

IMPACT OF GREEN SPACES ON WORKPLACE STRESS; INSIGHTS FROM SOFTWARE COMPANIES IN SRI LANKA

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Abstract

Workplace stress is a common issue that can cause a range of debilitating health outcomes including depression, anxiety, cardiovascular diseases, musculoskeletal problems, or alcohol dependence of workers affecting their satisfaction, work efficiency and productivity. It was hypothetically assumed that exposure to green spaces can reduce stress levels leading to workplace satisfaction due to the restorative effects of nature. The literature establishes with a strong base of evidence that the regular touch with nature is required to reduce workplace stress while maintaining a balanced mental health. Exposure to nature as a strategy to reduce stress levels at the workplace was tested by this preliminary field investigation with reference to three software companies in Sri Lanka. The cases (C1, C2, C3) were selected based on the existing levels of greenery; C1, C2, and C3 with high density, moderate density, and low density of greenery, respectively. An online questionnaire survey was adopted with three volunteer groups of employees (n = 60, 20 per case) to test the level of nature-contact, perceived stress, and satisfaction of employees.

Aligning with literature the study revealed a direct association between the density of greenery vs stress levels and satisfaction of employees. Respondents of C1 were found to be less stressed (88%) and more satisfied (80%) with their job compared to the other two cases while respondents of C3 were the most stressed (57%) and least satisfied (71%). 94% out of the total respondents, perceived that exposure to green spaces increased perceived work efficiency via maintaining mental health (27% agreed, 67% strongly agreed). Considering the revealed positive impacts on mental health, the study recommends increasing the level of exposure to nature in order to boost satisfaction and work efficiency of employees in software companies of Sri Lanka.

Keywords: mental health, workplace stress, green spaces, job satisfaction

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Introduction

This research has explored the impact of green spaces/nature on mental health and well-being of employees at corporate sector with special reference to software industry. Software industry was chosen as having an artificial working environment compared to other corporate companies. It was attempted to look into the impact of exposure to nature in maintaining a balanced mental health condition in order to boost the satisfaction and work efficiency levels of employees in software companies.

Research problem

There is an alarming increase in the prevalence of poor mental health of employees in corporate sector involving substantial costs to the employers including adverse impacts on creativity, innovation, efficiency, and productivity. A range of studies suggest that there are mental disorders in employees of corporate companies related to software industry. As revealed by Thomée, Härenstam and Hagberg (2012), aspects of ICT use can contain risk factors for mental health and wellbeing among young adults. Shoji, Oda, Satoh, Kubota, and Imai (1990) who examined the mental complaints and psychiatric disorders in software engineers revealed the severity of mental ill health in this group of professionals. As clarified by Padma, Anand, Gurukul, Javid, Prasad and Arun (2015), stress is found to be high in software profession because of their nature of work, target, achievements, night shift and excessive work load. Software Industry employees are prone to develop a range of health problems due to continuous mental stress including acid peptic disease, alcoholism, asthma, diabetes, fatigue, tension headache, hypertension, insomnia, irritable bowel syndrome, psychoneurosis, sexual dysfunction and skin diseases such as psoriasis, lichen planus, urticaria, pruritus and neurodermatitis (Padma et al, 2015) . Accordingly, managing stress is increasingly becoming a vital necessity in software industry to enhance job satisfaction, productivity and performance. As a remedial action, the current investigation inquires on the potential of incorporating nature, green elements, and landscape interventions as a tool in reducing stress levels to maintain a balanced mental health of employees at companies in the software industry.

Significance of the Study

As highlighted by Brown (2017), there are many benefits of adding green spaces at work. Plants are found to reduce stress, make employees happier, increase worker productivity, make an office look better, improve the air quality, and provide overall comfort. Aligned with this the current investigation signifies the potential of incorporating green spaces as a means of managing stress in order to increase the levels of satisfaction and efficiency of the workforce of software industry in Sri Lanka.

Research Objectives

01. Describe the relationship between green spaces and mental health
02. Assess the literature regarding the benefits of green spaces at workplace
03. Inquiring the impact of green spaces on workplace stress of the employees in software industry
04. Inquiring the impact of greenspaces on workplace satisfaction of the employees in software industry

Literature Review

Workplace Stress

Mental health is an integral and essential part of overall health of a human being. As stated by the Mental Health Foundation (MHF,2020), the workplace is the place where many of the people spend much of their time, as work play a major part of their lives. Accordingly, the working environment is one of the key elements that contributes to the physical and mental health of an individual. Largo-Wight, Chen, Dodd & Weiler (2011) found that poor or sick working environments can threaten employee’s health through biological as well as psychological pathways. Mental health issues in the working environment have serious reverberations not only for the employees, but also for the productivity and outcomes of the enterprise. Some aspects such as absenteeism, rates of illness and employee performance are influenced by their mental health status.

