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## **Dogs' Impact on Remote Employees' Well-Being During the First Outbreak of COVID-19**

Did Owning a Dog Have an Effect on Remote Employees' Well-Being During  
the First Outbreak of COVID-19?

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**ABSTRACT:**

COVID-19 was an unknown virus that spread rapidly globally. It's both short-term and long-term symptoms were unknown, causing governments trying their best to find new ways for their citizens to operate as normally and safely as possible. As a result, many governments, Finland's included, set recommendations to work remotely and to avoid any interaction with other people to prevent the virus from spreading. The rapid change of first employees working 100% from the office switched to working remotely. This change led to increased mental and physical health issues. However, many employees were able to maintain their previous lifestyle due to owning a dog. There even became a phenomenon called "puppy boom" during COVID-19 pandemic, which indicates the sudden rise of people adopting puppies to help to survive the intimidating and unsure times of the pandemic.

The goal of the research is to determine whether dogs had an impact on remote employees' well-being during the first outbreak of COVID-19 in Finland. The research was made based on the theoretical background of the thesis, which included theoretical framework for humans' mental, physical and overall well-being in addition to theory of human-animal interaction and COVID-19 impact on people's well-being and the increase of animals within households.

The study was conducted as a mixed method study, resulting having both quantitative and qualitative data. The data was collected by means of survey, which received 157 eligible responses. Quantitative data was analysed using SPSS program.

The findings of the study show that dogs did have a positive impact on employees working remotely during the first outbreak of COVID-19. All three hypotheses were supported, since the findings of both quantitative and qualitative data show that dogs did have a positive impact on remote employees' mental and physical health and overall well-being.

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**KEYWORDS:** Remote work, Mental Health, Physical Health, Well-Being, Dogs, Human-Animal Interaction, COVID-19, Coronavirus, Pandemic

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**TIIVISTELMÄ:**

COVID-19 oli alkujaan tuntematon virus, joka levisi maailmanlaajuisesti nopeaan tahtiin. Sen molemmat lyhyt- ja pitkäaikaisvaikutukset olivat vielä tuntemattomat, aiheuttaen eri valtiot yrittämään kaikkensa löytääkseen uusia ja turvallisia tapoja kansalaisilleen, jotta he voisivat jatkaa elämäänsä mahdollisimman normaalisti. Lopputulemana, moni valtio, kuten myös Suomi, asetti erinäisiä asetuksia kansalaisilleen estääkseen viruksen leviämisen. Näihin asetuksiin kuuluivat muun muassa etätyöskentelysuositus ja turhien kontaktien välttäminen. Nopea muutos toimistolta käsin työskentelystä etätyöskentelyyn johti työntekijöiden fyysisten ja mielenterveysongelmien lisääntymiseen. Siitä huolimatta, moni työntekijä pystyi säilyttämään osittain vanhan, tutun elämäntyylinsä omistamiensa koiriensa vuoksi. Tuona kyseisenä aikana tuli jopa uusi ilmiö, jota kutsutaan "lemmikkibuumiksi", joka nimensä mukaisesti viittaa lemmikkieläinten määrän äkilliseen kasvuun kotitalouksissa.

Tämän tutkimuksen tavoitteena on määrittää koirien mahdollinen vaikutus etätyöskentelijöiden hyvinvointiin ensimmäisen korona-aallon aikana Suomessa. Tutkimus pohjautuu teoreettiseen osuuteen, johon kuuluu muun muassa ihmisten henkisen, fyysisen sekä yleisen hyvinvoinnin vaikuttavien tekijöiden määritelmät. Lisäksi tutkimukseen sisältyy teoriaa koskien ihmisten ja eläinten välistä vuorovaikutusta, koronaviruksen vaikutukseen ihmisten yleiseen hyvinvointiin liittyen sekä koronaviruksen mahdolliseen vaikutukseen lemmikkieläinten lisääntyneeseen määrään kotitalouksissa.

Tutkimus on tehty monimenetelmä tutkimuksena, johtaen sekä kvantitatiivisen sekä kvalitatiivisen datan keräämiseen. Tutkimusdata kerättiin internet-kyselyn muodossa, johon vastasi 157 kriteerit täyttäneet ihmistä. Kvantitatiivisen datan analysointiin käytettiin SPSS-ohjelmaa kun taas kvalitatiivisen datan on analysoinut tämän kyseisen tutkimuksen tekijä itse, noudattaen kvalitatiivisen datan analysoinnin ohjeistuksia ja menetelmiä.

