



CHALMERS
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The causes and effects of occupational stress in the construction industry

A qualitative analysis of the impact work demands and pressures have on employee stress levels

Master's Thesis in the Master's Programme International Project Management

Nathalie Arrman
Emma Björk

Department of Civil and Environmental Engineering
Division of Construction Management
CHALMERS UNIVERSITY OF TECHNOLOGY
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Department of Civil and Environmental Engineering
Division of Construction Management
Chalmers University of Technology
SE-412 96 Göteborg
Sweden
Telephone: + 46 (0)31-772 1000

Cover: Nathalie Arrman

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ABSTRACT

Occupational stress has become a major issue of the modern world, and is one of the most common work-related health problems in Europe. It has become a growing concern in many industries, not to mention the construction industry. As the construction industry is known to be challenging and highly competitive, it is important to ensure that personnel have the ability to perform at its best. Work-related stress has been identified as a major factor that impacts the success of an organization, as it negatively affects the organization's productivity and efficiency, which in turn is costly to the company. Besides this, it is also believed to be a large contributor to reduced work satisfaction and increased absenteeism. Considering that most individuals spend a significant amount of time at work, their behavioural-, physiological- and psychological health are playing an important role both to the organization and the employees themselves.

Nevertheless, managing work-related stress is a complex and challenging task for organizations. One difficulty in understanding how pressures and occupational stress impacts the personnel within the construction industry is the scarcity of empirical research in the area. Due to the importance of people management and the well-being of construction personnel for the success of an organization, this study aims to investigate the main causes and effects of occupational stress. A case study of a well-known construction company in Sweden is conducted, in order to get a better understanding of the perceptions of construction personnel. The thesis is based on a mixed methodology, with the combination of a qualitative and quantitative research approach. The study involves both face-to-face semi-structured, in depth interviews as well as an online staff survey, in order to acquire reliable, in-depth responses as well as to receive a higher response rate that could reflect the current situation.

The main findings of this study were that construction personnel suffer from a high level occupational stress, particularly those who work on site. There are many various work-related risk factors within this industry, and the factors that were recognized as the most problematic are (i) amount of work, (ii) amount of overwork, (iii) not enough experienced personnel and (iiii) lack of organizational support. However, lack of control over one's work was identified as being the factor that caused most employees' distress, especially for construction professionals who work on sites and need to deal with unexpected events on a frequent basis.

The work-life balance is low, especially among the personnel working on site, and many of them have suffered from negative consequences as a direct result of their jobs. The major issue seems to be the insufficient recovery among construction employees. There are no strategies that are sufficient and adequate enough at the time, and this calls for a change. It is necessary to create and implement workable strategies that can reduce the occupational stress levels and increase the level of employee satisfaction and retention. For those strategies to be successful, they cannot focus on an individual's behaviour in isolation, instead more efforts should focus on the organizational environment and the industry as a whole. Especially as it has been recognized that the stress levels and well-being of construction personnel have not improved, rather retrograded.

Key words: Occupational stress, stressors, consequences of stress, stress coping, stress management

Orsaker och effekter av arbetsrelaterad stress i byggbranschen

En kvalitativ analys av den påverkan arbetsrelaterade krav och belastningar har på anställdas stressnivåer

Examensarbete inom masterprogrammet International Project Management

NATHALIE ARRMAN

EMMA BJÖRK

Institutionen för bygg- och miljöteknik

Avdelningen för Construction Management

Chalmers Tekniska Högskola

SAMMANFATTNING

Yrkesrelaterad stress har blivit ett allt större problem i den moderna världen, och är idag ett av de mest förekommande arbetsrelaterade hälsoproblemen i Europa. Det är ett växande bekymmer för många branscher, inte minst för byggnadsbranschen. Då byggnadsbranschen är känd för att vara utmanande och mycket konkurrensbaserad, är det viktigt som arbetsgivare att ens personal har möjlighet att prestera på bästa sätt. Arbetsrelaterad stress har identifierats som en betydande faktor som påverkar framgången för en organisation, då den negativt påverkar organisationens produktivitet och effektivitet, vilket i sin tur är kostsamt för företaget. Arbetsrelaterad stress anses även vara en stor bidragande orsak till en minskad nöjdhet på arbetsplatsen, samt ökad frånvaro bland anställda. Med tanke på att de flesta individer spenderar märkbart mycket tid på jobbet, spelar deras beteendemässiga-, fysiska och psykiska hälsa en viktig roll både för organisationen, men också för de anställda.

Hantering av arbetsrelaterad stress är dock en komplicerad och utmanande uppgift för organisationer. En svårighet är i att förstå hur diverse påfrestningar och yrkesrelaterad stress påverkar personalen inom byggnadsbranschen, då bristen på forskning inom området är stor. Då personaladministration och en välmående personal är viktigt för att en organisation ska kunna nå framgång, syftar denna studie till att utreda huvudorsakerna och effekterna av yrkesrelaterad stress inom byggnadsbranschen. En fallstudie hos ett välkänt byggnadsföretag i Sverige har därför genomförts, med syfte att få en ökad förståelse om personalens uppfattningar kring ämnet. Studien är baserad på en blandad metodologi, där en kombination av både kvalitativa och kvantitativa metoder har använts. Studien involverar därför både semistrukturerade och ingående personliga intervjuer, men även en onlinebaserad enkätundersökning. Detta för att få in så tillförlitligt och djupgående material som möjligt, men även för att erhålla en högre svarsfrekvens som kan reflektera den nuvarande situationen.

De huvudsakliga resultaten i den här studien har framförallt visat att personal inom byggnadsbranschen lider av hög yrkesrelaterad stress, framförallt för dem inom produktion. Inom denna bransch finns det flera olika riskfaktorer som är relaterade till arbetet, varpå de som uppmärksammades mest och ansågs mest oroande i denna studie var (i) mängd arbete, (ii) mängd överarbete, (iii) inte tillräckligt med erfaren personal (iiii) brist på organisatorisk support. Den mest framträdande faktorn som bidrar till arbetsrelaterad stress är dock brist av kontroll i ens dagliga arbete. Detta var främst märkbart bland de individer som arbetar på byggarbetsplatsen, då de ofta måste hantera oväntade event. Balansen mellan arbetet och privatlivet är relativt låg, framförallt hos personal som jobbar på byggnadsplatsen, och många av dem har erfårit negativa konsekvenser som ett direkt resultat av deras jobb. Det största problemet verkar vara bristen på återhämtning hos byggpersoneal. Idag finns det inga strategier som är tillräckligt effektiva för att hantera detta problem, vilket kräver en förändring. Det är viktigt att utveckla och implementera genomförbara strategier som kan minska den yrkesrelaterade stressnivån och öka graden av tillfredsställelse hos de anställda. För att dessa strategier ska bli framgångsrika är det viktigt att de inte fokuserar på individuella beteenden, utan mer ansträngningar borde fokusera på den organisatoriska miljön, samt även branschen som helhet. Framförallt med tanke på att stressnivåerna och välbefindandet hos personal inom byggnadsbranschen inte har förbättrats, utan snarare försämrats.

Nyckelord: Arbetsrelaterad stress, stressfaktorer, konsekvenser av stress, stressanpassning, stresshantering

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Preface

This thesis has been performed between the period of January to June 2017, and is the last part of the master's programme International Project Management at Chalmers University of Technology.

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Glossary

Occupational stress, work stress	Stress experienced as a result of an individual's occupation
Overwork	A state when fatigue and stress are built up
Burnout	State of chronic emotional stress produced by job stressors
Constraints of change	The result of changes in one's career and life (Kavitha, 2009 p. 75)
Stressors	Sources of stress
Strains	Reactions to working conditions
Eustress	Positive stress
Distress	Negative stress

1 Introduction

The following chapter involves a background description of the study area and will explain why the thesis topic was chosen. Further, the purpose of the study, its objectives, as well as the study questions that will guide this study forward will be presented.

1.1 Background

Occupational stress has become a growing concern in various industries and is one of the most common work-related health problems in Europe. It is known to negatively impact productivity and work satisfactions among employees in various occupations. Besides this, it is believed to be a large contributor to absenteeism and low employee morale, but also have negative implications on profitability and organizational development. Hence, many organizations have realized the importance in raising the issue of work-related stress (Leung et al., 2014).

The construction industry is characterized as a high-risk industry for work-related stress, as this industry provides a hard and demanding work environment and the market is highly competitive. This industry is characterized by complexity, uncertainties, as well as long and inflexible work hours. Construction projects need to be completed within tight deadlines and with low profit margins. As time overruns can result in significant penalties, time spent on site needs to be maximized, in order for the construction work to continue. Due to the importance of being on time, employees often need to do much overtime during peak times. Hence, over-employment and subsequently overwork have become issues of the modern workforce. Overwork is explained as a state when fatigue and stress are built up, which in turn may lead to a greater risk of making mistakes, injuries, and health issues as well as reduced productivity (Lingard and Francis, 2009). According to a study performed in Australia 2004, the average amount of hours worked in a week was between 49 and 62.5 among the employees working as supervisors or at levels above. However, it is not only the work hours that have an impact on the employees, but also the nature of the work itself. Employees are responsible for the successful delivery of construction projects and if a project does not obtain the required quality or meet the cost or time constraints, it may have considerable consequences for the company. Hence, this puts much pressure and stress on construction personnel (Lingard and Francis, 2009). The high-pressure and high-stakes environment in construction makes effective leadership practises vital for the successful delivery of the projects undertaken by the organization. It is important to be aware of the negative implications occupational stress has on both the personnel and the organization itself. However, even though the negative consequences of such stress are notified, this problem is rather getting worse and not better (Bowen et al., 2014b). Lingard and Francis (2006) state that both the

stress levels and the levels of burnout are higher among construction professionals compared to other professionals in comparative industries. This is explained as being a consequence of the hostile and highly competitive environment identified in the construction industry.

Henceforth, in a leadership position it is important to understand what consequences stress has on others. In an occupational setting, there are different factors that cause stress amongst the employees. These factors vary depending on personality traits, gender as well as occupational rank (Stickle and Scott, 2016). Occupational stress among professionals in the construction industry is an issue that has received more attention in recent years and can be defined as "the adverse reaction people have to excessive press or other types of demand placed on them" (Campbell, 2006 p. 1). Yet people generally consider professional occupations in the construction area to be demanding by nature, with many people involved, tight margins and tight deadlines to manage. One moment this industry can be both challenging and stimulating, but another moment the stress can take over, which can affect people's mental health and well-being (Campbell, 2006). As every project is unique and dynamic, unexpected problems always occur. Construction personnel need to work with different people depending on the project and project phase, which can cause various levels of stress (Leung et al., 2014). According to a web-based survey conducted by the Chartered Institute of Building in the United Kingdom (COIB, 2006), 84 % of the participants considered that the stress levels in the construction industry were a factor for poor retention levels. However, Leung et al. (2014) mention that the construction industry sometimes has more of a 'macho' culture and construction personnel may not see the stress as an issue of concern. Further, they may also intentionally conceal their stress level in order to avoid to be seen as weak (Leung et al., 2014). High stress levels and pressure are not only impacting the life of the individual, but also the organization itself. Failure to prevent or deal with burnout may result in negative consequences on operational effectiveness, as burnout often is associated with reduced productivity and effectiveness, employee satisfaction and a higher level of absenteeism (Lingard and Francis, 2009).

Due to the importance of people management and the well-being of the employees for the success of the company, this study will contribute by investigating the situation at a well-known construction company in Sweden. By receiving a better understanding of how the employees experience the workplace and stress levels; the investigated company may pinpoint the most critical factors which can have a negative impact on the overall performance of the company and make appropriate efforts accordingly.

1.1.1 Construction vs Manufacturing industries

The construction industry differs from other industries in several ways, and its characteristics may vary from simple to highly complex. Construction projects, as any other project, have defined start and finish dates with defined and limited resources, as well as teams are assembled to carry out the project. However, an issue within this industry is the difficulties in identifying, assessing as well as managing the risks posed by projects (Loosemore, 2006). Each construction project is a unique endeavour, as they differ in duration, size, location, nature of site, workforce, as well as there is a seasonal instability. Unlike the manufacturing sector, which products are produced in plant, construction projects require the workforce to move into a different location where the client's product is produced. As construction projects take place outdoors, they are highly dependent climatic conditions. Besides these challenges, the construction also has a "difficulty in applying automation, technical innovations are adopted slower, very custom-oriented [...] and the work is not performed in controlled conditions" (Muir, 2005 p. 2).

Currently, the construction market is highly competitive, where the construction company that presents the lowest bid to a client wins the project. Low profit margins and tight deadlines are common, which makes it important to anticipate reasonable and efficient solutions to potential complications that may arise during the various project phases. However, there may be many different factors that can impact the project, such as design errors, unforeseeable on-site problems or building permit problems. Therefore, construction projects are not like a production line where products are smoothly produced within well-defined deadlines. (Klee, 2014). The construction industry is seen as a high-risk industry compared to many others, as the complexities of activities and the working environment continuously change. The construction industry faces numerous challenges, both challenges that are a direct result of construction projects, but also indirect ones. Issues such as the changing nature of the work and safety need to be considered, but also legal issues and environmental concerns.

1.2 Problem formulation and purpose

High levels of occupational stress are one factor that can inhibit an organization's achievement of long-term improvement, as well as the employees' sense of satisfaction in the workplace. One obstacle to understanding how the high pressure and occupational stress impacts the individuals within the construction industry is the scarcity of empirical research in the area. Therefore, this thesis will investigate the perceived experiences of the employees at a well-known construction company in Sweden, regarding the areas of stress levels, work pressure and organizational support, in order to pinpoint the main issues that can have a negative impact on the overall success of the organization.

The purpose of the master thesis is to better understand the issue of occupational stress among professionals in the construction industry. The study aims to identify the main causes and effects of occupational stress by examining different areas of an employee's role in the organization, involving their opinions on workload, work demands, and organizational support. Furthermore, the study aims to describe common patterns of experiences of people working at the company examined and explore the main issues of concern. Potential changes, improvements, and areas that need to be taken into consideration will be proposed.

1.3 Objectives

The objectives of this master thesis are the following:

- Investigation of the employees' perceived level of occupational stress.
- Identification of the main causes and effects of occupational stress.
- Investigation of the efforts made by the company to deal with occupational stress.
- Exploration of what factors and changes the employees consider need to be made in order to reduce the occupational stress experienced.
- Formulation of recommendations on the areas that need to be further considered and call for a change.

1.4 Research questions

The master thesis is based on a central research question, which is the following:

RQ: What are the experiences of construction professionals regarding the area of occupational stress?

There are five sub-questions that will be guiding the study forward, which are the following:

RQ1: How much stress do the employees in the construction industry experience?

RQ2: Which are the main stressors among professionals in the construction industry?

RQ3: Which effects do the stress have on professionals and how does it affect their work-life and overall well-being?

RQ4: How is stress and burnout handled and dealt with in the construction industry?

RQ5: What are the employees' perceived experiences and impressions regarding the nature of their jobs?

1.5 Delimitations

The scope of this study is the examination of the stress levels perceived by employees working in the construction industry, and to explore the causes and effects of their occupational stress. The study will also examine if there is a possible correlation between the organizational support and the perceived occupational stress. The thesis is limited to a single case study, which is carried out at a well-known construction company in Sweden. All interviews will be performed with employees stationed in the Gothenburg area, and with individuals working as supervisors, site managers and managers above these levels.

The study sample is limited to 20 face-to-face interviews, where the interviewees were asked to participate voluntarily. In addition to the face-to-face interviews, all the construction personnel stationed in Gothenburg were asked to participate in an online questionnaire. The sample size consisted of the interviewees and those who responded to the online survey.

1.6 Structure of thesis

The thesis structure has mainly four parts, starting with an introductory chapter, followed by a theoretical chapter, continuing with the core part and lastly a synthesis that discusses and concludes the findings of the thesis. The introduction chapter explains what the thesis is about, including the thesis aim, problem statement, objectives and limitations of the study. The theoretical framework is concerned about the background of the study area, in order for the reader to understand the research and the current theories concerning the study area. Hence, this chapter includes relevant history, current knowledge, theory and practice. Further, the core part concerns the design of the thesis, results and analysis of the study. The last part involves a critical discussion of the results of the study, but also conclusions of the findings of the study. Recommendations for further studies will also be suggested in the final part.

2 Theoretical framework

The purpose of this chapter is to present the theoretical framework appropriate for this study. This includes the definition of occupational stress, stressors, stress responses and stress models.

2.1 Defining stress

According to Patching and Best (2014), stress is defined as “the harmful physical and emotional responses that occur when the requirements of a job do not match the capabilities, resources or needs of the worker” (p. 683). The authors claim that stress is managed by a part of the brain that deals with the emotional memory, which controls certain processes of the autonomous nervous system by hiding neuro-hormones. Moreover, stress is managed by a part that primarily controls the way we respond to intense emotions, such as fear and aggression. This part of the brain controls and regulates important body functions, such as heart rate, body weight, sleep and alertness. Furthermore, it controls and regulates the pain and pleasure regions, which are important regions in relation to how individuals perceive stress. In other words, the part of the brain that deals with stress takes in information from our senses, identifies it and then categorizes it (Patching and Best, 2014).

Stress can be divided into internal- and external factors. The external factors are considered to cause the objective stress, and the internal factors are resulting in subjective stress. Subjective stress can be referred to the kind of stress that is perceived by individuals through their individual judgement. This is mostly measured by the degree of satisfaction with the environment, which include feelings of depression or happiness, but also the degree of satisfaction of how confident one is in an organization. Subjective stress can furthermore be divided into two types, which are burnout and physiological stress. Regarding the construction industry, burnout has been recognized as a key issue in this industry for a long period of time. Burnout refers to “a state of emotional and mental exhaustion caused by long-term chronic, emotional, and interpersonal stress while carrying out a role” (Enhassi et al., 2016, p. 45). The physiological stress can instead appear in form of headaches, back pain, appetite loss, etc. In contrast to subjective stress the objective stress refers to the evaluation of threat as a result from cognitive factors, such as different events happening around the concerned person. Moreover, objective stress is depending on how an individual’s expected ability is and the actual ability to deal effectively with tasks. In real situations, there are many cognitive factors affecting the construction professionals’ perceived objective stress, for example the number of project deadlines, the number of tasks, such as meetings, numerous documentary submissions, site visits, phone calls, etc (Enshassi et al., 2016).

2.2 Occupational stress

Is occupational stress a world epidemic of modern times? Some people claim it is. Regardless, stress has become a growing concern in the modern world and is reported to be a considerable occupational health concern in major economies, including Europe and United States. Yet, there is neither an agreed nor precise definition of occupational stress (Rossi et al., 2009).

The term stress often has negative implications, however, stress reactions do not always need to be harmful. Instead, certain stress levels can increase motivation and help people grow and develop (Daenzer and Phoenix, 2009). Stress that has a negative impact on employees may cause both psychological and physiological problems, which in turn can affect the employee's performance in the organization. Besides impacting the productivity within the organization, work stress also imposes not only a high cost on companies, but also on individual health and well-being (Cooper et al., 2001). Therefore, the management of stress is a necessity in the modern organization. In the highly competitive and harsh business environment, leaders need to be able to manage stress and develop resilience.

In this thesis, the workplace characteristics impacting the employees are known as *stressors* and the individual outcomes of stress refer to *strains* (Beehr, 2014). Moreover, the terms occupational stress, work stress, work-related stress and job stress will be used interchangeably in the thesis.

2.2.1 Causes of occupational stress (stressors)

Work is a fundamental part of the human life. A healthy and rewarding job is a sufficient and positive part of people's lives and give them the opportunity to feel satisfied and meaningful in their workplace. However, stress will arise when a job does not let the individual to perform to the best of his ability. Occupational stress is the response employees may have when presented with work demands and pressures that are not matched to their abilities and knowledge. Work-related stress occurs under various circumstances, but it is often seen to be even worse when employees experience little or no support from supervisors and colleagues (WHO, 2017).

