



**Job satisfaction of forced remote workers during the Covid-
19 pandemic in relation to their working environment.**

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Abstract

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Remote work has been of interest to researchers for many decades. However, most studies were conducted solely on voluntarily remote working. The main aim of this research is to investigate which aspects of the working environment have an effect on job satisfaction of workers forced to work remotely. This study proposes multiple factors which could influence employees' job satisfaction. A quantitative approach in the form of an online, 42 item questionnaire has been chosen to achieve the objectives of this study. 630 respondents across 25 countries participated in the survey. Respondents had to have been forced to work from home during the Covid-19 pandemic and have a minimum age of 18. They were asked basic questions about their living arrangements, home office setup and time and cost management. Overall, employees are less satisfied with their jobs after undertaking remote work during the pandemic, with families being less affected than single households. Furthermore, setting up a barrier in the workspace to promote a healthy work-life balance is necessary and has a positive effect on job satisfaction. Similar to regular remote working, saving time and reducing costs is advantageous for their situation. The findings also show that there is a strong correlation between job and life satisfaction. Since the pandemic not only altered their job situation but also dramatically changed their life, it is important to note that personal aspects have to be taken into consideration for future research when trying to measure the job satisfaction levels of employees.

Declaration

Submission of Thesis and Dissertation

National College of Ireland

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Chapter I: Introduction

1.1. Introduction

Due to advancements in technology, openness towards remote work has increased significantly over the past few years. In 2019, 60% of organisations in Ireland were offering this option to their employees (CIPD, 2019). Under normal circumstances, remote work can have positive impacts on both employers, which are saving costs, and employees, who can improve their work-life balance (Wheatley, 2012). However, the Covid-19 pandemic forced companies to quickly move their staff within days into full telecommuting (Gómez et al., 2020). While there has been plenty of research done on voluntary remote work, the current pandemic has created a new situation. Therefore it is of high importance to find out whether the forced environmental changes in the workplace impact job satisfaction differently.

It is important to realise that there is a gap in most of the studies conducted in the area of remote working because these are focused on employees, who moved to this work environment voluntarily. Also, both company and personnel had preparation time to do so, which is a key requirement, since being mentally ready is of high importance too (Eckhardt et al., 2019). Prior to the change, or before they were hired, they had the opportunity to consider their home environment, all of the advantages and disadvantages this decision would bring as well as the ability to set up a proper home office. Employees who were forced to work from home could not decide whether they would like to telecommute. They had to stick to the policies and move, despite their home environment, which meant that some of them had unsuitable conditions, such as small kids or other family members in the house, no designated workplace or other aspects which could influence their ability to work remotely.

One important aspect for employees is job satisfaction, which reveals how pleased they are with their work (Bloom et al., 2015). Research has shown that contentment heavily influences labour productivity, and in turn, a company's performance and overall profits (Eberegbe and Giovanis, 2020). Job satisfaction is closely related to many factors, i.a. salary, motivation, leadership, communication, organisational commitment and working environment (Lane et al., 2010; Raziq and Maulabakhsh, 2015). Most branches were facing difficult decisions during the pandemic, for

instance whether to close their factories or risk the health of their staff, causing change in most of these factors, impacting their happiness.

Researches in the past have shown unified results when it comes to remote work and job satisfaction, especially for high skilled workers – some were indecisive (Monteiro et al., 2019), some positive (Bloom et al., 2015; Guimaraes and Dallow, 1999) and some negative (Cooper and Kurland, 2002). The aim of this research is to analyse how the home working environment impacts the job satisfaction of forced remote workers. To investigate this connection, the research uses a cross-sectional research – quantitative methodology, specifically an online questionnaire.

This paper firstly presents key points in the literature review – briefly discussing the history of remote work, its connection to job satisfaction, life satisfaction during the Covid-19 pandemic and lastly, the environmental effects on remote work. Afterwards, it focuses on the research question and hypothesis formation, followed by a detailed research methodology approach. Next, the analysis of the data and its results are presented. The paper is finished with a discussion of the proposed hypotheses, conclusion of the study and its limitations, and proposals for future research areas.

1.2. Structure of the study

The outline of this study has been chosen in a way so the reader is able to go through all stages of this research. It is divided into seven chapters as follows:

Chapter 1 – Introduction

A brief overview and background of the research topic highlighting the importance of the study and gap in the research.

Chapter 2 - Literature Review

The literature review provides a summary of the most significant theories about the main topics of this paper, which have been previously discussed and presented by other researchers.

Chapter 3- Research Question & Hypotheses

The highlight of the main research question and aim of the study along with the six developed hypotheses examined in this research.

Chapter 4 - Research Methodology

Underlining of the methodology used to answer the research question and approach to test the hypothesis. In addition, an overview of the sample population, research instrument and data collection procedure.

Chapter 5 – Analysis and Results

Detailed presentation of results on the collected data as well as statistical testing of the formulated hypotheses.

Chapter 6 - Discussion

Discussion and evaluation of the proposed hypotheses in accordance with the previous studies in the same area. It is followed by outlining the limitations and practical considerations of this research.

Chapter 7 – Conclusion and recommendation

Offers a brief summary of this study, including a conclusion on the research question. It also contains proposals for the future research.

Chapter II: Literature review

2.1. Introduction

The literature review gives the reader an overview of the current state and opinions on the topic. It lists numerous published studies and journal articles in the scientific fields that are significant and essential for this research. The structure of the literature review is presented as follows: history of remote work, remote work and job satisfaction, connection between job and life satisfaction and the environmental effects on remote work.

2.2. History of remote work

Until recently, many types of jobs were still carrying the practices of the Industrial Revolution – instead of products, employees offer their time which is connected to a specific location and task (Gajendran and Harrison, 2007). However, this is slowly changing over time especially due to the Information Revolution.

Gajendran and Harrison (2007) mention that the term ‘distributed work’ is frequently used in recent publications for employees that are allowed to carry and perform their tasks outside of the physical office. Other terms used for distributed work can be ‘telecommuting’, ‘telework’ or ‘remote work’. While these terms are used interchangeably, some authors argue that it is not the case. According to Garrett and Danziger (2007), telework is a broad practice, while Ellison (2004, p. 20) states that telecommuting is specific, because people are practicing it to reduce commuting time. Nowadays, companies mostly refer to it as ‘remote work’ or ‘working from home’.

The word ‘telecommuting’ was first used in the 1970’s by Jack Nilles who also introduced it as a new concept. In the beginning, the main drivers for this change were to decrease traffic and pollution, offer more flexibility and enable better role management to their employees (Narayanan et al., 2017). There were additional reasons why telecommuting would be of an interest for firms, mainly because they could reduce the cost of real estate (Gajendran and Harrison, 2007). Ultimately, it is seen as an equivalence for higher productivity at any level and an increase in job satisfaction for the employees as they have a better work-life balance.

After this concept was introduced, the first applications of remote work started in the 1980’s in the USA and became quite popular as both the government and private

sector supported the idea. The number of telecommuters significantly increased with each year (Narayanan et al., 2017). Leading up to 2005, 1.6% of employees in the USA were working full time from home. Continuing with this trend, in 2015 already 2.6% of working professionals reported to always be working from home (Allen et al., 2015). A similar situation can be observed in the EU, where in 2019, 5.4% were working remotely full time, with the highest rates recorded in the Netherlands and Finland (14.1%) (Popovici and Popovici, 2020). The currently highest share of remote workers are recorded in India, Indonesia and Mexico (Allen et al., 2015). An increase in remote work is also recorded for part time workers (Popovici and Popovici, 2020).

With an increasingly larger share of employees working from home, remote working has become an important topic for both employees and organisations, which is why telecommuting is a heavily studied research field across the globe. Growing numbers of people working from home would suggest that remote work has a positive effect on both employee and employer, explaining why it is becoming more and more popular. However, during the 30 years of research on this topic, these conjectures are criticised by the researchers (Gajendran and Harrison, 2007). They claim that the conclusions are inconsistent, methodologically weak and existing evidence is frequently contradictory. As a result, it is still uncertain whether remote work is beneficial or not for workers. This is why many authors and experts are focused on improving the methods and finding better instruments to measure the potential effects of remote work on employees.

2.3. Remote work and job satisfaction

2.3.1. Remote work

Remote workers face significant differences in their work environments. Office-based employees are under direct supervision, receive feedback on a regular basis and have clear expectations. For remote workers, these conditions are limited and therefore, work productivity has a higher dependency on employees' morale and self-control (Bailey and Kurland, 2002; Thatcher and Zhu, 2006).

Telecommuting might also impact the employees' feelings about the organisation – it can change their physical, psychological and social view on work. When not receiving the necessary support, employees can often feel like they do not belong to the company (Golden and Veiga, 2005). People who decide to work from home have to

consider these downsides and review their options in the beginning. They have to contemplate whether this setup is suitable for them or not. Most of the employees, who are interested in remote work, have a positive image of work connected to a higher job commitment and they are mentally ready for such a change (Palumbo, 2020). They are also more likely to increase their efficiency and engagement as well as decrease their work-fatigue (Eckhardt et al., 2019).

2.3.2. Forced remote working

Telecommuting can be mandatory or voluntary as stated in the previous section. Whereas voluntary remote workers see mostly the benefits of the situation, according to Thatcher and Zhu (2006), it is likely the opposite for the mandatory workers. They also state that it very much depends on the employee's personal situation as well as the company's support and guidance in relation to remote working.

Forced remote workers are not able to consider their options, they have to work from home even if their current situation is unsuitable. They can face an overlapping of work-and life related activities, creating conflict between these roles (Palumbo et al., 2020). Due to being less prepared for the situation, negative aspects of remote work are more intense and the benefits less applicable (Thatcher and Zhu, 2006). These aspects are further explored in the following sections.

2.3.3. Connection to job satisfaction

Locke (1976) defines job satisfaction as a pleasure coming from job experience. Employees who are satisfied with their work are likely to be very motivated, more efficient and perform well (Bloom et al., 2015). According to them, employees highlighted a couple of benefits when working remotely, such as work-life balance, increased productivity and autonomy as well as experiencing less stress. Despite those benefits, organisations are hesitant to believe whether the potential upsides are worth the effort of the challenges that come with this change. Companies have to prepare a good technological structure, incorporate organisational culture into remote work and essentially build up the trust of employees and their integration (Eckhardt et al., 2019). In contrast, negative consequences from remote work can be social isolation, career stagnation and work-family conflict (Gajendran and Harrison, 2007). Those disadvantages are further explained in section 2.5.

