

**Work-Related Stress Among Professionals Working Within IT  
Sector in Ireland: Causes and Consequences**

**Gerda Starolyte**

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## **Abstract**

Lot of people nowadays are feeling stressed in their jobs. IT sector is not an exception and it was important to investigate the situation further in order to suggest recommendations. Purpose of this study was to examine levels of stress felt by IT workers in Ireland and main causes of that.

Quantitative study was conducted, in total 94 respondents participated. The results provided evidence that the employees frequently felt stressed and nervous, as they had a large amount of work to do, which required increased concentration and high levels of knowledge. Also, most of the respondents admitted that they did not have enough physical activity and also commonly experienced some negative physical symptoms - dizziness and tiredness and psychological symptoms – irritability, lack of concentration and angeriness. Correlation analysis between the perceived stress and the feelings about the work revealed that higher levels of stress were highly associated with a decreased physical and mental well-being, decreased satisfaction with the workplace and personal life and trust and communication issues with co-workers and superiors. This study confirmed the previous results and suggested that, indeed, excessive stress in the workplace negatively affects all aspects of work and family lives. Also, relationship between stress and various demographical influences were tested. No significant differences between genders were found, even though literature suggests that women tend to be more stressed in the workplace.

Companies within the IT industry should take proper actions, in order to ensure that the employees are motivated and perform well, but without exceeding certain stress limits, which negatively affect their lives.

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## **Chapter 1 “Introduction”**

Stress affects everybody at least sometimes in their life. Stress usually happens when demands from environment exceed coping abilities of the person and it can result in both psychological and physical discomfort and change (Barling, Kelloway and Frone, 2005). We spend 1/3 of our lives working, so no surprise that it has huge impact on our mental and physical health. Occupational stress occurs when demands of the job do not match employees’ abilities to cope or resources necessary to deal with certain task or situation (Mohajan, 2012). Occupational stress, also known as work-related stress or job stress, can be seen as a necessity in the workplace, that encourages employees to challenge themselves, however high levels of work-related stress is known to have a huge negative impact of both individual and organisational well-being. In the last decade stress related to work has been a major topic across many sectors and industries across the globe as it is one of a major concern that is known to have a huge impact on economic aspects and damaged employer brand in the organization (Kelloway, Teed and Kelley, 2008). Not only companies are feeling consequences of stress caused by jobs, employees who are experiencing high levels of occupational stress can develop various health conditions, such as high blood pressure, cardiovascular disease, higher chance of physical injuries, and various mental health problems, including depression, anger, anxiety or irritability (Mosadeghrad, 2014). Stress can also result in slow achievement of goals, both organisational and individual (Michie, 2002). However, even though the negative impact is obvious, measures taken by both employees and companies are not working well enough. According to Russell et al. (2018) stress in the workplace has doubled in Ireland between 2010 and 2015. Stress in the workplace is growing rapidly and it is important to research this area further.

In the last decade IT industry was growing rapidly across the globe. Nature of industry is demanding as technologies are being created and developed constantly, due to this fact, pressure on IT workers is to maintain their knowledge as up to date as possible. A lot of research has been done on how stress affects employees among various industries and what the main causes are, and the IT industry is not an exception. A study done by (Kumari, Joshi and Pandey, 2014) on software engineers in IT companies revealed that 93% employees aged 35-39 were reported to be experiencing a high level of stress. The IT industry in Ireland hasn't been looked well at yet, possibly due to the fact that a lot of IT companies are known to provide a lot of benefits for their employees. However, as demands for IT workers are high, and pressure to constantly learn is present at all times, it is important to investigate it further. Another reason why this is important to look at it is that there is a big shortage of IT industry workers. IT industry in Ireland is currently booming, so companies are constantly hiring, trying to attract and retain the best talents that can add biggest value to the organization. A survey done by Stack Overflow (2017) revealed that only 13.1% of software professionals are actively looking for a job. This number reflects that there is a shortage of employees and most companies should prioritise and focus on their staff happiness and well-being in order to retain key talents and avoid any loss coming from high employee turnover. Companies lately are much more interested in growing and retaining their talent than buying it, because there is big skill shortage in IT industry, so keeping their employees happy and motivated can be a key to retaining and growing key performers successfully. Identified causes can help employers act to prevent stress impacting their employees. Physically and mentally fit people are known to boost organisational performance significantly (Ahmad et al., 2015)

Combining this with the fact that stress rates are increasing rapidly in Ireland it is necessary to investigate stress within IT industry in Ireland further in order to avoid any negative

consequences for both employee and employer that are linked with stress that occurs in the workplace.

## **Chapter 2 “Literature Review”**

### **2.1 Definition of Stress**

Stress can be described in many terms, so there is no one true definition for it. It is understood that stress is perceived and understood differently by different people depending on the conditions and circumstances (Fink, 2016). Overall, HSA defines stress broadly as the negative reaction people have in certain environment or conditions as they perceive it. Stress is the psychological and physical feeling that happens once the resources person has are not sufficient enough to cope with the situation and its pressure or demands (Michie, 2002). Workplace stress commonly defined as harmful psychological and physical responses that occur when pressure or demands of job exceed individuals’ capabilities (Mohajan, 2012). Stress in the workplace is not a new term anymore and has been looked at more and more in the last decades not only in Ireland, but across many countries. Stress in the workplace can be also called occupational stress or, work-related stress. Many elements are involved in definition of work-related stress: personal qualities and person’s ability to cope with stress, demands from the work.

On the other hand, in literature workplace stress is not only mentioned from a negative perspective. Stress in the workplace sometimes can be seen as a positive attribute that helps keep employees motivated, creates a challenge that encourages them to improve and learn. This type of stress is known as eustress and it has positive consequences. Usually it comes in low levels of stress can be desired and healthy within the workplace. Shahsavarani, Marz- Abadi and Kalkhoran (2015) states that in positive form, stress can help improve biopsychosocial

health and boost performance. It is also thought to be an important feature that contributes to positive motivation, adaptation and understanding of environment that surrounds us.

## **2.2 Jobs Stress Theories**

From a psychological point of view there are many theories of stress, however this chapter will look into theories of workplace stress specifically. Most common workplace stress theory is transactional which suggests that stress is an outcome of an encounter between person and the environment that surrounds him, and which might threaten individual's wellbeing (Lazarus, 1986). Mainly there are five models developed around this theory that explains workplace stress: personal environment fit model; job characteristics model; diathesis-stress model; Jobs-Demand Resources Model; Effort-Reward Imbalance Model. All these models were developed in order to help look deeper into work-related stress and all the factors surrounding it. Following chapter will look into these models.

### **2.2.1 Personal Environment Fit Model**

Finding a best person to fit the job is every organisations goal. There is a reason why job has to suit individuals really well. Personal environmental fit model refers to ability to adapt. One version of it looks into the correspondence environmental circumstances and personal goals, values or motives while another version looks into relationship between demands that are occurring from our surroundings and personal skills (Caplan, 1987). One of the versions looks into the relationship between environmental supplies and personal reasons, aims and values. Another version looks into the relationship established between demands coming from environment and personal skills and abilities. There is also some critics of this model. Akanji (2015) suggests that personal environment fit model doesn't take into consideration individual differences and other well-being factors that can be subjective and also vary depending on personal experiences and various situations.

### **2.2.2 Job Characteristics Model**

This model suggests that in order to feel happy in the workplace, person has to have some sort of autonomy in the workplace and the core main five attributes are skill variety, task identity, task significance. A study done on fast food outlet managers by Ali, et al. (2013) revealed that job characteristics model contributes highly to employee satisfaction, meaning that employers should give employees full responsibility to complete their tasks.

### **2.2.3 Effort-Reward Imbalance Model**

Effort- Reward imbalance model is a theoretical model which suggests that lack of balance between effort put into work and low rewards may result in strong negative and stress reactions among employees (Cooper and Quick, 2017). Research also suggest that lack of effort-reward balance in the workplace can result in increase of stress-related disorders, such as coronary heart disease or depression (Siegrist, 2016).

### **2.2.4 Diathesis Stress Model**

Diathesis Stress Model is another theory related to stress which suggests that person's tendency (diathesis) for acquiring some sort of disorder can be addressed as a function of the dynamic relationship that occurs between diathesis and ongoing stress (Islam and Choudhry, 2017). This theory elaborates that people who are experiencing stress are likely to develop a disorder as a response to reoccurring stress. Further authors suggest that some personal qualities, such as resilience can provide a buffer for people who are experiencing stress against the development of this pathology (Islam and Choudhry, 2017).

### **2.2.5 Jobs Demands Resources Model**

This model mainly states that high job demands can lead to a certain health conditions, psychological issues, tensions and stress and that high resources result in increases employee motivation (Schaufeli, 2017). However, there are some critics, that suggests this model has its flaws. One of them relates to the dynamics of the Jobs Demands Resources model. Schaufeli and Taris (2014) notes that dynamics affect this model highly so it is hard to identify its constant impact on people's well-being.

## **2.3 Stress in the Workplace**

Work takes big place in our lives- usually people spend 40 hours a week in their work. No wonder that not being happy or stressed in the workplace can have huge impact on our emotions, health and personal life. Workplace is one of the most important causes of stress due to its often-demanding nature and lots of pressure (Michie, 2002). Stress in the workplace occurs when employee is put into the situation that is too complicated for him/her to handle and threatens to personal well-being (Ahmad, et al. 2015). While low levels of stress are known for positively impacting employee performance, very often stress in the workplace lacks control and people become stressed. Stress in the workplace is becoming a major issue and it is even more present compared to decades ago (Padma et al., 2015). There is a simple reason why employers should focus on maintaining stress free environment for their employees- happiness. Happy employees tend to perform better compared to employees that are not satisfied with their jobs (Dogan, Akvel and Dogan, 2018). It is important to take into consideration that different sociodemographic influences can also have an impact on the way individual is dealing with stress.

## **2.4 Reasons for Stress in The Workplace**

### **2.4.1 Workload**

Workplace stress can be caused by variety of reasons, one of them- workload. CIPD (2019) survey revealed that most common cause of work-related stress is workload. This statement is consistent with a research of other authors: research done by Birhanu et al. (2018) on healthcare professionals states same- one of the main reasons for work related stress is workload; study done by Bhui et al. (2016) states that workload is one of the main occupational stress causes regardless the sector people work in. Workload is also directly linked with high work demands and pressure, due to its complexity it can be hard to cope with it and avoid all possible consequences.