Pressure at the workplace is inevitable and can be seen as a natural feature of human life. However, stress beyond a particular level can lead to both psychological and physiological issues, which in turn can have a negative impact on the employee's performance in the organization (Kavitha, 2009). There are various sources of job stress, which are described below. The causes of work related stress come from both inside- and outside the organization, which are presented in Figure 2.1 (Ahmad and Darzi, 2008).



Figure 2.1. Causes of stress (Ahmad and Darzi, 2008 p. 157)

Working in the construction industry is a challenging job with many demands. Common stressors identified in the construction industry include work overload, job demands, job control, tight schedules, compensation imbalance, role ambiguity and conflict (Leung et al., 2014). Construction projects are known for being complex and involve complicated work relationships, which make this industry stressful for the ones involved. As mentioned by Leung et al. (2014), a majority of construction employees have suffered from stress, anxiety or depression as a direct result of their jobs.

2.2.1.1 Individual stressors

There are many various stressors on the individual level that may be generated in the context of personal- or organizational life. Individual stressors are highly dependent on an individual's personality traits and constraints of change. The key individual stressors are as follows:

- *Life and career changes*: Stress is produced by changes in an individual's life and career. Research studies have shown that stress is more prevailing in higher education categories.
- *Personality type*: The characteristics of one's personality are a source of stress, where individuals with very high work ethic may be burnout. These individuals have a behavior that involves constant moving, doing several tasks at the same time, constant feeling time pressure, which makes these people experience a higher level of stress.
- *Role characteristics*: Role stress may occur due to role conflict or role ambiguity. Role conflict occurs due to incompatibility of two or more roles (work, family, religious etc.). In certain situations an individual's various roles may have conflicting demands, which may lead to stress due to difficulties to fulfill the conflicting role requirements (Reddy, 2004).

2.2.1.2 Group stressors

The group can also be a potential source of stress and major group stressors are the following:

- *Lack of group cohesiveness*: it is important with group cohesiveness for an individual's interaction in a group. When people get denied such cohesiveness, it may cause stress.
- *Lack of social support*: Individuals who receive social support from other group members are able to satisfy their social needs. They feel better when they can share their problems and delights with others. Although, it becomes stressful for those individuals who do not get this social support.
- *Conflict*: Conflicts that arise in-group interactions can cause considerable stress for the group members (Reddy, 2004).

2.2.1.3 Organizational stressors

An organization constitutes of groups and individuals, hence, both individual- and group stressors may take place in an organizational context. The major organizational stressors are as follows:

- *Organizational policies*: The organizational policies provide guidelines for action, where vague or disadvantageous policies may lead to stress amongst employees. Stressors include unrealistic job description, inflexible rules, and inequality of incentives, among others.
- *Organization structure*: The organizational structure provides formal relationships among the individuals in an organization. Any defects in an organization structure work as stressors, due to inadequate relationships between individuals and groups. Stressors include lack of opportunity for advancement, participation in decision-making and line and staff conflict.
- *Organizational processes*: Insufficient organizational processes, such as poor communication or inadequate information flow, cause stress among the employees in an organization.
- *Physical conditions*: The physical conditions have an impact on work performance. Poor physical conditions, including excessive noise, lack of privacy or an indoor temperature that is either too hot or cold cause stress on individuals (Reddy, 2004).

2.2.1.4 Extra organizational stressors

An organization is affected by external forces, which can have severe effects on the employees in the organization. Work stress is not limited to events occurring within the organization during working hours, but also by extra organizational stressors such as family, economic and financial conditions. An employee's family can have a great impact on the individual himself and cause stress in his life. A brief family crisis can result in excessive stress for the employee, such as illness in the family or family conflicts (Ahmad and Darzi, 2008).

2.2.2 Consequences of stress

There has been a change in the workforce structure in the 80s and 90s in industrialized economies. This has resulted in greater demands on employees, as well as less job security; both of which are likely to be stressful for employees. The higher stress levels amongst professionals have had negative impacts on both companies and the individuals themselves (Tennant, 2001). Stress can be transitory at times, however, it can also be chronic. Chronic stress can play a major role in an individual's life and can lead to a wide variety of physical problems, such as to headaches and upset stomachs (Robbins, 2007). Table 2.1 presents which effects stress can have on individuals.

When affected by work stress people may:
Become increasingly distressed and irritable
Become unable to relax or concentrate
Have difficulty thinking logically and making decisions
Enjoy their work less and feel less committed to it
Feel tired, depressed, anxious
Have difficulty sleeping
Experience serious physical problems, such as:
- heart disease,
- disorders of the digestive system
- increase in blood pressure, headaches
- musculo-skeletal disorders (such as back pain and upper limb disorders)

Table 2.1. Effects of job stress (Leka et al., 2003 p. 8)

Consequences of experiencing a high level of occupational stress can be grouped into three categories, as presented below in Figure 2.2.

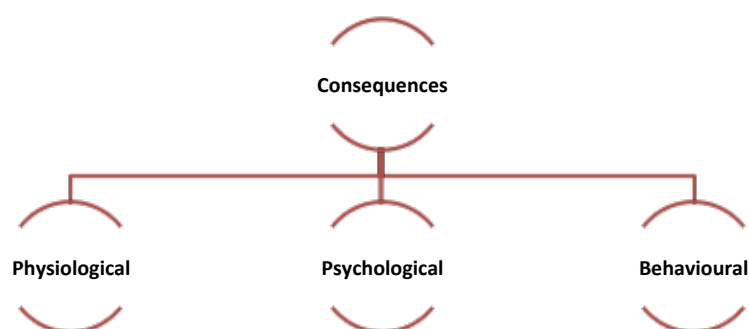


Figure 2.2. Stress categories

Physiological problems

Research over the years has been keen to identify the impact stress has on physical health. Research has shown that there is a relationship between a high level of stress and high blood pressure as well as heart diseases (Ahmad and Darzi, 2008). Besides these issues, severe stress is also related to breathing difficulties, panic attacks as well as excessive sweating (Hellriegel and Slocum, 2010). Leka et al. (2003) point out that stress may also affect people's immune system by impairing their ability to fight infections.

Further physiological issues mentioned by Leka et al. include "musculoskeletal pain, poor self-rated health, sleep problems [...]" (p. 169). Stress is one factor that may aggravate the symptoms of musculoskeletal injury, as well as prolong the time for recovery. Cooper and Quick (2017) claim that there are many risk factors at an individual's workplace that can aggravate the connection between musculoskeletal injuries and stress. Firstly, the authors mention burnout as a state that comes as a result of chronic occupational stress. Due to the fact that burnout increases muscle tension, this will also trigger other reactions of the body and in many cases promote other stress-related disorders. These disorders might be tension-type headache and chronic migraine, which both are associated to muscle tension in the area of the shoulders, neck and head (Cooper and Quick, 2017).

Psychological problems

Work-related stress can cause dissatisfaction with the work itself. Besides the problem with job dissatisfaction, job stress can cause employees to experience other psychological states, such as "(i) anger, (ii) anxiety, (iii) depression, (iv) irritability, (v) tension, and (vi) boredom" (Ahmad and Darzi, 2008 p. 165). Burnout is another issue of concern, which is a phenomenon that is critically important to address. Lingard and Francis (2009) claim that construction organizations have a great deal to lose if they fail to address it, as it is likely to impair productivity and reduce the affected individual's work ability (Cooper and Quick, 2017).

Job burnout

Job burnout is one type of work-related stress that has received more attention in recent research. It can be defined as "the adverse effects of working conditions under which strong stressors are perceived as unavoidable and relief from them is interpreted as unavailable" (Hellriegel and Slocum, 2010 p. 230). The three key dimensions of burnout are, according to Rossi et al. (2009), "exhaustion, cynicism, and a sense of professional ineffectiveness" (p. 4). The authors describe a structured interrelationship between these three dimensions, as exhaustion occurs "in response to environmental demands, leads to cynicism, which in turn diminished professional efficacy" (p. 4).

Burnout is associated with several negative aspects concerning the employee's work situation, including job dissatisfaction, absenteeism, low organizational commitment as well as the intention to leave the current job. This syndrome is also associated with poor work quality, which involves a higher probability of making mistakes, less creative when finding solutions as well as less careful and accurate when performing tasks. Besides the person being burnout himself, he may influence his co-workers in a negative manner (Rossi et al., 2009). The path to burnout is presented in Figure 2.3.

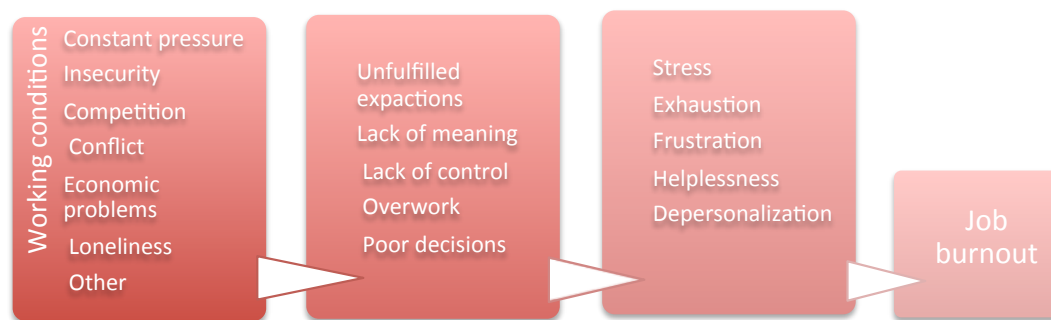


Figure 2.3. Path to burnout (Hellriegel and Slocum, 2010 p. 231)

Behavioral problems

Behavioral effects of job stress include changes in productivity, absence and turnover. It may also involve increased smoking, alcohol abuse, sleeplessness, impulsive behavior or changes in food consumption (Ahmad and Darzi, 2008). Overeating and unhealthier eating may result in overweight, which most commonly result in increased fat around the waist. Studies show that excess fat around the waistline can increase the risk of Type 2 diabetes, heart disease as well as high blood pressure (Walker, 2015).

Results from multiple studies have shown that there is an association between stress and eating disturbance, which includes anorexia, bulimia and binge eating. However, such eating disturbance can either be “causal, due to confounding, or spurious due to methodological weaknesses” (Cooper and Quick, 2017 p. 191), which means that it is possible that some of the claimed associations could be caused by biases in the literature. Therefore, this may for instance cause false positives of association. Further, a review performed of both human and nonhuman studies reveals that chronic stress exposure increases the consumption of food that is considered pleasing to an individual.

Importance of recovery

Expressed need for recovery (NFR) is a measure normally used when evaluating the subjective experience of insufficient recovery. It refers to an individual's desire to get a temporary relief from exposure to stressors in order to reload resources. Zijlstra and Sonnentag (2006) (cited in Cooper and Quick, 2017) claim that studies have shown that insufficient recovery from exposure to stressors is actually a stronger predictor of ill-health than the exposure itself.

Cooper and Quick (2017) state that sleep plays a fundamental role in recovery processes, as “it constitutes the recuperative process of the central nervous system, restores brain physiology to normal levels and restores abilities such as alertness and memory capacity, as well as mood” (p. 174). Thus, sleep is essential for maintaining an individual's level of energy and renewing personal resources, which in turn lead to an improvement in physical health as well as mental well-being. Consequently, sleep curtailment and sleep disturbances may pose a threat to one's health. Prolonged sleeping problems may contribute to health issues such as depression, obesity as well as type 2 diabetes. There is also research that points to a strong correlation between insomnia and stress, where work related stressors are included. Cooper and Quick (2017) indicate that individuals need to relax and wind down the system to be able to fall asleep. However, exposure to work stressors, such as work overload and long working hours, may result in difficulties in detaching from these issues. Hence, the individual may have high arousal levels, which interfere with sleep (Cooper and Quick, 2017).

Furthermore, research on self-reports of sleep problems has shown that there is a strong link between burnout and non-restorative sleep, feeling of not being alert as well as being tired during the day. According to Soderstrom et al. (2004) (cited in Cooper and Quick, 2017) individuals scoring high on burnout in this research, were feeling more tired during the day compared to those who scored low, but were also unable to recover during their days off. Cooper and Quick provide evidence on the association between insufficient recovery and a higher risk of reaching the state of job burnout. They also mention various factors that can either aggravate or facilitate recovery processes, including “lack of boundaries between work and non-work and long working hours” [...] and work-family dynamics” (p. 175-176). The first mentioned factor refers to technology development, which has resulted in an elimination of those constraints that once limited working hours. Today, employees can be reached, and sometimes also expected to be available, everywhere and at any point of time. Hence, many employees might find that work is no longer limited to the workplace and to working hours. As such, many individuals work during their spare time in order to meet job demands. Moreover, there are also several companies that have decided to extend working hours to maintain a competitive edge, which in turn means that they cut the time available for employees to recover from job demands. Zieltra et al. (2014) (cited in Cooper and Quick, 2017) state that people's “[...] capacity to recover from work is related to their ability to regulate their effort

investment and their psychophysiological states” (p. 176); meaning that a person’s ability to engage in self-regulation relies on the time available to do so. Long working hours and work during free time may gravely restrict and impede individual’s capacity to self-regulate their effort, and consequently worsen their capability to recover from work, as well as wind down after working hours. Furthermore, a systematic review performed by Bannair and Tamakoshi in 2014 showed that people who work long hours are more likely to experience anxiety, sleep disturbance as well as a depressive state. Notably, empirical evidence reveals that “NFR, health, fatigue, and well-being are associated not only with negative job characteristics, but also with the extent to which employees carry out job-related activities outside of work” (Cooper and Quick, 2017 p. 176).

A second factor that can affect recovery processes is work-family dynamics, which can be described as the interplay between gains and losses at work and in family domains. Work stressors that use up resources, thence interfere with resource investment at home, which in turn might aggravate the work-home interference and lead to burnout. A study from 2004 has shown that work-home interference is associated with emotional exhaustion, displaying that conditions at home that needs resource investment lead to less resources for investment at work and thereby result in family role stress and home-work interference (Cooper and Quick, 2017).

The state of burnout as a consequence of being exposed to work stressors for a prolonged time has many negative effects, both on the individual himself but also on the organization. The relationship between stressors and burnout has revealed to be moderated by recovery processes, such as hinder resource loss and gain new resources. Notably, long working hours and indistinct limitations between work and free time and demands at home have shown to prevent individual’s recovery processes, as well as increase the risk of fatigue and burnout. However, leisure time activities and short-time breaks (weekends) have shown to be positively associated with symptoms of strain and burnout, especially for those individuals who can detach themselves from work during this time (Cooper and Quick, 2017).

2.2.3 Stress management

Individuals can get stressed due to pressures at work or at home. The employers can usually not protect these individuals from the stress that occurs outside of work, but they can protect them from the stress that arises through work (Leka et al., 2003). Stress at work can be a severe issue to an organization, but also for its employees. Many organizations have recognized that an overly stressed employee is not likely to be a productive and effective employee, but also poorly motivated or unhealthy (Robbins, 2007). Further effects on organizations may include a negative impact on staff recruitment as well as damaging the organization’s image, internally and externally (Leka et al., 2003). As a result, many organizations have chosen to develop stress management programs (Robbins, 2007).

Leka et al. (2003) claim that the goals of stress management are to (i) prevent stress from occurring, or where employees already experience stress, (ii) it should prevent individuals from experiencing any serious damage to their health. Bradley and Sutherland (1995) mention the potential extra costs negative stress has on organizations and the implementation of the most suitable stress management program is therefore crucial. Stress management programmes can include many different kind of activities, such as training an individual in how to relax or how to redesign a job. Researchers have suggested three different categories of stress management interventions, which focus on (i) the situation and aims to reduce the potential stressors, (ii) on the employee and aim to change the employee's emotional thinking of the situation or to (iii) help employees to cope in a more effective way about the consequences of stress by increasing the resources of coping (Bradley and Sutherland, 1995).

2.2.3.1 Stress-coping strategies

Studies on strategies for stress coping have been performed for a long period of time when recognized the harmful effects stress can have on individuals. Lazarus and Folkman, among others, initiated studies of general life stressors in 1984, where much attention was given to coping with illness (Koeske and Kirk, 1993). The central theme of these studies has been how various events are considered by an individual as stressful and if that stress exceeds the individual's coping resources and skills (Hardy et al., 1998). People react differently to life stressors, for instance, one individual may respond differently to a reprimand from a supervisor compared to another. Some people may argue with the supervisor, get upset or start crying while others shrug it off. The objective of studying different strategies of coping with stressful events is to understand why people differ so significantly in their responses and how it is related to their wellbeing. One explanation why people respond differently to a certain situation is due to their various personality characteristics, but it can also depend upon the individual's previous experiences with the supervisor or whether the reprimand is justified (Aldwin and Werner, 2012). Although, many studies have been done on stress coping strategies, there is no technique that works for everybody, nor that can be applied to all stressful situations. Instead, there is a range of techniques that can be used for reducing stress (Robbins, 2007).

According to literature on stress, coping strategies can be divided into individual respectively organizational strategies. The individual strategies can be further divided into work-focused-, emotion-focused-, escape/avoidance coping strategies, as well as approach strategies. According to the first mentioned strategy, employees can reduce stress by directly changing their work environments or habits. For instance, role clarification, time management as well as delegation are all work-focused coping strategies. Compared to the work-focused coping strategies, the emotion-focused coping strategies do not change the employee's work environment; instead they help

the employee to better adjust to stress. These strategies include social support, relaxation techniques as well as increased tolerance of ambiguity. Social support from family, friends or colleagues can help these individuals to feel less stressed out. The escape/avoidance strategies refer to trying to reduce stress feelings through the use of alcohol and drugs. These strategies are identified as being both an unhealthy and ineffective strategy for coping. The approach strategy, on the other hand, is seen to be an effective strategy as it addresses the issue of stress as a challenge and increase the capacity to deal with it. Approach strategies involve physical, mental and creative activities, such as music or art. In addition to the individual strategies there are also organizational ones, which have been used to help employees deal with stress. The organizational strategies involve “health maintenance, leadership training and stress reduction workshops which are used on a widespread basis” (Anbazhagan and Soundar Rajan, 2013 p. 167).

Moreover, Lazarus and Folkman distinguish between problem-focused and emotionally focused coping strategies, where the first one is directed towards the management of problems. Problem-focused coping strategies may involve actions to eliminate the stressor appearance or to reduce its physical impact (Steptoe et al., 2010). The emotionally-focused coping strategies, on the other hand, concern a failure to confront the problem and instead dealing with emotional distress (Hardy et al., 1998). This can be done in a wide range of ways, but is oriented toward the management of the emotions that accompany the perception of stress. Both of these approaches can be effective in making a stressed person feel better, however, they may not be equally effective when it comes to managing a specific stressful situation. The problem-focused strategies are appropriate when the stressors seem to have controllable aspects, whereas the emotion-focused strategies are better suited for stressors that are seen to be uncontrollable to an individual. An example of this could be that an individual needs to go through with an unpleasant dental procedure. The best way to cope with the procedure may then be to distance oneself from unpleasant feelings, which in turn is a problem-focused strategy. Many strategies fall within these two categories, such as actions to remove the problem and asking someone else to help solve the problem are both problem-focused coping strategies. Venting emotions or seeking company of others for comfort are emotion-focused strategies (Brannon and Feist, 2009).

2.2.3.2 Prevention of occupational stress

Cooper and Quick (2017) suggest various ways to reduce work-related stress, which are divided into primary-, secondary-, and tertiary prevention. The primary prevention refers to addressing the root causes by reducing, modifying, or eliminating the stressor or demand that causes stress. The main idea with primary prevention is therefore to remove the source of the problem. This prevention method is considered to be the true organizational stress prevention, as it changes and shapes the various demands that the organization puts on its employees (Nelson and Quick, 2013). Quick and Cooper

(2003) suggest methods for primary preventive stress management, which include “learned optimism, time management and planning, modifying type A behavior pattern, building supportive social relationships” (p. 45). These various methods complement one another, where each method highlights a different aspect of the behavioral and psychological skills required to manage stress successfully. A person should choose one or two of the skills he finds most appropriate, and regularly practice them in order to benefit the most (Quick and Cooper, 2003). For instance, learned optimism refers to a psychological skill that helps individuals to change their perceptions about situations, mainly negative ones, and adversities into something positive. When transforming these negative perceptions, the person may consider negative events less stressful.