Tutkimustulosten mukaan koirilla oli positiivinen vaikutus etätyöskentelijöiden hyvinvointiin ensimmäisen korona-aallon aikana. Näin ollen kaikki kolme tutkimuksen hypoteesia ovat tuettuja.

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**AVAINSANAT:** Etätyöskentely, Mielenterveys, Fyysinen Terveys, Hyvinvointi, Koirat, Ihmisten ja Eläinten Välinen Vuorovaikutus, COVID-19, Koronavirus, Pandemia

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# 1 Introduction

This thesis' introduction chapter consists of providing background of the study and introducing the research problem and research question. The study's objectives and delimitations are assessed as well. The key concepts of the study are explained in addition to addressing the previous studies and establishing the structure of the research.

## 1.1 Background of the study

International business changed drastically two years ago in 2019 when coronavirus disease (COVID-19) spread globally. Ever since the first case of COVID-19 found in Wuhan, China, the virus and its effects have been discussed in the global news (World Health Organization, 2021). The virus simultaneously affected both individuals and societies by changing many people's working lives and structures. The impact on companies and individuals was evident – people had to set up their home offices and work remotely. At the beginning, there was very limited amount of information on how the virus spreads or what are the symptoms and possible long-term effects when an individual caught the virus. Thus, to avoid the spread of COVID-19, the health professionals and governments set restrictions. Finland's government removed the latest recommendation to work from home at the end of February 2022 (YLE, 2022).

Several studies have found an increase of employees working remotely caused by the global pandemic. According to the study of Eurofound (2020), to which 87 477 participants living in Europe responded, 48% of them worked remotely during the COVID-19 pandemic. The number of employees working remotely before the pandemic was less than one in 20 employees, resulting in 0.05% of respondents working from home before the pandemic. Therefore, the increase of employees working remotely due to the COVID-19 is significant. (Eurofound, 2020)

Consequently, spending more time at home, the rate of owning pets has increased. According to Today's Veterinary Business (2020), more than 11 million households in USA

have gotten a new pet animal during the pandemic of COVID-19 (Today's Veterinary Business, 2020). A similar increase has been found also in the United Kingdom where there has been “reports of booming puppy sales during this unusual time at home” (LetterOne, 2020). The same “puppy boom” has been seen in Finland where the number of pets sold has doubled in some animal stores (Tuhkanen, 2020).

Since COVID-19 is a relatively new virus, there are not many studies related to the well-being of employees forced to work remotely combined with the perspective of living with pet animals during COVID-19. Because pet animals have positive effects on people (Caciotti & Zuckermman, The Benefits of Pets for Human Health, 2021) and it is probable that working remotely will remain on similar level after COVID-19 as it has been during it (Dickler, 2021), it is crucial to understand how dogs impact on employees when working remotely during the pandemic of COVID-19.

## **1.2 Research problem and research question**

The chosen research topic focuses on dogs’ impact on employees working remotely and their well-being during COVID-19. Basically, by combining animals’ effect on people’s mental and physical health and people working remotely during COVID-19, this thesis research how remote employees are managing on with their well-being and how having a pet, a dog to be more specific, affected their mental and physical health during the first outbreak of COVID-19.

In order to fully cover the topic of this thesis, understanding the impact of pet animals on people is important. Having a dog as a pet animal forces people to practise physical activities since dogs’ natural needs’ (e.g., urinating) require outdoor activities but dogs also need exercising as well. Through physical activity, dog owners’ mental health is affected positively which affects their mood, increases their level of happiness and decreases stress. Additionally, physical activity of any kind leads to other health benefits such as improving individuals’ memory through blood-flow to brain. Each of these

factors benefits individuals' level of well-being. (The State of Queensland (Queensland Health), 2021)

Since owning a dog provides routines and physical activity, remote worker may result in having breaks outdoors which increases the productivity of an employee (Bernier Lienke, 2021). Nevertheless, remote working might pro-long the working hours of an employee. According to Westfall (2020) 80% of American remote workers feel it more difficult to stop working at the end of their workday than they would have when working at the office. 45% of the respondents admitted their mental health has suffered after starting to work remotely during the pandemic. (Westfall, 2020) Due to the previous research is focusing on American people only, there is a need to explore how remote workers' well-being is affected through owning or living with a dog during the pandemic in Finland.

The purpose of the study is two-folded. Firstly, the study focuses on providing theoretical framework to understand how pet animals effect on people's mental health. Secondly, the study's other purpose is to provide insight on how dogs can help people through COVID-19 when working remotely. Thus, the preliminary research question of the study is:

*“How did owning a dog effect the mental and physical health of remote employees’ during the first outbreak of COVID-19 pandemic?”*

### **1.3 Objectives**

The objectives of this research assist in defining the steps that help to achieve to find an answer to the research question. The first objective is to collect reliable data on how remote employees perceived their own state of mental and physical health. Once analysed, the data collected will provide answers to the research question itself.

