareness of the reality of things. In the early Buddhist traditions *sati/smrti* signifies presence of mind, meaning the ability to be attentive to the reality of whatever unfolds. It has the characteristic of not being distracted, which implies not leaving the object one has chosen to focus upon.

Essentially, there is nothing in the original teaching and practice of mindfulness suggesting that one needs to be Buddhist in order to pursue it, although it originated and was systemized in a Buddhist environment.

2.3. Mindfulness based stress reduction (MBSR)

One of the most common examples of mindfulness practice is mindfulness based stress reduction (MBSR) that has been introduced by Kabat-Zinn in late 1970s, where he defines it as paying attention on purpose, in the present moment, and nonjudgmentally" (Kabat-Zinn, 2003) According to Bishop (2002) it is a clinical program, which originally was designed as a help for patients to learn to adapt to their illnesses through self-regulation approach, which would diminish stress reduction and emotion management. The goal of the meditation is

to "foster the quality of mindfulness", which is a self-regulatory approach to bring attention back, without being caught up in thoughts about a specific situation or emotional reaction to it. (Bishop, 2002)

The researchers, especially psychologists and medical workers, have tested the effect of MBSR method on numerous patients with difficulties, such as HIV-infected youth and those at risk (Sibinga et al., 2011) posttraumatic stress disorder due to domestic violence (Smith, 2010), emotional regulation related to social anxiety(Goldin & Gross, 2010), depression, anxiety and pain (Marchand, 2012)among others. All these studies found a positive effect of MBSR on these conditions and patients well being, especially on the ability to handle attention, rumination (Campbell, Labelle, Bacon, Faris, & Carlson, 2012), interpersonal relationships, hostility (Sibinga et al., 2011)or physical manifestations such as blood pressure and blood sugar. (Campbell et al., 2012)

Although MBSR method has been used mainly in patients, researchers have also looked at the benefits of the method on the ability to deal with stress and empathy in medical, premedical (Shapiro, Schwartz and Bonner 1998) students and nursing students (Beddoe & Murphy, 2004). According to Shapiro, Schwartz and Bonner (1998) the inability to deal with stress may lead to serious personal and professional consequences.

Fries (2009)in his paper discuss how changing work environment, with high uncertainty and instability, affects workers and causes stress. He suggests that the five basic factors of mindfulness, such as non-reactivity, observing, awareness, labeling and non judgment (Baer, Smith, Hopkins, Krietemeyer, & Toney, 2006) an change one's inner perceptions, regardless of external happenings, thus affecting stress level.

Therefore, previous research finds that MBRS reduces stress among patients and students related to highly stressful medical environment, with high risk of fatal consequences. However, to our knowledge, the method has not been used within a business setting, although it has been suggested by Fries (2009). Due to technology driven working days, employees are often exposed to high stimuli and stress. Thus, this setting could use MBSR as a method for dealing with consequences of multitasking.

Hypothesis 1. MBSR has a positive effect on stress-level of employees in a dynamic business environment.
Hypothesis 2. MBSR reduces stress-related health problems in employees
Hypothesis 3. MBSR increases the ability to be present in the moment.

3. METHODS

The method that we used in this project was an experiment, which consisted of an intervention in the form of mindfulness training and seminars.

3.1. Mindfulness Training as an Intervention

Mindfulness training consists of practice and ten seminars. During practice the participants were supposed to engage in 10 minutes of mindfulness breathing, and "paying attention in a particular way on purpose, in the present moment, and nonjudgmentally." (Kabat-Zinn, 1994) These mindfulness practices took place every day for 12 weeks. The program contains 10 modules, which are conducted at the work place. The first seminar was a two-hour workshop on "introduction to mindfulness" and the remaining nine sessions were an hour each. The sessions were on ten different topics, which are mostly based on positive psychology. These seminars are:

1. Introduction to mindfulness
2. Perception & The importance of awareness
3. Your brain at work & Activities with mindfulness
4. Inspiration & Dealing with hindrances
5. Happiness & Valued living
6. Optimism & Mindfulness and neuroscience
7. Acceptance & Automatic thought-patterns
8. Emotional intelligence & The good life
9. Freedom & Letting go
10. Mindfull Living

The program lasted for 12 weeks, consisting of daily 10-minutes mindfulness training. TGS has an open landscape solution, where top management team sits together with everyone else. The training took place in this area every morning from 8:50 to 9:00.