Secondary prevention, on the other hand, refers to reducing the effects the stressors have on people’s health. Hence, individuals need to be able to manage the inevitable stressors in order to prevent distress and strains, while promoting health as well as wellbeing. These two methods are long-term approaches which aim to change how a person experiences, manages and responds to various stressors. These methods provide behavioral and psychological tools that allow people to develop certain skills, which in turn help them to prevent and manage stress successfully.

The third prevention method, namely tertiary prevention, refers to treating the resulting ill-health, where the idea is to heal individual- or organizational symptoms of distress. Such symptoms may vary from “early warning signs (such as headaches or absenteeism) to more severe forms of distress (such as hypertension, work stoppages, and strikes)” (Nelson and Quick, 2013 p. 251). Cooper and Quick (2017) mention that stress prevention programs can focus on different objectives as well as be built on various philosophies.

In the European Union much focus is put on primary prevention and occupational health promotion. Finding the appropriate shoe for each individual is one approach that is based on primary prevention, which can also be explained as putting “the right person in the right place”. Although much debate concerns primary prevention, the majority of occupational stress prevention approaches are oriented toward secondary or tertiary prevention (Malzon and Lindsay, 1992, cited in Cooper and Quick, 2017). Many of the latter approaches are concerned with relaxation, psychological counseling and dietary control, to name a few.

2.2.4 The Job-Demand-Control Model

According to Bowen et al. (2014a) occupational stress is something that occurs when employees experience an imbalance between the demands associated with the required work and the resources needed to manage those demands. Low productivity at work, high absenteeism and poor job performance are factors associated with occupational stress, which now has become the most frequently used framework to understand employees' health and well-being. As previously mentioned, the construction industry is a high-risk industry in regard to work-related stress, since much of the projects are characterized by uncertainty. The working hours may be long and might lead to interpersonal and internal conflicts, which are known as being common work stressors (Bowen et al., 2014a).

Job demands are measurable factors of work and include time pressures and workload, while job control can be explained as the degree to which the employees have the potential to control and handle their tasks throughout the working day (Bowen et al., 2014b). The Job Demand-Control model (JD-C) of occupational stress was developed to predict and explain work-related stress and motivation, and is therefore focusing on two of the most important factors regarding the working environment: job demands and job control. The Job Demand-Control model has evolved into one of the most dominant frameworks of today regarding stress and learning related to one's occupation. It is a model that reduces several work-related stressors into only two dimensions, such as psychological job demands (stressors related to workload) and job control or job decisions latitude (the possibilities in a person's decision of how to meet these job demands) (Verhofstadt et al., 2015). The model suggests that work that is high in demands (such as work overload and time pressure) and low in control (for example limited autonomy) creates the most stressful responses and is therefore not good and more damaging to health, e.g. physical or mental stress levels lower than the average can be expected in jobs characterized by low demands and high control. Another central prediction with the JD-C model is that motivation, learning and personal growth are factors that will be highest in those jobs characterized by high demands and high control. Thus, the JD-C model is proposing four different types of jobs, which are (i) high-strain jobs (high demands and low control), (ii) low-strain jobs (low demands, high control), (iii) active jobs (jobs high on both demands and control) and lastly (iiii) passive jobs (low demands and low control). Moreover, scholars suggest that there are evidence and reactions of direct effects of job demands and job control on work-related stress (Janssen et al., 2001).

Verhofstadt et al. (2015) claim that the strongest relationship can be found between job demands and stressors in the beginning of someone's career, due to the individual's short work experience. They claim that employees adapt to their stressful conditions over time, as they will learn and come up with new strategies to cope with stressors. Moreover, Verhofstadt et al. state that the relationship between job demands and learning is of the similar nature, due to the low work experience the connection between these two factors are strongest at the start of the career. Regarding job

control, scholars have realised this is also an adaption which will occur over time. Results show that the association of autonomy regarding (dis)satisfaction and learning indicators decreased over time. According to these results workers needed clearer job descriptions, in order for them to reach a level of satisfaction at the onset of their career (Verhofstadt et al., 2015).

2.2.4.1 The Demand-Control-Support Model

Janssen et al. (2001) claim that the most common criticism concerning the Job Demand-Control model is that it is too simple. They argue that job control is not the only available resource for dealing with job demands, and suggest that social support from colleagues or managers is another function that will work as support regarding the relationship between job demands and stress reactions. Therefore, a reformulation of the JD-C model was made by adding work-related social support as a third and important factor regarding the working environment. This reformulated and expanded model is called the Demand-Control-Support model (DCS), and is proposing eight different types of jobs. These jobs are characterized by the four ones in the JD-C model, in which the employees do not receive much social support. The other four are described by the four JD-C working conditions, where the employees receive a large amount of social support. Working environments characterized by employees that are not getting much social support from their superiors are suggested to be more demanding than highly supportive working environment. Moreover, the most unfavorable and supposedly stressful working environment is considered to have high job demands, low job control and little social support, according to the Demand-Control-Support model (Janssen et al., 2001).

Even though scholars claim that the DCS model is a good model, there are some issues that have been highlighted. One central issue is in testing the interaction with the three working environment characteristics that are considered in the model, which are the job demands, job control and social support. There are two clarifications of the three-way interaction effects of the DCS model:

- Job control and social support are both operating as *moderators*, which means that the high levels of control and support reduce the harmful effects of job demands,
- The combination of high job demands, low job control and little social support is creating a *synergistic* harmful effect.

Each of these clarifications – (high) job demands, (low) job control, and (poor) social support – can cause increased reactions of stress, but as a combination their results is an additional or synergistic effect, which might be considered as better than the sum of the separate effects (Janssen et al., 2001).

2.2.5 Social support and stress

Situations at work that are normally seen as stressful do not always have to be characterized as a situation with direct consequences. The Job Demand-Control-Support model has for a long time been a key point in the research of work characteristics and the impacts it has on employee health and well-being. The central factor of the model is that job control and social support interacts with job stressors in order to reduce the levels of stress (Janssen et al., 2001).

According to Lingard and Francis (2006) the extent to which people enjoy different kind of support will affect the moderation of the stress-strain relationship. For example, stressful situations use to make people more insecure about their ability to obtain or retain various resources, which in turn will give rise to emotional or physical exhaustion. According to the Demand-Control-Support model of work stress the most hostile health effects occur in jobs where the demands are high, the control is low and the social support is low. The DCS-model claims that people who experience high social support from colleagues or supervisors will reduce the harmful impact of stressful situations at work. Employees who experience high extent of organizational support will most likely moderate the effect of work stress on individual and organizational outcomes. Moreover, Lingard and Francis (2006) suggest that the social support from supervisors, co-workers and others, does act as a protective buffer in the relationship concerning work stress and burnout. They also claim that employees who perceive support from their organization will respond less negatively to stressful situations (Lingard and Francis, 2006).

Moreover, what has become a topic of great interest in recent years is the extent to which work interferes with various factors of employees' non-work lives. Lingard and Francis (2006) define work-family conflicts as "a form of inter-role conflict in which role pressures from the work and family domains are mutually incompatible in some respects" (p. 185). These kinds of conflicts can be linked to negative outcomes for individuals, their families and employing organizations. Hence, work that interfere with family life can be connected to job dissatisfaction, life dissatisfaction, psychological strain, psychiatric disorders and problems with drinking. Therefore, by perceiving organizational support employees' relationship between work-family-conflict will be mitigated. The presence of social support in the workplace has also shown to reduce the negative consequences of work-family-conflicts. By having a good and supportive relationship with your supervisor, this is believed to play a particularly important role concerning the work-family-conflicts. Supervisors have access to control and the possibility to change and develop alternative work arrangements, in the cases this is needed (Lingard and Francis, 2006). In those cases workers need to work long hours, particularly hours worked over a standard work week, are reported to have high negatively impact on the work-life balance. Scholars mean that work hours of non-standard can be linked to increased work-to-family conflicts, lower levels of family functioning, more depressive symptoms and less-effective parenting compared to those who work standard hours (Lingard et al., 2012).

Lingard et al. (2012) state that social support involves “the exchange of resources between at least two persons, with the aim of helping the person who receives the support” (p. 651) and continues with that social support is helping an individual to remember and maintain existing resources and obtain new resources. For instance, social support from either work or home will generate a positive effect in the source domain. An employee who has family-friendly supervisors and co-workers will probably experience higher levels of work-family relief (Lingard et al., 2012). Bowen et al. (2014b) claim that the level of required support is significantly different between men and women, especially since more women than men feel stressed at work and feel the need to work harder than others to “prove” themselves. They also state that one of the most significant factor for high stress among employees in the construction industry is the lack of time to balance work and family. Persons who perceive conflicts between work and family life is one of the strongest and most consistent factor for occupational stress. According to the DCS-model stress arises when there is no “fit” between demands (for instance the family or work domains) and the resources available to meet these demands. However, the balance between work and family life is a complex concept, and it is important that organizations strive to have work-family balanced strategies and to provide the personnel with the support needed (Bowen et al., 2014b). Lingard and Francis (2006) highlight the importance of having a supportive work environment, since this will help prevent employee burnout. An employee who perceives organizational support from their employer, will experience a positive effect on their mental health. Lingard and Francis also highlight the importance of social support from one’s co-worker and supervisor, since this is very important in the prevention of burnout.

2.2.6 Personality Types

Organizational researchers are constantly striving to come up with and establish different patterns that will help to predict the behaviours of employees within the organizational context. How individuals behave is unpredictable, but by understanding different interactions among tasks, the structure of the organization, the external environment and individual personality traits, researchers may be able to predict how individuals will act in different situations. As a result, researchers have found an increasing interest in different personality types and their roles in different work situations, particularly as it relates to predicting a certain type that will be most effective in different organizational environments. There are many different aspects of a personality that may be evaluated, and different tools to use in order to classify varying aspects of an individual and its’ personality. This thesis will therefore only examine the behaviour patterns of personality type A and B along with the Enneagram typology which describes individuals into nine representing categories (Fretwell et al., 2013).

Personality Type A and B

According to Fretwell et al. (2013) there are different personality characteristics for type A and B individuals. Friedman and Rosenman claim that the pattern of the Type A behaviours has received significant attention in the literature (cited in Fretwell et al., 2013). There are especially three characteristics of the Type A persons that are dominant: their attitudes toward achievement are highly competitive, a strong sense of time urgency, and are usually more aggressive and hostile in coping with frustrating situations. These characteristics are further explained as three components of the Type A individual's strong desire to exert control over the environment. Others explain Type A persons to be aggressive, competitive, always in a hurry, dynamic, work-oriented, intolerant, ambitious, hard-working and very involved with their jobs. They might be seen as individuals who set high career goals for themselves and put in more hours to achieve them. Type B individuals, on the other hand, can be explained as being more effective on complex tasks that require slow and careful responses, in comparison to type A people whose focus on time urgency may result in a rush to judgement and do not always result in the best decision. Type B individuals can be seen as more relaxed and easy-going and are mostly able to enjoy leisure time and can therefore relax without feeling guilty. They generally do not pressing conflicts with either time or people, and might have a significant drive to work hard and accomplish goals. However, compared to the Type A individuals, Type B's have a confident style that allows them to work in their own speed rather than racing against the clock. Furthermore, the Type B persons can be described as people who are able to see things from a global perspective, encourage teamwork, and often have more patience in decision making while inspiring employees to work as a team to achieve goals (Fretwell et al., 2013).

The 9 nine characteristics of the Enneagram typology

In the Enneagram typology, individuals are being explained to fall into one of nine type of categories. Each of these categories represents a preferred or habitual way of dealing with different situations in one's life. These nine categories are:

- *The reformer* can be explained as an uncompromising, dedicated person, who needs to have control. It is also a person who can be seen as a perfectionist,
- *The helper* is seen as an open-hearted and generous person. They are also domineering and courteous to others,
- *The achiever* is a person who see themselves as an adaptive and driven person, and is well aware of how people perceive them. Moreover, most achievers often think they are better than others and are very success-oriented,
- *The individualist* is explained as an expressive and dramatic person. They are also seen as self-absorbed and temperamental individuals,
- *The investigator* can be explained as a very observant person who is inventive, but also reserved and will most likely isolate themselves from other people,
- *The loyalist* persons are mostly committed to their tasks, but also responsible, anxious and suspicious,

- *The enthusiasts* are explained as being spontaneous, versatile, easily distracted and shattered,
- *The challengers* are seen as self-confident persons who can easily take decisions and confront people. Moreover, they are seen as very resolute persons,
- The *peacemakers* can be explained as calming and susceptible, but also pleasing and self-satisfied.

What these nine characteristics say is that when an individual are under stress he takes on some of the more negative types from the representing characteristics. Conversely, during more relaxed and secure times an individual is inclined to take on the more positive factors of the different characteristics (Sutton et al., 2013).

3 Methodology

The following chapter involves the research approach- and design chosen for the thesis and the use of tools for data analysis. Data collection methods and sampling techniques will be explained and described, as well as the validity and reliability of the study will be justified.

3.1 Qualitative versus quantitative research

There are mainly two different approaches to research, namely qualitative- and quantitative research. The qualitative approach seeks to understand a given research problem and is used to find meaning and understanding. The strengths of a qualitative approach include being effective in identifying intangible factors and it can provide complex textual descriptions of how individuals experience a given research problem. The most common qualitative methods include participant observation, focus groups and in-depth interviews. The latter is particularly suited to collect data on individuals' personal experiences and perspectives, especially when the topic at hand is sensitive. These three methods include field notes, audio recordings as well as transcripts (Family Health International, 2016). Compared to the qualitative approach, the quantitative approach aims to emphasize theory testing and is based on statistical and numerical measurement (Egan, 2007). In practice, this approach is generally implemented through questionnaire surveys, such as online surveys or over the phone.

There are a number of differences between quantitative and qualitative research, where one of the main differences is the flexibility of the two approaches. The quantitative approach is generally fairly inflexible and questionnaire respondents answer identical questions in the same order, which are closed-ended or fixed. The qualitative approach allows a greater spontaneity between the researcher and the interviewee. They often include open-ended questions, which allow the respondents to answer the questions in their own words and in more detail. Moreover, these answers tend not to be answered by a simple "yes" or "no". Qualitative research is designed to find patterns and trends that occur in a particular context, while in quantitative research attempts to generalize findings across contexts. The qualitative approach is used when observing and interpreting reality with the purpose of developing a theory that will be used to explain what was experienced. The quantitative approach, on the other hand, is used when there is a theory or hypothesis, which then will be tested in order to find confirmation or disconfirmation of the hypothesis (Newman and Benz, 1998). The table below shows the differences between these two approaches (see Table 3.1).

	Qualitative	Quantitative
Objective/purpose	Gain understanding of underlying motives; explore ill-structured problems.	Test hypotheses; generalize from sample results to the population of interest.
Sample/data collection	Small sample; unstructured, flexible, data collection involving observation, interviews, and field notes.	Large sample; numerical values assigned to subjects' responses; primary survey data or secondary data.
Data analysis	Continuous as data is collected; analysis affects next step in the research; non-statistical analysis.	Analysis takes place after all data collected; statistical methods used.
Planned outcome	Develop an initial understanding and/or description; begin theory development.	Provide a specific recommendation.

Table 3.1. Qualitative vs quantitative research (Silver et al., 2013 p. 58)

Both the qualitative and the quantitative approach have limitations. Due to the fairly small samples in qualitative research, it can be difficult to pick out small differences as well as in quantitative research. Noteworthy, the more flexible qualitative research can detect problems that are not apparent in quantitative research (Proctor, 2005). However, when a qualitative method is used along with a quantitative method, it can help interpret and better understand the reality of a given situation and the implications of quantitative data.

3.2 Research approach

The purpose of this study is to investigate the experiences of the employees at a well-known construction company, concerning their perceived level of occupational stress and satisfaction in their jobs, as well as their views on the support provided by the firm, in relation to their occupational stress. To answer the study questions a qualitative approach will be undertaken. This involves face-to-face semi-structured, in-depth interviews with employees at a case company, where open questions will be asked in order to explore the experiences of these people. The interviews will be individually performed with the participants, as this seems to be the most effective way to understand how occupational stress is perceived amongst the workers at the company. This will allow open discussions with employees, where the interviewees have the opportunity to describe their point of view. The interviews will be entirely voluntary and confidential. Moreover, the interviews will be tape-recorded, if consent is given by the participant, and then transcribed verbatim. The procedure of the interviews will be discussed and considered in consultation with the supervisor at the case company. Additionally, a quantitative staff survey will be sent out to the employees at the company, in order to receive a higher response rate that can reflect the current situation at the firm.

Furthermore, the abductive approach is chosen for the thesis, which is a combination of the inductive and deductive approach. The abductive approach is explained as an approach that starts with a specific case and that has a preliminary developed theory. The theory will then be tested and developed together with the results of the research, and this process will then be repeated. However, in an abductive approach it is important to be aware of the fact that researches may be colored by previous experience (Patel & Davidson, 2011).

3.2.1 Sampling techniques

It is not necessary to collect data from every individual in a population to receive valid and reliable findings. In qualitative research a sample, also known as a subset, of a population is selected for a study. The study sample will then apply to the population as a whole. Depending on the research objectives and the population's characteristics determine how many individuals and who to select (Family Health International, 2016).

The study sample for the interviews constitutes of employees working as supervisors, project managers, or in other management positions at the Gothenburg office. This involved 20 individuals who had the opportunity to describe their experiences from their own perspective. The respondents were recruited through the Human resource manager at the case company. These individuals were asked to participate in the study, if consent were given, their contact details were forwarded to the authors of the thesis. The study sample for the questionnaire was the remaining employees working in the Gothenburg area, no regard to their position at the company. The aim was to find common patterns of experiences, in order to come to conclusions that apply to the company as a whole. The process of information collection from a sub-selection of a population that is used to come to conclusions for the population as a whole refers to inference (Stigmaindex, 2016).

3.2.2 Sample size

It is important to take a sample that is large enough to capture the main features of the employees' experiences at the company. The people included in the study will be of different ages, gender, work rank as well as educational background. The professional roles of the interviewees involved in the study are presented in Table 3.2. In this study 20 employees at the case company were interviewed and 36 individuals answered the online questionnaire that was sent out. The response rate of the online survey was 45 %.

Regional manager	1
Construction managers	3
Construction engineers	2
Project manager	5
Site managers	4
Supervisors	4
HR manager, Sweden	1
Tot.	20

Table 3.2. Professional roles of the interviewees

3.2.3 Data collection

Data was collected over a three-month period, starting in February of 2017 and ending in April of 2017. Data will be collected through an online questionnaire and through face-to-face interaction. The authors of the thesis performed the interviews individually with the interview participants, and were responsible for making sure that the topics for the interviews were covered, as well as the interviews were audiotaped. The study was mainly a qualitative study, as this will explore employees' shared perspectives and issues in the participant's own words in a better way compared to a solely quantitative method. Open-ended questions were asked to the study participants to promote discussion, however, they will cover the interviewees' perceptions of occupational support at the case company, their level of occupational stress and the process of dealing with this issue. The interviews will also involve the employees' level of satisfaction in their workplace, as well as their intention to stay at the company. The interviews were about 60 to 90 minutes long with each of the participants and were later transcribed into verbatim in preparation for analysis. Furthermore, a questionnaire was sent out to the employees at the case company covering the topics of occupational stress, organizational support and work satisfaction. This was done with the purpose of obtaining a higher response rate, which can better explain the overall employee perceptions at the company considered. The combination of face-to-face interviews and a questionnaire allows more people to be involved in the study, which will ensure a greater credibility of this study.

The success of the study depends on the relevance, language and careful design of the questionnaire. Hence, the content, structure and language were carefully revised in order to deliver a well-performed questionnaire that could increase the quality of the responses. This also applies to the interviews, as the structure of the questions and their formulation have an impact on the responses the interviewees give. Therefore, it is important to produce clear questions, which the respondents interpret correctly and understand, in order for them to answer in the best possible way.