The second objective is to provide further understanding on the effect of dogs to people's well-being during the pandemic of COVID-19. The third objective aims to

evaluate and measure how COVID-19 has affected on remote workers' mental and physical health. The fourth and final objective is to test the theoretical framework and its hypotheses to evaluate the applicability of the study and its approach. Therefore, the objectives of the research are:

1. *To collect reliable data on remote workers' state of well-being at the first outbreak of COVID-19 and to define whether dogs have had impact on their well-being.*
2. *To provide further understanding of dogs' effects on people working remotely during the pandemic of COVID-19.*
3. *To test the theoretical framework and its hypotheses to evaluate the applicability of the study and its approach.*

## **1.4 Delimitations**

### **1.4.1 Point of view**

In order to find answer to the research question, the thesis will be written from the point of view of employees working remotely during COVID-19. This is necessary to comprehend because there are still employees working from the office or whose profession may not allow working remotely. In addition, there may be people who may have lost their job during the pandemic whose mental health and what impacts it are not considered in this study. Additionally, there may have been employees working remotely prior to the pandemic but since this study focuses on the mental health of employees at the beginning the pandemic, their experiences before will not be considered in this study.

### **1.4.2 Theoretical approach**

Theoretical approach of this thesis consists of four approaches. The first approach is focusing on well-being, providing a literature review focusing on what effects humans'

mental health and how physical health affects it. Additionally, there will be theoretical background provided for physical health.

The second part of the literature review focuses solely on the employees' mental health when working remotely before and during the pandemic of COVID-19. Theory is provided in relation to the matter as well as previous study findings the state of remote employees' mental health prior to the pandemic is introduced. Effects on physical health during COVID-19 will be reviewed as well.

The third part of the literature review focuses on human-animal interaction (HAI). The aim is to provide an overview of what is meant by the term of human-animal interaction and how it occurs generally. In order to provide a deeper understanding of the level of human-animal interaction, emotional support animals are introduced as well. Finally, as part of the human-animal interaction, there will be theoretical background for whether animals have impacted the employees' productivity and well-being.

The final and fourth part of the literature review focuses on COVID-19 effects on well-being, including its effects on mental and physical health. Additionally, the amount of pet animals within households during the pandemic and pets' possible increase is reviewed briefly.

## **1.5 Key concepts of the study**

The key concepts of the study are:

- **Humans' mental health**
- **Humans' physical health**
- **Remote work**
- **Human-animal interaction (HAI)**
- **Pet animals**
- **COVID-19**

### **1.5.1 Humans' mental health**

Mental health is a term used to refer to an individual's well-being mentally. It is one part of human's health. Mental health can be affected negatively by mental disorders. If a person is feeling mentally healthy, they can function despite facing reasonable level of stress. They can function well when facing obstacles. (World Health Organization, 2018)

### **1.5.2 Humans' physical health**

According to Koshuta & Chapel (2015) humans' physical health is determined by the level of individual's physical activity, nutrition and diet, alcohol and substance use, medical self-care and rest and sleep. Physical activity focuses on one's strength and endurance whereas nutrition and diet focus on nutrient and fluid intake in addition to having a healthy digestion. Alcohol and substance use on the other hand is related to physical health by the amount of usage. Medical self-care addresses minor injuries and seeking for medical care if needed provided by the professionals. Moreover, rest and sleep affect physical health by assuring one's body to rest enough and having enough quality sleep for the brain and body to recover. (Koshuta & Chapel, 2015)

### **1.5.3 Remote work**

The term "remote work" refers to a situation when the employee works from home. Other terms used for remote work are "work from home" (WFH) and "telecommuting". Remote work can be also done partially meaning that the employee will work some days from home and some days at the office. (Gartner, 2022)

### **1.5.4 Human-animal interaction (HAI)**

Human-Animal Interaction (HAI), also known as animal-people interaction, is a term which refers to "*...any manner of relationship or interaction between a person and a non-human animal*" (Purdue University, 2021). Animal-people interaction includes a component of Human-Animal Bond which is used when referring to a mutual, beneficial

bond or a relationship between people and animal. Interactions between human and animals may vary from companion-based interactions, emotional support-interactions, work-related interactions to any kind of Animal-Assisted Intervention. Animal-people interaction may be beneficial to people and their health but may be scarring to animals. Thus, the interaction between animal and people is not always beneficial for both parties. (Purdue University, 2021)