### **2.4.2 Bullying and Harassment**

Bullying and harassment is another common cause for workplace stress. According to Ngale (2018) bullying has been found to be strongly linked with workplace stress and can have negative consequences on employees mental and physical health. Harassment is another concern that can cause various issues related to occupational stress within the workplace.

### **2.4.3 Working Conditions**

Working conditions covers many areas including workplace environment, relationships within the company, shifts, culture and etc. Senova and Antosova (2014) refers to working conditions as an external influence that also include company environment and its culture, demands of work, relationship with managers/ colleagues and communication. Study done by Birhanu et al. (2018) on healthcare professionals states that working in night shifts is one of the biggest issues causing workplace stress. Bhui et al. (2016) also points out that working environment is

important across all sectors. As working conditions include many factors, Nekoranec and Kmosena (2015) suggests that noisy environment, lack of air-conditioning, bad lighting is one of the main environmental stressors in the workplace. These researches prove how important working conditions for employees are when considering eliminating possible stressors in the workplace.

#### **2.4.4 Working hours**

Long working hours is a common issue across various industries. Some people find it necessary to work long hours in order to run that extra mile for their careers, some are asked by their employers. Whichever way, long working hours are known to be one of the main reasons for occupational stress. Study done by Lee et al., (2017) on Korean white-collar employees suggests that long working hours significantly contributed to workplace stress.

#### **2.4.5 Position in The Organization**

Many factors can be contributing to stress perceived at the workplace, position in the workplace is known to influence amount of stress perceived by people in the workplace. One of them is employees' position within the organization. Study done by Vagg, Spielberg and Wasala (2002) reflects that workers at high organizational step experiences stress more often compared to lower level employees. Although manager's work is more demanding, they also have more control which results in experiencing less stress than subordinates (Lundqvist et al., 2013).

### **2.5 Stress in Ireland**

Stress is common across the globe; however, this section will look into stress perceived by workers in Ireland. Rates of stress in the workplace are growing rapidly and more than doubled in 2015 compared to 2010. In 2010 it was determined that 8% of workforce experiences stress, same research done in 2015 revealed that 17% of workforce was experiencing stress (Russell et al. 2018). Due to the fact that stress rates in Ireland are constantly growing, there are many studies done on workplace-related stress across various occupations: social care, teachers and other educational workers, nurses, academics, pharmacists and others. Another analysis done by Russell et al. (2018) revealed that among employees in UK and Ireland main attributes contributing to work related stress are:

**Emotional demands:** employees having to deal with customers that are angry or in any other way emotionally demanding, having to hide their true feelings or emotions. It was reported that people who are experiencing high emotional demands at their workplaces were 21 times more likely to feel stressed at their jobs compared to those who are exposed to lower levels of emotional demands.

**Pressure of time:** those who were exposed to the highest levels of time pressure and deadlines were ten times more likely to experience stress at their jobs compared to people who weren't.

**Violence, bullying and harassment:** Employees exposed to any of these misconducts were eight times more likely to feel stressed at their jobs compared to those who were not exposed to any inappropriate behavior.

**High levels of physical demand at work:** workers whose job is physically demanding were almost twice as likely to experience job stress compared with employees with no such demands.

**Lack of balance in effort-reward:** this is determined by the extent that people feel that they are being underpaid for the job they are doing. Employees in Ireland with highest imbalance of effort-rewards reported that they were 4 times more likely to report job stress compared to employees who are reported adequately for the job they do.

**Working hours:** People working over 40 hours per week tend to report stress at their work twice as likely compared to people working 36-40hours.

Overall, reasons for being stressed at work are very similar across the world and Ireland based on research findings.

## **2.6 Stress in IT industry**

Occupational stress occurs across all industries. As IT industry is quite modern and recently developed, there is not much research done within it. Analyzing situation within IT industry will help improve stress management strategies and help employees stay happy and healthy in the workplace while allowing companies to reach their goals efficiently. Study done on software professionals in India by Kumari, Joshi and Pandey (2016) revealed that main factors causing stress in the workplace are: nature of work; organizational environment; personal growth and not having enough access to the information. Another study done by Babu and Balakrishna (2017) on workers within IT industry revealed that main cause of stress at work is routine hassle and constant demand for continuous learning. Same study also reflected that none of the sociodemographic aspects had any influence on occupational stress within IT industry. On the other hand, different study done by Hsieh, Huang and Su (2004) revealed that variables of different sociodemographic aspects, such as age, gender, education, position and department were responsible for any differences that occurred and that the sociodemographic influences, such as gender, age, educational level, department, position within the organisation were responsible for the differences in work stress levels. Since sociodemographic influences

have an impact on employee stress in IT industry, it is important to take a closer look at Ireland as there might be different opinions and experiences.

## **2.7 Stress within IT industry in Ireland**

There is not much study done looking into stress within IT industry in Ireland. There are many studies about stress within IT sector in other countries, and with the information that work stress has doubled in Ireland. Study done by Russell et al. (2018) reflected that across sectors managers and technical professionals were most likely to be affected by workplace stress due to the high levels of time pressure and long working hours associated with it. This gives a clear indication that further study and investigation is necessary in order to avoid any damage it can cause to the industry.

## **2.8 Consequences of Stress**

### **2.8.1 Impact of Stress to Individuals**

Stress is mainly known as being negative force, pressure, that influences people badly. Stress, usually associated with negative emotion can have a very different impact on people. It is mostly depending on their personalities, previous experiences, also environment and other circumstances. Individuals are more prone to experiencing stress and its effects if they lack some sort of material (financial security) or psychological resources (confidence, coping qualities) and are more likely to suffer from stress if they are very competitive, pressured or tend to react emotionally to certain situations (Michie, 2002). Workplace stress can have very dramatic consequences on employee's health and wellbeing. According to Colligan, Higgins and Box (2005) physical disorders such as heart disease, hypoadrenia, immunosuppression, and chronic pain can occur when person is exposed to large amounts of workplace stress. Another research done agrees and adds additional threats to persons physical health stating that

common health problems caused by stress are acid peptic disease, alcoholism, asthma, diabetes, fatigue, tension headache, hypertension, insomnia, irritable bowel syndrome, psychoneurosis, sexual dysfunction and skin diseases such as psoriasis, lichen planus, urticaria, pruritus, neurodermatitis etc. (Padma et al., 2015).

However, physical conditions are not only issue with workplace stress. It is also known to raise many concerns about mental health wellbeing. According to (Addae and Wang, 2006) workplace stress can cause a lot of physiological disorders and broad spectre of conditions, such as depression, anxiety, post-traumatic stress disorder, also emotional strain, such as fatigue, exhaustion, tension. Authors also point out that it can even cause behavioural problems: aggression, abuse or substance.

Such dramatic outcomes are very unwanted, so this is the reason why it is important to deal with the problem at early stage, identify main stressors and eliminate them before they cause any damage for both employee and organisation.

## **2.8.2 Impact of Stress in The Workplace to Employers**

### **Absenteeism**

Stress in the workplace can cause a high rate of absenteeism, which can be very expensive for organizations. Wall (2014) report states that one of the main tools used to monitor levels of stress nationwide is through absenteeism: in 2012, worker from United Kingdom reported stress as one of the major causes of absenteeism in the workplace and it contributed to an average of 5.3 days off per employee. That is a very high number that can result in a big financial loss for the company. This number could be reduced by creating policies and strategies that could help employees cope with stress on the daily basis.

## **Retention and turnover**

Another negative result that can arise from high rates of workplace stress is turnover.

Maintaining high rates of retention in the company can be a challenging task itself, however stress in the workplace can significantly decrease retention rates. Study done on IT sector employees by Zhao and Rashid (2010) revealed that employees were more likely to quit their jobs if they have to deal with work related stress constantly without getting away from it.

This means that companies can be losing their talents, possibly even key performers. In this case, according to Masood (2013), if turnover issue is avoided and the rates become really high organizations might collapse in this viable market of business. Conclusion can be made that company can struggle to survive if turnover and retention issues caused by work-related stress would be ignored, so it is necessary to identify main causes of work stress in order to eliminate them.

## **Performance issues**

Another negative affect of stress in the workplace can be decrease in performance and productivity. Study done on bank officers by Kumari, Bajwa and Priya (2016) revealed that stress at work has a negative impact on employee performance. Once employee performance is affected negatively it indirectly affects organizational success and can even threaten its existence, the reason behind that is employees who are affected by work-related stress can struggle to work efficiently in their organizations (Kazmi, Amjad and Khan, 2008). Stress in the workplace not only reduces employee productivity, but also makes people put less effort into their roles. According to Dar et al. (2011) occupational stress lowers employees moral and reduces intention to perform well and be successful in their roles.

These negative effects of workplace stress can also occur among workers within IT industry. (Akula and Cusick, 2008) states that stress in the workplace within IT industry can result in loss of quality in the product and influence defects. As drawn literature states, stress in the workplace has a really big and usually negative impact on employee performance which can result in loss of productivity in whole organization.

## **2.9 Stress Management**

### **2.9.1 Individuals**

Managing the stress can be a challenging task at both individual and organisational levels. Individuals cope with stress various ways, people are looking for something to take their minds off from stressful situations. While those strategies adopted by people are healthy habit helping people to remove stress induced feelings. People can be proactive and take measures to cope and reduce stress at work by building strong family relationships, establishing good relationship with colleagues (Quick and Henderson, 2016).

A lot of articles can be found online with various recommendations how to cope with stress at work, however the responsibility should be employers as well.

### **2.9.2 Employers**

Measures are also taken by the different organisation in order to reduce work-related stress. (Bhargava and Trivedi, 2018). Organisational level interventions are necessary in order to prevent workplace stress. (Michie, 2002). If workforce's health is affected, then surely it will affect well-being of the organisation as well, in order to prevent that organization has to identify main stressors so they can prevent above outcome. (Satpathy and Mitra, 2015)

Many companies understand the possible consequences of stress and are looking for a way to eliminate them. However, according to Russell et al. (2018) only less than 45% of Irish firms have a policy for prevention of workplace stress. More concerning fact is that 50% of companies claimed that they didn't have enough sufficient information to evaluate psychological risks including work-related stress (Russell et al., 2018).