3.2.4 Data analysis

The interviews with the study participants were tape-recorded, transcribed verbatim and then analyzed using qualitative data analysis and quantitative data analysis. The analysis performed describe common experiences of the whole data set as well as comparisons can be made between individuals of various ages, gender and backgrounds (Sekaran and Bougie, 2016). Moreover, theoretical frameworks were used to broaden the conceptual understanding when discussing the results of the study. The outcomes of the two tools for data analysis were combined with the purpose to gain a clear and distinct insight into the current situation at the company.

3.2.5 Ethical considerations

Ethical considerations are an important part in research studies. Ethical guidelines and principles need to be considered throughout this study, as this research study should not cause any harm to any of the individuals included in the study nor the organization itself. In this research study, the Ethics Policy for Chalmers University of Technology sets the basis of the ethical guidelines. Particular respect will be given to informed consent, which refers to a voluntary agreement to participate in research. It means that the research participant has an understanding of the study and its purpose as well as the risks that comes with it. It is necessary to obtain informed consent for all human research subjects. The aim with informed consent is to provide sufficient information to the study participant, in order for them to make a conscious decision whether to participate in the study or not (ESRC, 2016).

A permission to conduct the study was obtained from the Human resource manager at the construction company of consideration in order to begin the study. Oral consent was obtained from the interview participants, after being explained the purpose of the study. Informed consent is important for ensuring that the interview respondents understand the meaning to participate in the research study, in order for them to consciously decide if they want to participate or not. Informed consent is necessary for ensuring respect for persons throughout the study (Family Health International, 2016). All participants were informed that the study was voluntary and they were allowed to terminate their participation at any stage of the study without any explanation. To ensure the study participants that the study was anonymous, their names were replaced with pseudonyms. The study participants were also asked if the

interviews could be audiotaped. If an interviewee approved to be audio recorded, he was informed that the recording will be stored safely and will be deleted in the termination of the research study. The authors will maintain the confidentiality of data with respect to both information about the study participant as well as the information that the individual shares (World Health Organization, 2017).

3.2.6 Significance

As there is little evidence showing and describing the experiences in terms of occupational stress, work pressure and inadequate support impacting the lives of construction professionals, this study will give information on how people experience their work situation and what changes they consider need to be made in order to improve their work-life balance. This study will provide information and knowledge on how these people perceive their place of work and how it impacts their stress levels and overall well-being, which can be used to plan for efforts that should be made to promote this area of concern. Educational interventions may play an important role in terms of informing people about occupational stress and burnout, where the aim is to increase the knowledge about these problems and how they can be dealt with.

3.2.7 Limitations of the study

The subjective nature of the thesis can be seen as one of the limitations in this study. As only two master's students conducted the study, it only relies on their knowledge and their perceptions on the data collected. An additional limitation was the time frame, as the students searched for appropriate literature, collected data and performed the study during the spring of 2017. The timeframe was also a limitation for the actions taken in regard to the interviews, as respondents were only interviewed once during the process. Performing more than one interview with each participant may have resulted in a higher credibility in their answers, which in turn could have strengthened the conclusions of the study. Moreover, a higher number of interview participants may have provided a wider perspective. With a more generous time frame some of the time related issues could have been avoided.

4 Case company – Hestia Construction

The following chapter presents the case company studied in the thesis, its organization structure, but also information from a staff survey conducted in 2015.

The case company, which in this report will be referred to as Hestia Construction, is one of the bigger construction companies in Sweden. The thesis was performed at the company's Gothenburg office, which has approximately 140 employees. The company's organization structure, presented in Figure 4.1, is constructed as a line staff organization with different working groups and support functions, including the economy-, business development- and HR- department, which are supporting the core business and the different working groups.

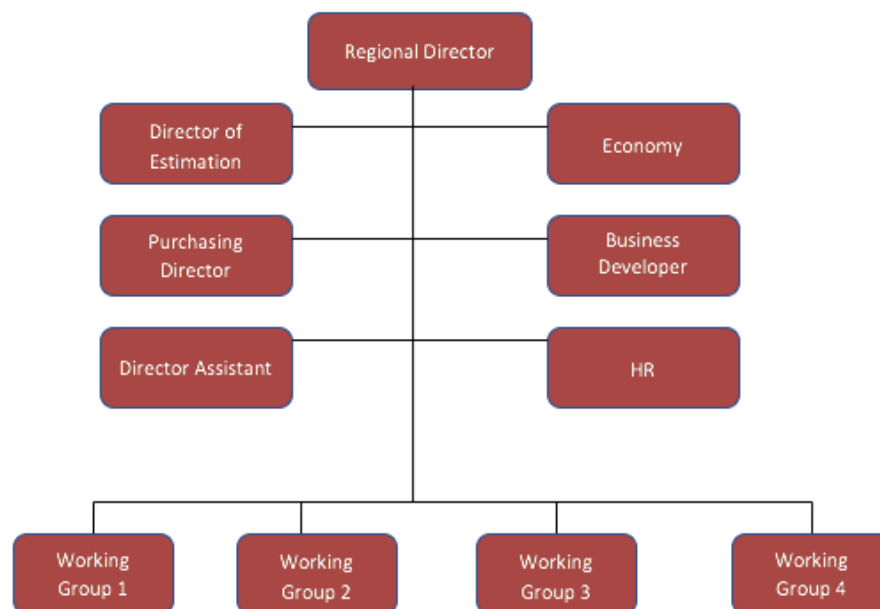


Figure 4.1. Organizational structure

Each work group (see Figure 4.2) is directed by a construction manager, who is the person with the main responsibility for the projects in the group. Each project in the work group also consist of a project director, site manager, construction engineer, supervisors, and construction workers.

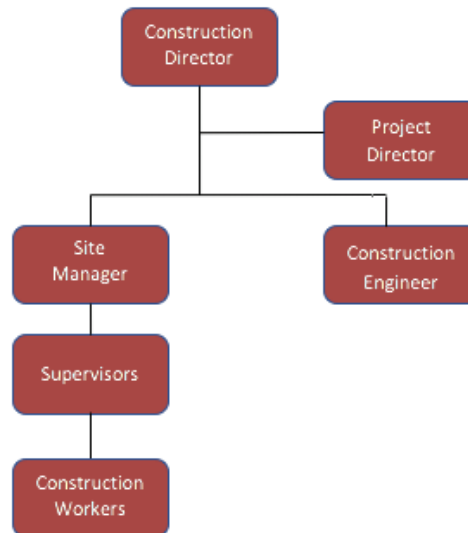


Figure 4.2. Structure of each work group

Hestia Construction strives to decrease the stress levels among their employees and increase the motivation, efficiency and enthusiasm to make better work through each project, which they will achieve by make everyone feel as they are a part of the projects and the organization. By making everyone feel better at the workplace it will create a much better working environment, which the company also believe will make the quality of the project better and create safer job sites, which in turn will contribute to a more satisfied client. The company has come up with a few key activities, which will help to manage these tasks. Through these activities, everyone who is involved in the projects will be able to affect the planning process, but also get a better understanding about their part of the project. These activities will also help to create safer job sites, which in turn will contribute to minimized waste.

One main goal at Hestia Construction is to have an organization culture where everyone can express their opinion and feel safe. The organization strives towards a culture where everyone can give and receive constructive feedback without feeling disrespected. Each individual employee plays an important role in every organization, since they are the ones who develop the company. To feel well and appreciate the working environment is therefore a vital part for all employees to accomplish a good job. Therefore, Hestia Construction is completing a staff survey every other year, which will answer different questions of the employees well-being as well as how different processes are working at their daily work.

Regarding the psychosocial working environment in the survey done in 2015 the results were in general good with mostly positive feedback. Most of the respondents had answered that they were enjoying going to work, that the engagement among everyone in their working group was either positive or neutral and that the co-operation in each group was good. However, the results were also showing that there were some problems within the organization concerning the question of support and

constructive feedback from their closest manager. Furthermore, the staff survey also mentions questions regarding stress and if the employees have experienced any stress in the past few months. The result in the survey done in 2015 had improved from the survey done in 2013, however the perceived stress levels were still high (25% of the respondents). The stress levels were highest among the officials working on construction sites and the officials working in the support functions. Of those people who were perceiving a high level of stress, 61 % of them mentioned the workload as a main reason for this. 27 % responded that there were other factors in their personal life as the main reason of the perceived stress. Other factors of stress were:

- I am having trouble to understand what is expected from me in my work (14 %)
- I have too much responsibilities and too little authority (12 %)
- The opportunity to affect my own working situation is not enough (6 %)
- The support from my closest manager is not enough (6 %)
- The support from my co-workers is not enough (2 %)
- The work I perform requires more knowledge than I possess today (10 %)

These numbers are based on the staff survey performed in 2015, where 49 individuals answered the questions.

5 Results and analysis

The following chapter presents the results and analysis of the thesis respondents in relation to the theoretical frameworks presented in chapter two. The findings in the thesis are based on the interviews with open-ended questions, an online questionnaire, as well as from observations made during the interviews.

5.1 Causes of stress

The results from both the interviews and the questionnaire state that construction personnel suffer from a high level of stress (see Figure 5.1), where most individuals experience a stress level higher than six on a scale of one to ten. A stress level of eight out of ten was mostly prevalent among the questionnaire respondents. Even though all individuals may not feel that this stress level harms them or negatively impact their private life, it is interesting to see how much stress many of them feel.

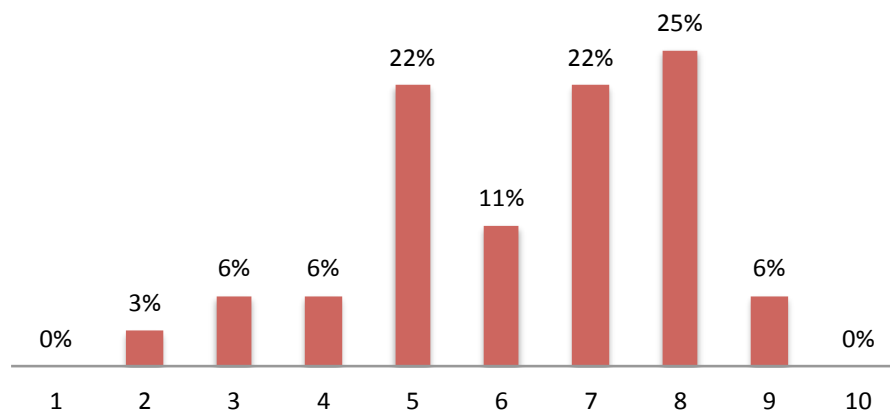


Figure 5.1. Stress levels at Hestia Construction (Number 1 indicates no stress, while 10 indicates a high level of stress)

As identified in the theoretical framework work-related stress may occur under many different circumstances. However, in those situations when employees experience little or no support from supervisors or co-workers are seen as the worst (WHO, 2017). After interviewing employees and analysing the results from the online questionnaire at Hestia Construction the responses of what causes stress within the company show various results.

Table 5.1. Main stressors experienced by the employees at the case company:

<i>Individual stressors</i>	<i>Life and career changes</i> <i>Role characteristics</i>
<i>Group stressors</i>	<i>Lack of social support</i>
<i>Organizational stressors</i>	<i>Organizational policies</i> <i>Organizational processes</i>
<i>Extra organizational stressors</i>	-

Individual stressors

Stressors perceived on an individual level are highly dependent on an individual's personality traits and constraints of change. These kinds of individual stressors can be (i) life and career changes, (ii) personality type and (iii) role characteristics (Reddy, 2004). Many of the interview respondents at Hestia Construction perceive an internal stress, which is due to their wish to perform a specific task in a particular way. Some of them have experienced a life or career change, for instance switched from another position either within the company or from an external organization or just graduated, which can give expression as an individual stressor. Due to the hard and demanding work environment that has been recognized in the construction industry, many of the interviewees mentioned an ambition to perform well in their role and did not want to be perceived as weak. They argued that people who have chosen to work in this industry must be able to receive criticism without being stressed and uncomfortable, as this is just the way the industry works. Therefore, the ambition to perform well may be seen as both an individual stressor, as well as a cultural standard within the industry.

“Stress in the construction industry is something that can be seen as a weakness among employees, and therefore the subject is unfortunately not something we discuss openly with other co-workers”

A person's personality type can also be a major source of stress. Individuals who do several things at the same time, may experience a higher stress level than normally. The personality types among the employees at Hestia Construction can be seen as a combination of both type A and B personalities. As mentioned in the theoretical framework, a type of personality may have an impact on how that individual perceives stress. Some personality types tend to become more stressed than others, which is also identified in the online survey. According to the results, the highest levels of stress are seen to be dominant among the following personality types: (i) the Achiever, (ii) the Helper, (iii) the Reformer and (iiii) the Challenger. Most of the respondents who claimed to have this kind of personality also answered that they

experience the highest level of stress, which is illustrated in Table 5.2. The table is a summary from the online survey, where all participants were supposed to chose the most appropriate personality type as well as their perceived stress level. As presented in the table, the helper, who is described to be a generous and open-hearted person, and the challenger, who is a self-confident person who easily can make decisions and confront people, are both experencing high levels of stress. However, it is important to be aware of that this level of stress may not be distress, but instead eustress.

Personality type	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	
The Reformer					8		8		5	3																					7				5		
The Helper													2	8						5					9		4		8								
The Achiever						8									7				5			7	7			5								3			
The Individualist																																					
The Investigator				8														5			7										5						
The Loyalist																6																					
The Entusiast			7														7								8					5						6	
The Challenger								7				6	8																9								
The peacemakers	4	4																																8			
	Perceived Stress Levels																																				

Table 5.2. Personality types compared to perceived stress level

When observing the respondents during interviews there were some individuals who the authors experienced as more stressed than they claimed. This will be further explained in chapter 5.4.

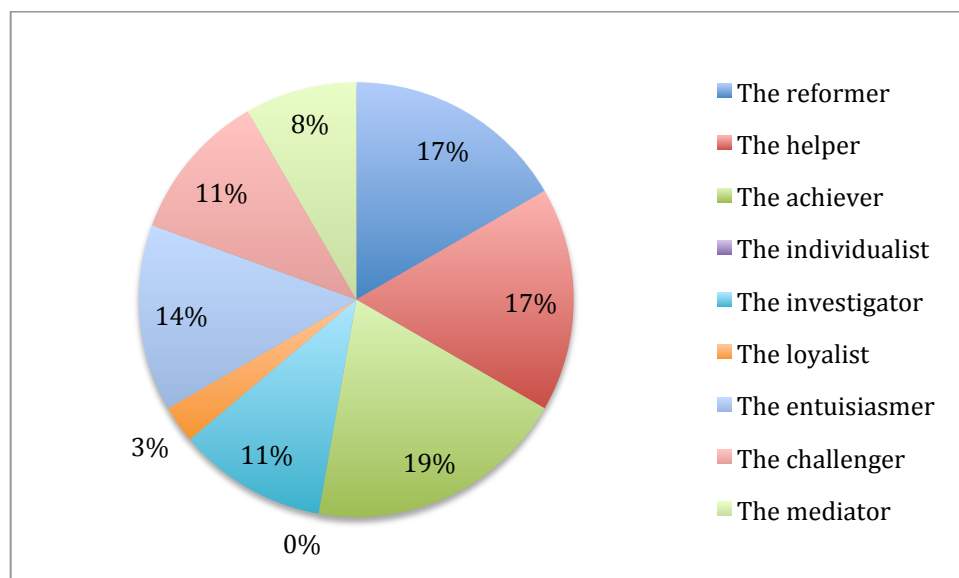


Figure 5.2. Personality types among the respondents in the questionnaire. For further explanations of the various personality types see Chapter 2, and in particular Section 2.2.6.

Group stressors

In an organization with many different individuals it is natural with stressors from a group level. According to the results from the interviews, online questionnaire and observations the most dominant group stressor at Hestia Construction is regarding social support.

Social support

As mentioned in the theoretical framework occupational stress may occur when there is an imbalance between the demands associated with the required work and the resources needed to manage these demands. The amount of support employees receive from their supervisors and colleagues is a key factor that impacts the stress reactions from the employees while dealing with various job demands. As explained in the Demand-Control-Support model, people who experience much social support from their co-workers and the organization itself will in most cases reduce the harmful impact of stressful situations (Lingard and Francis, 2006).

The social support from the closest supervisors at Hestia Construction is relatively good according to the interviewees, as well as to the survey respondents. However, this is mostly depending on the project stage and the project type, according to one of the interviewees. According to the online questionnaire there were 28 % of the respondents who answered that they did not get as much support from their closest supervisor as needed (see Figure 5.3), and 39 % of the respondents answered that they did not consider that their supervisor motivates the subordinates to perform better (see Figure 5.4). Depending on the personality, an individual who's not perceiving any kind of social support will in many cases experience a situation as more stressful than it could be with support. However, since Hestia Construction strives to involve everyone within the projects, the communication and support were not seen as a major problem. The most absence of support was regarding the subordinates, especially those that were not employed directly within the case company. According to one of the interviewed persons, there are minimum support from the subcontractors and subordinates, which makes the individual's job much more demanding.

"I do not get any kind of support from our construction workers at all. Instead, we were the ones who had to support and update them about new tasks"

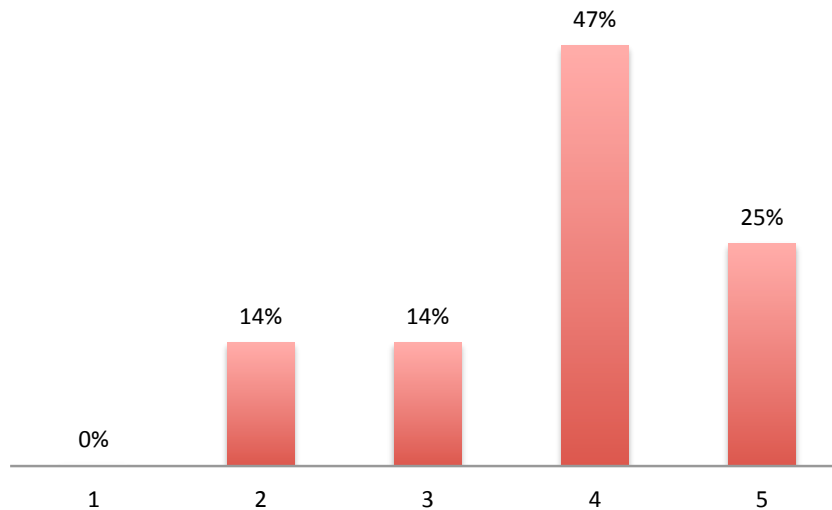


Figure 5.3. Enough support from closest supervisor

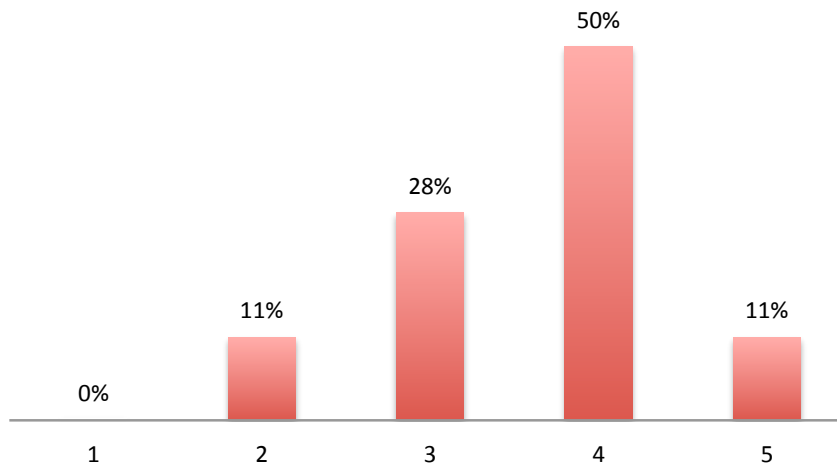


Figure 5.4. Closest supervisor motivates subordinates to perform better

Social support has also come to be a factor of high importance regarding employees' non-work life. Conflicts that arise will most likely have negative outcomes for individuals, their families and the organization (Lingard and Francis, 2006). The result was in general positive from the online survey regarding the question if they perceive a balance between their worklife and their private life. However, when comparing individual answers in the online survey the results showed that individuals working at construction sites and also had children younger than five years old did not perceive the same balance in their work-family life as others did. Five of the respondents from the survey (see Table 5.3) claimed to be working between either 41-49 hours/week or 50-59 hours/week, and did not feel a satisfied balance between their worklife and family life. Another interesting factor these five respondents mentioned in the survey was that they did not think the company offered any good recovery programs. It is of high importance for individuals to get enough recovery, such as sleep and relax or just getting some extra days off when finishing a hard and demanding project.