3.2. Data and Sample

In order to test the hypothesis, the firm that has participated in the experiment is Telenor Global Services (TGS), which consists of ca. 120 employees located mostly in Norway, but also in large number of other countries as well. Participation in mindfulness training, seminars and surveys was highly encouraged by top management in TGS but voluntary. The top management team participated visibly in all activities and general participation in training and seminars were high.

The range of participants is between 20 and 67, where all age groups and both sexes are equally represented. In the survey group, 80% of employees have a bachelor or master degree.

3.3. Data Collection

We distributed three surveys to all employees; the first before the intervention, the second immediately after the intervention and the third after another six months.

In addition to questioning the employees about simple self-reported stress, and stress-related problems we asked them

to respond to some widely used and validated psychological instruments for measuring stress "Perceived Stress Scale", PSS, and mindfulness "Mindfulness Attention Awareness Scale", MAAS.

Perceived Stress Scale (PSS)

PSS is the most widely used psychological instrument for measuring the perception of stress. (Cohen, Kamarck, & Mermelstein, 1983)L. Harris Poll have gathered information on more than 2000 respondents in the US as a reference norm. (From Cohens homepage http://www.psy.cmu.edu/~scohen/)

Mindfulness Attention Awareness Scale (MAAS)

MAAS measures "a core characteristic of mindfulness, namely, a receptive state of mind in which attention....simply observes what is taking place." Higher MAAS scores reflect higher levels of mindfulness. (Brown & Ryan, 2003)

77 responded to the first survey. However, some complained about the survey because of its length. The employees in TGS are of all ages, both sexes, and 80% have a bachelor degree or more.

3.4. Data Analysis

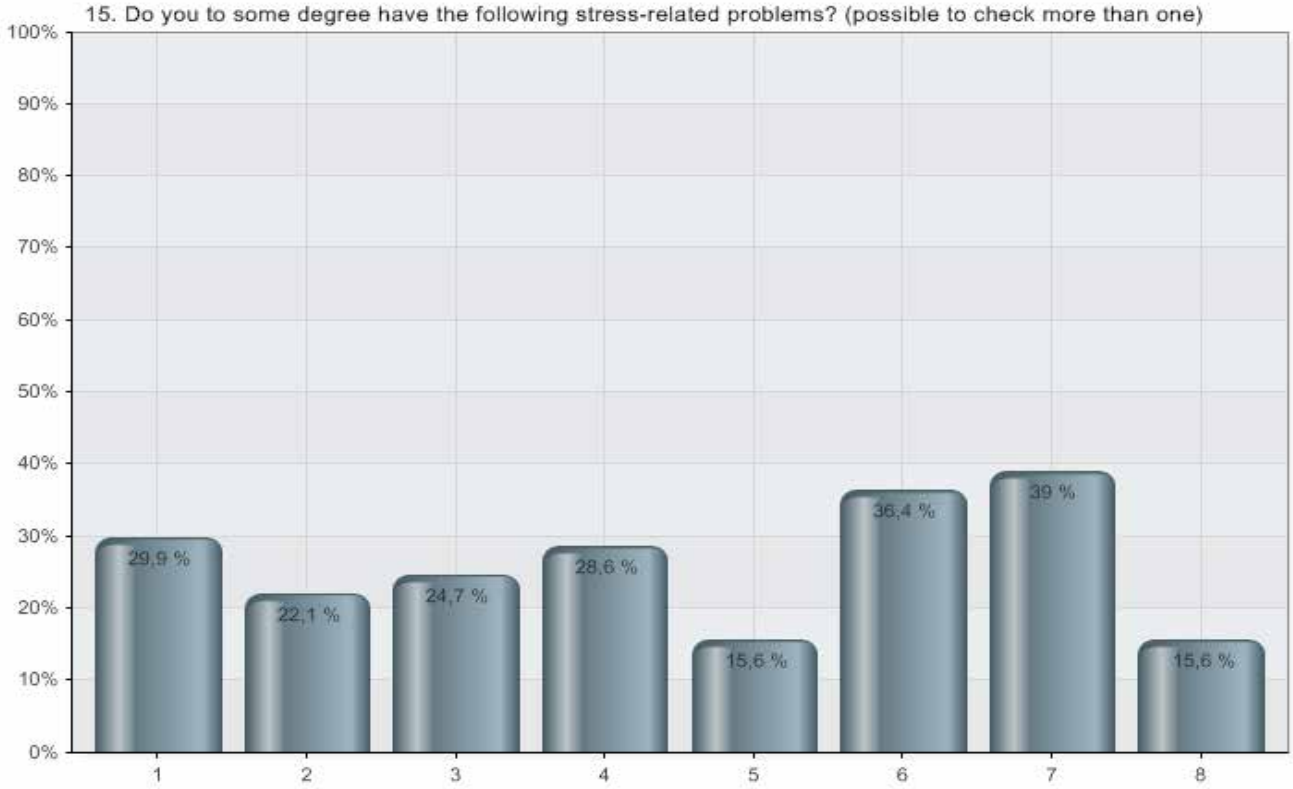
We compared differences in means between groups by ANOVA and compared differences in 2 proportions by two sample proportion z-test.