In order to survive in nowadays highly competitive market employers should be focusing on having an active policy in place for coping with stress in the workplace. Research done by Kotteeswari and Sharief (2014) reflects that employers can control certain factors that might be affecting employee performance. Employer should take into consideration all the factors that can cause unnecessary stress in the workplace and create a strategy or policy that would help employees cope with and seek help or advice where it is necessary.

Satphaty, Patnaik and Mitira (2014) identifies 3 main levels of organization coping strategies:

- 1) **Primary Methods of Prevention-** Primary Methods of Prevention usually involves reducing the occurrence of work design, introducing flexi time, involving employees into management processes and etc. Nekoranec and Kmosena (2015) agrees and also points out that stressors that come from the content of work itself can be reduced by allowing employees have their original responsibilities and for those who are getting more responsibilities proper training has to be setup.
- 2) **Secondary Methods of Prevention-** changing the response to situation that caused stress. This can be achieved through encouraging exercise and giving proper training to employees.
- 3) **Tertiary Methods of Prevention-** When primary and secondary methods fail to help, or their implementation is ignored and neglected tertiary methods should be introduced. Usually it involves various health programs and interventions.

All interventions can be avoided if proper measures are taken before stress at the workplace occurs.

## **2.10 Sociodemographic Influences**

### **2.10.1 Gender**

The way stress affects employees can be very dependent on many factors and gender is one of them. Various studies are done on how stress in the workplace affects men and women. Research done by Ganster and Schaubroeck (1991) draws a conclusion that women might be more vulnerable to the demands of work as they might more non-work demands compared to men. Also, according Hu et al. (2014) the gender is the only sociodemographic fact that affects employee mental health and female workers have higher risk of mental health issues related to stress compared to men. Study done by (Ahmad et al., 2015) reflects that working among with male dominant community can be a big stressor for women. It is important to identify relationship between causes and consequences of work-related stress between men and woman as it would allow companies create diverse and adaptable strategy for coping with stress.

### **2.10.2 Age**

Age can also have an impact on stress individuals perceive at work. Study done by Ahmad et al. (2015) revealed that older people usually feels less stress in the workplace, compared to young people who feel higher levels of stress. Age can also affect the ability to cope with workplace stress is employees age. Study done by Zhan et al. (2011) indicates that physical consequences of work-related stress for older people, middle aged peoples stated that they are affected by headache and dizziness, and younger workers (up to 30) reported higher rates of depression symptoms and emotional insecurity. However, Rauschenbach, Göritz and Hertel,

(2012) states that his research showed no strong relationship between age and frustration which would indicate stress in short-term aspect.

### **2.10.3 Experience**

Experience can play an important role in the way we perceive stress. It all depends on our previous experiences and previous situations. Similar it is with work experience. According to Anderson and Brown (2010) higher rank in the organization results into lower level of stress. Although manager's work is more demanding, they also have more and control which results in experiencing less stress than subordinates. Another study done by Ahmad et al. (2015) revealed that people with higher qualifications tend to perceive less stress while people with low qualifications might experience higher rates of stress at the workplace. This might be due to lack of experience how to deal with certain situations.

## **Chapter 3 “Research Methodology”**

Research methodology chapter will look into possible instruments that could have been used to conduct the research and the justification for the ones that were chosen. It will include subsections that will involve research philosophy, sample, instrument, research questions, limitations and data analysis. Research question, aim and objectives will be presented and discussed in this chapter. The approach adopted was that of a quantitative method.

### **3.1 Research Question**

The aim of this research is to investigate and analyse the relationship between workload, mental health, and overall stress within IT industry. Within this overall aim, there are several specific research questions. There is a lot of studies done on work-related stress in Ireland across many sectors. However, it is vital to conduct a study on work-related stress among IT professionals in Ireland due to the fact that this sector is one of the fastest growing in Ireland and also due to the fact that there is a huge skill shortage in software sector (SLMRU, 2018). This study can help employers identify the issues their employees are having, improve their well-being and retain them, eliminating all the necessary costs that could arise when trying to replace a leaver with a new employee. Purpose of this paper is to fill in the gap existing in the Irish literature on work-related stress among workers in IT industry in Ireland and to deliver suggested recommendations on coping with employee stress for employers.

#### **Objectives:**

1. Determine to what extent work related stress is experienced by IT industry workers in Ireland.
2. Explore the main causes of work-related stress among IT industry workers in Ireland
3. Identify the relationship between work-related stress and sociodemographic variables: gender, experience and age in IT workers in Ireland.
4. Explore relationship between work related stress and physical, mental wellbeing of IT industry workers.

## **3.2 Research Philosophy**

Research philosophy will determine the view of researcher on this study. Research philosophy refers to a structure of principles and assumptions about the way information is developed (Saunders, Lewis and Thornhill, 2009). Also, author identifies five research philosophies:

- Positivism
- Critical Realism
- Interpretivism
- Postmodernism
- Pragmatism

In this paper we will look in positivism, interpretivism and critical realism.

### **3.2.1 Positivism**

Researchers that choose to adopt positivism, completely reject any subjective ideas. Usually they are focusing on focus concrete aspects of human activity and general laws that are used to understand and predict individuals' behaviour (Fisher, 2010). According to Krauss (2005) in the positivist paradigm, the object of study is not anyhow related to the people who are conducting the study and information is gathered and proved only through measuring and observing. Further author suggests that according to the positivist approach, science is seen as something that helps to get the truth and understand the world in that manner it would be possible to predict it better. (Krauss, 2005). However, there is some criticism about positivism approach. According to Lan (2018), positivism approach is aiming to generalize the outcome of the research and hence that is possible that true understanding, interpretation of certain events or issues can be neglected and not looked into. A lot of Irish researches have used positivist research approaches due to the aim of creating more equal and just community (Ryan, 2006).

### **3.2.2 Critical Realism**

Critical realism is relatively new philosophy that has gained popularity among researchers in the last few decades that are using it for social scientific research. One of the most significant doctrines of critical realism is that ontology which is usually referred to as “what is real; nature of the reality, is not reducible to epistemology which is usually referred to as our understanding of reality” (Fletcher, 2016). Critical Realism was created as a criticism to positivism, suggesting another approach from different point of view. The theory of realism is that there is a reality quite independent of the mind. It is mostly used for qualitative researches. Critical realism has some disadvantages too, one of them is pointed out by O’Mahoney (2016), who believes that limitation behind critical realism is that is metaphysical ontology which does not imply anything about social structures, the self or society.

### **3.2.3 Interpretivism**

Interpretivism is another paradigm that mainly focuses on the way people interpret world that is surrounding us and try to make sense of it (Saunders, Lewis and Thornhill, 2009). Authors also note that interpretivism same as critical realism was developed to critique positivism just from subjectivist perspective. Interpretivism can be adapted to a study for number of reasons and there are some advantages of it. With the diversifying views of this approach into phenomena researches that are using imperatives can look not only into humans, events or object but also evaluate it in the social context (Pham, 2018). Due to its nature it is used with qualitative research.

In this study, positivism philosophy will be used as it usually applied to deductive, highly structured researches that involve large samples and quantitative studies.

### **3.3 Research Approach**

There are two main approaches that can be used while doing the research: deductive and inductive. Inductive approach is used through observing and drawing conclusions from observations while deductive approach is explained through assumption that is drawn from theory (Zalaghi and Khazaei, 2016). Inductive theory is more linked with qualitative studies as it can be utilized through interviews and other qualitative methods. Deductive approach is linked more with quantitative due to the fact that it more related to the positivism approach which will be utilized in this study. With quantitative study bigger pool of respondents can be approached in the shorter amount of time. Deductive approach focuses on using information to test the theory and it is applicable to this research. Decision to use quantitative study was also made based on the fact that similar approach was used on previous studies done on work-related stress i.e. Jain and Batra (2015). Another option for this research was qualitative study. Criticism about qualitative research says that all quantification is seen as limited and looking in only very small piece of reality that cannot be divided or united. If it is done the importance of the whole phenomena can be lost. In this approach all quantification is seen as very limited in nature and is thought to only look at a small piece of reality.

### **3.4 Sample**

All the respondents will be IT industry workers who are currently working in Ireland. Purposive approach and snowball sampling will be used in order to approach IT professionals working in Ireland. People working within IT sector will be approached and asked to pass on survey to their colleagues or fellow friends who are also working within IT industry and can contribute to this research project. Questionnaire was uploaded to online platform Google Forms where respondents were completing it. They were shared and sent with messages through various social networks, mostly LinkedIn and Facebook. LinkedIn gives access to a lot of IT

industry workers, who were also asked to pass the questionnaire on to their fellow friends who also work within IT industry. 98 people in total filled in the questionnaire.

### **3.5 Instrument**

Questionnaire will have 3 main question blocks: sociodemographic questions; questions about causes of workplace stress and questions about consequences of work-related stress. Pilot study won't be conducted as it is not applicable due to no new interventions or no new populations used.

The survey consisted of 3 different sections (see appendix 1) First one consisted of 3 demographical questions which looked at respondents age, gender and working experience within IT sector.

Section 2 consisted of questions looking into occupational stress, mental health and supporting networks. Questionnaire used is called Brief Job Stress Questionnaire (BJSQ). This questionnaire consists of 4 smaller sections that look into work stress, both physical and mental health, support network and satisfaction. In total BJSQ consists of 57 items. 17 of them are looking into physiological demands of work, control over job, 29 items are looking into psychological and physical reactions to perceived stress; and the last 11 items are used to assess buffering factors, such as support networks. (Tsutsumi, Inoue and Eguchi, 2017). According to Inoue et al. (2016) questionnaire is valid and reliable, also it is identified to be useful tool to evaluate psychosocial work environment. Participants were asked to answer each of the questions using a Likert scale by having to circle the statement that best fits their situation. The choices in the first- occupational stress sub-section was: not at all; somewhat; moderately so and very much so. Second sub-section which was looking into mental and physical health of respondents in the last month and the choices were: almost never; sometimes; often; very often. Third sub-section was looking into support networks and respondents had an option to choose

from: not at all, somewhat, very much and extremely when asked sub-section 3 was looking into perceived stress. The last section looking into personal life and job satisfaction had also 4 options to choose from: dissatisfied; somewhat dissatisfied; somewhat satisfied; satisfied. This questionnaire has a broad view and is able to look into more details related to occupational stress, this is main reason why it was chosen for this research.