Most of the researchers have identified workplace related stressors as the main reason for overall job-related stress and satisfaction. Accordingly, exposure to unpleasant conditions at the working environment may directly lead to higher stress levels of employees. As stated by Largo-Wight, Chen, Dodd, and Weiler (2011), employees at healthier workplaces take less days without work because of sickness or simply needing a mental health day.

Literature has identified diverse parameters pertaining to workplace stress. The current investigation referred to the model of job stress and health derived by Hurrell and McLaney (1988) which identified job stressors, personal/individual factors, non-work factors and buffer factors as leading to work stress of employees(Fig.1).

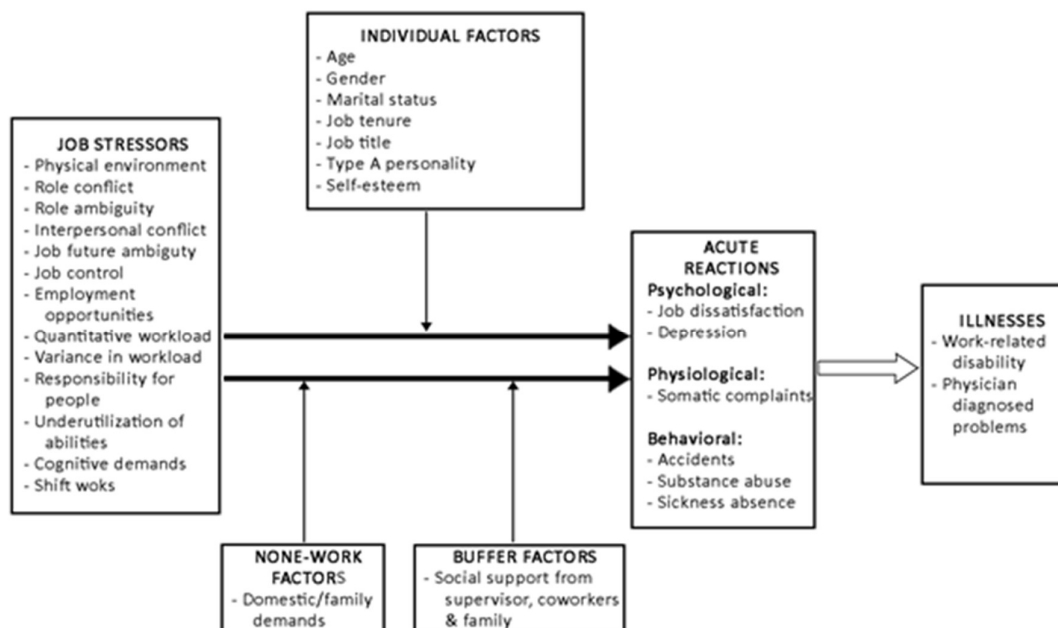


Figure 1 The reasons for stress at the workplace
 Source: Model of job stress and health [Hurrell and McLaney,(1988)]

Out of the parameters identified by Hurrell and McLaney (1988) the current investigation probes into the physical environment as a significant job stressor. The amount of contact to nature/ green spaces in the environment of software companies will be focused here.

Effects of Workplace Stress during Working Hours

Workplace stress affects not only on the individual employee, but also on the organization. The following outcomes are some of the main consequences of workplace stress of employees on the organization[Canadian Centre for Occupational Health & Safety(CCOHS),2020]

- Lower productivity due to less efficiency of employees.
- Inability to complete tasks during the given period due to the waste of working hours for non-billable activities by employees.
- Reduction in output
- Poor decision-making
- Lack of ability to pay attention to work
- Strained relationships with other employees.
- Increase in error rates
- Increased amount of accidents

Benefits of Reducing Workplace Stress of Employees

Researchers have established several benefits of reducing workplace stress of employees. According to the World Green Building Council (WGBC, ND), a healthy, happy workforce is a vital component for the employees to boost up the productivity of the workplace. Main benefits of reducing workplace stress of employees established through literature are as follows,

- Increasing the productivity of the organization.
- Higher efficiency of employees.
- Increasing the job performance of individuals.
- Improvements of communication skills with co-workers.
- Physical capabilities of employees.
- Improved daily functioning of individuals.