While there have been many studies conducted on the connection between job satisfaction and remote work, the results are not unified (Gajendran and Harrison, 2007). The results differ and depend on many factors, i.a. company size, R&D involvement, the intensity of telecommuting and the creativity, job qualification and skill of the workforce (Monteiro et al., 2019). According to them, remote working has a negative impact on the job satisfaction and productivity of low-skilled workers. They were not able to conclude whether it is positive or not for high-skilled employees. Additionally, for companies which were either small or had no R&D involved, their research found adverse effects (Monteiro et al., 2019).

On the other hand, there are many researchers who claim that remote work has a positive impact on job satisfaction (Bloom et al., 2015; Guimaraes and Dallow, 1999). Bloom et al. (2015) focused their research on one Chinese company, who allowed their employees to work remotely for four days a week. The findings were that employees' productivity increased by 13% and they were overall much more satisfied with their job. Furthermore, Cooper and Kurland (2002) found a difference between the public and private sector, with the public sector being more suitable for remote work. This is because career growth in the public sector is rather dependent on years of working than social interaction. Another factor which has a significant role in job satisfaction is frequency of remote work. While Guimaraes and Dallow (1999) state that people, whose frequency of telecommuting is higher, are more satisfied, Cooper and Kurland (2002) express the opposite.

Golden and Veiga (2005) conducted a study into the link between job satisfaction and telecommuting among 321 workers. They were looking for a connection between the intensity of work from home and the happiness of the employees. The findings were that there is an inverted u-shaped relationship, meaning that the job satisfaction of employees rises with increased intensity up to a certain point, after which workers start feeling less and less satisfied. Research conducted by Allen et al. (2015) discovered that remote work increases job satisfaction until the number of remote hours reach a maximum of 15. In general, authors believe that the inverted u-shaped relationship between telecommuting and job satisfaction is valid, as starting with a low ratio of remote work, employees enjoy the flexibility and work-life balance, but with remote work becoming more frequent, feel more isolated and lose contact with their colleagues (Golden and Veiga, 2005).

Overall, telecommuting is not equally suitable for all workers. There are many variables which have to be taken into consideration such as their preferences or personality traits. Agreeability and flexibility for instance make employees more suited for remote work. Another example would be emotional instability – neurotic individuals are more in favour of telecommuting than the average as they may feel more comfortable this way, which improves their overall mental health (Clark et al., 2012). In addition, some positions are less suitable, for example, managers should not be working from home more than a few days a week as they need to interact with their team more often (Golden, 2006).

To sum up, for voluntary remote work, some researchers found benefits to employees and their job satisfaction (Mustajab et al., 2020; Bloom et al., 2015). With the current Covid-19 pandemic however, many companies have changed to solely telecommuting. Yerkes et al. (2020) state that the number of remote working professionals in Europe rose to 37% which is a massive increase from 5-9% prior to the pandemic. This fact makes it important to understand whether being forced to work from home gives similar results or has a different outcome.

2.4. Connection between job/life satisfaction

Life satisfaction refers to one's satisfaction with their life circumstances (Eid and Diener, 2004). It is the main variable to measure a person's well-being. There are many indicators which can affect life satisfaction, one of them is work as it is a crucial component of people's life. It is commonly known that people spend most of their time at work – that said, work life and private life are connected to each other and negative emotions from the working environment can interfere with one's life satisfaction (Sarpkaya and Kirdök, 2019). According to a cross sectional study of Judge and Watanabe (1993), there is a relationship between both job-life satisfaction (impact of job on life satisfaction) and life-job satisfaction (impact of life on job satisfaction). Some researchers have also shown that it is difficult for the employees to keep a balance between work and life. This especially applies to remote workers as there is no physical barrier between job and private life (Griffis, 2017).

2.4.1. The general impact of Covid-19 on employees

The Covid-19 pandemic impacted life on a global scale. Governments had to implement policies and guidelines which involved severe restrictions for people in order to prohibit the spread of the virus. These actions still heavily affect regular daily life and as a consequence, people have to make sacrifices in their lives that can lead to moral injuries (Ivbijaro et al., 2020). The pandemic also endangers people's basic need for safety, not only for themselves, but also for their closest relations. Fear is also enhanced by the fact that a virus is invisible and therefore can feel like an omnipresent threat.

People in general have trouble following or understanding all of the policies as they are not only locally different but also changing frequently. Additionally, there are many misconceptions and misleading information is provided by media outlets (Douglas, 2021). This weakens people's trust in governmental decisions – they no longer feel supported, which can be harmful to their lives. Also, not having a structure in their daily lives can lead to undertaking bad and unhealthy habits (Burn and Mudholkar, 2020). Recent studies discovered that the life satisfaction of employees has decreased significantly (Rogowska et al., 2020; Gonzalez-Bernal et al., 2021; Trougakos et al., 2020). These papers mention in their conclusions that people feel isolated, depressed and anxious.

2.4.2. Risk of social isolation and lack of teamwork

Due to lockdowns, people often reported a feeling of loneliness, which can be problematic, especially for vulnerable individuals. People usually feel lonely when they experience isolation that is out of their control. Loneliness also affects their physical health as it is associated with many long-term diseases, such as cardiovascular disease (Ivbijaro et al., 2020). The impact on people's emotions may also change how they treat others and how others treat them. This emotional impact can also influence their professionalism - they can seem less approachable, show a lower commitment level and a reduced work performance (Ozcelik and Barsade, 2018).

In a study of 15,530 respondents in the UK, researchers discovered that 36% had a feeling of loneliness during the Covid-19 pandemic. In addition, they determined that people, who either live with a partner or have a job, are suffering less from this

feeling (Li and Wang, 2020). It is important to note that the study was conducted in April 2020, the beginning of the pandemic. According to Luchetti et al. (2020), people felt more or less the same even later in the pandemic as they found alternative socialising activities (such as over the phone).

Working from home hinders relationships between remote and office-based workers, which likely leads to a disconnection between them. Overall, the same applies for fully remote teams (Collins et al., 2016). This not only affects their relationship, but also their ability to collaborate. It is more difficult to share tasks, brainstorm or solve problems. Tasks which require collaboration and have low autonomy can especially lead to stressful environments and job dissatisfaction when they are performed remotely (Suh and Lee, 2017).

Many employees have noticed that they have no human contact with their colleagues. They cannot exchange knowledge or skills, which leads to a slower professional development (Gao and Sai, 2020). Workers reported a lower frequency of communication – it is not spontaneous anymore, instead the conversations are mostly purpose driven. For new hires it can be challenging to ask questions and get information, since the dialogue is not as easy as in the office. An exceeding amount of online meetings can lead to virtual meetings-fatigue, which negatively affects collaboration (Waizenegger et al., 2020).

2.4.3. Anxiety and depression

Closely related side effects of isolation are anxiety and depression. Suffering from them can lead to a suppression of emotions, which negatively influences an employee's psychological need for fulfilment. They engage less with their social circles and their mental health is impaired (Trougakos et al., 2020). This can impact their ability to work effectively. People who are working remotely are also more open to work overtime, which causes overlapping between work and home duties, leading to work fatigue (Palumbo, 2020).

A research conducted by Ivbijaro et al. (2020) between April and June 2020 found out that 90% of the respondents reported negative psychological consequences from the pandemic, many of them living in a fear of mental health relapse. They predominantly felt isolated due to the lack of activities with their friends, family and other social contact and 40% of respondents stated that they feel anxious. A similar study conducted by Burn and Mudholkar (2020) even gave a higher percentage – almost

every second candidate in their sample expressed a feeling of anxiety. A research published by Grossman et al. (2021), interviewing 243 people (60-92 years old) in Israel, showed the results were in line as well. On top of this, they detected a connection between isolation and insomnia. Ultimately, people who are socially isolated are more often suffering from depression, which in the worst cases can lead to suicidal thoughts (Iybijaro et al., 2020). Only a small fraction of their respondents viewed the ability to work from home as a positive condition.

All findings in this chapter indicate that the Covid-19 pandemic has a negative impact on both the life and job satisfaction of employees.

2.5. Environmental effects on remote work

In general, there are a couple of strains which can have a major impact on employees' job satisfaction, such as heavy workload, invasion of privacy and role ambiguity (Suh and Lee, 2017). As the last two are closely connected to the working environment, it can be said that the work environment is of significant importance to employees' job satisfaction (Raziq and Maulabakhsh, 2015). Due to the fast transition to a different work environment during the pandemic, the majority of people had to change their home and make it suitable for their job. Additionally, they had to learn new skills, mostly about digital expertise (Gómez et al., 2020, Eckhardt et al., 2019).

2.5.1. Family conflict

A key variable for a proper working-from-home environment is the prevention of a work-family conflict. This arises when the demands of work interfere with family needs and vice versa (Frone et al., 1992), leading to a reduction in employees' job satisfaction as they are unable to fulfil both roles (Suh and Lee 2017). If the employee however – with the help of the employer – is able to set up a clear daily schedule to separate both fields, it can have beneficial effects (Hunter et al., 2017; Gómez et al., 2020). This can be explained with employees having more flexibility to properly manage both responsibilities (Gajendran and Harrison, 2007, Felstead et al., 2002).

2.5.2. Family conflict during Covid-19

According to research compiled by Palumbo (2020), remote working has had a direct negative effect on employees' work-life balance during the pandemic. Most respondents reported significantly higher work-life and life-work conflicts, saying it is

difficult to draw boundaries between them. Very recent studies have shown that this applies especially to women (Flesia et al., 2020, Palumbo, 2020).

Spending more time with their family can be positive for some but stressful for others (Burn and Mudholkar, 2020). Due to school closures, parents have to solely take care of their children all day and in many cases, help them with their studying (Fisher et al., 2020). Looking after children during the day overlaps with the typical working hours of employees, which leads to further difficulties managing the work-life balance. To compensate, people may work at unusual and irregular time patterns, leading to emotional exhaustion (Popovici and Popovici, 2020). Children and adolescents are also feeling the consequences of the pandemic, they are more likely to suffer from anxiety and depression as they cannot attend school or other social activities (Burn and Mudholkar, 2020). This requires more attention from the parents as they are the main caregivers.