Third section was looking more generally and broadly into perceived stress. Tool used was questionnaire called “Perceived Stress Scale” which was designed by Cohen (1994). It has only one section consisting of 10 questions that are looking into individuals’ feelings and thoughts. Respondents are asked how often they felt certain way in the last month and they were asked to respond using 5-point Likert scale where 0 Never; 1- Almost Never; 2- Sometimes; 3- Often; 4- Very Often. No open-ended questions were included.

As both Perceived Stress Scale (PSS) questionnaire and Brief Job Stress Questionnaire (BJS) were 5-point and 4-point Likert type items, respectively and they were treated as ordinal variables.

Survey also had briefing section in the beginning, where anonymity and study relevance were outlined (Appendix 2). Also, it included debriefing section (Appendix 2) at the end of the survey, which reminded respondents that they can withdraw their answers at any time and confidentiality with contact details was noted again as well.

Once data was gathered, it was downloaded to an Excel spreadsheet, then transferred to SPSS. The non-parametric Kruskal-Wallis and Friedman’s tests were used for the comparison of independent and dependent groups. The descriptive statistics Mean, Median and Standard Deviation were presented using tables. The association between the variables was calculated using Pearson’s and Kendall’s correlation coefficients. The significance level was set to  $\alpha = 0.05$  for all the statistical tests. The analysis was performed using the IBM SPSS v.25 statistical software. For the questionnaire Perceived Stress Scale, two factors have been separated. The

first factor consisted of questions 1,2,3,6,9,10 and they were associated with the negative feelings that people had. The items that are expressed positively (questions 4,5,7 and 8), consisted the second factor (PSS 2), which were the positive feelings. The items of the PSS have been coded in reverse. The total Perceives stress scale score (PSS score) has been calculated as the sum of the responses of each individual. For the Brief Job Stress questionnaire, we have separated four factors, associated with the Job (BSJ 1), Health (BSJ 2), People (BSJ 3) and Satisfaction (BSJ 4). For the factor Job, the positively expressed questions (8, 9, 10, 14, 16 and 17) have been reversed coding. Therefore, a higher PSS score denotes a higher amount of received stress, a higher BSJ 1 score denotes a lower job stress and a higher BSJ 2 score denotes a worse health situation. For the BSJ 3 and BSJ 4 scores, a higher value shows that the participants have a better relationship with his people at work and family and he is overall more satisfied with his work. presented using tables. Also, the responses of the questions are presented as frequencies. Cronbach's coefficient (Appendix 3, Table 1) is presented for each of the questionnaire scales, as a measure of scale's reliability. All the scales achieved an appropriate value above 0.8, except for the last scale of the Brief Job Stress Questionnaire, which had a lower value ( $\alpha = 0.766$ ). However, as this specific scale is constructed with only two questions, so the lower value of the coefficient was expected

### **3.6 Limitations**

Stress is a dynamic experience and it can change, and the scores can be dependent on whether person has a stressful time or not. Also, every person can respond to the stress differently and it might depend on many factors such as personal qualities, experiences, and ability to deal with stress. Depending on the interpretation some people can react very sensitively to the occupational stress Nekoranec and Kmosena (2015). Also, survey was carried out in the summertime, meaning that a lot of people are on holidays, work is usually not intense over the

summer, this fact could have had an impact on this research as well. One of the biggest disadvantages is that only closed end question was used, meaning that no further elaboration for participants was possible. Further qualitative investigation would also allow some more insight in perspectives and experiences.

## Chapter 4 “Findings”

### 4.1 Results

The sample consisted of 94 individuals, of which 33 were females (35.1%) and 61 were males (64.9%). Table 1 and Table 2 present the percentages for each gender across working experience and age categories. Gender percentages did not differ between working experience ( $X^2(2) = 2.486, p = 0.289$ ) and age group ( $X^2(3) = 0.465, p = 0.926$ ), however only 2 employees were observed that were above 50 years old.

**Table 1**

*Participants in each of the gender and working experience categories*

		Working Experience			Total	
		<3	4-7	>8		
Gender	Female	Count	12	10	11	33
		Percent	36.4%	30.3%	33.3%	100.0%
	Male	Count	13	23	25	61
		Percent	21.3%	37.7%	41.0%	100.0%
Total		Count	25	33	36	94
		Percent	26.6%	35.1%	38.3%	100.0%

**Table 2***Participants in each of the gender and age groups*

		Age				Total	
		<25	25-34	35-50	>50		
Gender	Female	Count	5	18	9	1	33
		% within Gender	15.2%	54.5%	27.3%	3.0%	100.0%
	Male	Count	9	31	20	1	61
		% within Gender	14.8%	50.8%	32.8%	1.6%	100.0%
Total		Count	14	49	29	2	94
		% within Gender	14.9%	52.1%	30.9%	2.1%	100.0%

The responses of each question of the two scales of PSS, are presented in the Appendix 3 (see Tables 2-3). The most frequent bad effect was feeling nervous and stressed and also the feeling that the work was too demanding and they were unable to cope with. On the other hand, over the majority of the respondents (>50%) feel confident about handling their personal problems, feel that things are going their way and that they are on top of things. The descriptive statistics of the two scales of PSS are presented in Table 3 (note that for questions 4,5,7,8 the coding has been reversed).

**Table 3***Descriptive statistics of the PSS subscales*

Questions	Mean	Median	Standard Deviation
PSS 1	15.50	15.00	5.33
PSS 2	10.15	10.00	3.39

The responses of each scale of the BJS Questionnaire are presented in the Appendix 3 (see Tables 4-8). Table 4 presents the descriptive statistics of the subscales of the BJS questionnaire. More than one third of the participants (>33%) claimed that their job is very difficult and it requires a lot of concentration and high levels of knowledge and skills. Also, 34% of the participants think about their work throughout the day. 50% of the sample said that they cannot fully work at their own pace and 46.9% do not fully choose how and in what order to do their work. The participants seem to lack physical activity and energy ( $M > 2.5$  in the questions associated with activity).

**Table 4**

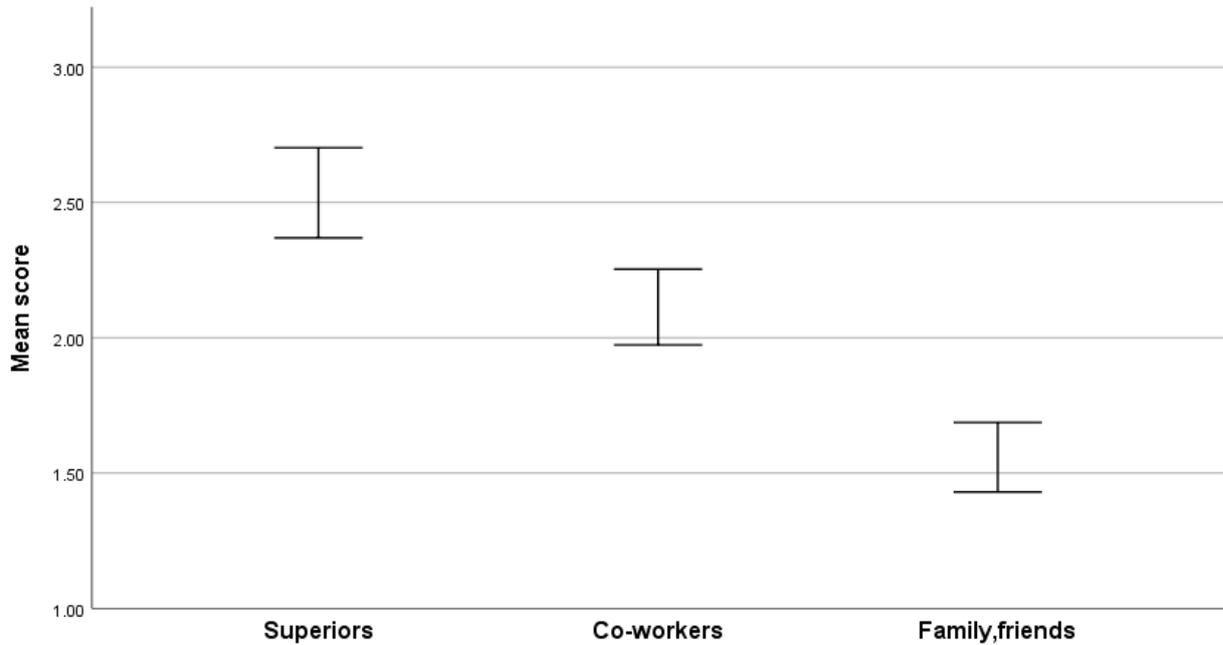
*Descriptive statistics of the BJS subscales*

Scale	Mean	Median	Standard Deviation
BJS 1	45.01	46.00	6.71
BJS 2	54.86	52.50	14.69
BJS 3	18.53	18.00	4.92
BJS 4	3.35	3.00	1.28

Of the stress symptoms, the most frequent are: feeling tense, feeling dizzy, tiredness and exhaustion. However, Kruskal-Wallis test between PSS scores revealed that the perceived stress was not significantly different between the genders, age groups or working experience groups ( $p > 0.05$ ).

Regarding the communication with their co-workers, their superiors and also their families and friends, the participants scored a lower value for their closest persons (family and friends), followed by an increased score for their co-workers and the highest score for their superiors. In order to analyze those differences, three separate Friedman's Analysis of Variance (ANOVA) tests were performed for the question groups 47-49, 50-52, 53-55 of the BJS

questionnaire. The results revealed that the differences were significant for the first group ( $X^2(2) = 80.77, p < 0.05$ ), the second group ( $X^2(2) = 101.105, p < 0.05$ ) and the third group ( $X^2(2) = 43.736, p < 0.05$ ). This fact is indicating the lack of reliability, trust and communication between the co-workers, the superiors and the employee (Figure 1).



*Figure 1: Mean response score to the questions 47-55, regarding communication and trust with superiors, co-workers and family/friends (95% Confidence intervals of the mean)*

Pearson's correlation coefficient was calculated, using the Bonferroni's correction, between the scales of PSS and BJS (threshold was established as  $\alpha/15 = 0.003$ ). The scales of the questionnaires PSS and BJS were found to be inter-correlated, as presented by Table 5. The highest correlation was observed between the first subscale of the Perceived Stress questionnaire (negative feelings) and the second subscale of the Brief Job Stress questionnaire, which measured the health symptoms, indicating that the higher the stress received the more is likely for one to have some certain bad health symptoms ( $r = 0.745, p < 0.001$ ). Also, the correlation between BJS 4 and the first subscale of PSS was significant ( $0.66, p < 0.001$ ),

indicating that more perceived stress leads to less satisfaction from the work. Generally, all the correlations were found to be at least moderate and significant, except for the association between the second scale of PSS (positive feelings) and the third scale of BJS, which was found to be non-significant.