Significance of Less Nature-Contact on Workplace Stress

Several studies have shown that detaching from nature is damaging for human development, health and well-being and that regular touch with nature is required for excellent mental health. Less nature-contact is identified as a significant reason for workplace stress (Dravigne et al., 2008; Han & Hyun, 2018; Largo-Wight et al., 2011; Lottrup et al.,2015). Dravigne et al. (2008) as cited in Kaplan (1992) highlights the researchers' disclosure on a greater number of people who experience certain negative reverberation as a result of decreasing the amount of time spent with nature while working and spending leisure time indoors. Urban lifestyles characterized by separation from nature and longer hours at the office may impose adverse effects on personal health and happiness (as cited in Kaplan, 1992 & Lewis, 1994). Largo-Wight et al. (2011) found that purposefully incorporating contact of nature helps in reducing employee stress. Individuals living in greener areas were reported to experience less mental distress and higher life pleasure.

People work better when they are less stressed. As stated by Brown (2017), plants have been proven to reduce the stress levels of employees at workplaces by providing a relaxing and comfortable touch to any type of an office. As literature describes, use of green spaces in workplace is a step forward to decrease health complaints, manage blood pressure, improve popular health perceptions, and develop greater capacity to stand problems.

Presence of indoor plants, views of natural surroundings through windows or an abstract representation of nature/landscape scenery may help to increase productivity of participants while reducing mental fatigue, stress, boosting attentiveness due to lowered blood pressure. (Berg & Berg,2015; Dravigne et al,2008; Han & Hyun,2018; Houlden, Weich, Albuquerque, Jarvis & Rees (2018); Kathryn, Caroline & Alicia,2015.

The employees at workplaces also receive benefits from plants and window views of green spaces in both active and passive interactions such as providing visual and physical aesthetic enjoyments to the employee and minimizing the harmful effects of sick building syndrome. (Dravigne et al., 2008).

Less Nature-Contact on Workplace Stress at Software Companies

Padma et al, (2015) have highlighted that the level of stress faced by employees of IT industry is comparatively higher than other employees. These employees are prone to develop a lot of health problems which are either induced, sustained, or exacerbated by stress. Working environment in the software industry being highly detached from softscape elements of nature and highly characterized with more hardscape elements namely laptops, desktop computers, screens, servers, electrical and network wiring/cables, artificial lighting, air conditioners... etc is critical in this regard.

Affirming the importance of incorporating green elements in IT related work places, Dravigne, Waliczek, Lineberger & Zajicek (2008) have found that the people who work in computer labs with the presence of plants are less stressed than the people who work with no plants. The participants were cross-examined for stressful tasks on the computers to measure their reaction times while measuring the emotions and blood pressure. This study exposed that the employees with the presence of plants in their labs were more satisfied about their job and reported excessive life scores than the stressful employees.

Sensation and Perception of Green Colour in Nature –Contact

The therapeutic effects of color can be traced way back to the ancient times. Green, which is nature's colour, is restful, soothing, cheerful, and health-giving (Brunton,2020). As explicated by Mahnke (1996) the color green has been found to be soothing, refreshing, and relaxing and elicits feelings of happiness. Viewing the color green was found to reduce anxiety and stress. Scholars have discussed that the human contact with nature characterized by the shades of green colour enabled by the process of visual perception boosts mental health and well-being.

Maas et al. (2009) clarified that 'open' green spaces boost affections of social safety while preserving visibility than 'closed' green space which do not preserve visibility due to the higher visibility of potential dangers. On the other hand, Adams (2016) has cited that the perception of green spaces may vary with the type of people. While one person may appreciate nature, another might not do so based on his/her perceived notions, experiences and ideologies related to the green colour. The exposure to symbolic representations of landscape elements and recorded

nature sounds which can be experienced indoors have been related to reducing stress-related outcomes (Largo-Wight et al, 2011). Barton & Rogerson (2017) has demonstrated the mechanistic importance of greenspace and the therapeutic application of greenspace as cost-effective methods to promote mental health.

Exposure to Green Spaces

Exposure to green spaces in the working environment may positively influence the development of physical as well as mental health of employees. Sancu (as cited in Ulrich & Parson, 1993) has clarified that being appropriately connected to nature can occur in two forms; active contact and passive contact, which defines the individuals who directly involve with nature and which includes observing plants or elements of nature... etc. respectively.

According to Hassen (2016), the impact of exposure to green spaces will be determined by three main parameters namely, quantity, access, and quality.