4. RESULTS

4.1. Findings before MBSR training and seminars

85% of respondents report good or very good health. Overall, they are very happy to be working at TGS and hardly have any plans to leave the company in near future. They report high job satisfaction and organizational commitment on several indicators (not reported). However, there is a heavy work load and 30% report that stress is a problem. Further on, work-related and family related stress is equally problematic (see Figure 1.).

Figure 1. Where 1=difficulties sleeping, 2=Fatigue, 3=Tension, 4=Irritability, 5=Lack of memory, 6=Lack of concentration,7= Headache or pain in shoulders, neck etc., and 8= None.



We observe that 16% did not have any of the suggested problems. The main stress-related problems were "difficulties sleeping" (30%), "Lack of concentration" (36%) and "Headache or pain in shoulders, neck etc" (39%). All these stress-related problems are likely to influence individual wellbeing and job performance.

In addition to questioning the employees about simple self-reported stress, we asked them to respond to some widely used and validated psychological instruments for measuring stress "Perceived Stress Scale", PSS, and mindfulness "Mindfulness Attention Awareness Scale", MAAS.

Table 1. *Community adults in 4 independent samples n=436, mean=4.2, SD=0.69 (Brown and Ryan 2003 and Carlson and Brown 2005)

		Harris poll		TGS March 2012		
		Mean US	SD	Mean	N	SD
SEX						
Male		12.1	5.9	14	43	5.6
Female		13.7	6.6	16	34	6.0
Tot average				15	77	5.8
Age US	Age TGS					
18-29	<30	14.2	6.2	16	13	7.8
30-44	31-40	13	6.2	17	27	5.5
45-54	40-60	12.6	6.1	13	32	5.3
55-64	>60	11.9	6.9	17	5	3.2
65 and older		12	6.3			

Differences between age-groups are significant (p=0.08) . The numbers suggest that the employees in TGS are more stressed than average US adults , which is not disturbing as this group is presumable a selection of more competitive hardworking and ambitious people than the average population. Also, we find that women are more stressed, but not more so than reflected in the US population. Furthermore, age differences are relatively equal to what is reflected in the US population, with the exception of the oldest employees. We may speculate that older There are large differences between the departments, some score much higher on PSS than others. These large differences between the various departments triggered discussion in TGS, and is important input to the top management.

The results also suggest the employees in TGS are a little more mindful than the average US adult, measured by MAAS.

4.2. Findings after MBSR training and seminars

Second Survey Findings – 12 Weeks Later

The second survey was distributed in June immediately after 12 weeks of MBSR training and seminars. This time we got 60 respondents (compared to 77 on the first survey). We consider this a very good response rate as summer vacation had just started for some employees.

80% report that they have participated several days a week or more in MBSR training. 90% have participated in seminars. A vast majority claim they have got something of lasting value and 80% express that they will continue with MBSR training in the future.

We observe (Table 1.) that self-reported "stress is a problem for me" is reduced to some extent, and that the stress that bothers some is less family-related.

We also observe that there is a large, 16%, and significant reduction in headaches or pain in shoulders, neck etc. Also several persons report less difficulties sleeping. Actually, in open question on benefits this was reported by many.
The widely used psychological instrument, PSS, shows a significant reduction in stress (p=0.01). And the Mindfulness instrument, MAAS, shows a significant increase in mindfulness in the group (p=0.02)(see table x).