Individuals: 1-5	1	2	3	4	5
Working on construction sites	x	x	x	x	x
1 child	x		x		
2 or more children		x			x
41-49 work hours/week	x		x		x
51-59 work hours/week		x		x	
No, or minimal amount of support from closest manager		x	x	x	x
No, or minimal balance work-family life		x		x	x
The company does not offer recovery programs that are good enough	x	x	x	x	x

Table 5.3. Social support vs work/life

Even though this result only represents five individuals from the survey and the overall result were good, it is necessary for companies to investigate this kind of questions on an individual level. It is important to be aware of a person who might show signs of burnout and to prevent it before it is too late. As one individual from one of the interviews mentioned: *“It is easy to say to a person to not feel bad, but you have to remember to also act and do something about it”*.

Organizational stressors

The third stressor is organizational, which consists of both individual- and group stressors that take place in an organizational context. Lack of resources, time pressure and workload are the three identified organizational stressors in Hestia Construction, which were found as a result from the interviews and online survey.

Lack of resources

A majority of the respondents from the interviews mentioned a high perceived stress level about inexperienced employees. A recurring issue that was noticed was the amount of inexperienced people employed at Hestia Construction. This caused both stress to the experienced people, as they experienced more pressure on themselves to perform, but also on some of the inexperienced employees who perceived that they were in need of more support than they actually received. Information given by experienced employees claimed that they were under much pressure, and when working together with inexperienced individuals, this increased the pressure. As there is currently a boom in the construction industry, Hestia Construction needs to employ more people, involving both young and inexperienced people, which can cause a source of stress for both newly hired and the more experienced employees. The more experienced employees at the company feel the need to take more responsibility, which in the end could result in a negative work environment and a source of unnecessary stress.

“You have to know how to re-prioritize your tasks as each day brings new things to do, which are more important to prioritize”

Some interviewees claimed that it is often lack of individuals at the workplace who know how to deal with and handle decisions regarding projects. They consider that the management at the company needs to have better support for newly hired individuals, especially those without enough experience for the task at hand. It is of high importance for newly graduates and individuals with little work experience to have a mentor who has more knowledge than them, in order to learn how to do your job correctly. It is also important for the mentor to sympathize with those who are new in the industry. One of the interviewees at the company claims that there is often a shortage of staff, which makes the work more demanding. The result also shows that most of the individuals within the company are aware of the importance of a greater workforce. Following quotations are excerpts from the interviews:

“It is of great importance that newly hired or inexperienced individuals do not receive tasks and responsibilities greater than what they can handle”

“Even though the company hires more individuals, these have been inexperienced ones, resulting in more work for me. The solution is not to employ more individuals, rather employ an experienced person, who actually can help facilitate the workload”

Time pressure and workload

Furthermore, due to the intense competition in the construction industry, construction companies compete with tight deadlines, which is recognized as one of the largest causes of stress among employees at Hestia Construction. Projects with constant time pressure result in work tasks being half done, due to the tight schedules. Furthermore, one of the interviewed employees at the case company claimed that the quality of the project is at stake when there are too tight deadlines and not enough resources to finish it correctly. Job demands, such as time pressure and workload are measureable factors within the JD-C model, this model also claims that jobs high on demands and low in control (i.e. employees that cannot control and handle the pressure and work tasks) will increase people's stress levels. The results from both the interviews and the questionnaire show that this is the case among many of the employees at Hestia Construction. Many of them do not feel that they have the time to finish the job correctly (see Figure 5.5), and therefore results in a source of stress.

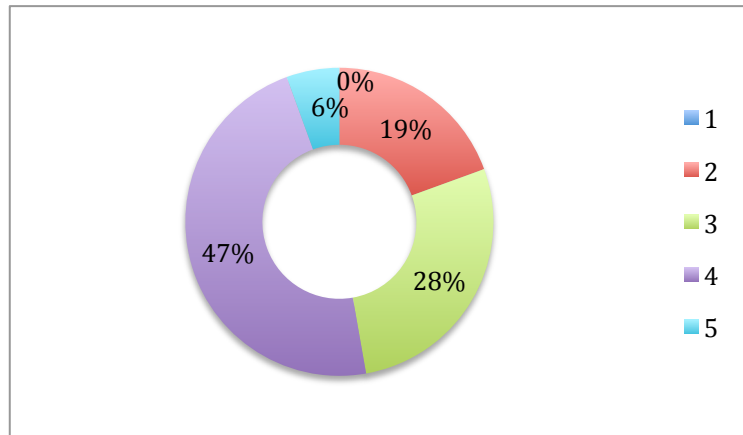


Figure 5.5. My work and work schedule allow me to perform a good work

As it is crucial to deliver projects on time, employees often need to do much overtime during peak times. Thus, overwork has become an issue of the modern workforce. As explained by Lingard and Francis (2009), overwork may lead to a greater risk of making mistakes, injuries, health issues, as well as reduced productivity. This has been identified as a current state among several employees at the case company, as the occupational stress has resulted in health issues and impaired the work performed. As expressed by one of the interviewees:

“There is no time to circumstantially and carefully plan for the work. You act as a fire fighter and only solve problems temporarily”

Another interviewee claimed that there are some overtime mentioned in the employment agreement, but the question is *how much overtime they are supposed to do?*

“It is mentioned in the employment agreement that everyone should be able to work overtime, but I feel that the management is taking advantage of this agreement. In this project I work approximately 20 hours overtime each month, which no one wants to pay for”.

Organizational policies

Some of the individuals in the interviews mentioned an ambiguity of how to perform their job tasks, as a result, this could be seen as stressful to them. According to the online questionnaire, there were seven individuals at the company who did not entirely know what was expected from them in their daily work and only eleven out of 36 employees were completely sure about their job tasks (see Figure 5.6). Not being aware of one’s tasks and not having a feeling of control could be very stressful for some individuals. It is therefore important for the management of the company to provide their employees with clear instructions, in order for everyone to know what to and how to perform their work tasks.

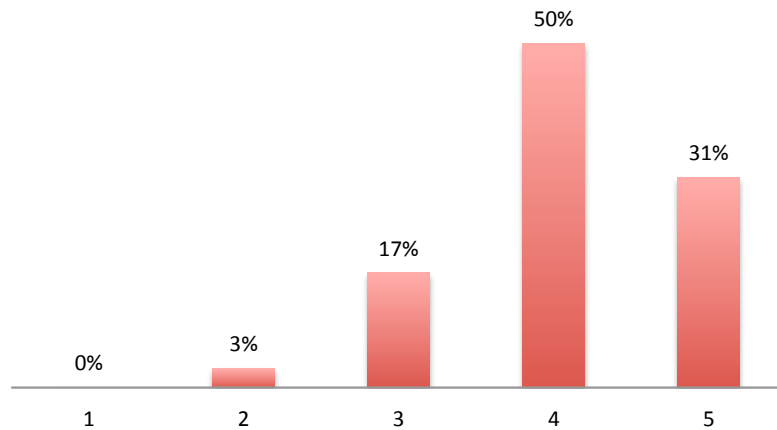


Figure 5.6. I know what is expected from me in my daily work

5.2 Consequences of stress

Work-related stress can have a significant impact on individuals and their health, but also on the result of projects and the success of the organization. According to the survey performed in this thesis, the majority of the respondents has experienced consequences related to occupational stress. Although, when the interviewees were asked about various consequences as a result of much pressure and stress at work, the answers varied quite a lot depending on their current project. Many of the respondents claimed that they currently experienced eustress, but have experienced severe distress in previous projects. This variety of answers could also be identified when comparing the answers from individuals working on different projects, while individuals working in the same project had similar opinions regarding the stress level. However, the majority of the respondents who experienced distress worked as site managers and supervisors at construction sites. Figure 5.7 shows the results of the employee survey, when asked if they experienced too much stress at work, where 1 indicates that the statement is true while a point of 10 indicates that their work does not result in too much stress.

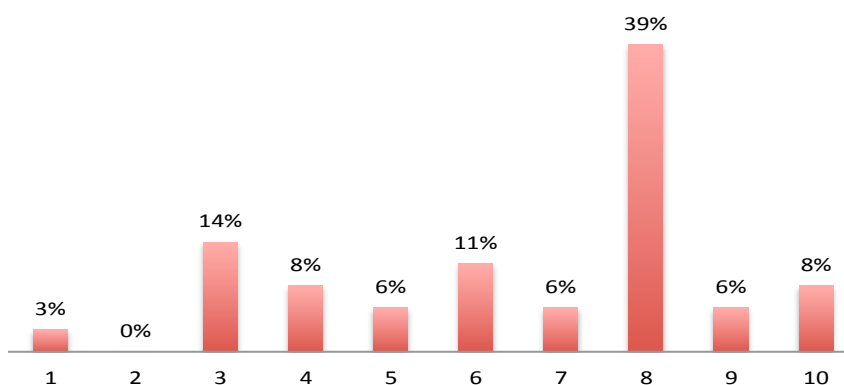


Figure 5.7. Scale of stress

Noteworthy, 64% of the ones experiencing a high level of stress have more than ten years of experience in the construction industry, while only 32 % had an experience less than 5 years. However, 54 % of the most stressed out individuals were younger than 35 years old, and approximately 32 % were older than 46 years, and the remaining were between 36 to 45 years old. Another interesting observation is that 56 % of the ones having kids perceive a stress level of 6 or higher (see Figure 5.1), where 30 % have children younger than 6 years old. Compared to this number, 75 % of the individuals without any children experienced a stress level of 6 or higher. It should be notified that these individuals were all younger than 35 years old, and approximately 78 % had a working experience shorter than 5 years within the construction industry. However, the remaining 22 % had an experience of more than 10 years.

When asked about the consequences of stress, a vast amount of the survey respondents claimed that occupational stress has affected their private lives. Notably, there was a relatively balanced distribution between the ones who experienced that their work impacted their private life and the ones who considered the opposite. Further, 75 % of the survey respondents claimed that they have taken actions to reduce their experienced stress level more than once, and approximately 19 % mentioned that they have taken time off to recover from stress once (see Figure 5.8). Of those individuals, 60 % had taken time off for one day and 40 % had taken time off for one week.

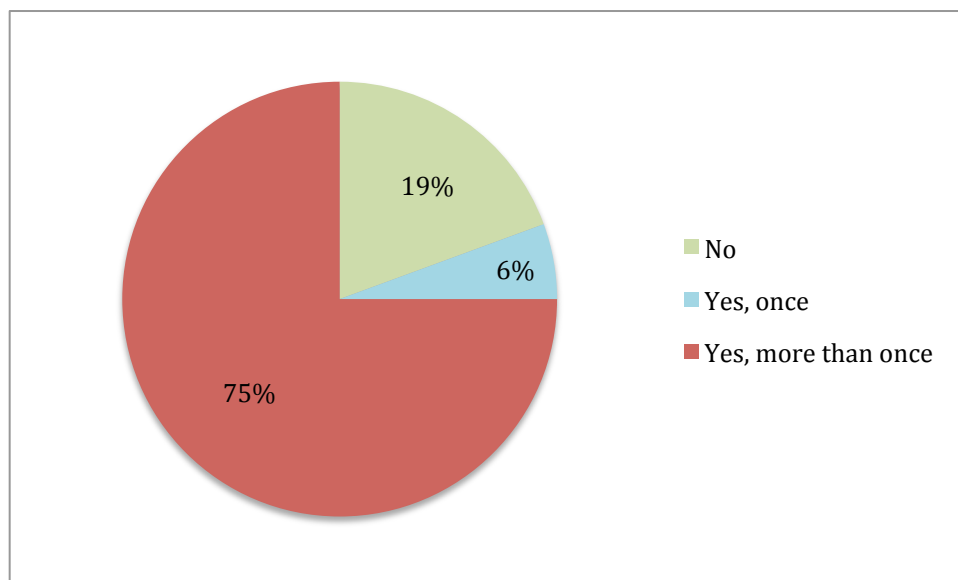


Figure 5.8. Individuals who have taken action to reduce stress

When the employees were asked about their willingness to stay at the company within the next three years, most answered positively. However, of those who answered that they will or believe they will change employer within the next three years, 28,6 % claimed that the main reason was due to occupational stress. Notably, job stress was

one of the three most common factors for employees to consider a different employer in the future (see Figure 5.9).

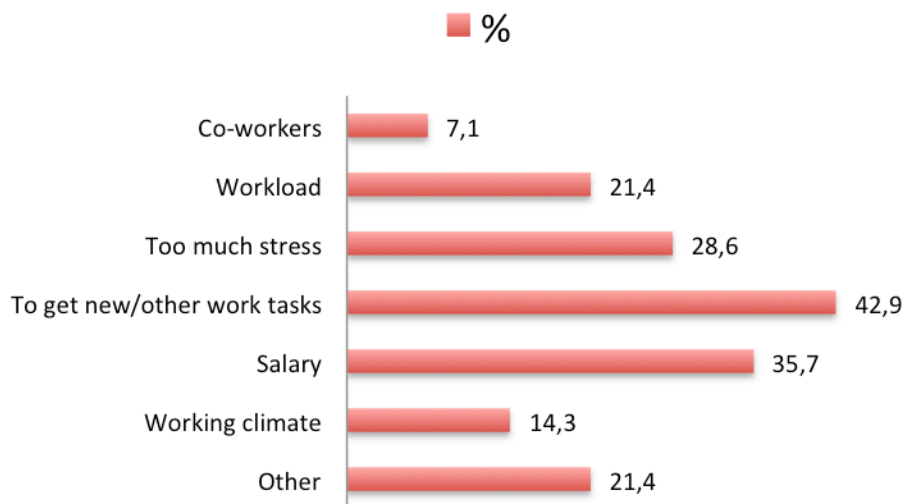


Figure 5.9. Factors for changing employer.

Time pressure and tight deadlines have caused certain employees to be dissatisfied with the work performed, especially during projects where they do not perceive that they are able to deliver the quality expected by the client. Further, it may be a potential correlation between the perception on delivering a dissatisfying results and a state of depression or low-spiritedness. The following quotations are excerpts from some of the interview respondents regarding the consequences they have experienced in relation to work related stress:

“The hardest part is the tight deadlines. They cause me stress and make me feel like I cannot do a satisfactory work. I do not want to deliver a poor quality work, but sometimes we have to come up with solutions that are mediocre, due to lack of time to carefully consider the best possible solution”.

“I have been so stressed out and considered to leave the company. [...] I did not feel well. A lot of overwork... and I had no energy for a social life. I did not think the job was worth it”

“The stress follows you home. You are so exhausted and have no energy to do things in the private life”

“I exercise less... which is unfortunate. It rather gives me a lower self-esteem. I lose weight. Skin rashes. Forgetfulness. Low-spiritedness. [...] gastric problems. I had a breakdown once, and I had to be on the sick-list for two days. I acutely needed to calm down ”

“I recently got gastritis, which probably is a consequence of stress, and I take medicine for that now”

An additional finding that came to our attention was the impacts the tight deadlines had on employees. This caused much stress, especially to those who worked within production, and at construction sites. Findings show that the (i) pace of the work did not allow individuals to perform a satisfying job, (ii) workload was too high or low (iii) work tasks did not allow the individuals to perform to the best of their abilities. A recurrent issue that was identified was the increased pressure among the experienced employees due to many young and inexperienced individuals at the workplace. The high pressure, in turn, impacts the perceived stress level and may have a negative effect on the more experienced employees’ temper and patience with others. A potential consequence that can arise from short tempers and impatience could be a conflict between two or more individuals. The following figure displays the health problems in relation to job stress experienced by the employees at the case company (see Figure 5.10).

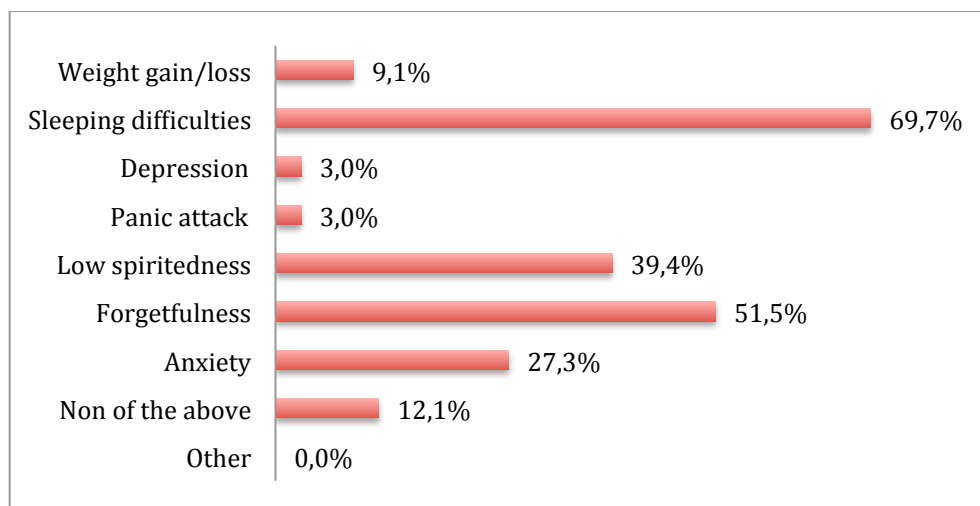


Figure 5.10. Health issues connected to stress.

The health issues that were identified as being the most recurrent include: sleeping difficulties, fatigue, forgetfulness, low spiritedness, anxiety, mood swings, as well as gastric problems. Notably, approximately 64 % percent of the individuals experiencing health issues as a result of their work are personnel working at construction sites. As expressed by two respondents:

“Now I am psychologically tired when the workday ends. I do not eat every day, sometimes I just sleep. I am just so mentally exhausted. Or, I dwell on the things I did not have time to do”

"When I am stressed I feel a bit down and I ponder over problems. I am not as positive as I usually am"

One individual claimed that he got a gastric ulcer a couple of years ago, and was in need of medical assistance, while another mentioned that he felt really dizzy and acutely had to go to the hospital. These individuals believe these issues were correlated to stress at work. A third individual stated that his assessed stress level was currently on the upper level and argued that it is not only due to the work, but also because of the private life, *"it is a lot going on now. [...] I get gastritis. My stomach is a good indicator that tells me when I am stressed out"*.

5.2.1 Stress in relation to employee satisfaction

The results from the interviews and the employee survey show that employees are satisfied with their employer and would recommend Hestia Construction to others. However, the high workload, work responsibilities and tight deadlines have made many of the employees stressed out. Thus, some of the individuals claimed that they have been thinking about changing employer with hopes of getting a less stressful job. Although, it is questionable if other construction companies are going to provide a less stressful environment.

Several of the interviewees stated that the case company was a good employer that cared much about their personnel. However, some of the respondents claimed that they hope to get less of a workload, as this could relieve them from some unnecessary stress. Results from the survey show that the majority of the respondents consider that the stress level in their current workplace is either the same or has increased in the last two years. This indicates that the efforts made to reduce stress and increase the employee satisfaction have not worked, and different efforts may be required.