**Table 5**

*Correlation between the scales of BJS and PSS*

		BJS 1	BJS 2	BJS 3	BJS 4	PSS 1	PSS 2
BJS 1	Pearson Correlation	1	<b>-.615*</b>	<b>-.329*</b>	<b>-.542*</b>	<b>-.528*</b>	<b>-.552*</b>
	p-value		.000	.001	.000	.000	.000
BJS 2	Pearson Correlation		1	<b>.392*</b>	<b>.633*</b>	<b>.745*</b>	<b>.461*</b>
	p-value			.000	.000	.000	.000
BJS 3	Pearson Correlation			1	<b>.609*</b>	<b>.508*</b>	.208
	p-value				.000	.000	.044
BJS 4	Pearson Correlation				1	<b>.660*</b>	<b>.472*</b>
	p-value					.000	.000
PSS 1	Pearson Correlation					1	<b>.462*</b>
	p-value						.000
PSS 2	Pearson Correlation						1
	p-value						

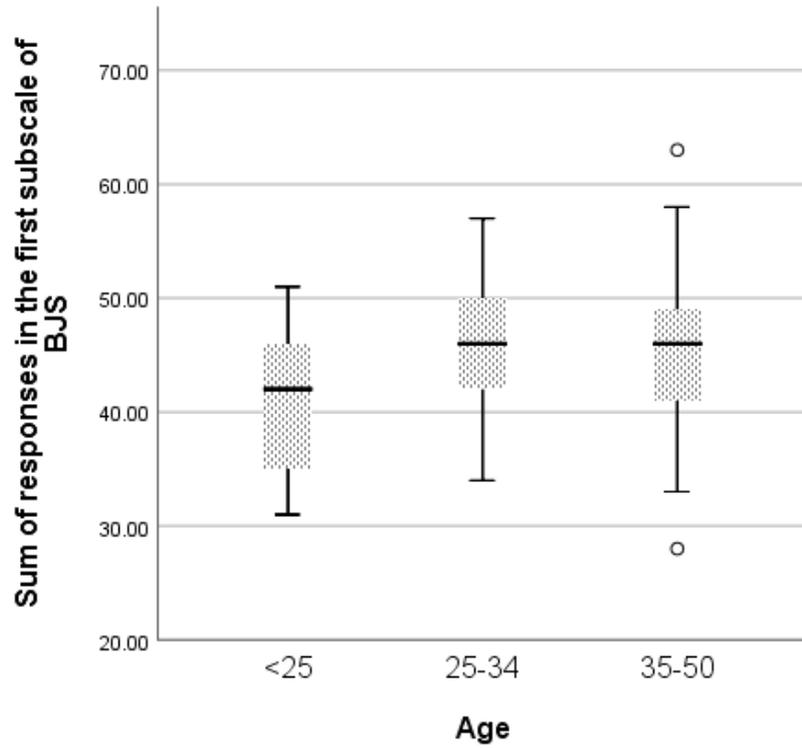
The table 6 shows the descriptive statistics of the different scales between the age groups. The age group of those above 50 years old had only two participants and it was excluded for further

analysis. Kruskal-Wallis U test showed that no differences exist in the second, third and fourth subscales of the BJS questionnaire across the demographic characteristics ( $p > 0.05$ ). On the other hand, Kruskal-Wallis U test revealed that participants that were older than 25 years old achieved a significantly lower total score in the first subscale, BJS 1, ( $X^2(3) = 9.388, p < 0.05$ ), suggesting that young workers receive a greater amount of stress from their jobs (Figure 2). Also, it is shown that younger participants have a decreased communication with people in their work environment and family (Figure 3), compared to older workers and also, they are less satisfied with their work overall (Figure 4), however the difference was not significant.

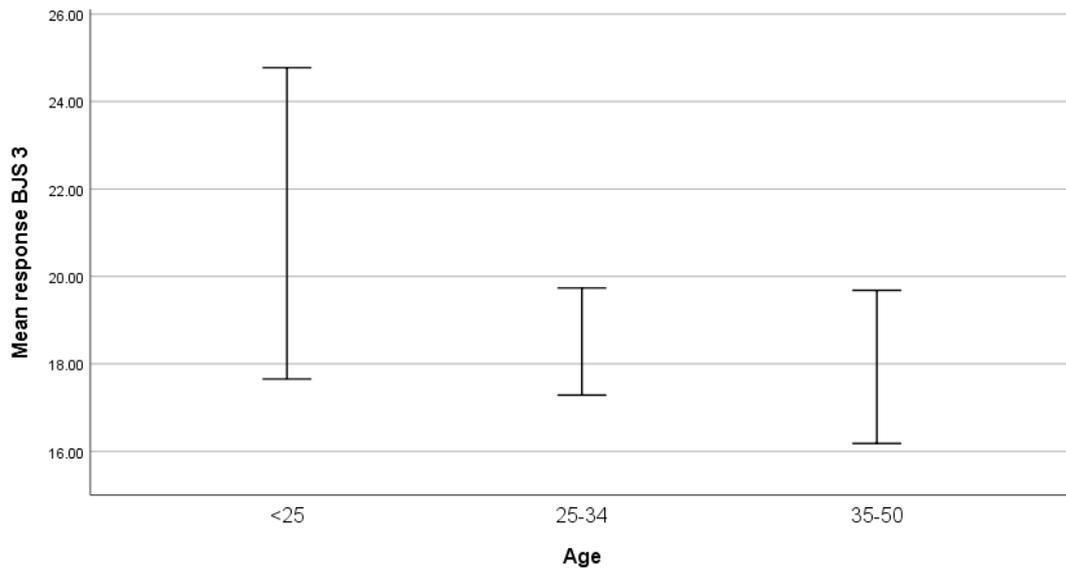
**Table 6**

*Descriptive statistics of the Stress Scales across Age Groups*

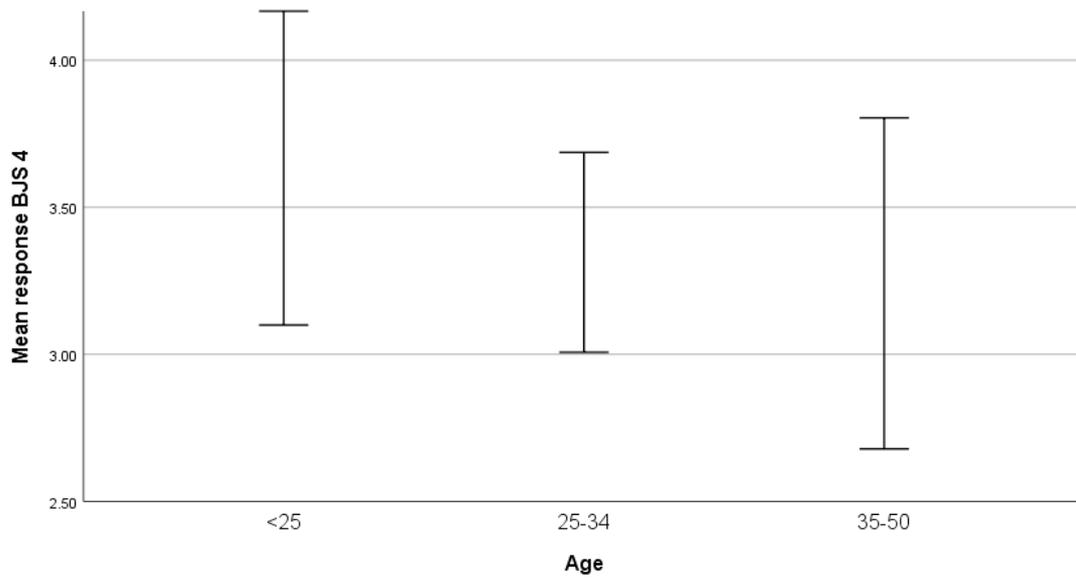
		Age			
		<25	25-34	35-50	>50
PSS 1	Mean	17.36	15.47	15.07	9.5
	Standard Deviation	6.78	4.66	5.61	0.71
PSS 2	Mean	12.64	9.88	9.79	4.5
	Standard Deviation	3.86	2.93	3.3	0.71
BJS 1	Mean	40.71	45.73	45.21	54.50
	Standard Deviation	6.45	5.69	7.52	6.36
BJS 2	Mean	55.93	54.65	55.45	44.00
	Standard Deviation	14.57	15.18	14.61	2.83
BJS 3	Mean	21.21	18.51	17.93	9.00
	Standard Deviation	6.17	4.27	4.61	.00
BJS 4	Mean	3.79	3.35	3.24	2.00
	Standard Deviation	1.19	1.18	1.48	.00



*Figure 2: Boxplot of the BSJ 1 across the age groups (bold  $r$  values that exceed  $1.5 \cdot IQR$ )*



*Figure 3: Mean response of the scale BJS 3 across the age groups (95% Confidence intervals of the mean)*



**Figure 4: Mean response of the scale BJS 4 across the age groups (95% Confidence intervals of the mean)**

Furthermore, the perceived stress as measured by the PSS questionnaire is associated with the questions regarding physical activity of the participants and the results are in Table 7. Using Kendall's tau-b correlation coefficient, it has been observed that higher perceived stress negatively affects the feeling of energy ( $\tau_b = 0.319$ ,  $p < 0.05$ ) and feeling lively ( $\tau_b = 0.295$ ,  $p < 0.05$ ).

**Table 7**

*Correlation between PSS score and physical activity*

	I have been very active	I have been full of energy	I have been lively
PSS Score	.048	<b>.319*</b>	<b>.295*</b>

\*Kendall's tau-b correlation coefficient ( $p < 0.05$ )

Table 8 shows Kendall's correlation between PSS score and the questions about satisfaction with their work and family life. It has been shown that increased stress negatively affects both

the satisfaction from work ( $\tau_b = 0.562$ ,  $p < 0.05$ ) and satisfaction with family life ( $\tau_b = 0.407$ ,  $p < 0.05$ ).