Quantity of Green Spaces

The extent of space in a building dedicated to greenery is defined as the quantity of green spaces. This refers to the amount, extent, density of green spaces, or the perception of the quantity of green space. The people who live in an area which presents higher density of greenery are found to be less stressed and healthy physically as well as mentally than the people who live with the minimal density of greenery (Houlden et al.,2018 and Colley, Brown and Montarzino, 2018).

Access to Green Space

The ease of proximity to a green space whether by walking, cycling, or by any other transport system refers to the access to green space. Another definition would be the mobility to green spaces which can be measured either objectively or subjectively. The association between greenspace accessibility and mental wellbeing has been considered as a limited factor through quality and inconsistent evidence (Houlden et al.,2018).

Access to green spaces have the ability to encourage individuals to engage in physical activities such as walking in natural settings and it is assumed to boost mental health benefits in comparison to staying indoors with less nature-contact (Rugel, 2015).

Even if physical access to nature is found as beneficial, walking during leisure time is generally limited at workplaces. Lottrup et al.(2015) cited that, providing the view of outdoor nature/landscape from a workplace could be the easiest strategy of approaching outdoor green spaces during the working hours. Access to green spaces depends on the availability of free time of an individual as well. Also, gender can be considered as a moderating factor; women additionally walk more purposefully than men with the purpose of accessing various destinations.

Quality of Green Spaces

Quality of green space may vary in different conditions such as cultural context, community needs, aesthetics ... etc. Also, it includes the presence of water features, noise levels, and biodiversity/species richness. Additionally, the quality of green space is a consideration, with specific features such as trails and wooded areas defined as conducive to physical activities (Rugel, 2015).

Impact of Exposure to Green Spaces at the Workplace

Largo-Wight et al. (2011), states three main nature-contact types applicable to work environments.

Outdoor Nature-Contact

Outdoor nature-contact can be defined as the exposure to the outdoor green spaces such as employees entering and exiting the office outdoor during work breaks etc. According to Seppälä & Berlin (2017), introducing landscaping to the office environment with plants, will increase the mental health of employees and the productivity of the organization. Also, it is said to have reduced stress in several studies of breast cancer patients.

Largo-Wight et al. (2011) discussing on the value of outdoor break areas with nature-contact proposes to create/ enhance outdoor green spaces to promote healthy working environments. It was further claimed that, during the working hours, going outside for a break rather than using break rooms or lobby areas is a straightforward way of promoting mental health while reducing workplace stress.

Indoor Nature-Contact

Indoor nature-contact can be defined as the exposure to green spaces within the office such as indoor plants, indoor mini green houses, lobby areas with greenery, natural lighting areas, view from the window etc.

Seppälä & Berlin (2017) found that even a small green intervention in the office could help to boost employee happiness leading to organization's success. Largo-Wight et al., (2011) have mentioned that indoor exposure to natural elements such as indoor plants, natural lighting, fishbowls or indoor ponds and window views of landscapes have been associated with less stress among employees at workplaces. Also, indoor nature-contacts such as plants & opening blinds are straightforward ways to promote health by reducing workplace stress.

Lottrup et al. (2015) as cited in Dravigne et al (1996) mentioned that the employees who work in an atmosphere with indoor plants have excessive intensity of job satisfaction and they are more productive than the employees who work in plant less office environments. According to Kaplan (2001), the window views can be considered as a micro-restorative setting as it is the easiest way of reaching outdoor green spaces during the work hours.

When considering the workforce, an artificial working environment can threaten the health of employees through biological pathways as well as mental pathways. When considering the biological pathways, the employees can get rid from illnesses, such as "Sick Building Syndrome" which can be caused by indoor air pollution.

Indirect Nature-Contact vs Direct Nature-Contact

The outdoor nature-contact which is the most direct means of contact with nature has a powerful interrelation with stress reduction. Indirect nature-contact can be defined as conceptualized or symbolized representations of nature such as landscape sceneries, photographs, recorded nature sounds etc (Largo-Wight et al.,2011). Indirect nature-contact being the least form of nature-contact, results in only slightest health benefits at office environments. However, the indirect

nature-contact at hospital environment has found to bring effective health benefits (Largo-Wight et al., 2011).

Theoretical Framework

The theories considered in formulation of the line of thinking are lined up below.