2.5.3. Economical effect and time saving

One of the advantages of remote working is that employees do not have to commute to work, resulting in major time and cost savings. Based on data from the US Census, this can be up to 700 hours and \$2500 to \$6000 a year (Ingraham, 2016). These savings positively impact employee's satisfaction and happiness, as they can spend more time with their family or doing other activities, improving their work-life balance (Mustajab et al., 2020).

Under normal circumstances, daily commuting is considered to be a major stress factor and have a negative outcome on employees' job satisfaction (Koslowsky et al., 1996). According to the National Travel Survey statistics for 2019, the average length of a commuting trip is 31 minutes (UK Department for Transport, 2020). There are other aspects of commuting, which can have an impact on employees' life, such as driving fatigue which negatively affects their free time and family responsibilities. This interference increases with the length of the commute (Bai et al., 2021). Although remote working reduces the time needed to get to and from work, it has been discovered that remote workers log longer hours, which can temper the benefits of telecommuting (Peters et al., 2008).

Employees also notice additional costs as a result of working from home – their electricity and internet or digital communication bills are significantly increasing and in colder countries, heating accounts for a large portion of their living costs (Mustajab

et al., 2020). This increase in expenses can negatively impact the job satisfaction of employees especially in cases where the employer is not contributing to these costs.

On the contrary, working remotely can result in other financial benefits which may be unnoticeable at first, but will be greatly appreciated over time. According to a survey done by Flexjobs in the US, the average American remote worker saves an overall amount of \$4000 a year (Pelta, 2020). Saving elements include direct commute costs – public transportation tickets, fuel, parking tickets – but also indirect ones like car maintenance, which with fewer regular trips has a lower necessity. Employees need less pieces of formal clothing when working remotely and do not spend money on eating out during lunch at work as they can cook at home (DeVerter, 2020). In addition, there is the option to save costs on after school care for their children as parents are at home working remotely. Finally, governments are regularly offering tax breaks on working from home (Pelta, 2020).

2.5.4. Office setup

Another important aspect of remote working is where and how well the workspace is set up. There are a handful of options for a poor working environment, which cause negative results in many different ways. Some employees work from their sleep space, maybe out of convenience or because of a lack of better alternatives. This reduces the separation between work and home life and decreases their quality of sleep (Griffis, 2017). Long term insufficient regeneration likely results in both physical and mental exhaustion. Another common cause of health problems is not setting up an ergonomic workplace, which can evolve into many negative health symptoms (Allen et al., 2015).

As already mentioned, good work productivity requires a proper barrier between home and work. Without a clear separation, employees feel like they work longer hours than under normal circumstances. As a reaction, they tend to spend more time on social media and other activities during work causing additional distractions (Shellenbarger, 2012). A dedicated place to work, can prevent health issues, distractions – especially for people with children – and create a feeling of an office environment (Allen et al., 2015).

2.6. Conclusion

The main aim of this chapter is to present the academic literature surrounding this study, to evaluate it and look for disparities. It is also to obtain adequate knowledge of the topic to be able to further investigate it and prepare vigorous research.

Looking at previous studies, while numerous researchers tried to investigate telecommuting and give a distinct result, there is not a unified opinion about remote work and its potential positive or negative effects on employees. Studies differ depending on various factors of which some are company based – size of the business, type of work, company sector, leadership and organisational structure – and others are connected to individual aspects – personality traits of the employee, frequency and environment of the remote work and preparation time.

Overall, the working environment plays a significant role in employees' job satisfaction. This is especially the case for telecommuters as their personal life most likely interferes with their work life even more than under normal circumstances. It can lead to work-family and family-work conflict and various mental and physical health problems.

From current research, it is visible that the life satisfaction of employees during the Covid-19 pandemic decreased significantly due to continuous restrictions in movement and gathering and the cancellation of most free time activities. Given the high correlation between job and life satisfaction, with both contributing to each other, the logical assumption is also a decrease in job satisfaction.

Studies suggest that mandatory telecommuting in general is lowering employees' job satisfaction as they experience feelings of isolation. With the current Covid-19 pandemic, mandatory remote work has become the norm and it is important to investigate if working from home under these conditions has the same outcome.

Chapter III: Research Question

3.1. Research Aim

The overall aim of this research is to understand how satisfied employees, who are forced to work from home during the Covid-19 pandemic, are with their job in regards to various aspects of their working environment.

3.2. Research Question

Based on the presented literature background, the main research question of this study is:

Which aspects of the working environment have an effect on the job satisfaction levels of forced remote workers during the Covid-19 pandemic?

3.3. Hypothesis Development

The following section describes the development and formation of the hypotheses connected to this study. Hypotheses are predictions of the researchers about the connection between different variables (Creswell and Creswell, 2017, p. 129). This section also provides the literature background of each hypothesis suggested for this research.

The hypotheses for the study are that, for employees who started working from home during the COVID-19 pandemic:

H₁: Life satisfaction and job satisfaction has decreased.

H₂: Having children and more precisely the age of children has an effect on employees' ability to do their work and private duties and ultimately impacts their job- and life satisfaction.

H₃: Sharing accommodation with other adults keeps them more satisfied in both work and in their personal lives than those living alone.

H₄: Distraction levels and job satisfaction are dependent on the type of dedicated work space.

H_{5a}: Saving more than one hour on commute leads to higher job satisfaction levels.

H_{5b}: A change in working hours has an impact on their job satisfaction.

H₆: A change in expenses has an effect on their job satisfaction.

3.3.1. Job and life satisfaction

According to several researchers, life satisfaction during the Covid-19 pandemic has decreased significantly (Rogowska et al., 2020; Gonzalez-Bernal et al., 2021; Trougakos et al., 2020). Due to long-lasting continuous restrictions, people often feel depressed, anxious and their well-being heavily suffers (Ivbijaro et al., 2020; Burn and Mudholkar, 2020). Several studies found a connection between job and life satisfaction (Sarpkaya and Kirdök, 2019; Judge and Watanabe, 1993), influencing each other with a positive correlation. Based on these arguments, the following hypothesis is formed:

H₁: Life satisfaction and job satisfaction has decreased.

3.3.2. Work-life and life-work conflict

Palumbo (2020) and Flesia et al. (2020) discovered that due to the pandemic, there is significantly higher work-life and life-work conflict among working professionals. Their work duties often interfere with family duties, making it difficult to balance all of their responsibilities. During the Covid-19 restrictions, children faced school closures, therefore, parents had to take care of them during working hours (Burn and Mudholkar, 2020). Older children do not require as much attention compared to smaller ones as they are more likely able to take care of themselves. This leads to the following hypotheses:

H₂: Having children and more precisely the age of children has an effect on employees' ability to do their work and private duties and ultimately impacts their job- and life satisfaction.

3.3.3. Isolation from others

According to a research compiled by Ivbijaro et al. (2020), a significant amount of people often experience a feeling of loneliness during periods of lockdown. As discussed, it can affect employees' work life as well, employees have lower performance and commitment to their jobs (Ozcelik and Barsade, 2018). Li and Wang (2020) discovered that people who live with their partner experience this feeling much less and cope with the isolation from other people better. Due to the positive correlation between life and job satisfaction, the following hypothesis is formed:

H3: Sharing accommodation with other adults keeps them more satisfied in both work and in their personal lives than those living alone.

3.3.4. Workplace setup

According to several researchers, non-dedicated workplaces can impact employees' mental as well as physical health (Griffis, 2017; Allen et al., 2015). It is highly recommended by experts to create a dedicated corner at home, which is just dedicated to work (O'Hara, 2014). Such a workplace can help the employee to set up boundaries between work and home and also increase their productivity by eliminating distractions. Additionally, it can help to improve their motivation and avoid health issues due to an incorrect desk setup (Allen et al., 2015). Based on this information, it is assumed that job satisfaction is influenced by the type of workplace setup, resulting in:

H4: Distraction levels and job satisfaction are dependent on the type of dedicated work space.

3.3.5. Time and cost saving

Remote working has a notable impact on expenses and time engagement. Time savings on a daily basis, for instance, by not having to commute to work, can improve employees' work-life balance (Mustajab et al., 2020). A similar result can be expected from the change in expenses. If there is a net gain in work related costs employees translate it to lower wage. These arguments lead to the following hypotheses:

H5a: Saving more than one hour on commute leads to higher job satisfaction levels.

H5b: A change in working hours has an impact on their job satisfaction.

H6: A change in expenses has an effect on their job satisfaction.

3.4. Research Objectives

To answer the main research question, the paper focuses on the objectives below:

1. The investigation into overall job satisfaction of forced remote workers during Covid-19 pandemic.
2. The examination of correlation between job and life satisfaction during Covid-19 pandemic.
3. The analysis of work-family, family-work conflict and its relation to job satisfaction of employees.
4. The effect of isolation of employees on their job satisfaction.
5. The investigation into home office setup and its effect on employees' job satisfaction.

A thorough search of the relevant literature suggests that this research is in an unexplored area and that no other research during Covid-19 pandemic has investigated whether the home environment has had an impact on the job satisfaction levels of remote workers.

To conclude, this chapter detailed the main focus and questions which make up this research and in detail described how the hypotheses were formed. In addition, it outlined which research objectives are necessary to investigate further.

Chapter IV: Methodology

4.1. Introduction

This chapter describes the methodology used in this research. According to Burns (2020), research means to systematically and critically investigate a problem and answer a specific question which produces generally applicable knowledge. As the research methodology is the tool used to obtain results, it needs to be chosen prudently. In this study into the job satisfaction of remote workers, there were multiple approaches chosen. These studies used different methods depending on the aim and the necessary procedure.

This paper describes in detail the research paradigm, approach, method and their justification. Furthermore, it explains the research strategy and the research design, which gives information about the sample chosen for this study, the data collection methods and analysis. The chapter is closed by outlining the time frame and ethical considerations.

4.2. Research Paradigm

According to Rehman and Alharthi (2016), there are three types of academic research paradigm. They state that authors of a study should pick the most suitable type to investigate their topic. The three paradigms are as follows:

Positivism – Positivists tend to understand the world as the natural world. They believe that examined topics can be observed empirically and interpreted logically. They do not intervene into the research, rather observe it. The outcome of positivist research are numerical results. It is mostly used in quantitative research.