Table 9 shows the correlation between PSS and the questions about communication with their superiors, co-workers and family. The results showed that increased stress is associated with less free talk with all the three groups, a lower sense of trust to the others and also the belief that the others will not listen to you when you ask for advice on personal matters ( $\tau_b > 0.2$  in all cases,  $p < 0.05$ )

**Table 8**

*Correlation between perceived stress and satisfaction*

	I am satisfied with my job	I am satisfied with my family life
PSS Score	<b>.562*</b>	<b>.407*</b>

\*Kendall's tau-b correlation coefficient ( $p < 0.05$ )

**Table 9**

*Correlation between perceived stress and communication*

		PSS Score
How freely can you talk with the following people?	Superiors	<b>.316*</b>
	Co-workers	<b>.221*</b>
	Spouse, family, friends, etc.	<b>.231*</b>
How reliable are the following people when you are troubled?	Superiors	<b>.277*</b>
	Co-workers	<b>.257*</b>
	Spouse, family, friends, etc.	<b>.247*</b>
	Superiors	<b>.307*</b>
	Co-workers	<b>.218*</b>

---

How well will the following people Spouse, family, friends, etc. .246\*

listen to you when you ask for

advice on personal matters?

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\*Kendall's tau-b correlation coefficient ( $p < 0.05$ )

## 4.2 Summary of Findings

The aim of this thesis was to investigate the main cause of stress within IT industry in Ireland and explore the effects of the perceived stress in the personal and working life of employees. From what has been studied by previous researchers, there exists excessive perceived stress, which negatively affects the physical and mental health, the co-existence with other workers and family members and the overall satisfaction of the person, concerning his personal life and workplace. Some authors suggested that the main cause of stress is that the IT industry is continuously evolving and demands more skills, something that makes the work challenging and workers feel like they cannot cope up with. This fact, along with the prolonged working hours and the high workload, often exceed the stress limits of the employees. For this thesis, two widely known instruments have been used, the Perceived Stress Scale and the Brief Job Questionnaire. These instruments contain specific questions, in order to quantify the magnitude of the stress perceived and also to measure the physical and mental well-being of the respondents. The results provided evidence that the employees frequently felt stressed and nervous, as they had a large amount of work to do, which required increased concentration and high levels of knowledge. Also, most of the respondents admitted that they did not have enough physical activity and also commonly experienced some negative physical symptoms - dizziness and tiredness and psychological symptoms – irritability, lack of concentration and angeriness. A minority of the respondents experienced some severe symptoms, such as backpain, shortness

of breath and stomach pain. Most of the respondents did not prefer to share their feelings and problems with their superiors and co-workers and instead preferred their closet persons, friends and families. Furthermore, the analysis showed that younger employees have more trouble to adapt working in the IT industry, as they experienced more difficulties, regarding the volume of work and cooperation with their co-workers and superiors and they were less satisfied with their work and personal lives. Correlation analysis between the perceived stress and the feelings about the work revealed that higher levels of stress were highly associated with a decreased physical and mental well-being, decreased satisfaction with the workplace and personal life and trust and communication issues with co-workers and superiors. These associations were valid, regardless of the sociodemographic characteristics of the respondents, such as the gender, the age and the working experience. This study confirmed the previous results and suggested that, indeed, excessive stress in the workplace negatively affects all aspects of work and family lives. Companies within the IT industry should take proper actions, in order to ensure that the employees are motivated and perform well without exceeding certain stress limits, which could negatively affect their lives. However, as the data size was limited, the results did not provide evidence that the gender and working experience affected the perceived stress or well-being of the respondents, in contrast with previous studies. Further investigation shall be performed, in order to measure the association between certain demographic characteristics and the stress perceived and also contrast those characteristics to the physical and mental well-being.

## **Chapter 5 “Discussion”**

This research looked into the stress that was caused by work and how it affected people in a negative manner different parts of employee's lives, including mental and physical well-being, their health, relationships with their families. Some studies done previously indicate that there is a negative link between stress perceived at work that exceeds person's capabilities to cope and life quality. (Colligan, Higgins and Box, 2005). However, negative phenomena vary across the various sectors and industries. The main aim of this study was to look into this relationship within the IT industry, as it has been noticed that IT workers' careers can be noticeably more demanding in nature, due to the fact that they are often working long hours and have to meet tight deadlines for project completion (Nawe, 1995). Moreover, as the IT industry is constantly growing and new technologies are being implemented all the time, people who choose this career have to constantly learn new techniques and improve their skills and knowledge in order to meet rapidly changing demands. This constant demand for change and adaptability makes the employee more attached to the job, as he thinks about the problems and processes related to the job a lot of time throughout the day and that it might be hard to forget all the problems and focus only on time spent with the family and friends once shift is finished (Hsieh, Huang & Su, 2004). Even more, stress is also known to have a negative impact on the health state of the employees, as previous studies suggest (Babazono et al., 2005).

In this study, an opportunistic sample was gathered, which consisted of total 94 people, both male and female IT workers who are currently working in Ireland. Participants were split into 4 subgroups regarding their age and 3 subgroups, regarding their experience working within IT industry. In order to explore perceived stress within IT industry and, possible symptoms and health conditions that people may encounter, two recognised instruments were used, the Perceived Stress Scale (PSS) and the Brief Job Stress (BJS) Questionnaire. The Perceived Stress Scale is a short (10-items), but widely known for its effectiveness psychological

instrument that measures and looks into the general stress and perception that individual perceives. Other questionnaire used- The Brief Job Stress questionnaire is a more detailed (57-items) instrument that is created to measure only the stress which is coming from work,, the health and emotional symptoms that are felt, satisfaction with the job and relationships with family, colleagues and supervisors.

Both questionnaires showed a significant correlation. More specifically, scales showed that the higher the stress perceived (PSS)- the more likely people are to feel not satisfied, have health issues related to stress and have worse relationships with co-workers, superiors, family and friends. The highest link was noticed between perceived stress and employee's health status. This was also confirmed by an earlier study (Cohen & Williamson, 1988), which indicated that higher PSS scores were associated with more flus and colds, inability to control blood sugar levels among diabetics to and various symptoms related to depression. Furthermore, the scales that construct the BJSQ were significantly inter-correlated among them, with the idea that the more challenging the jobs was, the less satisfaction employee had. It was also linked with worse communication with support groups, and various negative health issues that were present.

In comparison with other previous studies, which have indicated that the perceived stress is different between males and female (Ganster and Schaubroeck, 1991), results in this study have shown that gender and working experience of the employee did not have any influence on challenges perceived at work, such as big demands and volume, high needs of certain skills. On the other hand, this study has shown that people under 25 years old tend to experience more problems and challenges related to their jobs. This might be due to the fact that an employee that is this young needs more time to adapt in the new environment and might find it difficult to adapt his skills, especially if there is lack of experience. Similar findings were presented by a previous study by Melchior et al., (2007) which suggested that younger workers have an

increased chance to develop depression. What is more, it has been observed by previous studies that younger workers have reported to have lower levels of trust in their co-workers and superiors and also to be less happy and satisfied with their jobs. Result from our study agrees with previous studies which have also indicated, that people who are over certain age are more used and adapted to their works and due to this fact, they feel lower levels of stress (Ahmad et al., 2015). Companies should take measures to give a proper training to new employees and more time for young people to adapt to their new jobs and environment allowing them a smooth transition.

In line with the results from previous researches (Melchior et al., 2007), results from this study have indicated that finding the work to be too demanding, feeling constantly stressed and nervous, also feeling that employee is unable to cope was the most frequent negative feelings individuals experience. Furthermore, the participants reflected a lot of concentration and high levels of specific IT knowledge were necessary to perform their duties in line with an extremely large volume of work to complete. As previously mentioned, this can be explained by the fact that IT industry is constantly evolving, and the wide range of technology knowledge is necessary in order to achieve satisfactory performance. What is more, a lot of respondents felt like they had to think about their work constantly throughout the day. However, even though study revealed that employees were having difficulties while performing their duties, most of them also found their work environments to be friendly. They also felt that their job was something that was worth doing.

This study also revealed that age group, work experience and gender, didn't have a difference in experiencing various health issues. Previous studies have suggested that women are more prone to certain psychological diseases after perceiving excessive stress (Li et al., 2014). The most common negative effects that employees experienced on their health were feeling dizzy, tired and tense. Most of the respondents also reported lack of physical activity and feeling like

not having enough energy. Most of the participants in the study reported that they experience at least some of the psychological issues, including feeling irritated, being unable to stay concentrated as well as feeling angry. Rarer, physiological problems that were present, but scored lower included back pain, joint pains, shortness of breath and stomach pain. Significant relationship was also found when comparing health symptoms with the stress perceived. It was observed that the higher rates of perceived stress is linked with higher rates of experienced health symptoms and lower levels of energy.

When observing the relationship between employees and their superiors it was noticed that worker think that their superiors are not reliable enough to help them solve their problems in both personal and work life. Lack of freedom to talk with their superiors was also reported. Also, it was observed that perceived stress plays an important role in the relationship between superiors and colleagues. Lower levels of perceived stress were also linked to employees feeling like they could speak more freely with both their colleagues and superiors. Lack of trust and communication issues between the worker and the superior can lead to various issues within the organisation that might have bad consequences. However, even relationship with superiors were not reported the best, most of the respondents suggested that, in comparison, their relationship with colleagues are more positive. This may explain the fact that most of respondents reported that their work has a friendly environment. Finally, the participants showed their preference to communicate their problems to their families and friends, as they tend to have a better trust in them. Individuals may prefer speaking about their issues with the closest people, due to the fear of being misunderstood and due to the fear to be seen as weak. Lack of communication and mutual trust among the people who are involved in the same project or task might result in less satisfaction for each individual and reduced overall quality of work.

Regarding the relationship between stress and satisfaction from work, studies have shown that there is a negative correlation between stress, job satisfaction and life satisfaction (Hombrados-Mendieta & Cosano-Rivas, 2013). Looking closer to family satisfaction, Randall and Bodenmann (2009), investigated the association between stress and marital satisfaction and showed that excessive stress was a threat to marital satisfaction. This study confirms previous studies, as it has been found that satisfaction with both work and personal life was highly linked and affected negatively by the stress perceived, regardless of the sociodemographic influences. Also, it was found that excessive stress affected more the satisfaction of the workplace, compared to satisfaction of the individual's life.