Visual Perception Theory - Gibson (1966)

Since the current research discusses the visual perception paradigm, Gibson's visual perception theory was looked at as a comprehensive and essential area to study. Nature and natural environments are often connected with visual assets. Perception of nature refers to an aesthetic worth as well. As the theory describes, the parameters which affect employees' visual image and visual identity values are connected to the psychological reality that non-existence outside the mind and that the mind consists of many diverse perceptions that are entered via the senses. Perception of the green spots at workspaces have a direct visual effect on employees during the working hours as a means of meaningful communication (Brogaard & Gatzia, 2016).

Stress Reduction Theory - Roger Ulrich (1991)

Ulrich (1991) suggests the Stress Reduction Theory (SRT), to express the emotional and physiological reactions in the presence of natural elements through his several research series. According to the main idea of the theory, exposure to nature or observing natural views or landscapes have benefits for mental health and well-being. A relaxed psychological state has been induced by the exposure to the natural environment according to SRT. Also, health positive results have been obtained by reducing the stress. During their research, the stress recovery process by exposure to nature resulted remarkably fast. Individuals with exposure to unthreatening natural environments such as vegetation or water, responded with relaxed attention positively and effectively while experiencing reduced levels of stress, negative feelings, and elevated physiological health condition.

Attention Restoration Theory - Stephen Kaplan (1980)

Rachel & Kaplan (1980) developed and popularized the Attention Restoration Theory (ART) which describes that the exposure to nature is not only enjoyable but also helps to improve the focus and ability to concentrate (Ohly et al., 2016). The employees' attention plays a critical role during the working hours as the attention fatigue is a dominant issue related to mental condition. ART defines restoration as the recovery of depleted resources which can be psychological (attention and emotions), physiological (stress) and/or social. A restorative natural environment could change negative conditions into positive ones. ART explains the ability of nature to renew mental energy and reduce stress. Accordingly, nature can be considered as a restorative tool providing opportunity for human beings to rest and refresh themselves. ART describes the way to dump any intrusive factors that occur with direct attention. Aligned with ART, Olmsted (1865) highlighted the necessity for the people who live in most urbanized areas to incorporate more green spaces to preserve their power of attention.

According to ART, the best way that the working spaces can boost mental health of employees is through the practical use of green spaces. The perception of a quality view of nature through a window can be associated with satisfaction, higher task enthusiasm, less frustration, higher life satisfaction and better general health (Kaplan,1993 & Lottrup et al.,2015).

Prospect and Refuge Theory - Jay Appleton (1975)

Sugihto (2016) has explained that, humans seek out to satisfy an innate desire when reviewing a space to have opportunity [prospect] whilst being safe [refuge]. When relating the theory to the current investigation, the notion of prospect refers to seeking opportunities to perceive and acquire visual information, to explore environments and find opportunities. On the other hand, refuge refers to seek out shelter, protection, and environments where one can hide away.

Prospect and refuge theory suggest that individuals are tending to be in the most acceptable place which gives them opportunities and safety. Accordingly, people gravitate to edge conditions than expansive spaces to have the refuge, whilst preserving the prospect to observe the remainder of the outdoor space. Also, the edge conditions uplift people to sit and observe and expansive spaces discourage people from occupation. The number of occupants also depend on the size of the available space (Lynch, ND)

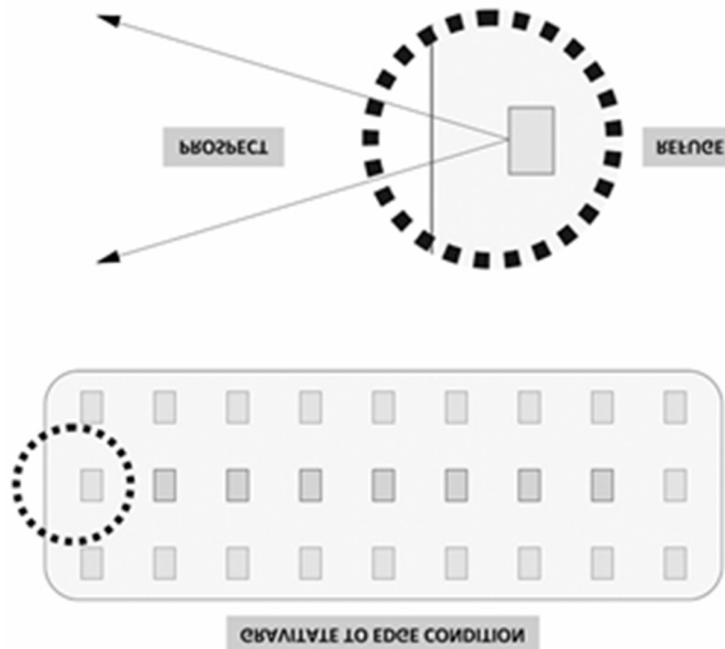


Figure 2 Conceptual office structure
Source: Compiled by author

Being an interior space, the whole office environment itself can be considered as a refuge by the employees. Aligned with this theory, the employees in the office environments gravitate to the edge workstations rather than working in a centre, being observed. They have the refuge of seating with a wall, cubical or a window. When considering the edges of workplaces, window views play a main role as a prospect providing outdoor nature-contact at work.