Interpretivism – believes that reality can be interpreted differently, depending on our senses. That said, people give distinct meanings to the analysed phenomena. In this case, researchers are actively contributing to the study, they are no longer only observing but also intervening. It is mostly used in qualitative research.

Critical theory – this methodology tries to change society rather than to understand it. The researchers engage subjects in the study, they have to formulate the questions, help with data collection and analysis. It is mostly used in qualitative research, but sometimes in quantitative research as well.

This study uses the positivist paradigm as the research is based on quantitative numerical data rather than qualitative data. The aim of this research is not to investigate employees' opinions and feelings, rather the logical conclusions on a larger sample size.

4.3. Research Approach

There are two types of research approach – quantitative and qualitative, occasionally both can be used as a combined option. A quantitative approach is used to collect numerical data to find patterns and make predictions about the wider population. In contrast, a qualitative approach captures the voice and experience of people and tries to understand the world from their perspective. They both have their merits for different kinds of studies, therefore it is of high importance to choose the right one.

The main objective of this research is to examine the relationship between aspects of the working environment and the job satisfaction levels of forced remote workers. The focus is mostly placed on the home office setup, living arrangements, as well as the time and cost management of employees. As investigating the relationship among variables needs to have evidence based on numerical data (Creswell and Creswell, 2017, p. 129) a quantitative research method was chosen. This aligns with past studies that have used cross-sectional quantitative research in relation to job satisfaction (Guimaraes and Dallow, 1999; Raziq and Maulabakhsh, 2015; Suh and Lee, 2017). The disadvantage of such an approach is that it requires larger sample sizes to get valid results. In addition, it does not provide the same level of in-depth information as a qualitative approach would.

4.4. Research Method

According to Heath and Tynan (2010), the research method explains the data collection and analysis. As already mentioned, this research undertook a positivist quantitative approach, therefore the method chosen to collect the data was questionnaire based. It was used to test the hypotheses to either confirm or deny them (Newman and Ridenour, 1988, p. 122). To be able to do so, the data had to be collected and prepared for statistical analysis and transformed into graphs or other types of visual illustration.

4.5. Research Design

Research design is a strategic approach, which researchers undertake in order to find a connection between research questions and execution (Blanche et al., 2006, p. 34). In simple terms, it is a plan to achieve the aim of the study. This section outlines sampling criteria, data collection procedures and data analysis.

4.5.1. Sample

The target group for this research was employees who were forced to work from home during the Covid-19 pandemic. While the literature offers a wide range of studies conducted on remote working in general, it is quite lacking in terms of those who have been forced to work from home. This is the main reason why the sample was focused on this type of employee. The respondents have had to work fully remotely due to the Covid-19 pandemic in order to participate.

The aim of this research was to investigate the phenomena of job satisfaction of forced remote workers - it was not location specific, and employees from anywhere around the globe could participate. There were also no restrictions in regards to the employees' company sector and department. However, demographic factors were collected in order to give an overview about the sample population.

There were four criteria that respondents had to fulfil to be eligible to participate in the study. First, they needed to be working fully remotely due to the Covid-19 pandemic, second, they could not work fully remotely prior. Third, the respondents had to occupy the same position as they did prior to the pandemic. This is to avoid the misattribution of a change in job satisfaction levels to a change in job rather than remote work. Lastly, the minimum age required to participate in the survey was 18 years.

4.5.2. Sampling techniques

There are two types of sampling techniques, probability (every person has the same chance to be included in the sample) and the non-probability method (respondents are selected by the researcher). For the purposes of this research and its representativity, the best fitting is random sampling (probability). An online platform (LinkedIn) was used to share the questionnaire, which was widely accepted by the participants who voluntarily responded without the necessity of intervention.

4.5.3. Sample characteristics

A total of 1275 respondents participated in the survey. As the criteria for the research was identified in the beginning, the opening questions defined whether the respondent was eligible. If not, they had been ruled out and sent towards the end of the questionnaire, without answering the subsequent questions. In the end, the questionnaire was opened for participation for 12 days and the replies of 630 eligible respondents were gathered, which was far more than originally planned for. As an upside, having a larger sample size benefitted the statistical analysis making it easier to verify the validity of the hypotheses.

Out of the respondents, 218 (34.6%) were female, 390 (61.9%) male and 4 (0.6%) non-binary. The average age of all participants was 34 years, ranging from 20 to 65 years. Other characteristics of the population can be found in section 5.2.

4.5.4. Data collection procedures

To achieve the aim of this study and answer its questions, the method for data collection had to be suitable for quantitative research. After considering all of the advantages and disadvantages of different techniques, an online structured questionnaire with close-ended questions, to investigate the data empirically, was used.

The main advantage of online data collection is that the method is less costly and time-consuming than paper based collection and can be more easily conducted worldwide (Lefever at al., 2007). It is important to note that the World Wide Web gives researchers access to a large and diverse population which would be difficult to reach out to through other data collection methods (Wellman, 1997). In addition, it prevents data loss and makes it easier to analyse the replies (Lefever at al., 2007). As mentioned before, the intention of this study was to not be limited to a specific location which would not be feasible to perform without an online data collection.

The main disadvantage of an online survey is that it can be technically difficult for some participants (Lefever at al., 2007). However, taking into consideration that the aim of this research was to investigate remotely working professionals, it can be safely assumed that most of them already work via their computer and have the technical competence to fill out an online survey. Another limitation is that there is no

control over who is participating, some respondents can jeopardise the reliability by submitting their answers multiple times (Wright, 2006).

4.5.4.1. Pilot study

Prior to the data collection, a pilot study was conducted. Five respondents were used to validate the questionnaire, they had the option to submit their feedback about either the questionnaire itself or other potential issues which could have arisen while participating in the pilot research.

The main aim was to understand whether an online questionnaire was the best option to collect the data. Explicitly, to ensure that the questionnaire was easy to fill out, all questions were understandable, there were no technical issues and the responses were going to achieve the aim of the research.

This technique proved itself useful as the respondents pointed out some errors and advised us to change the wording of a few questions to be more accurate and clearer. This way, no time was wasted once the data collection had begun as all necessary adjustments had been made prior to the data collection stage.

4.5.4.2. Research instrument

As previously mentioned, this research is positivist – it is observed empirically, interpreted logically and solely relies on statistics (Rehman and Alharthi, 2016). It undertakes a quantitative approach and the research instrument is a questionnaire. The survey consists of five main sections – consent and eligibility questions, before the Covid-19 pandemic job- and life satisfaction, during the Covid-19 pandemic job- and life satisfaction, home environment and demographic questions.

The eligibility questions (Table 7) examined whether participants could take part in the questionnaire. People who worked fully remotely prior to the pandemic, who did not work fully remotely since the pandemic and who switched jobs since the beginning of the pandemic were automatically ruled out. The consent part is discussed further under ethical consideration section 4.5.7.

To evaluate the job- and life satisfaction of employees participating in this study, already existing, previously validated questionnaires were used. The job satisfaction segment was developed by Brayfield and Rothe (1951). They designed a long and a short version, the latter being commonly used in other studies and therefore considered sufficient for this research (Table 8). It consists of five questions to

measure participants' job satisfaction. Each was graded on a five-point Likert scale in which respondents indicated whether they agreed or disagreed with the items.

The life satisfaction part had been originally undertaken by Diener et al. (1985). It is also a five-item questionnaire designed to measure respondents' life satisfaction (Table 9). They initially proposed a seven-point Likert scale, however, upon further review, a five-point Likert scale was also possible. For consistency purposes, the latter option was chosen. While both surveys have not been designed recently, their usage as a data collection tool is considered reliable and valid since they are still widely used in many studies and frequently used together in phenomena of life- and job satisfaction (Erer and Cevik Tekin, 2021; Zhang et al., 2021; Jawahar and Liu, 2017).

The respondents were first asked to answer the job- and life satisfaction items before the Covid-19 pandemic, followed by the same set of questions during the Covid-19 pandemic. The questions examining the situation before were constructed in the past tense so as to not confuse the respondents. The order of job- and life satisfaction sections was chosen in such a way as to avoid a situation where employees would subconsciously answer either a higher or lower point on the scale if the same questions were asked consecutively.

The last two sections of the questionnaire contained questions about employees' home environment as well as general remote working questions (Table 10) while also gathering demographic data (Table 11). These were crucial for investigating whether the home environment has an effect on the satisfaction levels of employees and also to have sample population characteristics.

4.5.5. Data analysis

After data collection, it needed to be prepared for the analysis. Numerical values were assigned to all answers of the questionnaire to be able to run statistical tests. For the purpose of data analysis, the Statistical Product and Service Solutions (SPSS) software was used. According to Denis (2018, p. 1), statistical tools help to describe sample data and make inferences between the sample and the overall population. These enabled an investigation of several indicators such as the internal consistency of the job- and life satisfaction questionnaire. In addition, depending on the sample size and type, the appropriate statistical hypothesis tests were performed to verify the likelihood of the results being applicable to the overall population. For all statistical

tests, a p-value of less than 0.05 was considered to be significant to reject the null hypothesis. Table 1 lists all of the proposed hypotheses and types of tests performed to indicate the results.

Hypothesis	Type of test
H1	Paired samples t-test
H2, H4, H5, H6	one-way analysis of variance with (optional) post hoc least significant difference test
H3, H5	Independent samples t-test
H5, H6	Spearman's rank correlation

Table 1: Tests used to validate the hypotheses

4.5.6. Time frame

A detailed time frame was established at a very early stage of the research to ensure all of the steps of the research could be done thoroughly and on schedule. It is important to note that the study had to be conducted within 6 months. The time frame of the research is shown in Figure 1.