5.3 Stress prevention and coping

Today's organizations have realized the importance of a motivated and productive staff, and have therefore developed different stress management programs (Robbins, 2007). By having stress management programs organizations can prevent stress from occurring, but also to help employees who already experience stress to minimize the damage it may have on their health (Leka et al., 2003). Individuals with leading positions within the case company mention the importance of acknowledging key signals of employees who are too stressed, and claim that this is an area which they are constantly trying to develop. By educating managers to identify stress signals of their employees, the company strives to prevent individuals from perceiving negative stress and burnout. However, in those cases when an individual has reached a burnout level the company has a six-week long recovery program, which is focusing on changing negative behaviours of the burnout person according to one of the employees in a leading position. Furthermore, the company offers medical, as well as

psychological treatment for those individuals who has reached and almost reached the level of burnout. The following quotation is an excerpt from one of the leading managers within the company:

“It is important to examine what kind of help the burnout person needs. Some might need to change the situation at work, while others might need a more comprehensive action”

The management at Hestia Construction is continuously working towards a good work environment and want their employees to keep a good health. One of the top managers claims that they have a group within the company that are constantly working to develop better benefits for the employees, for example healthcare allowance. They try to encourage their employees to use the allowance to work out more and to be in both good physical and psychological health.

“I believe that an employee who works out a few times per week will automatically feel better and manage various stress situations much better than if he or she didn't work out at all” is a quotation from one of the top managers from one of the interviews.

Other coping strategies that the company is working with are to continuously put together organized teams that work well together and possess various expertises. In those situations when the management notice an ineffective team they try to deal with the problems as soon as possible, in order to avoid any unnecessary delays within the projects. However, even though the management of the company claims to have stress prevention strategies, there are some areas which may need to be improved or more clarified according to some answers from the interviews. Many of the respondents from the interviews as well as the online questionnaire perceive no actions from the management regarding stress and burnout (see Figure 5.11). As the result shows from the questionnaire there are a lot of confusion regarding the recovery program within the company. An observation from both the interviews and the questionnaire is that the employees seem to know that the company has a stress/recovery program. However, they do not really seem aware of how the recovery program works, which is important for those who are close to a burnout level. Following quotations are from four individuals at the performed interviews regarding recovery from stress:

“No I do not experience any actions, that I know of. I have not noticed or heard anything. I am sure they talk about it, but what they actually do about it is not of my awareness”

“I think they try to minimize the stress levels, but I am not aware of what actions they take”

“I know about some recovery programs one can participate in if one has reached a burnout level, but that is the only intervention I have heard of”

“I do not think the management take any actions to minimize the stress levels among me and my co-workers. [...] One can see more and more of my colleagues being burnout today and if you are in a leading position it is important to deal with this as soon as possible”

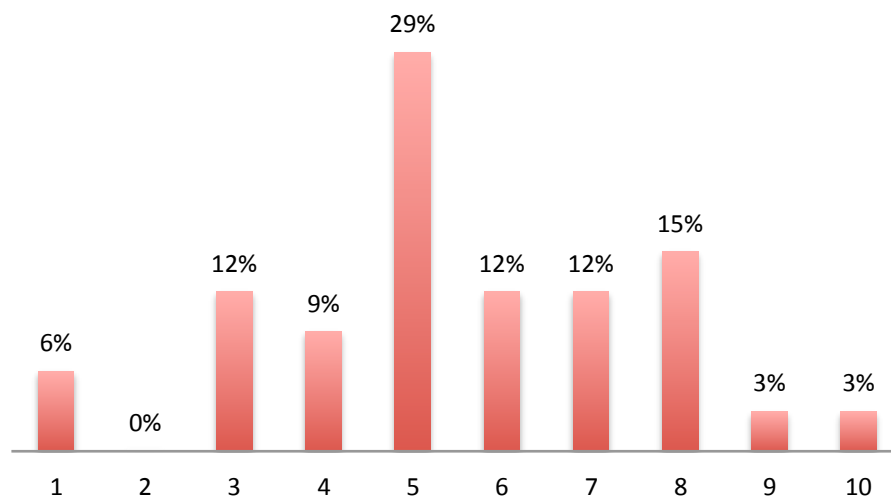


Figure 5.11. The company has appropriate recovery programs for the employees

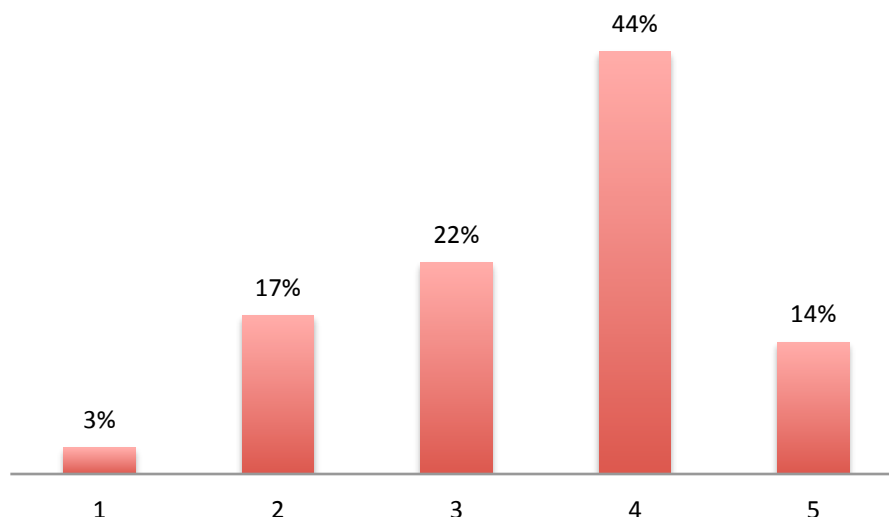


Figure 5.12. I believe the company gives me time to recover

In order for employees to reduce their potential stress levels it is of great importance for them to get enough time for recovery. At least since studies show that employees with insufficient recovery from exposure to stressors are a stronger predictor of ill-health than the exposure itself. As the result shows from the online questionnaire

almost half of the respondents did not think they got the time for recovery they needed, which is presented in Figure 5.12. A comment from one of the individuals from the interview was that most projects are finished on Fridays and the next project you are involved in starts on the following Monday. The time for recovery after a demanding project is therefore not more prevalent than other projects. Moreover, the recovery process include doing things on your spare time that does not involve work related factors. As mentioned in the theoretical framework, currently, there is a lack of boundary between work and non-work. Employees may sometimes be expected to be available everywhere and anytime, which is dominant factor of distress and burnout.

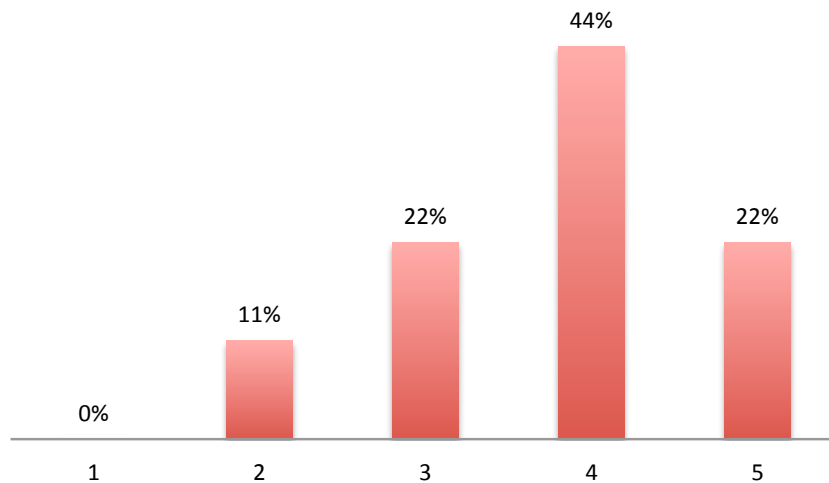


Figure 5.13. *I can balance my work-life with my my personal-life*

One of the individuals from the interviews claims that he/she does not have any social life at all during the weekdays, due to the high workload and time pressure.

“The telephone is the worst thing that was ever created. I have between 100 and 200 calls each day, and then there are emails...”

One of the interviewee respondents said that there are a lot of overwork and longer work days than expected, which contribute to a lot of irritation and frustration at home. A lot of individuals from the interviews also mentioned that they feel the need to answer emails at home, since this is not seen as a big deal and hard to ignore at home.

“The energy level at home is very low and you easily get irritated over unnecessary things”

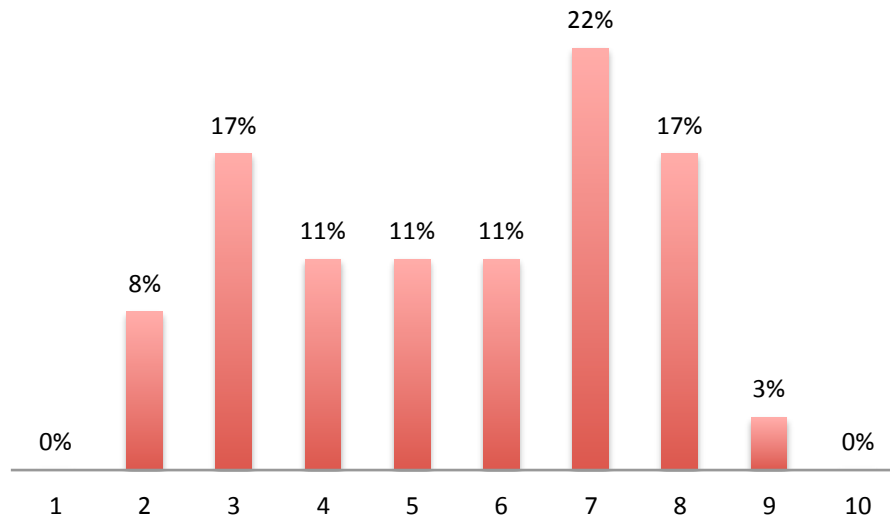


Figure 5.14. The stress I experience has affected my personal-life.

5.4 Interview observations

An interesting observation was the vast variety of answers that was given in the survey and during interviews, which show how different employees perceive the situation at the company. Even though the majority of the respondents considers themselves to experience a stress level around 8 out of 10, most claimed it was a positive stress that improved their performance. It is questionable if this situation is credible and if it is possible to experience a very high stress level where the stress only is positive for the individual. This might cause doubts regarding their perceived stress level and if the respondents are entirely honest with themselves and with us.

Further, many of the interviewees claimed they were not feeling any distress, only eustress. Although many individuals expressed that they did not experience any negative stress, several of the interviewees appeared to be stressed out. This observation is based on their behavior during interviews, as several employees constantly checked their phones and could not focus entirely on the interview. Not only this, some frustration and irritation could be identified among a few of the interviewees. An explanation could be the hard and demanding nature of the construction industry, and as a consequence employees are aware of the demanding nature and do not want to appear as being weak. Instead, they bite the bullet when they may have needed to pay more attention and be considerate towards their stress levels. As mentioned by Leung et al. (2014) the construction industry sometimes has more of a 'macho' culture, which in turn can be seen as a factor for construction personnel to not raise the issue, and instead choose to intentionally conceal their stress level. However, this does not necessarily mean that it has to be stress that is the basis for some of the interviewees' behavior.

Another observation that was made during the interviews was the positive attitude the interviewees had regarding the company. The majority of the interviewees had both a positive attitude to many of the areas in the company, and expressed that they very seldom felt like they were experiencing negative stress. Notably, when specific questions were asked to some of the individuals more sensitive answers were given that were not mentioned earlier. This in turn could be seen as the employees did not want to badmouth the company and its way of working. It is possible that some of the interviewees did not want the negative information to be traced to them and did not feel the need to express their real feelings regarding certain areas of concern. However, it can also be due to other reasons, such as they did not feel the need to or even thought about telling certain parts because they did not consider it to be their job to tell. As a result of this, certain parts that we were hoping to explore thoroughly could unfortunately not reach up to the desired level of clarity.

5.5 Conceptualized map of stress

During the face-to-face interviews, the respondents were asked to draw a conceptualized map of stress. This involved drawing a simplified picture of Hestia's organizational structure and then draw arrows from where most of the stress came from. The figure below is the final conceptualized map of stress when a fusion of the respondents' pictures was made. The figure presented below indicates that more pressure is put on the individuals working on site, where the site managers experience the highest pressure. It is identified that these individuals experience pressure from many different directions, which may result in a stressful environment.

Furthermore, the figure (see Figure 5.15) indicates that the personnel working on a lower level experience more pressure and stress than those on a higher level. However, the construction managers have much pressure from both upper level management and lower level subordinates, which may be stressful, as they need to satisfy both parties. Besides this, the client is also recognized as being a major factor to stress, due to tight deadlines and many and frequent changes of the original documents. Changes in the original plan along the way causes stress among the construction personnel, as they need to re-do much work, which takes much time and energy. Nevertheless, construction professionals' work may be stressful for the individuals, but when they need to participate in various meetings and other forums, their stress level increases even more as it may cause a feeling of not performing a satisfactory work.

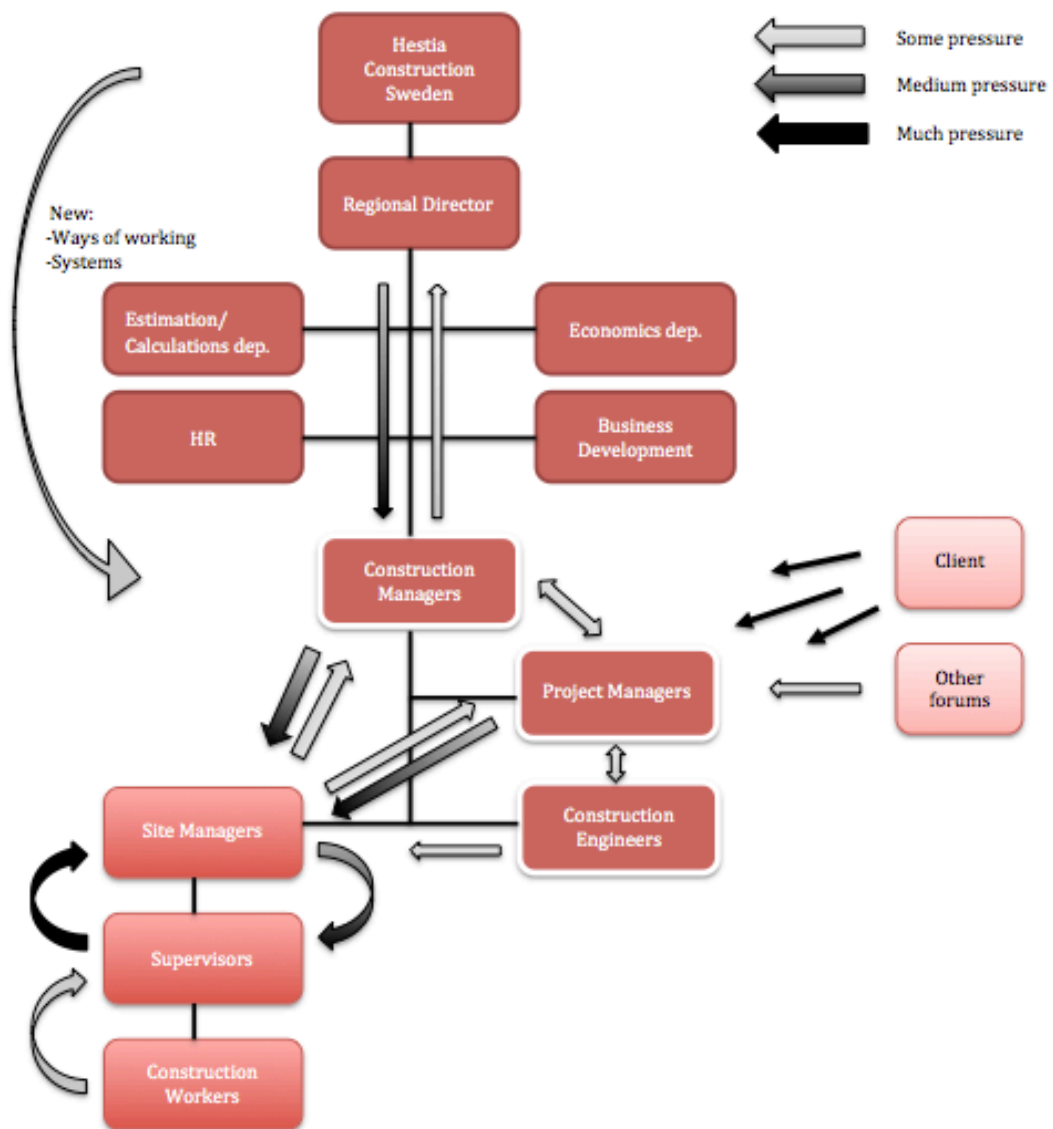


Figure 5.15. Conceptualized map of stress

6 Discussion

The following chapter focuses on connecting the topics covered in the theoretical framework with the results and analysis of the interviews, interview observations and the employee survey that was sent out to the personnel in the case company. The discussion aims to answer the study questions and provide information on the most central aspects and contradictions concerning occupational stress in the construction industry.

This thesis explores the area of occupational stress at a well-known construction company in Sweden, by interviewing employees about their views and perceptions of causes and effects of job stress and what areas that calls for improvement. To get a broader picture of the employee perceptions, an employee survey was sent out to a larger group of employees working in the Gothenburg area.

Causes of occupational stress

In section 2.2.1, Reddy (2004) divides sources of job stress into four different categories, namely individual-, group-, organizational- and extra organizational stressors. The author claims that occupational stress can arise from inside- or outside the organization, where the causes of stress fall into any of these categories. According to results from the thesis, it is clear that construction personnel suffer from a high level of occupational stress, where the most stress is related to life and career changes (individual stressor), lack of social support (group stressor), organizational policies (organizational stressor). A difference was spotted among those who work on sites, compared to those working at the office. Site managers and supervisors working on site were the ones that experienced the highest level of stress. By working on projects, they have both tight deadlines and budgets to manage. Particularly problematic is the lack of resources, due to a highly competitive market, which falls into the category of organizational stressors. Competent and experienced personnel may be challenging to find to all projects, which puts much pressure on the production personnel. As a result, they may have to work long hours and do much overwork, which caused many employees a feeling of dissatisfaction of the finished work, as they did not feel they could perform at the best of their ability. Especially difficult is it to the site manager, who is responsible for supervising the construction site and run the project, which involves i.e. oversee material deliveries, workforce and safety requirements. The site manager needs to plan the project and make sure that it meets the client's specifications and requirements. However, as a project is a unique endeavour, it is impossible to predict everything that is going to happen throughout the process, which means that the site managers must be able to solve problems when they arise. Still, these individuals need to make sure that the project is completed on time and within budget. As all projects are different, it is difficult for these employees to know how each project is going to fall out, which in turn limits the control a site manager can have over his work. It does not matter how much planning one does, things may still go wrong. Having limited control, or loss of control over one's work

is identified as being stressful for individuals. Even though they may have to work long hours and do much overwork, it is the loss of control that causes the most stress.

As the literature points out, occupational stress may occur when there is an imbalance between a person's job demands and the resources needed to manage those demands. In section 2.2.4.1, Bowen et al. (2014b) and Verhofstadt et al. (2015) explain the Job Demand-Control-Support model as a guiding model, which claims that employees who have limited control over their work and lack social support experience the most stressful working environments. This means that a situation that normally would be considered as stressful could be seen as less stressful if the individual receives enough support from colleagues, supervisors or the organization itself. The theory argues that it has been known for a long time that organizational support is vital in order for employees to have a good mental health (Janssen et al., 2001). As found in the interview study, personnel who felt comfortable with their co-workers and received sufficient support, were less stressed out and more motivated to do a good job. These interviews showed that even though employees had the same type of position within the company and a similar amount of demands put on them, the individuals working within groups where adequate social support was given were feeling a higher level of control over their jobs and less stressed out. However, it should be recognized that people respond differently to support depending on their personality, which is stated in section 2.2.6. Besides this, the model indicates that people who have a limited control over their jobs will automatically perceive a higher level of stress, especially in those situations when the demands are high. Therefore, the main issue may not be the amount of work, rather the amount of control a person has over his work.