Visual perception theory, SRT and ART have been combined by considering its visual, psychological, and social aspects, respectively. Prospect and refuge theory come under the

combination of aspects. ART and SRT have been thoroughly considered as the basis of this study to find out the manner as to how green spaces can be incorporated as a tool to reduce stress.

Methodology

This study mainly focuses on workplaces with an artificial environment, with less green spaces and views of vegetation. Accordingly, companies in the software industry encompassed with an artificial environment with hardscape elements rather than softscape elements, have been studied under this research.

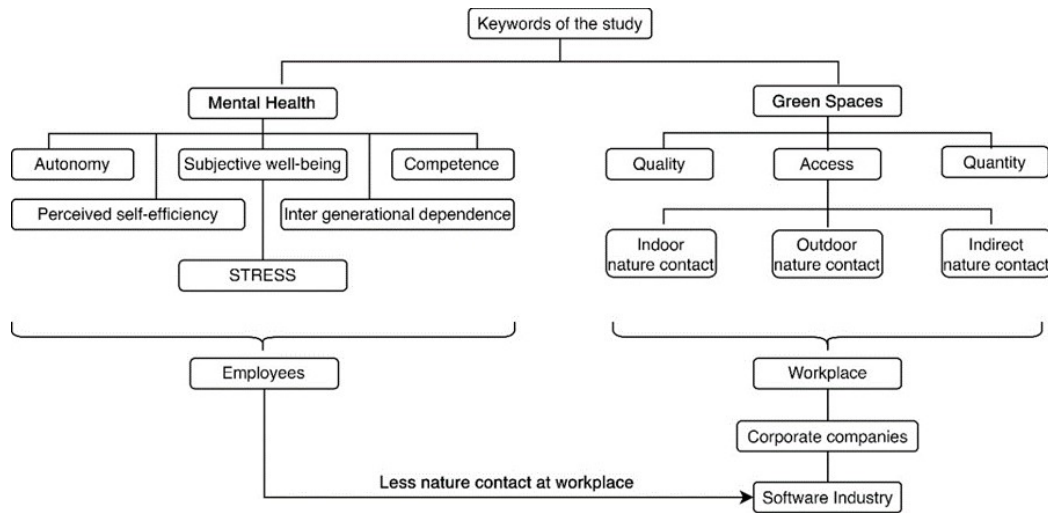


Figure 3. The research formulation
 Source: Compiled by author

An initial pilot study was conducted to validate the theoretical framework, to examine the existing situation of green spaces and to finalize the scope and limitations of the study. Pilot study included an online questionnaire survey conducted within five main software companies located in Colombo, Sri Lanka among 50 respondents (n=10 per case).

The cases for the final investigation (n=3; C1, C2, C3) were selected based on the existing levels of greenery among the five cases investigated in the pilot study. C1 is composed of high density of outdoor and indoor greenery compared to C3 with minimal outdoor/ indoor greenery. C2 is composed of a moderate density level of indoor and outdoor greenery. The final online questionnaire survey was developed to assess the impact of exposure to Nature at the workplace on mental health and well-being of employees.

Referring to the model of Hurrell and McLaney (1988), several factors were considered when selecting the samples in order to keep other factors affecting mental health and mental stress of employee's constant. The employees who were selected for the survey were university graduates from faculties of similar nature and most of them were fresh graduates who have been working in the industry for less than three years (65% of the respondents have been working at their current company for 1-3 years). Most of them were working under similar working conditions, working on flexible working hours, and mostly involved in the same type of work (Software

Development, Quality Engineering). The study was conducted with a sample of 60 participants(n=20 per case).

Limm, Angerer and Heinmueller. et al.,(2010) have identified self-perceived stress as an appropriate indicator of identifying employees who experience psychosocial stress and associated psychological problems at the workplace. Accordingly, the current investigation incorporated testing perceived stress levels of employees.