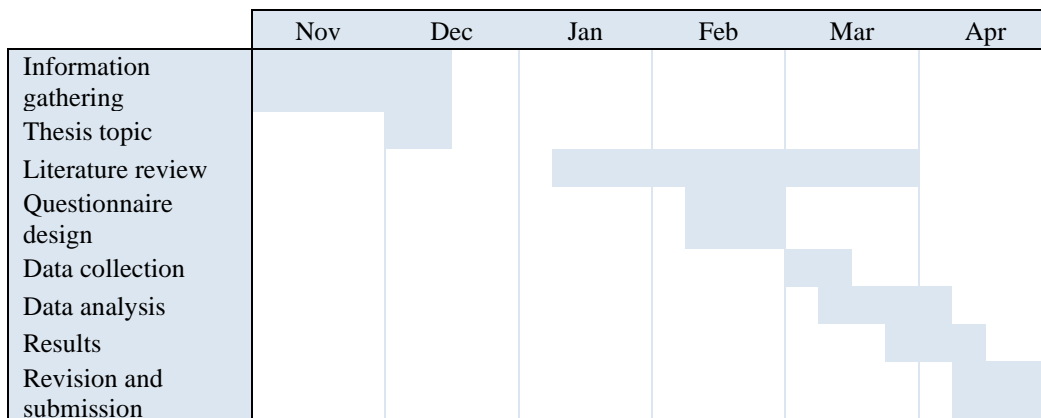


Figure 1: Time frame of the research

4.5.7. Ethical considerations

The ethical consideration was one of the most important parts of this research. This section describes the ethical guidelines which were followed while collecting, analysing and storing the data during the study.

Respect for persons – participants completed the survey on a voluntary basis and had the right to withdraw at any time. They were informed about this practice prior to taking the part in the survey.

Beneficence and non-maleficence – the questionnaire was designed to not harm nor create harm to any personnel.

Vulnerable groups – no vulnerable groups were permitted to participate in the survey; the minimum age of participants was set to 18 years old to be in line with this guideline.

Consent – before answering any questions, the participants were familiarised with the guidelines and had to agree to the essential information provided.

Guidelines provided to participants:

This research is completely voluntary and anonymous (no personal data is collected). You can withdraw from the survey at any point before the submission, however once the data is submitted, it will not be possible to remove it from the study. The data will be used for my dissertation and stored at National College of Ireland for 5 years according to their policy.

The respondents were aware of the aim of the research. They were informed about the data collection and storage guidelines. A preview of the consent question is seen in Figure 2.

1. I have read the above information and I agree to be part of the research *

Yes

Figure 2: Research consent

Chapter V: Analysis and Results

5.1. Introduction

This chapter focuses on the analysis of the collected data. It describes in detail the process of the analysis and its results. The paper gives an overview of the demographic characteristics of the sample population in this research, followed by testing of the predefined hypotheses. Lastly, it critically evaluates the limitations of the research.

5.2. Demographic characteristics

As previously mentioned, the study is international and not limited to a single specific geographic region. The participants are spread across the world, working in 25 countries. Additional information about the respondent's job is listed in Table 2 and 3.

Variable	Sub-division	Frequency	Percent (%)
Sector	Information technology	276	43.8
	Business services	119	18.9
	Public sector	55	8.7
	Education	48	7.6
	Healthcare	37	5.9
	Retail and consumer goods	27	4.3
	Media	22	3.5
	Other	46	7.3
Department	Information technology	243	38.6
	Sales and marketing	75	11.9
	Finance	64	10.2
	Business ops	53	8.4
	Customer support	39	6.2
	Teaching	26	4.1
	Engineering	23	3.7
	Media	22	3.5
	Administrative	20	3.2
	Human resources	19	3.0
	Other	46	7.3

Table 2: List of respondent's company sector and department they work in.

Variable	Sub-division	Frequency	Percent (%)
Country	Ireland	203	32.2
	UK	119	18.9
	Belgium	70	11.1
	The Netherlands	44	7.0
	USA	35	5.6
	Germany	33	5.2
	Switzerland	29	4.6
	Finland	19	3.0
	Philippines	18	2.9
	France	13	2.1
	Other	47	7.5

Table 3: List of most frequent residencies of respondents.

5.3. Hypotheses testing

This section investigates the analysis of the collected data and tests the proposed hypotheses. For all of them, the questionnaires on job- and life satisfaction were used. The score for both is determined as the average value of the five individual questions with equal weighting. To test their reliability, Cronbach's Alpha of all the respondents was calculated. The values for job satisfaction are $\alpha = 0.852$ (before the pandemic) and $\alpha = 0.869$ (during the pandemic). For the life satisfaction $\alpha = 0.839$ (before the pandemic) and $\alpha = 0.842$ (during the pandemic). To consider results to be reliable, a Cronbach's Alpha value of at least 0.7 is required.

5.3.1. Hypothesis 1

Life satisfaction and job satisfaction has decreased.

A paired samples t-test was performed to determine whether there were differences between job- and life satisfaction of employees before and during the Covid-19 pandemic. The findings indicate strong evidence to suggest that both job- and life satisfaction before the pandemic (job: $M = 3.73$, $SD = 0.71$; life: $M = 3.28$, $SD = 0.76$) were significantly higher than during the pandemic (job: $M = 3.40$, $SD = 0.84$; life: $M = 3.02$, $SD = 0.85$), which can be seen in Figure 3. The results of the paired samples t-test are for job satisfaction: $t = 9.14$, $p < 0.001$, $d = 0.41$ and for life satisfaction: $t = 7.18$, $p < 0.001$, $d = 0.32$.



Figure 3: Average job- and life satisfaction of respondents before and during the pandemic (error bars represent double standard error of the mean).

5.3.2. Hypothesis 2

Having children and more precisely the age of children has an effect on employees' ability to do their work and private duties and ultimately impacts their job- and life satisfaction.

An independent sample t-test was performed in order to determine whether there is a difference in job- and life satisfaction of employees who live with their children (job: $M = 3.54$, $SD = 0.81$; life: $M = 3.27$, $SD = 0.76$) and those who do not (job: $M = 3.37$, $SD = 0.85$; life: $M = 2.96$, $SD = 0.86$), which is illustrated in Figure 4. The results indicate that there is a significant difference in job satisfaction $t = 2.19$, $p = 0.03$, $d = 0.21$ and life satisfaction $t = 4.07$, $p < 0.001$, $d = 0.40$.

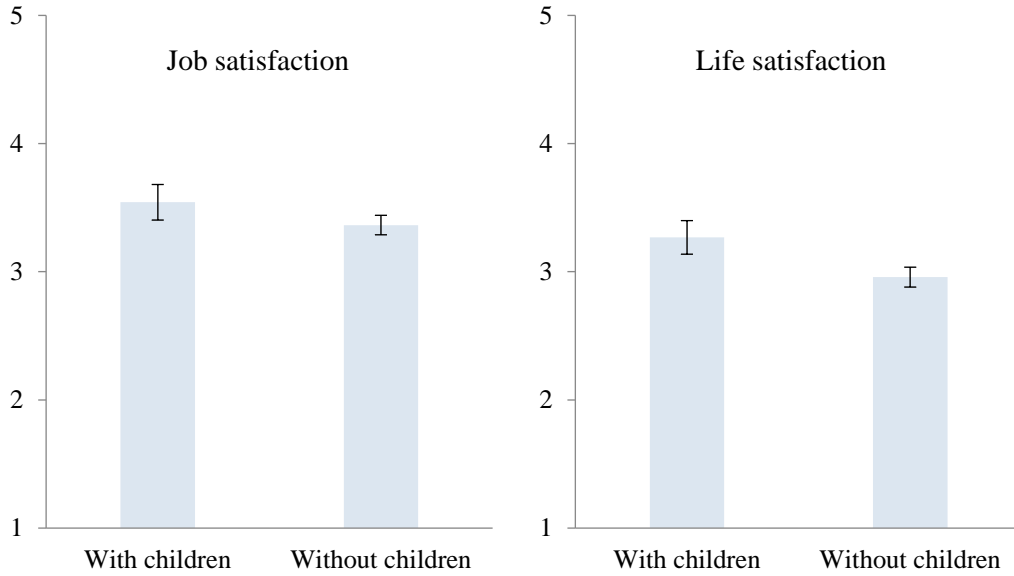


Figure 4: Average job- and life satisfaction of respondents depending on whether they have children or not (error bars represent double standard error of the mean).

Furthermore, a one-way analysis of variance tests was performed to identify a potential dependency of children’s age on job- and life satisfaction. According to the results, no effect has been found for either variable (job: $F = 1.11, p = 0.35$; life: $F = 0.41, p = 0.75$).

To test whether there is an effect of having children, and their age, on ability to perform work and private duties, respondents were divided into 5 groups and a one-way analysis of variance tests were completed. The results of the test for work duties are: $F = 1.11, p = 0.35$ and for private duties are: $F = 2.85, p = 0.02$. The descriptive statistics for private duties for the different groups are presented in Table 4.

	A2	B2	C2	D2	E2
N	495	39	45	25	26
M	4.09	3.90	3.64	4.12	4.00
SD	0.90	0.88	0.86	1.05	0.89

Table 4: Respondent’s ability to perform their private duties in relation to their family class (A2 = no children, B2 = children in preschool age, C2 = children in primary school age, D2 = older children, E2 = both children in pre- and primary school age).

Following on from this, a post hoc least significant difference test for private duties was conducted. Respondents with children in primary school reported lower ability to perform their private duties in comparison to those with no children ($p = 0.002$) or those with only older children ($p = 0.04$). For illustration, the ability to perform their private duties in relation to family class is shown in Figure 5.

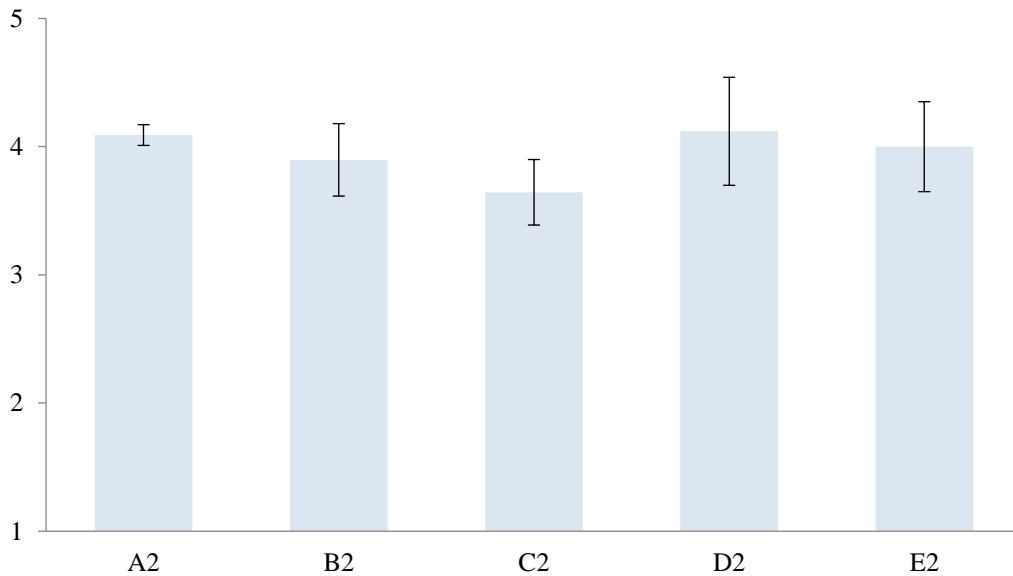


Figure 5: Respondent's ability to perform their private duties in relation to their family class (A2 = no children, B2 = children in preschool age, C2 = children in primary school age, D2 = older children, E2 = both children in pre- and primary school age – error bars represent double standard error of the mean).