Due to the continuous changes in construction projects, it is of great importance that site managers have the ability to change plans on the fly in order to efficiently respond to changing conditions. As site managers may need to deal with many unpredictable issues, they need to receive adequate support from their managers, particularly in those situations when they experience a low level of control (Janssen et al., 2001). If they do not receive the support they need, this may cause the employee to experience a lower level of job satisfaction, commitment and motivation. As for those individuals in Hestia Construction who expressed that they had little control over their work tasks and their job situation, highlighted this as a major source of stress. Even though many of these individuals were aware of the demands of their jobs, they did not always feel they had the ability to control them. A way to overcome this issue is to establish clear instructions and guidelines of work tasks, which is especially important for newly hired employees. These individuals are in need of support and guidance, as they do not have the experience or knowledge to handle all kinds of situations based on their current knowledge. If this support and guidance is lacking, it may lead to a higher level of insecurity among these individuals. However, the theory on the DCS-model states that people better adapt to stressful situations over time, and will learn to cope with them along the way (Verhofstadt et al., 2015).

As explained in Chapter 1, in particular section 1.1.1, Muir (2005) and Klee (2014) mention the difficulties construction personnel need to face throughout projects. Many of the challenges these employees need to take on are a direct result of construction projects, however, there are also challenges that are more indirect. Such indirect challenges may involve legal issues and environmental concerns. A further challenge that was recognized in Hestia Construction was the number of inexperienced personnel, which was also commonly identified in the production area, for instance, many newly graduates start working at construction sites. This leaves the company, along with other construction companies in the industry, dependent on unskilled labour, which in turn brings its own risks. It may increase mistakes and safety risks through miscommunication and lack of knowledge of how certain tasks should be performed accurately. However, this is an issue for the whole industry, as it is a scarcity of personnel. It is clear that construction projects depend on the employees' knowledge and skills in planning and executing the work, but as mentioned, it is increasingly difficult to find those people. Moreover, this makes it increasingly important to sufficiently train newly hired employees, as they are a necessity in current projects. It was notified at Hestia Construction that newly hired personnel may not receive adequate training at all times, as experienced individuals do not always feel they have time to take care of them properly. This, in turn, could be seen as very harmful to the business, as it may take longer time for them to learn, but the company may also lose those individuals to competitors or even other industries.

Worth mentioning is that a majority of the respondents in this study claimed they experienced a high level of stress, where many of the interviewees stated that they mostly experienced eustress. Although, it could be detected from their way of behaving, which is further explained in section 5.4, that this may not be entirely true. Several respondents gave the impression of being stressed out at the interview by constantly checking their phone or email. As mentioned earlier, this does not necessarily mean that they are stressed out, but they appeared to be. As Leung et al (2014) pointed out in section 1.1, the construction industry is characterized by having a macho culture, where people do not want to appear to be weak; this coincides with the responses given throughout the thesis. As both certain individuals' behaviour, and the statements given by several of them, this indicates that there is an industry problem, as individuals feel that they need to behave in a certain way.

A further interesting observation that was made was the impact a family life with children had on the perceived stress levels at work. The results of the online survey show that employees with kids (also those with small children) were not more prone to experience a higher level of stress. It was rather the individuals younger than 35 years old who were most stressed out (mainly those who did not have any kids), even though more than 50 % of them had an occupational experience of more than 10 years in the construction industry. This may indicate that they easily get stressed out, as they may take on too much responsibility, they want to perform well, as well as a make a good impression. However, the most obvious answer to this question, which

also is identified in the theory, is that the majority of these employees work at construction sites (Lingard and Francis, 2009). Besides this, the results of the survey show that there is a lack of clarity in the professional role, which can be seen as a large source of stress, due to the fact that many employees are not entirely sure either what is expected from them, or have any clear instructions or goals for their job tasks, which in turn impacts the feeling of control over one's work.

Moreover, it is also important for the top management at construction companies, such as Hestia Construction, to acknowledge that various projects require different amount of support, as some projects are more demanding than others. The way supervisors express their support for their subordinates may also differ, which should not be neglected. As mentioned in the theory by Lingard et al. (2012) on social support, it involves an exchange of resources between at least two individuals with a goal of helping the person in need of support. Thence, it is of high importance for all employees at Hestia Construction to have continuing communication between the supervisor and its subordinates, in order to achieve the best possible outcome.

Consequences of stress

The theory suggests that work-related stress can have severe impact on individuals' health and well-being. Leka et al (2003) claim in section 2.2.2 that there are three different categories of consequences, namely physiological, psychological and behavioural consequences. These can negatively affect the individual himself, but also the organization. As mentioned earlier in this chapter, several individuals claimed that they did not experience any distress, however, many of them have suffered from negative consequences as a direct result of their jobs. This should be identified as an issue of concern, as they may not feel stressed, or do not realize it themselves, but these consequences may negatively affect their health in the long-term, which is described in section 2.2.2 by Cooper and Quick (2017). Noteworthy, this was also more apparent among the employees working on sites.

In section 2.2.5, Janssen et al. (2001) mention the importance of receiving sufficient support from the organization, and to have a positive work environment. They suggest that this will, for instance, have a major impact on the employees' mental health. Noteworthy, according to the theory on the DCS-model, found in section 2.2.4.1, individuals with a family-friendly supervisor will probably experience a higher level of work-family relief. By having a supportive and understanding supervisor or by getting social support from one's family may boost a person's quality of life (Lingard et al., 2012). An interesting result from the online survey regarding family-friendly support from closest supervisor was that employees working at construction sites perceived a lower level of support and were less motivated by their supervisor. The result was especially apparent among production personnel with children between the ages of zero to five years old. As it may be challenging to be a parent of a small child, it is important for supervisors to be supportive in order to prevent distress among these individuals. To find a good balance between family and work life is extremely

important in order to acquire the recovery needed (Lingard et al., 2012; Bowen et al., 2014b; Lingard and Francis, 2006), which was not the case among these individuals. They claimed they spent between 50-59 hours at work per week, which may not be the best combination when being a parent of a small child. As mentioned previously, a person who is not having the kind of control over one's work- and family life as needed, will most likely perceive a higher level of stress. It is therefore more important that supervisors are supportive and understanding in such situations, as some individuals may require more support than others.

Furthermore, many of the interviewees at Hestia Construction mentioned that the culture and work environment were very positive within the company. However, an interesting factor that came to the authors' attention was notified in the online survey, where some employees stated dissatisfaction with their co-workers and the required support. As previously mentioned, the authors experienced that some of the individuals from the interviews did not want to badmouth the company, and therefore gave expressions of a very positive attitude concerning the support from the management. An explanation for this could be that the survey respondents were more honest, as they felt more anonymous than the interview respondents did. It is understandable that some individuals did not want to say too much, as they may have been afraid that the information could be tracked back to them. Another explanation could be that some individuals may not want to appear as weak, which may be even more apparent as the workforce in the construction industry is predominantly male. Even though the industry has developed, it also has many of its characteristics left, such as being mainly male workers who may see the construction work as demanding by nature and are used to a macho culture on site. However, when trying to conceal stress and negative feelings regarding the job, individuals may avoid certain support that they are in need of. This may give the company the perception that the situation at the company is better than it actually is, and thence cannot improve those areas if they are not informed. The situation may improve if there is a more equal distribution between the men and women employees, as this may result in a less macho environment.

Moreover, an interesting observation that could be made from the survey was the high percentage of production personnel who assumed they worked more than 40 hours per week, where a severe difference was spotted between the employees working on sites compared to the ones working in office. 95 % of the ones working on sites assumed they worked more than 40 hours per week, compared to 60 % of the ones who worked in the office. It should be recognized that the majority of the survey respondents claims that they have experienced consequences (such as sleeping difficulties, low spiritedness or anxiety) as a result of their occupational stress. However, approximately 64 % of these were individuals working at construction sites, which in turn may show how the high work pressure and stress impact these individuals. It can be identified that these results correspond to both the conceptualized map of stress presented in the thesis, but also in the literature on occupational stress among

construction personnel working on site (Lingard and Francis, 2009). As mentioned, these employees have to deal with and manage both expected and unpredictable events, which requires to be managed within tight deadlines, as time overruns can result in severe penalties. This may result in a stressful environment, as construction personnel may need to do much overwork which affects their leisure time. Noteworthy, all construction personnel do not get paid for those additional working hours. More work than what the employee gets paid for could be seen as a factor that causes stress and irritability among personnel, which in turn may result in a higher level of dissatisfaction with the job.

Stress management

Overall, it is clear that the construction industry is demanding, dangerous and labor-intensive, as well as there is a scarcity of resources. Lingard and Francis (2009) indicate in section 1.1 that the construction industry is known to be stressful, due to its highly intense and competitive nature. However, to achieve the desired outcome of projects, it is necessary to make sure that the construction personnel work at an optimum level of stress. However, managing occupational stress is a challenging undertaking by organizations, but it is vital. As addressed in section 2.2.3, an overly stressed employee is not likely to neither be effective nor motivated, indicating that it will probably have a negative impact on the organization. Therefore, many organizations have decided to develop stress management programs (Leka et al., 2003). For instance, high work pressure and occupational distress may result in losing highly trained employees. Construction companies need to be aware that employees will seek more beneficial options, where they can balance their work and private life. As the construction industry is perceived as being demanding by nature, this may become a greater problem as people care more about having a balance in life, where they have time for leisure activities and a family life. This is an issue for the industry, as people may choose different paths in order to feel healthy and well. Noteworthy, it could be identified that work negatively impacts the private life in a much greater extent than the private life impacts the work among construction personnel. This is especially important to take into consideration, as it can be recognized that many of the work-related factors were significantly related to employees' health and not to their behaviour at work. Such health issues may result in much worse consequences in the long-term, such as employee burnout, which is explained by Rossi et al (2009) in section 2.2.2.

Although, organizations have realized the negative impacts distress may have on the organization itself, this issue does not seem to improve, rather exacerbate. This was shown in the online survey conducted in the thesis, as 45 % of the survey respondents working on construction sites perceive the stress level at work is same as, or has increased in the last two years. It is clear that the efforts made in the last two years are not efficient enough, as such a high percentage of employees claim the opposite. Due to the understanding of the severe consequences occupational stress may have on individuals, it is highly important to communicate this to employees, in order to

increase their awareness of work-related stress. Thus, employees need to develop a better understanding of stress and its implications, both in the short term as well as in the long term.

However, organizations are responsible to offer employees enough time to recover, in order to give them a temporary relief from exposure to stressors, and to allow them to reload resources. As suggested by Zijlstra and Sonnentag (2006) (cited in Cooper and Quick, 2017) in section 2.2.2, insufficient recovery from exposure to stressors is actually a stronger predictor of ill-health than the exposure itself. Sleep is mentioned to play a fundamental role in recovery processes, which Cooper and Quick (2017) argued in section 2.2.2. However, sleep curtailment and disturbance was recognized to be one major consequence of job stress among construction personnel. The theory also claims that exposure to work stressors, such as work overload and long working hours may cause difficulties to detach from these issues of concern. This is especially evident when there is no clear boundary between work and non-work, as many employees are expected or believe they are expected to be available at all times (Zijlstra and Sonnentag, 2006). When work stressors use up resources, this negatively impacts the family life and recovery processes. In section 2.2.2, Cooper and Quick also suggest that burnout may be a consequence of the exposure of work stressors for a prolonged time; however, this has been identified as being moderated by recovery processes. Noteworthy, the construction industry is characterized by unpredictable events and fast changing conditions, which differs from industries such as manufacturing. This may be an explanation to why many individuals working at construction sites have difficulties in detaching from work in the private life, as unplanned events continuously occur.

It has been recognized that Hestia Construction has acknowledged that many employees are stressed out. However, it is not entirely clear among the construction personnel what is being done to reduce and prevent such stress levels. It seems like the company mainly has action programmes that focus more on the effects and consequent ill-health of a person who is experiencing a high level of distress. In section 2.2.3.2, Cooper and Quick (2017) suggest different ways to reduce occupational stress, which are divided into three categories namely primary-, secondary-, and tertiary prevention. As highlighted in the result section 5.3, this shows that Hestia Construction focuses more on secondary and tertiary stress prevention, which is commonly used among construction companies. Instead of fighting the causes of stress, prevention programmes are focused on reducing the effects of stress when they appear. It may be more important to acknowledge current problems in the organizational environment, and in the industry as a whole, where programmes need to address a variety of aspects which are of concern. Working conditions are one factor that is identified as being a major cause of distress, which calls for change, in order to increase construction personnel's mental and physical health. For instance, if organizations want to prevent fatigue or possible burnout, they may need to consider an avoidance of extended workdays (9-12 hours/day). Results

from the interviews made it clear that those individuals who spend more than nine hours at work per day showed negative signs of stress, which in the long run is negative for the company. In addition to this, a majority of the answers from the online survey also show that they experienced negative mental consequences of working too much. It is therefore necessary for employers to consider the correlation of prolonged work hours and employee mental- as well as physical ill-health. Worth mentioning is also that some of the employees at Hestia Construction claimed that they were more prone to have poor lifestyle habits (such as an inadequate diet, lack of exercise, and other behaviours that may lead to future health problems), due to spending too much time at work. The importance of recovery from job stressors is explained in section 2.2.2 by Cooper and Quick (2017), which indicate that it is vital for employees to receive enough recovery, not to mention to have a life outside of work and to find a balance between work and family demands. As the construction industry is known to be highly competitive, it has caused a negative trend in the well-being of employees, since more people are showing signs of stress and burnout. This makes one wonder about what is most important? The employees' well-being or winning projects? Therefore, employers should consider the long-term costs, as well as the benefits of recruiting more staff to decrease the workload.

7 Conclusions and recommendations

The following chapter presents the conclusions of the study, and aims to answer the research questions of the thesis. Additionally, recommendations, limitations of the study, and future research areas are suggested.

The results of the thesis show that construction personnel suffer from a high level of occupational stress, which is in line with the theory provided by Lingard and Francis (2009). Even though this stress level varies depending on project, it is recognized to be high at most times. The employees experiencing the highest level of stress were mainly the ones working on construction sites. It was recognized that this was the most stressful environment, as these individuals had to deal with and manage unpredicted events. Construction projects are characterized by much uncertainty, as each construction project is unique and it is impossible to predict everything that is going to happen. This makes the construction industry different from other industries, which in turn may cause construction personnel to have a hard time detaching from their job when unplanned events need to be dealt with on a frequent basis. As a consequence, this causes many employees negative stress.

The literature provided by Leung et al (2014) and Reddy (2004) has shown that there are many work-related risk factors within this industry, and employees are exposed to many of these on a daily basis. It can be concluded that construction professionals consider the (i) amount of work, (ii) amount of overwork, (iii) not enough competent and experienced personnel and (iiii) lack of organizational support to be particularly problematic. However, lack of control of one's work was the factor that was identified as the most stressful factor, which coincides with Job-Demand-Control model presented in section 2.2.4. Construction professionals working on sites are especially at risk as they need to deal with unexpected events while working with tight deadlines and budgets. The work-life balance is low, particularly among the ones working on site. This, as a result of the long working hours and stressful environment they experience, which makes a poor mental health more evident. This is particularly apparent among those who have limited control over their working hours, and does much overwork without any incentives. It is suggested that there need to be incentives for employees to continue to work this way, such as getting paid for the extra work they do. By having incentives, it may potentially increase these individuals sense of satisfaction and motivation to perform well.

The harmful effects distress may have on individuals have been presented in this thesis, and it is clear that stress has become a major problem among various industries. It has been recognized that most construction professionals have suffered from negative consequences in relation to work related stress, where sleeping disturbances, low spiritedness, anxiety as well as irritability are the most frequent ones. What seems to be the key issue is that employees do not have enough time to recover from the

high level of stress, which may be a major factor to why the situation is getting worse. This can be explained as an imbalance between the demands put on employees and the time they have for recovery. Construction personnel work long days and do much overwork due to tight deadlines or lack of resources, which require much energy, and as a result, this may negatively impact their private life. Thinking about job tasks after the workday ends, especially when many people feel the need to check their work phones or emails at home, results in difficulties in relaxing and focusing on private matters. Hence, people do not spend as much time on things that make them feel good, which in turn may lead to an impaired mental health and well-being. It is recognized that sufficient recovery is vital to restore energy and let people return to their normal (pre-work) physical and psychological state. As mentioned in the thesis, it is therefore of great importance to be able to detach from one's work and focus on the private life in one's leisure time, in order to feel better. If individuals feel that they do not have the energy or time to prioritize such things, it may cause a vicious circle. Noteworthy, work negatively impacts the private life in a much greater extent than the private life impacts the work among construction personnel, and it was mainly evident among those working on sites.

Organizations, such as Hestia Construction, have identified the importance of this issue. However, it does not seem to be efforts or strategies in place that are efficient enough at the time. It is not workable if efforts are only made when people already have reached a certain level of distress, as then it may be too late to fix it. Thus, it is vital to identify such signs early and promote stress-reducing efforts in time. Worth mentioning is that a majority of the construction personnel are not aware of what strategies and efforts that are made on an organizational basis to reduce the current occupational stress, and it is clear that they do not consider it to be enough.

However, it should be recognized that the known 'macho' culture of the construction industry may aggravate this issue of concern, as employees may believe they need to take care of this problem themselves. Thence, it is suggested that this is a problem for the construction industry as a whole, and it needs to be dealt with. Due to the arguments above, it is suggested that organizations should not tackle employees' behaviour in isolation, rather focusing on acknowledging issues in a broader context that cause negative effects on construction personnel's health and well-being. Health and stress-reducing programmes should therefore address various aspects of the industry and the organizational environment, such as working conditions.

To sum up, the vast majority of the construction employees being part of this study enjoy their jobs and the various responsibilities that come with it. However, if occupational stress harms their health and well-being, it will not benefit either party. The organization may perform worse, in terms of efficiency and productivity, but they may also lose highly competent personnel. For the employees, it is clear that if the level of stress negatively impacts their health and well-being, that does not seem to be a sustainable work-life in the long-term.

7.1 Recommendations

Stress is inevitable in a human's life. It is not inherently bad and harmful to individuals, and it can be managed. By reviewing the opinions of the interviewees at Hestia Construction regarding the area of occupational stress, the authors of the thesis have analyzed potential improvement areas and future challenges for the case company, but also for the construction industry as a whole. These changes are important for the company to ensure a healthy work climate and satisfied employees, who will retain a position within the company.

- It is necessary for construction contractors to work closely with clients in order to produce realistic budgets and deadlines for project deliveries. This is essential due to the fact that a tight budget or deadline may increase the pressure among construction professionals in meeting the deadlines set, which in turn may lead to higher stress levels and a reduced quality of the finished work. Thus, both the contractor and the client may not be completely satisfied with the finished result.
- Create and implement workable strategies to reduce the occupational stress level and to increase the level of employee satisfaction and retention. Hestia Construction already has their own work method to achieve this, however, it is important to clarify what is expected from the employees and why. Due to the doubtfulness and lack of understanding and engagement among the personnel, it is increasingly important to effectively inform them about the work method, and how each and everyone is a part of the organizational plan to a more productive and efficient way of working. It is necessary to follow up on this strategy in order to identify potential deficiencies and to improve the work method.
- It is important to be observant of signs of stress and identify the fundamental causes of distress, as well as how the problem can be handled. It is important to pinpoint those issues early on, as they can result in severe consequences for both the individuals themselves as well as the company itself. It is important that managers raise these issues and discuss it with the employees, in order to understand how the employees feel and provide them with sufficient support.
- Ensure that all projects undertaken by the organization have enough resources in the beginning of each project; in order to make sure that there is no lack of personnel throughout the various project phases. Projects that have insufficient resources from the beginning may cause unnecessary stress among the construction professionals. This may create a better working environment, as it will allow employees to have an adequate workload as well as a suitable amount of work responsibilities. Besides this, there is a need to clarify what is

expected from each employee in his or her position. Job instructions and goals must be explicit for professionals, in order to minimize unhealthy distress and increase efficiency.