The final questionnaire design was derived as an extraction from standard attested questionnaires to measure the stress levels of employees at workplace and the level of nature-contact of the employees as highlighted below.

- Perceived Stress Questionnaire (PSQ) - to measure the stress level.
- Nature-contact Questionnaire (NCQ) - to measure the Nature-contact.

The collected data from field investigation was presented in tabular and graphical form, Pie charts, bar graphs. Data analysis was done using excel spreadsheets, charts, and data comparison. Data collected via the questionnaire were first coded into the numbering format with values to generate graphs for the graphical presentation. Bar charts and scatter plots were derived to compare the data easily.

Results

While 62% of the employees of the sample were males the rest(38%) were females. The majority(65%) of respondents have been working at their current company for 1-3 years. While 13% have been working for 3-5 years another 8% have been working for more than 5 years. The rest of respondents of 14% have been working for less than a year in the current workplace. 70% of all respondents have been identified to work in private cubicles while 20% have been working in shared offices. The other 10% have been working in private offices.

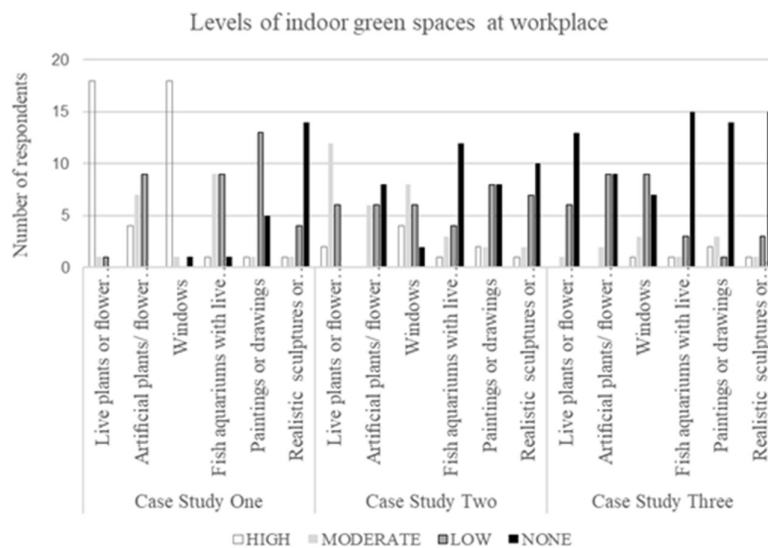


Figure 4. Levels of greenery at primary workspace and its surrounding
 Source: Compiled by author

Participants of C1 reported to have more direct nature-contacts than indirect nature-contacts at C1. 42% work in a workplace composed of high density of live plants/flower arrangements (indoor nature-contacts) and windows (outdoor nature-contacts). 20% at C2 have responded that their existing workplace is composed of moderate density of live plants or flower arrangements. The majority of respondents(40%) have recorded that their workplace is composed of more windows. Also, less indirect nature-contacts have been recorded at C2. Majority of participants at C3 have responded that there are less live plants/ flower arrangements or artificial plants and windows. Although 40% have recorded that their workplace is composed of paintings and drawings C3 was found to have a low-density in terms of nature-contact.

The majority of respondents of C1 with high density of greenery, were reported to take 5 or more outdoor meal breaks/breaks during the working hours(45% in the morning/ evening, 50% lunch) and found to experience outdoor nature-contact frequently. 50% of respondents at C2 were identified to take 3 morning/ evening meal breaks per week and moderately exposed to the outdoor green spaces. Less outdoor meal breaks have been recorded from C3 as they experience lack of nature-contact at the workplace(50% and 40% for 0 outdoor meal breaks during the morning/evening, lunch breaks respectively).

Among all the 60 participants, the majority(93%) of respondents have reported that the green spaces have helped to maintain mental health and increase their perceived work efficiency. 26% of respondents have just agreed and 67% of respondents have strongly agreed to the above statement. Only 5% of participants have a neutral idea about the interaction between the green spaces and mental health while 2% have disagreed with the above statement.