5.3.3. Hypothesis 3

Sharing accommodation with other adults keeps them more satisfied in both work and in their personal lives than those living alone.

An independent samples t-test was performed in order to test this hypothesis. The results indicate that employees who live alone (job: $M = 3.45$, $SD = 0.81$; life: $M = 2.80$, $SD = 0.76$) and those who share their house with another adult (job: $M = 3.39$, $SD = 0.85$; life: $M = 3.07$, $SD = 0.86$) report a significant difference in life satisfaction ($t = 2.95$, $p = 0.003$, $d = 0.32$), but not for job satisfaction ($t = 0.61$, $p = 0.54$, $d = 0.07$). The levels of satisfaction can be seen in Figure 6.

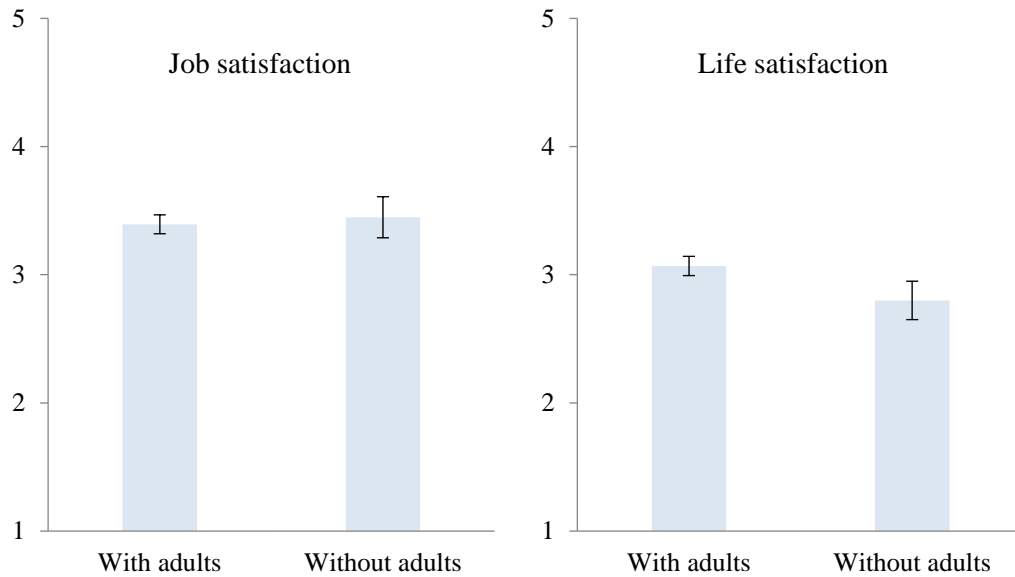


Figure 6: Average job- and life satisfaction of respondents depending on whether they live with other adults or not (error bars represent double standard error of the mean).

5.3.4. Hypothesis 4

Distraction levels and job satisfaction are dependent on the type of dedicated work space.

A one-way analysis of variance test was performed to determine whether the job satisfaction is dependent on the type of dedicated work space. Between the three identified groups: no dedicated space ($M = 3.21$, $SD = 0.91$), dedicated desk ($M = 3.34$, $SD = 0.80$) and dedicated room ($M = 3.59$, $SD = 0.81$), the results indicate a significant difference: $F = 10.17$, $p < 0.001$.

Furthermore, a post hoc least significant difference test was performed. There is a clear inequality of the means for the pairs *no space / room* ($p < 0.001$) and *desk / room* ($p < 0.001$), whereas the pairing *no space / desk* was not significant ($p = 0.14$). Therefore, the findings support that job satisfaction is dependent on the type of work space. The three groups are shown in Figure 7.

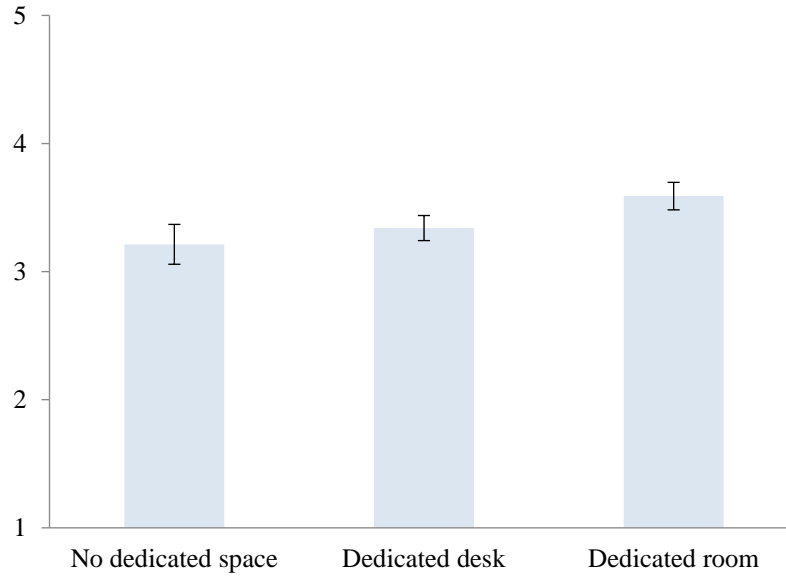


Figure 7: Average job satisfaction of respondents depending on their type of work space (error bars represent double standard error of the mean).

To test the connection between dedicated work space and level of distraction, a one-way analysis of variance test was performed between the identified groups: no dedicated space ($M = 2.50$, $SD = 1.16$), dedicated desk ($M = 2.60$, $SD = 1.25$), dedicated room ($M = 2.93$, $SD = 1.28$). The results of the test are: $F = 6.602$, $p = < 0.001$. Once more, a post hoc least significant difference test has been conducted for each group pairing with *no space / room* ($p < 0.001$), *desk / room* ($p < 0.001$) and *no space / desk* ($p = 0.45$). The level of distraction is illustrated in Figure 8.

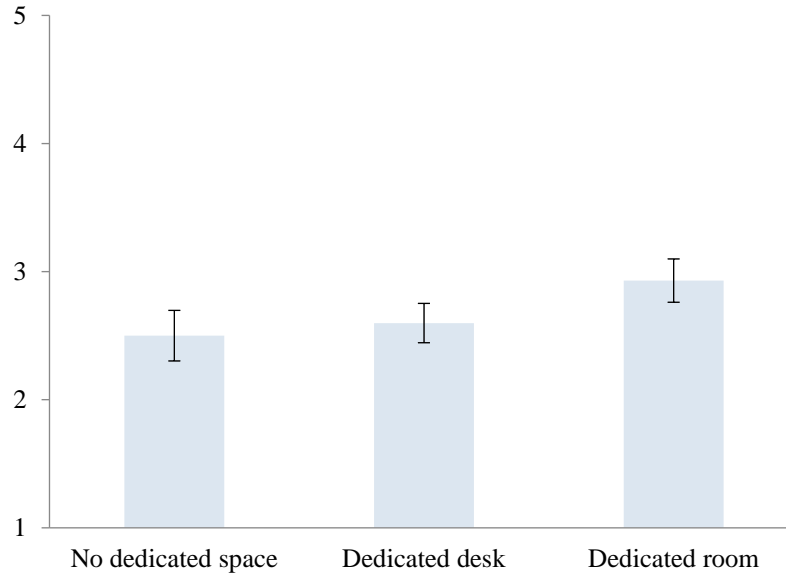


Figure 8: Level of distraction of respondents depending on their type of work space (error bars represent double standard error of the mean).

5.3.5. Hypothesis 5

A) Saving more than one hour on commute leads to higher job satisfaction levels.

An independent samples t-test has been performed to find a connection between time saved on commute and job satisfaction. The results of the t-test showed that there is a significant difference in job satisfaction and indicates that employees who were commuting up to 1 hour per day ($M = 3.35$, $SD = 0.831$) prior the pandemic are less satisfied than those who were daily commuting over 1 hour ($M = 3.50$, $SD = 0.849$), $t = 2.22$, $p = 0.03$, $d = 0.18$, which can be seen in Figure 9.

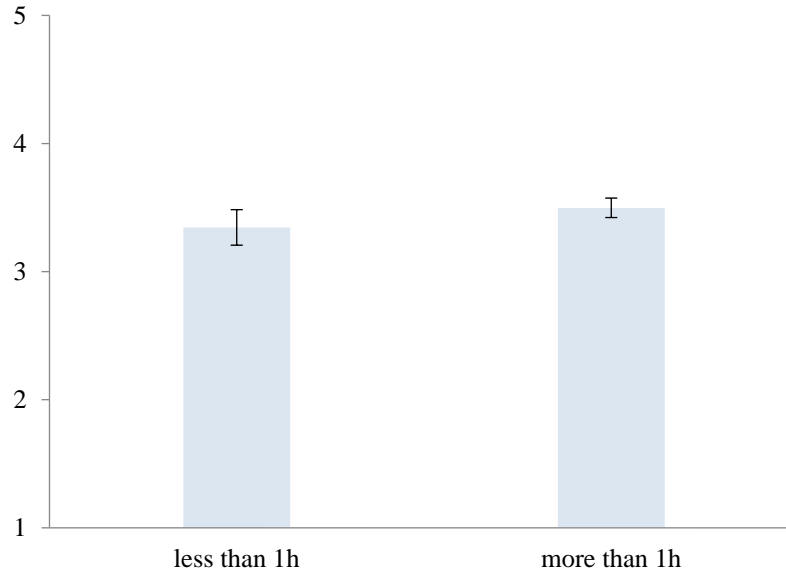


Figure 9: Average job satisfaction of respondents whether they spend more or less than one hour per day for commuting (error bars represent double standard error of the mean).