### **Implications**

The current study aimed to look in to the perceptions of stress perceived and some negative effects and associations linked with it by employees within IT industry in Ireland.. The quality of the final product, that each company provides, is a combination of the efforts of all of its employees. Therefore, it seems reasonable to believe that the organizational success depends on the performance and quality of work of all of its workers. This fact, in other words could be expresses as if a portion of the employees experience some difficult issues, then the final product will be affected negatively as well. The results of our study revealed that the tendency for employees to feel stressed is present and it might have negative influence on employee's both personal and work life. However, as the negative life's condition of the worker directly reduces his work performance, it is advisable for companies to diminish those factors that let the employees to be less successful and productive. Establishing good relationships and free communication with all the co-workers, conduct specific programs to reduce stress and dividing the workload into more manageable portions are some ideas that could reduce the perceived stress. Ensuring that each employee feels satisfied and valued should become a great priority for companies who are looking to improve their productivity. They should also look

into eliminating all possible stressors that could cause negative influences at both individual and organisational level

### **Strengths**

In the current study, we explored how stress affects the employees working in IT industry in Ireland. As of the present moment, no other studies have explored this relationship in the region of Ireland. Given this fact, our results could be generalized for Ireland and validly represent the effects of perceived stress in Ireland, as this effect could be different compared to other researches from other countries. Furthermore, the data obtained were based on two widely known and reliable instruments (PSS and BJSQ), which could precisely evaluate all the factors meaningful for the analysis.

### **Limitations**

On the other hand, as the IT industry is dynamic and constantly changing, a more detailed research should be conducted in order to understand better the situation in specific sections of the IT industry. Qualitative study would help to look deeper into reasons of perceived stress and other factors that quantitative study cannot measure. Also, as the sample size in this study was limited (N = 94), the results should be processed with extreme caution in order to prevent any faults. Due to the lack of available data (only 2 participants above 50 years old were reported) and the limited amount of sociodemographic questions, it would be worth to conduct the study looking into more different aspects of stress within people that have certain sociodemographic characteristics. Suggestion would be in the next study gather a broader sample of people and compare them in more sociodemographic characteristics, such as ethnicity, working skills, educational level, marital status, salary. It would allow to specifically analyse different groups within the target population. Larger sample is recommended due to the fact that it would be able to provide a better insight regarding working condition within IT

industry and it would help to develop proper suggestions on how to eliminate possible negative effects.

## **Chapter 6 “Conclusions”**

### **6.1 Conclusion**

The purpose of this study was to explore and look into the work-related stress within IT industry in Ireland, main causes of it, relationship with sociodemographic influences, identify relationship between work-related stress and mental wellbeing of IT workers. Literature review conducted was in line with the results received, also most of the results. As IT industry in Ireland is booming, this research is very important as currently there is lack of information about the stress experienced by workers within IT industry. Workplace that have good rates of communication, also possess good relationship among managers and employees can help employees to recognize and manage the stress that is present; companies with such values are more likely to achieve the harmony between achieving organizational goals and maintaining happy and well-performing workforce (HSE, 2012). It is impossible to eliminate work related stress completely; however, it is important to make sure that stress levels at the workplace are maintained at a healthy level. As stress is dynamic process, some periods can be more stressful compared to others, so it is nearly impossible for both employers and employees provide stress free environment. Ensuring that stress coping strategy is in place and working can have a positive impact not only for individuals well-being, but it also can contribute to overall company productivity, turnover rates and overall success. It is vital for organizations to adapt this perception in order to stay successful in a highly competitive business market. Further research is necessary to conduct in order to broaden the knowledge of main causes and consequences of work-related stress among software professionals in Ireland.

## **6.2 Recommendation for Employers**

As reducing stress in the workplace should be a priority for organizations who are looking to achieve their goals in the most efficient manner it is important to establish a coping strategy that would help employees deal with stress that occurs in the workplace. Ideally, before developing a strategy, companies should do a survey within the company to identify key problem areas that causes most stress to the employees. After that measures can be taken to reduce or eliminate completely these stressors.

Since one of the main stressors identified was workload, employers within IT company should make sure that distribution of tasks and amount of work employees are given are adequate and doable. Reducing workload when employees feel stressed can help maintain healthy environment and happy employees within the company. Hiring new people to reduce employee's workload can be very sufficient, however costly. Recruitment, training costs, salary- it all requires a big budget and usually it is usually what employers should consider in a long run. Another solution would be job redesign, take away duties that are over the capacity of the employee and give it to another one who is less busy. This solution is faster and less costly.

Also, as this study revealed that employees don't feel like they can communicate freely with superiors- improving relationships within organisation should be a priority as well, so team building activities, open door policy can be a key to developing good workplace relationships. Organising team building activities or some other initiatives, such as sharing positive events in weekly meetings can help develop good working relationships not only among colleagues, but also between employees and their managers.

Cost is one of the main problems that have to be thought through. How much company is willing to spend to reduce stress in the workplace? Is it a one-time expense or ongoing one? Identifying amount of money that employer is willing to spend can allow to make right decision and prioritise measures that will be taken. If budget is small, employers might have to give away the idea of expensive ongoing psychologist services and instead bring a consultant once in a certain timeframe (e.g. month) that will talk with employees and help them with what they are going through.

### **6.3 Implications of Findings**

Taken all of the above into consideration, suggestion would be to bring external psychologist once a week in order to help employees deal with their stress, cost of that would be around 300€/week. Another remedy suggested for employers is weekly yoga classes for employees who want to clear their minds. That would also cost around 300€ a week, given the thought that company has its own space to run classes. If not, that could increase the cost another 200€. This simple plan would cost company around 600€-800€. Job redesign, in order to reduce workload, would be free of charge, unless people had to do paid overtime, in that case it all depends on employees pay rate. Another thing that should be implemented is team building activities which would allow improving relationships not only among co-workers, but also with superiors. Price on team building activities can vary highly, depending on how much company is willing to invest and how many people there are in the team.

Therefore, timeframe should also be taken into consideration, these remedies can be implemented very quickly, 2-4 weeks' time, so it can work as a fast solution for the problem.

### **6.3 Personal Learning Statement**

Throughout the whole course and this dissertation, I have learned a lot about HR from different perspectives. All the modules were beneficial and interesting. I developed critical thinking and ability to see thing from many different angles. Writing up a dissertation was a big

challenge for me as I have never used SPSS for any other projects. I was always interested in stress at the workplace and employee well-being so to choose area wasn't a hard choice to make. When choosing industry, I was looking into stress within other sectors, however I found relatively small amount of information about stress within IT industry so decided to investigate it. Choice was easy also due to the fact that in my friends' circle there was a lot of people working in the IT, meaning that I have access to broad sample. Due dissertation's complexed nature it was a bit confusing to identify key areas that needs to be researched and discussed without losing focus. When conducting quantity survey, I found Google Forms tool to be very efficient and easy to use. If I was to write dissertation again, next time I would try to manage my time better, leave enough time before the deadline to tidy everything up as it was challenging to do without realising how time consuming this part will be. Otherwise I am very thankful for this experience, I feel like I learned a lot, now I can't wait to use my current knowledge in practice. This was a very big step forward for building my career in HR.

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# Appendixes

## Appendix 1

### Questionnaire

#### Demographic Questions

What is your gender? \*

- Male
- Female

What is your age? \*

- <25
- 25-34
- 35-50
- >50

How many years of work experience you have within the sector?  
\*

- <3
- 4-7
- >8

Please answer the following questions concerning your job by circling the number that best fits your situation.

	Very much so	Moderately so	Somewhat	Not at all
I have an extremely large amount of work to do	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I can't complete work in the required time	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I have to work as hard as I can	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I have to pay very careful attention	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
My job is difficult in that it requires a high level of knowledge and technical skill	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I need to be constantly thinking about work throughout the working day	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
My job requires a lot of physical work	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I can work at my own pace	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I can choose how and in what order to do my work	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I can reflect my opinions on workplace policy	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
My knowledge and skills are rarely used at work	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
There are differences of opinion within my department	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
My department does not get along well with other departments	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
The atmosphere in my workplace is friendly	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
My working environment is poor (e.g. noise, lighting, temperature, ventilation)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
This job suits me well	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
My job is worth doing	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Please answer the following questions concerning your health during the past month by circling the number that best fits your situation.

	Almost never	Sometimes	Often	Almost always
I have been very active	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I have been full of energy	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I have been lively	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I have felt angry	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I have been inwardly annoyed or aggravated	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I have felt irritable	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I have felt extremely tired	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I have felt exhausted	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I have felt weary or listless	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I have felt tense	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I have felt worried or insecure	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I have felt restless	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I have been depressed	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I have thought that doing anything was a hassle	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I have been unable to concentrate	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I have felt gloomy	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I have been unable to handle work	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I have felt sad	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I have felt dizzy	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

I have experienced joint pains	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I have experienced headaches	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I have had a stiff neck and / or shoulders	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I have had lower back pain	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I have had eyestrain	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I have experienced heart palpitations or shortness of breath	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I have experienced stomach and / or intestine problems	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I have lost my appetite	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I have experienced diarrhea and / or constipation	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I haven't been able to sleep well	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

How freely can you talk with the following people?

	Extremely	Very much	Somewhat	Not at all
Superiors	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Co-workers	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Spouse, family, friends, etc.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

How reliable are the following people when you are troubled?

	Extremely	Very much	Somewhat	Not at all
Superiors	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Co-workers	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Spouse, family, friends, etc.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

How well will the following people listen to you when you ask for advice on personal matters?

	Extremely	Very much	Somewhat	Not at all
Superiors	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Co-workers	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Spouse, family, friends, etc.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Please answer the following questions concerning satisfaction by circling the number that best fits your situation. \*

	Satisfied	Somewhat satisfied	Somewhat dissatisfied	Dissatisfied
I am satisfied with my job	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I am satisfied with my family life	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

The questions in this scale ask you about your feelings and thoughts during the last month. In each case, you will be asked to indicate by choosing how often you felt or thought a certain way. \*

Never      Almost never      Sometimes      Fairly often      Very often

In the last month, how often have you been upset because of something that happened unexpectedly?	<input type="radio"/>				
In the last month, how often have you felt that you were unable to control the important things in your life?	<input type="radio"/>				
In the last month, how often have you felt nervous and "stressed"?	<input type="radio"/>				
In the last month, how often have you felt confident about your ability to handle your personal problems?	<input type="radio"/>				
In the last month, how often have you felt that things were going your way?	<input type="radio"/>				
In the last month, how often have you found that you could not cope with all the things that you had to do?	<input type="radio"/>				
In the last month, how often have you been able to control irritations in your life?	<input type="radio"/>				

In the last month, how often have you felt that you were on top of things?	<input type="radio"/>				
In the last month, how often have you been angered because of things that were outside of your control?	<input type="radio"/>				
In the last month, how often have you felt difficulties were piling up so high that you could not overcome them?	<input type="radio"/>				

## Appendix 2

### Briefing

# **WORK-RELATED STRESS AMONG PROFESSIONALS WORKING WITHIN IT SECTOR IN IRELAND: CAUSES AND CONSEQUENCES**

My name is Gerda Starolyte and I am a Human Resources Management student in the National College of Ireland (NCI). As part of my master's dissertation project, I am inviting you to participate in this study if you are a professional working within the IT industry.