Table 4: Perceives Stress Questionnaire (PSQ) assessment

Category	Sub Questions	C1	C2	C3
Questions to measure the workplace satisfaction	a. You feel rested	2.65	0.95	1
	d. You feel you are doing things you really like	2.1	1.2	2.5
	g. You feel calm	2.4	1.05	1.55
	j. You feel tense	2.35	1.1	1.2
	p. You enjoy yourself	1.75	1.35	1.45
Questions to measure the workplace stress	b. You feel lonely or isolated	0.55	1	1.15
	c. You find yourself in situations of conflict	1.05	1.5	1.6
	e. You feel tired	0.9	1.95	2
	f. You fear you may not manage to attain your goals	1.05	1.45	1.7
	h. You feel frustrated	0.75	1.55	1.6
	j. You feel tense	0.85	1.65	1.75
	k. Your problems seem to be piling up	0.7	1.4	1.75
	l. You feel you are in a hurry	0.65	1.8	1.8
	m. You have many worries	0.5	1.7	1.75
	n. You are under pressure from other people	0.3	1.55	1.55
	o. You feel discouraged	0.25	1.25	1.45
	q. You feel mentally exhausted	0.55	1.45	1.65
	r. You have trouble relaxing	0.6	1.2	1.4
s. You feel criticized or judged	0.5	1.15	1.5	
t. You feel under pressure from deadlines	0.7	1.7	2	

0 = None 1 = Sometimes 2 = Often 3 = Usually

According to the study, respondents of C1 were found to be more satisfied(80%) and less stressed(88%) compared to other two companies. The respondents of C3 which includes minimal density of greenspaces were more stressed(57%) and less satisfied(71%) compared to other two companies(Fig. 4, Fig. 5).



Figure 5. Variations of job satisfaction of employees at three case studies
 Source: Compiled by author

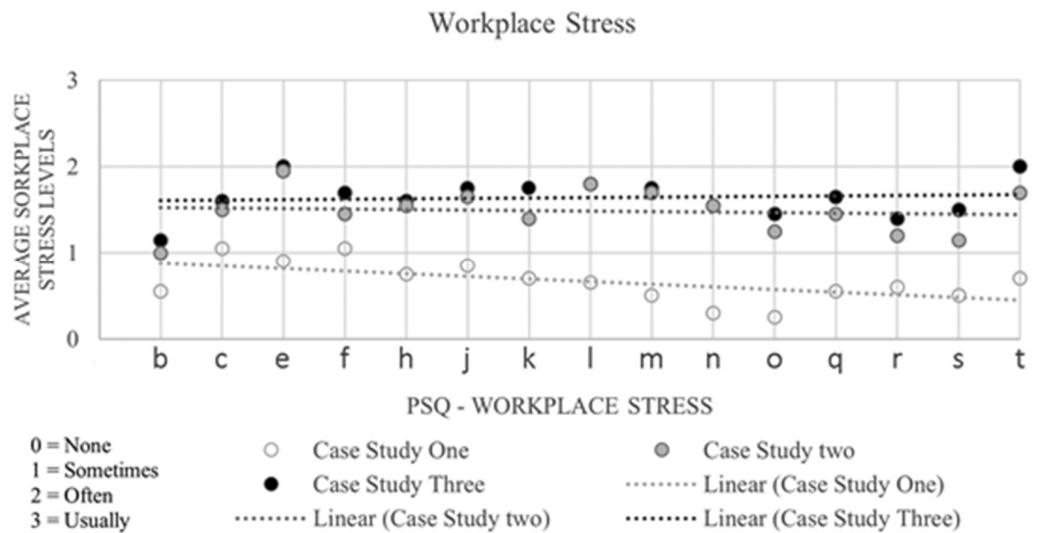


Figure 6. Variations of stress levels of employees at three case studies
 Source: Compiled by author

Conclusion

Workplace pressure is a common issue which may affect productivity, the lack of ability to pay attention to work and strained relationships with other employees. A well-executed health initiative at the workplace can have an impact on workforce retention rates. Employees that are healthy and glad at work are much more likely to stay longer with the employer.

As the literature establishes with a strong theoretical framework, several studies have shown that regular touch with nature is required for excellent mental health and healthier employees.

The current study clearly expressed the diverse psychophysiological parameters of mental health, theories, and up-to-date practices of exposure to nature at the workplace and its impact of increasing worker satisfaction while maintaining mental health.

According to the findings of the present study, it can be concluded that there is a significant effect of green spaces on mental health and well-being. It was revealed that frequent exposure to nature has reduced the stress levels of employees leading to increased levels of satisfaction and perceived working efficiency.

The investigation therefore highlights the importance in incorporating landscape design interventions effectively to enable psychological health and well-being of employees of the software industry. Due to the time limitation, though this study was mainly conducted within three software companies, it can be extended to seek the benefits towards other software and corporate companies apart from the software industry as well. The study recommends extending the investigation to test the impact of green spaces on increasing worker productivity of the corporate companies in Sri Lanka.

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