B) A change in working hours has an impact on their job satisfaction.

As the responses of job satisfaction on behalf of change in working hours can be ranked, besides a one-way analysis of variance test, Spearman's rank correlation coefficient was calculated to test this hypothesis. The replies of the different groups are listed in Table 5. Based on them, Spearman's coefficient shows no significant correlation: $\rho = 0.032$, $p = 0.432$. However, the analysis of variance test indicates differences between the groups: $F = 2.09$, $p = 0.024$.

	A5	B5	C5	D5	E5	F5	G5	H5	I5	J5	K5
N	14	14	28	39	29	240	72	131	37	13	13
M	2.70	3.24	3.17	3.31	3.34	3.53	3.41	3.40	3.32	3.15	3.29
SD	1.02	1.01	0.63	0.70	0.67	0.82	0.89	0.86	0.88	0.85	0.96

Table 5: Least significant difference test change in working hours (A5: 4+ hours less, B5: 3-4 hours less, C5: 2-3 hours less, D5: 1-2 hours less, E5: 30-60 mins less, F5: No significant difference, G5: 30-60 mins more, H5: 1-2 hours more, I5: 2-3 hours more, J5: 3-4 hours more, K5: 4+ hours more).

Additionally, a post hoc least significant difference test was conducted, which found a lower level of job satisfaction for employees who work now at least 4 hours less per day. The findings are visually presented in Figure 10.

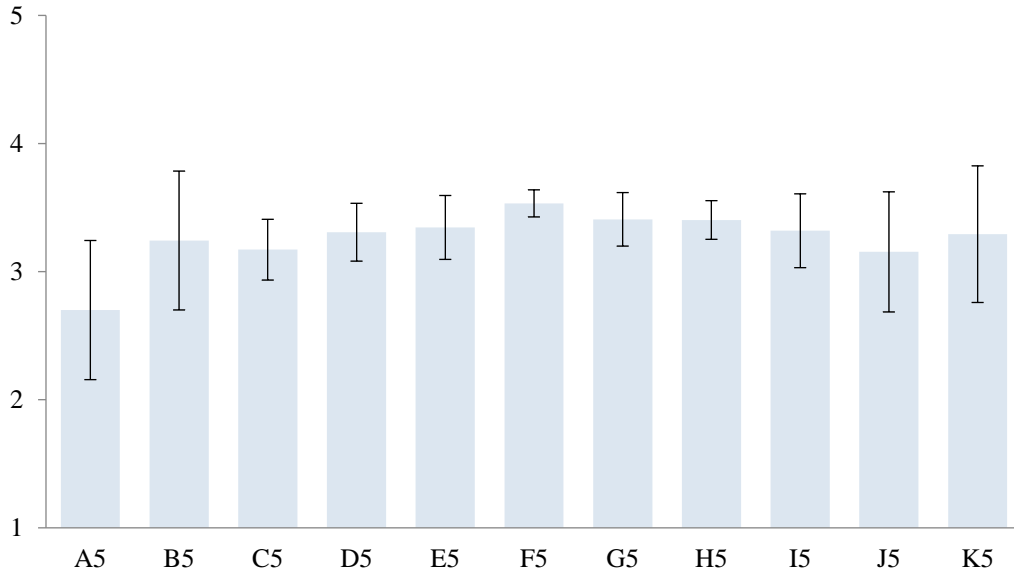


Figure 10: Average job satisfaction of respondents based on their change in working hours (A5: 4+ hours less, B5: 3-4 hours less, C5: 2-3 hours less, D5: 1-2 hours less, E5: 30-60 mins less, F5: No significant difference, G5: 30-60 mins more, H5: 1-2 hours more, I5: 2-3 hours more, J5: 3-4 hours more, K5: 4+ hours more - error bars represent double standard error of the mean).

5.3.6. Hypothesis 6

A change in expenses has an effect on their job satisfaction.

Both a one-way analysis of variance test and calculation of Spearman's rank correlation coefficient were performed to determine whether there is a connection between job satisfaction and a change in employees' expenses. The job satisfaction of the individual groups are listed in Table 6. The results for analysis of variance are: $F = 6.358$, $p < 0.001$ and for Spearman's correlation: $\rho = -0.167$, $p < 0.001$.

	A6	B6	C6	D6	E6
N	156	128	184	111	51
M	3.59	3.43	3.41	3.29	2.95
SD	0.76	0.85	0.88	0.79	0.84

Table 6: Least significant difference test expenses (A6: decrease by more than 15%, B6: decrease by more than 5% but less than 15%, C6: no significant difference, D6: increase by more than 5% but less than 15%, E6: increase by more than 15%).

Moreover, a post hoc least significant difference test was conducted and there is clear evidence that employees whose expenses increased by more than 15% are less satisfied with their job. The results of the individual groups can be seen in Figure 11.

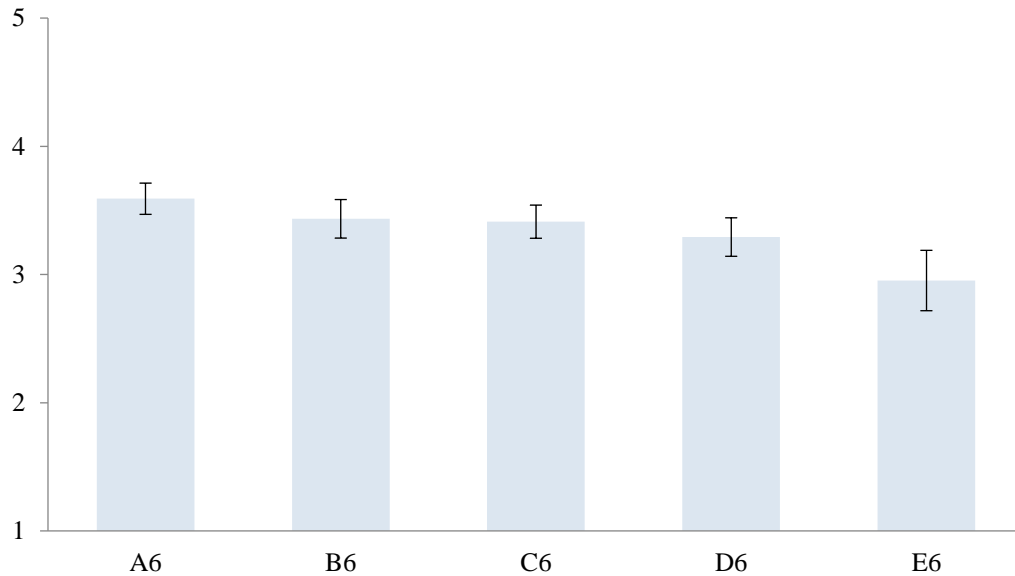


Figure 11: Average job satisfaction of respondents based on their change in expenses (A6: decrease by more than 15%, B6: decrease by more than 5% but less than 15%, C6: no significant difference, D6: increase by more than 5% but less than 15%, E6: increase by more than 15% - error bars represent double standard error of the mean).

5.4. Conclusion

The analysed results are of sufficient quality and fulfil the requirement to test the hypotheses and answer the main research question. The few limitations that were identified during the analysis were either unavoidable, were not foreseen prior to the data collection, or would have required a very different approach for the study. The limitations are further discussed in section 6.2.

Chapter VI: Discussion

6.1. Introduction

The main aim of this section is to critically discuss the results of the previous chapter and evaluate it in context of the findings in current academic literature. It attempts to bring insight into unexpected findings and conflicting results. In addition, the limitations of this study are presented and the practical considerations revealed.

6.1.1. Hypothesis 1

The main objective of this hypothesis was to investigate if the job- and life satisfaction of employees has decreased since the Covid-19 pandemic. To look into this hypothesis, data was required from both before and during the pandemic. As this was not a longitudinal study, there was the potential disadvantage that employees could have distorted views and subconsciously answer the questions depending on how they currently feel rather than their previous feelings on the matter.

After conducting the analysis, the findings support this hypothesis with the pandemic having a negative impact on both job- and life satisfaction. This is supported by other researchers, who identified an effect of the pandemic on employees' mental health, well-being and ability to work effectively (Trougakos et al., 2020; Iybijaro et al., 2020; Grossman et al., 2021; Burn and Mudholkar, 2020). Overall, employees' satisfaction has decreased significantly.

Taking into account the findings of other researchers, who suggest a strong relationship between job- and life satisfaction (Watanabe, 1993), it is impossible to separate the overlapping effects of forced remote working and the pandemic on people's satisfaction. Distinguishing the main driving force behind it is out of the scope of this study and would require a different research approach.

6.1.2. Hypothesis 2

The family-work and work-family conflict has been raised by many researchers as one of the main negative effects of remote working (Palumbo, 2020; Popovici and Popovici, 2020; Burn and Mudholkar, 2020). The findings of this paper rather present the opposite with employees who have children reporting higher job- and life satisfaction. Their centre of life was shifted more towards intra-familial activities, of which most can still be carried out despite the continuous lockdowns. In contrast,

people who engage with their social contacts primarily through extra-familial activities, such as meeting friends or colleagues and gathering in the public, were hit hard by the pandemic as those options were dramatically reduced due to lockdowns.

Fisher et al. (2020) suggest that the situation has worsened especially for employees' who have to study with their children. While there is no evidence that children's age has an effect on job- and life satisfaction, workers with primary school-aged children reported more difficulties in performing all of their private duties compared to those with no or older children. A likely reason is that this age group is still highly dependent on parental assistance in regards to their education (Garbe et al., 2020). As the environment has dramatically changed during the pandemic due to school closures and online learning, a large portion of parents' time needs to be allocated to this duty and therefore they are not able to complete all of their everyday tasks.

6.1.3. Hypothesis 3

The third hypothesis indicated that employees, who are sharing accommodation with other adults, are more satisfied in both work and in their personal lives than those living alone. However, the test results only supported the hypothesis for the life satisfaction aspect. These findings are in line with other researchers who discovered that coping with the pandemic and the forced isolation is easier if they live with their partner (Li and Wang, 2020). While the results of this study propose that living with any other adult has a positive impact on life satisfaction, respondents were not asked in detail about their living arrangements. Therefore, it is not possible to specify with whom they share their household.