Third Survey Findings – 6 Months Later

The third survey was distributed in December, 6 months after MBSR training and seminars to investigate lasting effects. The third survey was limited to a few related to continued practice and benefits , PSS and MAAS.
Due to some technical difficulties the response rate was low, n=40. However, results are still reported. In the period between survey 2 and survey 3, TGS experienced a hard time. Thus we expected increase in stress. However, the results actually indicate the opposite. Self-reported stress is decreased. PSS and MAAS are approximately the same as right after MBSR training and seminars, which we and the top management in TGS find surprising.

Table 2. Results on self reported stress levels and problems

	Survey 1		Survey 2		Survey 3	
Statement	No	Yes	No	Yes	No	Yes
"Stress is a problem for me"	73%	27%	75.4%	24.6%	85%	15%
"It is mostly work-related stress that bothers me"	57%	43%	41%	59%	45%	55%
"It is mostly family-related stress that bothers me"	67%	33%	74%	26%	78%	22%

We observe that stress is less of a problem – and that in particular family-related stress is reduced.

Changes in stress-related problems:

Table 3. Changes in stress-related problems: *p=0.1, **p=0.05, ***p=0.01

Problem	March	June	Difference
Difficulties sleeping	29,9	25	-4.9
Fatigue	22.1	30.4	+8.3
Tension	24.7	19.6	-5.1
Irritability	28.6	25	-3.6
Lack of memory	15.6	16.1	+0.5
Lack of concentration	36.4	32.1	-4.3
Headache or pain in shoulders, neck etc	39	23.2	-15.8 **
None	15.6	21.4	+5.8

We observe that several stress-related problems are reduced, however, only "headache or pain in shoulders, neck etc" show a significant and large reduction. For some reason "Fatigue" has increased. We do not understand why. At closer inspection we found that 17 persons had answered "yes" to this each time, however the percentage increased in a smaller sample even if there is not a perfect overlap between the samples.

PSS and MAAS are approximately the same in December as in June.

Table 4. PSS and MAAS and *p=0.1, **p=0.05, ***p=0.01

	TGS March	TGS June	TGS Dec
PSS score	15	12.5 ***	13.35
MAAS	4.4	4.7 **	4.7

In December we asked about continued practice and benefits. 75% still practice MBSR sometimes or regularly. And more than 50% claim to experience changes in colleagues and/or the working environment as a result of the mindfulness training.

5. DISCUSSION

The changes in a working environment have been a topic during past decades. Working tasks have been changing from a linear and orderly to more chaotic, diverse and dynamic tasks. As mentioned earlier, Lindbeck and Snower (2000) point out technology as one of driving forces for changes in the working environment. In dynamic environments, changing between tasks, being continuously available and interrupted might lead to increased stress level, causing various stress-related issues. In our experiment, which takes place in the technology company facing heavy competition, 30% of the employees reported stress as the problem. They also report various stress-related health problems, such as headache, pain in the neck and shoulders and difficulties with sleep. Interestingly, the most stressed employees have benefited the most from MBSR training and seminar. They report having less difficulty with sleep, headaches, and pain in the neck and shoulders. Similarly, the widely used instrument for measuring perception of stress, PSS, shows a significant reduction in the whole group. Although the company is experiencing hard times and changes, the effect of MBSR method continues to have an effect after six months.

New technologies and social media blur the border between work and leisure and encourage multitasking at home and in the office. We find that family-related stress is reduced with MBSR training and seminars. We speculate that employees with mindfulness training become more attentive, both at home and in office. Being able to be more" present in the moment" and not thinking about work while being with family – and visa versa. In addition to employees being "always online" we face increasing globalization, uncertainty and financial instability that characterize today's working environment. These factors are likely to increase stress in the work force.

Although this paper does not test or discuss the consequences of multitasking in general and its effect on productivity, it address the problems caused by dynamic environments, with high demand for multitasking, which might be a cause for high stress and stress-related issues in the company. However, this stress might be detrimental to individual's wellbeing, mental health and productivity. We suggest MBSR as a low threshold and low cost tool to counteract this.

CONCLUSION

This experiment took place in a dynamic organizational setting, with high demands for multitasking due to the nature of business. The results in the first survey showed that 30% suffer from stress; work related stress, as well as personal stress. By introducing the all employees of the firm to the MBSR training and seminars, there was a significant change in self-reported measures on stress and stress-related problems. According to Perceived Stress Scale (PSS) the stress level decreased as well. In addition the ability to be in the moment and focus attention, which Mindfulness Attention Awareness Scale (MAAS) measured, showed a positive improvement. Thus, we find support for all three hypotheses.

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