- It is important to assure that newly hired employees get the support they need to perform a satisfactory job. It is necessary that newly hired employees receive adequate competence and training for them to feel comfortable in their role. The assigned mentors need to be dedicated and engaged in the preparation and training of these individuals, in order to allow them to establish a solid foundation. Be aware of that the industry is known for its macho culture and people do not want to appear as being weak. Thus, it is important to show employees that questions are welcome and support is available and given when needed.
- Employees may leave a construction company due to i.e. distress or dissatisfaction with the work itself. The question is; *is the grass really greener on the other side?* It does not seem like it. It is more likely a problem for the industry as a whole, rather than for a specific company. It may be easy to think that the grass is greener on the other side, but *if you take the time to water your own grass, it may be just as green.* Therefore, construction companies in the industry need to make some severe steps toward a healthier work environment, in order to retain high performing employees.

Table 7.1. Summary of the conclusions to the research questions

RQ1: <i>How much stress do the employees in the construction industry experience?</i>	High level of occupational stress, particularly among employees working on site
RQ2: <i>Which are the main stressors among professionals in the construction industry?</i>	Lack of control over one's work Amount of work Amount of overwork Lack of competent and experienced employees Lack of organizational support
RQ3: <i>Which effects do the stress have on professionals and how does it affect their work-life and overall well-being?</i>	Impaired health and well-being Less time and energy for private life activities
RQ4: <i>How is stress and burnout handled and dealt with?</i>	6 weeks recovery programs Training managers in seeing signs of stress and burnout among employees
RQ5: <i>What are the employees' perceived experiences and impressions regarding the nature of their jobs?</i>	Enjoy the work, the organizational culture and the co-workers Too high of a workload (on-site professionals) Too stressful at times

7.2 Limitations of the study and future research areas

There are several limitations of this research study, where the subjective nature of the study can be seen as one. Firstly, there were only two individuals conducting this study, as such, their knowledge and perceptions impact the observations and analysis of the study responses. Secondly, the questions in both the interview and questionnaire could have been more thoroughly revised by, for instance, external individuals, in order to improve the formulation of questions and their meaning. Thus, more in-depth answers could have been obtained from the respondents.

Besides this, a higher number of interviewees and questionnaire respondents would have strengthened the conclusions of this thesis. Moreover, the study respondents' answers may only reflect their current situation, which may negatively affect the reliability of the study. Further, all the respondents may not have been entirely honest with the authors during the interviews, which impacts the results of the study. The interviewees' may, for instance, (i) have felt less anonymous compared to the

questionnaire respondents (ii) were afraid the information could be tracked back to them or (iii) they did not feel like telling the authors everything or to badmouth their current employer.

Moreover, the thesis was carried out during the spring of 2017, which gave the authors a limited timeframe to perform the qualitative interviews and to receive the responses from the quantitative questionnaire. As there was a limited amount of time, there is only one company included in this study. Further studies may involve more construction companies, in order to identify differences and similarities between various organizations. It would also be interesting if an investigation were made of the differences in occupational stress between small-, medium- and large-sized companies. Moreover, future research areas that should be investigated are to explore various interventions designed to deal with and manage burnout and its consequences. The effectiveness of these interventions should be explored, in order to improve current strategies. Besides this, strategies and interventions to reduce the occupational stress at construction sites should be investigated.

8 Personal reflections

The thesis topic has provided the authors with valuable information and the knowledge regarding the issue of occupational stress in the construction industry. It has been an interesting process, where many various opinions and points of views were brought up.

Moreover, the authors collaborated well throughout the process. They had certain areas that they were more responsible for, which facilitated the writing process and made it more efficient. Discussion, conclusions and recommendations were discussed and written together.

The main information provided by each of the authors were the following:

Nathalie: Chapter 1, Chapter 2 (occupational stress, stressors, consequences, management, coping, prevention), Chapter 3, Chapter 5 (consequences of stress, interview observations and conceptualized map of stress)

Emma: Chapter 2 (Defining stress, The JDC- and DCS-model, social support, personality types), Chapter 4, Chapter 5 (causes of stress, prevention and coping).

9 References

- AHMAD, S. F. & DARZI, N. A. G. J. A. 2008. *Organisational Behaviour*, Atlantic Publishers & Distributors (P) Limited.
- ALDWIN, C. M. & WERNER, E. E. 2012. *Stress, Coping, and Development, Second Edition: An Integrative Perspective*, Guilford Publications.
- ANBAZHAGAN, A. & SOUNDAR RAJAN, L. J. 2013. A conceptual framework of occupational stress and coping strategies. *International Journal of Business Economics & Management Research*, 3.
- BEEHR, T. A. 2014. *Psychological Stress in the Workplace (Psychology Revivals)*, Taylor & Francis.
- BOWEN, P., EDWARDS, P. & GOVENDER, R. 2014a. Structural Equation Modeling of Occupational Stress in the Construction Industry. *Journal of Construction Engineering and Management*, 140, 4014042.
- BOWEN, P., EDWARDS, P., LINGARD, H. & CATTELL, K. 2014b. Occupational stress and job demand, control and support factors among construction project consultants. *International Journal of Project Management*, 32, 1273.
- BRADLEY, J. and SUTHERLAND, V. 1995. Occupational stress in social services: a comparison of social workers and home help staff. *British Journal of Social Work*, 25, 313–331.
- BRANNON, L. & FEIST, J. 2009. *Health Psychology: An Introduction to Behavior and Health*, Cengage Learning.
- CAMPBELL, F. 2006. Occupational stress in the construction industry. CIOB: The Chartered Institute of Building.
- COOPER, C. L., DEWE, P. J. & O'DRISCOLL, M. P. 2001. *Organizational Stress: A Review and Critique of Theory, Research, and Applications*, SAGE Publications.
- COOPER, C. L. & QUICK, J. C. 2017. *The Handbook of Stress and Health: A Guide to Research and Practice*, Wiley.
- DAENZER, B. E. & PHOENIX, U. O. 2009. *Quantitative Correlation of Leadership Styles and Job Stress in a Midwest United States Auto Company*, University of Phoenix.
- EGAN, J. 2007. *Marketing Communications*, Thomson.
- ENSHASSI, A., SWAITY, E. A. & ARAIN, F. 2016. INVESTIGATING COMMON CAUSES OF BURNOUT IN THE CONSTRUCTION INDUSTRY. *International Journal of Construction Project Management*, 8, 43.
- ESRC. 2016. *Consent* [Online]. The Research Ethics Guidebook. Available: <http://www.ethicsguidebook.ac.uk/consent-72> [Accessed 2016-02-08].
- FAMILY HEALTH INTERNATIONAL 2016. Qualitative Research Methods Overview.
- FRETWELL, C. E., LEWIS, C. C. & HANNAY, M. 2013. Myers-Briggs Type Indicator, A/B Personality Types, and Locus of Control: Where Do They Intersect? *American Journal of Management*, 13, 57.
- HARDY, S., CARSON, J. & THOMAS, B. 1998. *Occupational Stress: Personal and Professional Approaches*, Stanley Thornes.
- HELLRIEGEL, D. & SLOCUM, J. W. 2010. *Organizational Behavior*, Cengage Learning.

- JANSSEN, P. P. M., BAKKER, A. B. & DE JONG, A. 2001. A Test and Refinement of the Demand–Control–Support Model in the Construction Industry. *International Journal of Stress Management*, 8, 315-332.
- KAVITHA, G. 2009. *Occupational Stress and Coping Strategies*, Discovery Publishing House Pvt. Limited.
- KLEE, L. 2014. *International Construction Contract Law*, Wiley.
- KOESKE, G. F. & KIRK, S. A. 1993. Coping with job stress: Which strategies work best? *Journal of Occupational & Organizational Psychology*, 66, 319-335.
- LEKA, S., GRIFFITHS, A. & COX, T. 2003. Work organization & stress. WHO: WHO.
- LEUNG, M., CHAN, I. Y. S. & COOPER, C. L. 2014. *Stress Management in the Construction Industry*, Wiley.
- LINGARD, H. & FRANCIS, V. 2006. Does a supportive work environment moderate the relationship between work-family conflict and burnout among construction professionals? *Construction Management and Economics*, 24, 185-196.
- LINGARD, H. & FRANCIS, V. 2009. *Managing Work-Life Balance in Construction*, Taylor & Francis.
- LINGARD, H., FRANCIS, V. & TURNER, M. 2012. Work time demands, work time control and supervisor support in the Australian construction industry. *Engineering, Construction and Architectural Management*, 19, 647.
- LOOSEMORE, M. 2006. *Risk Management in Projects*, Taylor & Francis.
- MUIR, B. 2005. Challenges Facing Today's Construction Manager. University of Delaware: Construction.
- NELSON, D. L. & QUICK, J. C. 2013. *Organizational Behavior: Science, The Real World, and You*, Cengage Learning.
- NEWMAN, I. & BENZ, C. R. 1998. *Qualitative-quantitative Research Methodology: Exploring the Interactive Continuum*, Southern Illinois University Press.
- PATCHING, A. & BEST, R. 2014. An Investigation into Psychological Stress Detection and Management in Organisations Operating in Project and Construction Management. *Procedia - Social and Behavioral Sciences*, 119, 682-691.
- PATEL, R. & DAVIDSON, B. 2011. Forskningsmetodikens grunder: att planera, genomföra och rapportera en undersökning. Lund: Studentlitteratur.
- PROCTOR, T. 2005. *Essentials of Marketing Research*, Financial Times/Prentice Hall.
- QUICK, J. C. & COOPER, C. L. 2003. *Stress and Strain*, Oxford, Health Press Limited.
- REDDY, R. J. 2004. *Organisational Behaviour*, APH Publishing Corporation.
- ROBBINS, P. R. 2007. *Coping with Stress: Commonsense Strategies*, McFarland, Incorporated Publishers.
- ROSSI, A. M., QUICK, J. C. & PERREWE, P. L. 2009. *Stress and Quality of Working Life: The Positive and the Negative*, Information Age Pub.
- SEKARAN, U. & BOUGIE, R. J. 2016. *Research Methods For Business: A Skill Building Approach*, Wiley.
- SILVER, L. S., STEVENS, R. E., WRENN, B. & LOUDON, D. 2013. *The Essentials of Marketing Research*, Routledge.

- SUTTON, A., ALLINSON, C. & WILLIAMS, H. 2013. Personality type and work-related outcomes: An exploratory application of the Enneagram model. *European Management Journal*, 31, 234-249.
- STEPTOE, A., FREEDLAND, K., JENNINGS, J. R., LLABRE, M. M., MANUCK, S. B. & SUSMAN, E. J. 2010. *Handbook of Behavioral Medicine: Methods and Applications*, Springer New York.
- STICKLE, F. E. & SCOTT, K. 2016. Leadership and Occupational Stress. *Education*, 137.
- STIGMAINDEX. 2016. *Methodology* [Online]. Available: <http://www.stigmaindex.org/about-index/methodology> [Accessed 2016-11-07].
- TENNANT, C. 2001. Work-related stress and depressive disorders. *Journal of Psychosomatic Research*, 51, 697-704.
- VERHOFSTADT, E., BAILLIEN, E., VERHAEST, D. & DE WITTE, H. 2015. On the moderating role of years of work experience in the Job Demand–Control model. *Economic and Industrial Democracy*, 143831.
- WALKER, H. 2015. What causes dangerous belly fat and how can you lose it? The 10 rules for a trimmer middle. . *Express*.
- WHO. 2017. *Stress at the workplace* [Online]. World Health Organization. Available: http://www.who.int/occupational_health/topics/stressatwp/en/ [Accessed 2016-02-14].
- WORLD HEALTH ORGANIZATION 2017. Informed consent for Qualitative studies World Health Organization.

10 Appendices

Appendix A: Interview questions

General questions

Age:

Civil status:

Children:

Level of education:

Work experience:

Professional role:

Personality type (most apparent positive and negative personality characteristics):

Well-being & working climate

- How would you describe your overall well-being?
- How would you describe your overall work environment?
- What stimulates you in your work?
- How important is appreciation and recognition for you in your work?
- What do you consider about your current position? What are you satisfied with respectively less satisfied with?
- In your current position, are there issues that you consider are being neglected? If yes, please explain.
- Have you considered changing employer within a close future? If yes, why is that?
- What is most important for you in order for you to stay with your current employer?
- Would you recommend your current employer to others? Why/why not?
- What changes do you think need to be made in order to make your employer more attractive?

Stress

- Do you feel stressed in your current job? If yes, how much stress do you experience?
- What makes you stressed out?
- How does your manager and subordinates support you in this?
- Do you talk to your closest supervisor about stress? If yes, what kind of response have you received?
- Do you feel stressed both at work and at home?
- Does (and how does) your work impact your private life, and the other way around?
- How do you deal with stress in your work?
- How do you deal with stress in your private life?
- How well do you perceive that you work under stress?

- Have you experienced any physical or psychological effects in relation to stress? Please explain, and give examples of when this appeared.
- Have you taken action to reduce your stress levels, if yes, what action/s?
- Have you asked/taken time off or been signed off due to occupational stress? If yes, for how long and when did this occur?
- Do you discuss your level of stress with others, if yes, with whom?
- What do you think could mitigate and reduce your perceived stress?
- Do you consider that your employer takes action to reduce and prevent employees' stress levels? If yes, what kind of actions?
- What do you consider your employer should do, in order to reduce and prevent employee distress?

Organization and management

- How do you perceive your employer's' organizational culture? Pros/cons?
- Does this organizational culture allow you to be yourself and open with your opinions? If no, why not – please explain and give examples?
- How do you perceive the organizational structure? Pros/cons?
- What do you consider about your employer's' work method (which is used to increase efficiency)?
- How would you describe this work method?
- Are you aware of what your employer aims to accomplish with this work method? Do you consider that this is accomplished?
- Does this work method impact your stress levels? If yes, in what ways?

Appendix B: Online Questionnaire

General Questions

Gender:

- Female:
- Male:

Age:

- 20-25
- 26-35
- 36-45
- 46-55
- >55

Civil Status:

- Singel
- Cohabitant/Living apart
- Married

Children:

- I have children
- I have no children

If you said yes on the above question, how many children?

- 1
- 2
- 3
- >3

If you have children, how old are he/she/they?

- 0-2 years
- 2-5 years
- 6-10 years
- >10 years

Level of education:

- Upper Secondary Level
- Post-secondary education (Bachelor's Degree)
- Post-secondary education (Master's Degree)

Working life experience within the construction industry:

- Less than 1 year
- 1-5 years
- 5-10 years
- >10 years

Working life experience at Veidekke:

- Less than 1 year
- 1-5 years
- 5-10 years
- >10 years

Professional role:

- Chief (Construction Director, Project Director, Head of Economy, Head of HR, etc)
- Site Manager
- Supervisor
- Construction Engineering
- Support function
- Construction worker

Following personality type is most suitable for me:

- The reformer (uncompromising, dedicated, needs to have control, perfectionist)
- The helper (open-hearted, generous, domineering, courteous)
- The achiever (adaptive, driven, success-oriented)
- The individualist (expressive, dramatic, self-absorbed, temperamental)
- The investigator (observant, inventive, reserved, isolating)
- The loyalist (committed, responsible, anxious, suspicious)
- The enthusiast (spontaneous, versatile, easily distracted, shattered)
- The challenger (self-confident, decision-maker, confronter, resolute)
- The peacemaker (calming, susceptible, pleasing, self-satisfied)

Well-being and working climate

How would you express your general well-being?

Very Bad 1 2 3 4 5 Excellent

Number of average working hours per week:

- 0-40
- 41-49
- 50-59

- 60+

How do you perceive your daily working climate?

Very Bad 1 2 3 4 5 Excellent

I enjoy my workplace and have no intentions in changing employer within the next 3 years:

- Yes, I would like to stay
- No, I will look for another employer

If your intentions are to switch employer within the next few years, is that depending on any of the following reasons:

- Working climate
- Salary
- I will get new/other work tasks
- Too much stress
- Workload
- My colleagues
- Something else

Would you recommend your current employer to others?

No, absolutely not 1 2 3 4 5 Yes, absolutely

Which factors do you consider as the most important ones for you to stay at your current employer?

Answer:

Leadership

The management puts the right persons on the right work tasks

I do not agree 1 2 3 4 5 I totally agree

The management of the organization gives clear instructions

I do not agree 1 2 3 4 5 I totally agree

The organization offers a competitive salary

I do not agree 1 2 3 4 5 I totally agree

My current salary reflects my work tasks

I do not agree 1 2 3 4 5 I totally agree

I can speak freely with my closest supervisor about several different things

Absolutely not 1 2 3 4 5 Of course

My closest boss is listening to me and embrace my feedback

Absolutely not 1 2 3 4 5 Of course

My closest supervisor is supporting me in my work

Absolutely not 1 2 3 4 5 Yes, always

My closest supervisor involves me in decisions that will affect my work situation

Absolutely not 1 2 3 4 5 Completely

My closest supervisor is motivating employees in performing better

I absolutely do not agree 1 2 3 4 5 I completely agree

I consider that the company gives me the opportunity for recovery

I do not agree 1 2 3 4 5 I totally agree

My professional role

I know what is expected of me in my work

I do not agree 1 2 3 4 5 I totally agree

I have the right competence for the work tasks I perform

I do not agree 1 2 3 4 5 I totally agree

My work tasks allow me to use my knowledge and skills in the best way

I do not agree 1 2 3 4 5 I totally agree

My working climate is nice and peaceful

Never 1 2 3 4 5 Always

I can keep the deadlines I have in my work

Never 1 2 3 4 5 Always

My time schedule is flexible enough in order for me to meet my needs

I do not agree 1 2 3 4 5 I totally agree

I can balance my work life with my private life

I do not agree 1 2 3 4 5 I totally agree

I have clear instructions and goals in my work

I do not agree 1 2 3 4 5 I totally agree

The speed in my work and my time schedule allows me to perform a good job

I do not agree 1 2 3 4 5 I totally agree

I consider the amount of work I am expected to complete is reasonable

I do not agree 1 2 3 4 5 I totally agree

Stress

My work does not cause me unreasonably much stress in my life (unreasonably much stress refers in this case to a stress level which has a negative affect on your well-being)

I do not agree 1 2 3 4 5 6 7 8 9 10 I totally agree

The level of stress I perceive currently is...

Non-existent 1 2 3 4 5 6 7 8 9 10 Very High

I consider the following aspects to be the most contributing causes of stress in my work:

In relation to work-related stress I have also experienced...

- Anxiety
- Forgetfulness
- Low-spiritedness
- Panic attack
- Depression
- Sleeping difficulties
- Weight gain/loss
- Nothing of the above
- Other

The stress I perceive in my work has had an impact on my private life

Not at all 1 2 3 4 5 6 7 8 9 10 In a very large extent

I have tried to mitigate the work-related stress I perceive or solve the problems that are causing it:

- Yes, once
- Yes, more than once
- No

I have taken some time off due to stress:

- Yes, once
- Yes, more than once
- No

If your answer was yes on the question above, how much time did you take off:

- One day
- One week
- One month
- More than one month

I have been signed off due to stress:

- Yes
- No

If yes on the question above, how long?

- One day
- One week
- One month
- More than one month

Other actions I have taken to reduce stress:

My work-related stress is mostly due to one of my colleagues

- Yes
- No

If your work-related stress is not due to one of your colleagues, is it due to any of the following:

- The amount of work
- The work itself and the responsibilities that come with it
- The physical work environment
- Private health reasons
- Other

I perceive that the level of stress at my work place...

- Has increased over the last two years
- Is the same as it was two years ago
- Has decreased over the last two years
- I am newly hired, I have worked here less than two years

I discuss my level of stress with my co-workers

- Yes, regularly
- Yes, sometimes
- Very rarely
- No, never
- I am not stressed

I perceive that my employer is considering the well-being of the employees

Not at all 1 2 3 4 5 6 7 8 9 10 Yes, absolutely

I perceive that the employer's involving way of working is reducing my stress

Not at all 1 2 3 4 5 6 7 8 9 10 Yes, absolutely

I perceive that my employer takes actions in order to reduce stress on the workplace

Not at all 1 2 3 4 5 6 7 8 9 10 Yes, absolutely

I perceive that my employer has appropriate recovery programs for stressed co-workers

Not at all 1 2 3 4 5 6 7 8 9 10 Yes, absolutely

What do you consider your employer should do, in order to reduce employee distress?