Despite the correlation for both job-life and life-job satisfaction (Sarpkaya and Kirdök, 2019), the analysis does not show a significant difference in job satisfaction between employees who live alone and who share households with other adults. It is important to note that a partner, or any other person, is rather intervening in one's personal life than in their job.

Fundamentally, people with children are less likely to live in a single household (U.S. Census Bureau, 2016) and given the findings of hypothesis 2 – having children increases job- and life satisfaction, the individual subgroups had to be looked at to verify the effect of living with adults. The results amongst employees, who do not have children, report the same findings as the overall sample.

6.1.4. Hypothesis 4

The results of this hypothesis indicate that having a dedicated room for work has a positive effect on job satisfaction. The findings are similar to other authors who state that having no dedicated work space lacks a distinction between work and personal life (Griffis, 2017). However, the potential health benefits of a properly set up workspace (Allen et al., 2015) were not observed as the group with a dedicated desk did not report a higher job satisfaction than those without one.

The findings in terms of level of distractions are congruent with the results on job satisfaction. The better the setup employees have, the less distractions they report. This is in line with other researchers who reported the same outcome (Shellenbarger, 2012; Allen et al., 2015).

6.1.5. Hypothesis 5

The findings of this hypothesis suggest that saving time on commuting has an effect on job satisfaction. They are in accordance with other studies, which point out a decrease in time spent on commuting as one of the major benefits of remote working, impacting employees' happiness (Mustajab et al., 2020). The results also imply that the more time workers save on commuting, the higher the increase in job satisfaction is. This statement is supported by Bai et al. (2021) who point out growing life interference with longer commuting times.

The second part regarding working hours also indicates an effect on job satisfaction depending on workday length. While the expected outcome was that employees, whose working hours increased are less satisfied and those with decreased hours are more satisfied (Wanger, 2017), this was only partially supported by the results. Employees who worked longer hours during the pandemic indeed reported lower job satisfaction, but paradoxically, so did the respondents saving a lot of time since undertaking remote work. There are a few potential explanations for this outcome. On one hand, the question might not have been set clearly enough and respondents either answered incorrectly or considered commute time as part of their working hours. On the other, it is possible that employees no longer work 100%, with reduced salary. As the questionnaire does not evaluate whether employees are still working full time or their work situation has changed as a result of the pandemic, this is a limitation of this study.

Another point of criticism could be made about the exclusion of other forms of work-related tasks, which employees used to do before the pandemic and are now saving time on, are not considered in the questionnaire – for example, preparation time in the morning before getting to work.

6.1.6. Hypothesis 6

The results on employees' expenses supports an increase in their job satisfaction and the impact is particularly strong if the expenses increase or decrease by 15% or more. The higher job satisfaction in respondents with reduced expenses is in accordance with researchers who link remote working to a decrease in expenses – e.g., commute costs or take out for lunch – and highlight it as one of the benefits (Ingraham, 2016; Pelta, 2020; DeVerter, 2020).

The study also explored the area of increasing expenses due to remote working, which is not a commonly explored research field. Those respondents reported a lower level of satisfaction with their jobs, potentially stemming from considering a raise in expenses as an indirect form of lower net payment. This is supported by Borghans et al. (2007), who state that a decrease in salary has a demotivating effect on workers. As mentioned before, the questionnaire does not address whether employees experience a cut in working hours or earnings due to the pandemic. It is possible that respondents indirectly reported this circumstance in the question about their expenses.

6.2. Limitation of the study

Many variables which have a potential impact on job satisfaction were identified in this paper. However, due to the complexity of this problem, not every aspect could be taken into consideration. A couple of factors, which were not included in the questionnaire, were already briefly mentioned – such as depression levels or stress and anxiety, which may not necessarily be the outcome of work conditions, instead from personal life stressors. These can severely influence job satisfaction due to the clear linkage between work and life, as previously stated.

One of the main limitations of this study was gathering information from the past. People tend to subconsciously rate past situations better or worse depending on the current circumstances, which can lead to inaccurate data collection. A longitudinal study would have deemed a better fit; however, this was not a possibility as the Covid-19 pandemic was unexpected and abruptly changed the environment. Another

aspect was the questionnaire-based data collection method. While closed ended questions do not provide in-depth information, other methods such as a qualitative survey or interviews were out of scope of this study. Nevertheless, all proposed hypotheses could be tested under the chosen method. During the analysis of the responses, limits for explaining a few results were discovered. This could have been solved by including additional questions in the survey – such as whether employees still work 100% of the time or whether they (or their partner) have been impacted by wage cuts.

Lastly, the actual presence of the Covid-19 pandemic is also a limitation. While it heavily increased the numbers of forced remote working employees and allowed research in this area, it is also a strong confounder. Life satisfaction of the majority has decreased due to continuous restrictions and lockdowns. This limits the study as already mentioned, since many factors, which job satisfaction is based on, are impacted by the pandemic.

Overall, despite identifying multiple limitations, the results still produced strong evidence to be able to answer the main research question of this study and verify all the hypotheses.

6.3. Practical considerations

The empirical findings of this research provided additional information on the phenomena of remote working, a popular and heavily discussed topic. During the Covid-19 pandemic telecommuting became the new standard for many employees, therefore the results may fill some gaps in the literature as prior there have not been many studies about workers forced to work remotely.

The findings are not only important for companies to give guidance to their workers on how to effectively set up their home office and remove obstacles which might decrease job satisfaction but it also provides valuable information for those who may be concerned about their situation since undertaking remote work and identify why their job satisfaction has decreased and how to improve it. The results can certainly be applied to similar situations which could arise in the future. If companies are again in need to force their workers into telecommuting, the findings can serve as guidance on how to do that effectively.

Chapter VII: Conclusion and Recommendations

7.1. Conclusion

Over the past few decades, remote working and its consequences have become the focus of interest for many researchers. In general, there was no unified outcome as to whether it is positive or negative for the employees. Under normal circumstances, voluntary remote workers are prepared for the situation and advantages outweigh the disadvantages, allowing them to balance their work- and personal life better. However, the situation changes substantially for mandatory remote workers for whom the negative impacts are more intense. Job satisfaction is one of the main aspects of employees' work, it influences their productivity, motivation and commitment. This all reflects on companies' performance and overall profits, making the effects on remote working of great interest for them as well.

This thesis aimed to investigate the connection between the working environment of forced remote workers and job satisfaction. Upon further analysis of the collected data and testing of hypotheses, the question: *Which aspects of the working environment have an effect on job satisfaction of forced remote workers during the Covid-19 pandemic?* was answered.

Overall, it is important to mention that both the job- and life satisfaction levels of employees has decreased significantly since the beginning of the Covid-19 pandemic. The factors which positively impact employees' job satisfaction are living with children, having a dedicated room for work, saving time on commuting and a decrease in expenses. Living with another adult however was the only factor which reported an increase in life satisfaction. It can be concluded that many of the observed factors affect the satisfaction of employees as proposed. Those which were not, like the positive effect of children, might be a result of the unique situation brought about by the pandemic.

The paper also shows a clear connection between life- and job satisfaction. Most factors identified as impactful on job satisfaction in either a positive or negative way had a similar kind of effect on employees' life contentment. In addition, the study shows that workers with a dedicated place for work are reporting lower levels of distractions. However, no connection was found between having children and not being able to perform work duties.

7.2. Recommendations for future research

While the collected information provided sufficient results to answer the research objectives, the outlined limitations give opportunities for future research.

As stated before, not all variables which could influence job satisfaction were taken into consideration. This paper was primarily focused on objective, measurable factors of the working environment. There are many other aspects, like depression levels, anxiety, personality traits and job type, which can also have an impact. Evaluating these parameters requires a much more in-depth questionnaire or a qualitative research approach. Including these variables would bring further insight and deeper understanding into the dependency on employee satisfaction among remote workers during the pandemic.

Because it was not the aim of the study, people who were already working remotely prior to the pandemic were excluded from the research. This however, prevented the possibility to compare results with a control group that has already experience with remote work. Future research on this topic should consider this option.

As a potential future prospect, companies may decide to provide an option of working from home to their employees even after the pandemic to reduce costly office space. There would be many 'forced' remote workers, but without the personal side effects of the pandemic. It would be beneficial to then repeat the same type of research and observe whether the findings on job satisfaction levels have changed. This additional information would further reveal the main influencing factors of contentment for remote working employees.

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Appendix

Eligibility
I am at least 18 years old.
Did you work fully remotely before the Covid-19 pandemic?
Do you work fully remotely since the Covid-19 pandemic?
Did you switch your job during the pandemic?

Table 7: Eligibility questions

Job satisfaction
I feel fairly satisfied with my present job.
Most days I am enthusiastic about my work.
Each day at work seems like it will never end.
I find real enjoyment in my work.
I consider my job to be rather unpleasant.

Table 8: Job satisfaction questionnaire

Life satisfaction
In most ways my life is close to my ideal.
The conditions of my life are excellent.
I am satisfied with my life.
So far, I have gotten the important things I want in life.
If I could live my life over, I would change almost nothing.

Table 9: Life satisfaction questionnaire

Remote work
When you do work from home, what does your work space look like?
I have all the tools needed to perform my work from home.
I am able to perform all my work duties while working from home.
I am able to perform all my private duties while working from home.
I often experience distractions during working hours while working from home.
Does your remote work result in more/less working hours per day than under your previous circumstances?
Before the Covid-19 pandemic, how much time did you spend commuting per day?
Did your expenses related to work increase/decrease (utility bills, travelling, food, etc)?

Table 10: Remote work and home environment.

Demographic
How many other adults live in your household?
How many children live in your household?
How many children of preschool age do you have?
How many children in primary school do you have?
In which sector does the company you work for operate?
In which department do you work?
What is your gender?
How old are you?
Which country do you currently live in?

Table 11: Demographic questions

Thesis Submission Form

Submission of Thesis to Norma Smurfit Library, National College of Ireland

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Student Number: x19170416

School: National College of Ireland,
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Course: International Business

Degree to be awarded: Master of Science

Title of Thesis: Job satisfaction of forced remote workers during the Covid-19 pandemic in relation to their working environment.

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