The purpose of this study is to investigate the stress experienced by IT professionals, also to identify possible causes and consequences.

You will be required to complete several multiple-choice questions. It will take approximately 10-12 minutes to complete. Participation in the study is voluntary. You are free to withdraw at any time by leaving the questionnaire before submitting the answers.

The information obtained in this study will be anonymous and your identity will be completely anonymous.

If you have any further questions about my research please contact me on [18110754@student.ncirl.ie](mailto:18110754@student.ncirl.ie) or my supervisor, Matthew Hudson, at [matthew.hudson@ncirl.ie](mailto:matthew.hudson@ncirl.ie).

Thank you in advance!

### Debriefing

Thank you for taking the time to complete this survey.

The aim of this study is to investigate occupational stress within IT industry and bring awareness to this issue in order to help employees get less stress. As mentioned before, survey is completely anonymous and data won't be used to any other purpose but this research. Once you click submit you will no longer be able to withdraw your answers. If you do not wish to submit your answers you can close your browser window now.

If you have any questions after you have submitted your answers, you can contact me, Gerda Starolyte at [x18110754@student.ncirl.ie](mailto:x18110754@student.ncirl.ie) or my supervisor, Matthew Hudson, at [matthew.hudson@ncirl.ie](mailto:matthew.hudson@ncirl.ie).

Thank you for your time, it is much appreciated!

## Appendix 3

**Table 1**

*Cronbach's coefficient for the Different Questionnaire Scales*

Scale	Cronbach's Alpha	Number of questions
Perceived Stress Scale	.896	10
Brief Job Questionnaire 1-17	.809	17
Brief Job Questionnaire 18-46	.929	29
Brief Job Questionnaire 47-55	.859	9
Brief Job Questionnaire 56-57	.766	2

**Table 2**

*Response Frequencies of Questions 1,2,3,6,9 and 10 of PSS Questionnaire*

	Never	Almost never	Sometimes	Fairly often	Very often
how often have you been upset because of something that happened unexpectedly?	8 8.5%	30 31.9%	40 42.6%	12 12.8%	4 4.3%
how often have you felt that you were unable to control the important things in your life?	15 16.0%	39 41.5%	27 28.7%	10 10.6%	3 3.2%
how often have you felt nervous and "stressed"?	9 9.6%	20 21.3%	34 36.2%	20 21.3%	11 11.7%
how often have you found that you could not cope with all the things that you had to do?	20 21.3%	24 25.5%	32 34.0%	16 17.0%	2 2.1%
how often have you been angered because of things that were outside of your control?	18 19.1%	30 31.9%	33 35.1%	11 11.7%	2 2.1%
how often have you felt difficulties were piling up so high that you could not overcome them?	31 33.0%	25 26.6%	21 22.3%	12 12.8%	5 5.3%

**Table 3***Response Frequencies of Questions 4,5,7 and 8 of PSS Questionnaire*

	Very often	Fairly often	Sometimes	Almost never	Never
how often have you felt confident about your ability to handle your personal problems?	16 17.0%	36 38.3%	29 30.9%	8 8.5%	5 5.3%
how often have you felt that things were going your way?	14 14.9%	35 37.2%	28 29.8%	14 14.9%	3 3.2%
how often have you been able to control irritations in your life?	15 16.0%	29 30.9%	35 37.2%	12 12.8%	3 3.2%
how often have you felt that you were on top of things?	12 12.8%	36 38.3%	29 30.9%	14 14.9%	3 3.2%

**Table 4***Response Frequencies of Questions about Job (1-17) of the BJS Questionnaire*

	Very much so		Moderately so		Somewhat		Not at all	
I have an extremely large amount of work to do	25	26.6%	53	56.4%	10	10.6%	6	6.4%
I can't complete work in the required time	14	15.1%	22	23.7%	41	44.1%	16	17.2%
I have to work as hard as I can	24	25.5%	39	41.5%	24	25.5%	7	7.4%
I have to pay very careful attention	31	33.0%	56	59.6%	5	5.3%	2	2.1%
My job is difficult in that it requires a high level of knowledge and technical skill	37	39.4%	41	43.6%	16	17%	0	0%
I need to be constantly thinking about work throughout the working day	32	34.0%	40	42.6%	20	21.3%	2	2.1%
My job requires a lot of physical work	3	3.2%	1	1.1%	16	17.0%	74	78.7%
I can work at my own pace	10	10.6%	37	39.4%	39	41.5%	8	8.5%
I can choose how and in what order to do my work	11	11.7%	46	48.9%	28	29.8%	9	9.6%
I can reflect my opinions on workplace policy	11	11.7%	39	41.5%	40	42.6%	4	4.3%
My knowledge and skills are rarely used at work	7	7.4%	16	17.0%	35	37.2%	36	38.3%
There are differences of opinion within my department	11	12.1%	29	31.9%	44	48.4%	7	7.7%
My department does not get along well with other departments	4	4.3%	12	12.9%	44	47.3%	33	35.5%
The atmosphere in my workplace is friendly	38	40.4%	47	50.0%	8	8.5%	1	1.1%

My working environment is poor (e.g. noise, lighting, temperature, ventilation)	8	8.5%	10	10.6%	31	33.0%	45	47.9%
This job suits me well	29	30.9%	45	47.9%	17	18.1%	3	3.2%
My job is worth doing	34	36.2%	48	51.1%	8	8.5%	4	4.3%

**Table 5**

*Response Frequencies of Questions about Job (18-20) of the BJS Questionnaire*

	Almost always		Often		Sometimes		Almost never	
I have been very active	11	11.7%	30	31.9%	42	44.7%	11	11.7%
I have been full of energy	4	4.3%	27	28.7%	49	52.1%	14	14.9%
I have been lively	4	4.3%	32	34.4%	43	46.2%	14	15.1%

**Table 6**

*Response Frequencies of Questions about Job (21-46) of the BJS Questionnaire*

	Almost never		Sometimes		Often		Almost always	
I have felt angry	22	23.4%	51	54.3%	16	17.0%	5	5.3%
I have been inwardly annoyed or aggravated	22	23.4%	46	48.9%	19	20.2%	7	7.4%
I have felt irritable	22	23.4%	46	48.9%	20	21.3%	6	6.4%
I have felt extremely tired	22	23.4%	42	44.7%	19	20.2%	11	11.7%
I have felt exhausted	27	28.7%	37	39.4%	20	21.3%	10	10.6%
I have felt weary or listless	37	39.4%	33	35.1%	18	19.1%	6	6.4%
I have felt tense	19	20.2%	34	36.2%	37	39.4%	4	4.3%
I have felt worried or insecure	39	41.5%	32	34.0%	16	17.0%	7	7.4%
I have felt restless	42	45.2%	35	37.6%	10	10.8%	6	6.5%
I have been depressed	55	59.1%	25	26.9%	12	12.9%	1	1.1%
I have thought that doing anything was a hassle	44	46.8%	35	37.2%	14	14.9%	1	1.1%
I have been unable to concentrate	22	23.4%	48	51.1%	20	21.3%	4	4.3%
I have felt gloomy	27	28.7%	45	47.9%	20	21.3%	2	2.1%
I have been unable to handle work	47	50.0%	34	36.2%	10	10.6%	3	3.2%
I have felt sad	33	35.1%	42	44.7%	17	18.1%	2	2.1%
I have experienced joint pains	62	66.0%	21	22.3%	8	8.5%	3	3.2%
I have experienced headaches	34	36.2%	37	39.4%	21	22.3%	2	2.1%
I have had a stiff neck and / or shoulders	38	40.9%	29	31.2%	22	23.7%	4	4.3%
I have had lower back pain	46	48.9%	24	25.5%	20	21.3%	4	4.3%
I have had eyestrain	28	29.8%	42	44.7%	22	23.4%	2	2.1%
I have experienced heart palpitations or shortness of breath	72	76.6%	17	18.1%	4	4.3%	1	1.1%

I have experienced stomach and / or intestine problems	67	71.3%	21	22.3%	4	4.3%	2	2.1%
I have lost my appetite	64	68.1%	22	23.4%	6	6.4%	2	2.1%
I have experienced diarrhea and / or constipation	68	73.1%	19	20.4%	5	5.4%	1	1.1%
I haven't been able to sleep well	25	26.6%	42	44.7%	23	24.5%	4	4.3%

**Table 7**

*Response Frequencies of Questions about Job (47-55) of the BJS Questionnaire*

	Extremely		Very much		Somewhat		Not at all	
Superiors	12	12.8%	38	40.4%	34	36.2%	10	10.6%
Co-workers	28	29.8%	45	47.9%	20	21.3%	1	1.1%
Spouse, family, friends	57	60.6%	32	34.0%	4	4.3%	1	1.1%
Superiors <sup>2</sup>	12	12.8%	33	35.1%	36	38.3%	13	13.8%
Co-workers <sup>2</sup>	17	18.1%	47	50.0%	27	28.7%	3	3.2%
Spouse, family, friends <sup>2</sup>	59	62.8%	31	33.0%	2	2.1%	2	2.1%
Superiors <sup>3</sup>	13	13.8%	25	26.6%	40	42.6%	16	17.0%
Co-workers <sup>3</sup>	17	18.1%	43	45.7%	29	30.9%	5	5.3%
Spouse, families, friends <sup>3</sup>	57	62.6%	34	37.4%	0	0%	0	0%

**Table 8**

*Response Frequencies of Questions about Job (56-57) of the BJS Questionnaire*

	Satisfied		Somewhat satisfied		Somewhat dissatisfied		Dissatisfied	
I am satisfied with my job	34	36.2%	42	44.7%	15	16.0%	3	3.2%
I am satisfied with my family life	53	56.4%	37	39.4%	3	3.2%	1	1.1%