### **1.5.5 Pet animals**

Pet animal, or a domestic animal, can be any animal that is held within a human's household. The most common pet animals are dogs and cats. Other animals, for instance birds, reptiles and rodents can be kept as domestic animals as well. Their main purpose is to live alongside humans whilst bringing the feeling of companionship. (Britannica; T. Editors of Encyclopaedia, 2021)

### **1.5.6 COVID-19**

World Health Organization (WHO) (2020) defines COVID-19 as "... disease caused by a new coronavirus called SARS-CoV-2." (World Health Organization, 2020). Coronavirus disease quickly evolved into a global pandemic since the virus spreads the best through liquid particles when people are interacting with each other. Another way for the virus to spread is through contaminated surfaces and in spaces that are poorly ventilated. (World Health Organization, 2020) Currently, the pandemic is an on-going situation and people have been advised to stay at home when possible or avoid meeting many people, possibly to wear face masks, and maintain good level of hygiene to avoid the spread of the virus. (Bender, 2020)

## **1.6 Previous studies**

The thesis will focus on people's well-being when working remotely during COVID-19 and how having a dog living in the same household has possibly affected their well-being. There are few previous studies in relation to the topic. However, the point of view of

those studies are not the same as this thesis'. For instance, the study of Grajfoner, Guek and Mei Wing Wong (2021) examines how pets affect human mental health and overall wellbeing during COVID-19 lockdown in Malaysia. The findings of the study show that pets have significant positive effects on people's emotions. Nevertheless, the differences between pet owners and people with no pets and their levels of mental health issues such as depression and anxiety did not differ. However, in a lockdown situation due to the pandemic where people are isolated, pets had a positive impact on promoting the well-being of the study's participants. (Grajfoner, Guek, & Mei Wing Wong, 2021)

The chosen niche is occupied in terms of animals' effect on people's well-being. Well-being is divided into mental and physical health of people. Additionally, there are already studies related to the on-going situation of the pandemic but mainly from the general point of view and not only from the perspective of employees working remotely.

The impact of animals on human beings and their well-being, both mental and physical, is a topic which has been widely studied over the years. There are also studies related to the effects of COVID-19 on human being's well-being, excluding the actual virus' effects on people. For instance, the study of (Brooks, et al., 2018) states that there are positive effects on having a pet animal on the mental well-being of people. Nevertheless, there are also neutral and negative impacts on having a pet animal. For example, one negative impact is that they might cause burden and stress on an emotional level due to needing to take care of them and possible surprising situations. (Brooks, et al., 2018)

The study of (Caciotti & Zuckermman, 2021) suggests that having pet animals may increase the functioning of human being's hearth health which can be seen as lower blood pressure and more regular heart rate when one is experiencing stress. Additionally, especially for elderly people, pet animals increase the feeling of having a companionship and therefore increases the well-being of the elderly. (Caciotti & Zuckermman, 2021)

Overall, animals can have both positive and negative effects on human being's health. (Environmental Health Intelligence New Zealand (EHINZ), N/A) state that positive impact of animals on human being's well-being are for example that animals reduce stress and anxiety of people. If one needs special assistance or protection, animals can help to achieve those needs. In addition, having pet animals might decrease the risk of children having allergies or asthma. The negative impacts of pet animals on the other hand consist of risks related to bites or other injuries caused by pet animals and diseases and allergies caused by them. (Environmental Health Intelligence New Zealand (EHINZ), N/A)

When it comes to studies concerning the effects of the pandemic of COVID-19 on people's well-being, or mental health more specifically, there are few of them related to those perspectives of the pandemic. For example, (Panchal, Kamal, Cox, & Garfield, 2021) studied the implications of the pandemic of COVID-19 to people's mental health and how the substance use has been affected by the pandemic. They found that four people out of ten people in the U.S. have admitted on having symptoms of depression or anxiety. When compared to the previous study, before the pandemic, the number was three people out of ten people. Thus, the pandemic has increased the symptoms of mental health problems. (Panchal, Kamal, Cox, & Garfield, 2021)

According to (World Health Organization, N/A) the pandemic of COVID-19 has affected by increasing the mental health problems. In overall, the main mental health issues are increased levels of stress and anxiety. However, due to possible quarantines, the feeling of being lonely, depressed and substance use have increased. (World Health Organization, N/A)

Since COVID-19 is an on-going situation, there are not many studies related to the well-being of employees forced to work remotely combined with the perspective of having pet animals during COVID-19. Thus, there is a need for this research because it provides a new perspective. This is because most of the studies made are focusing on different aspects of either COVID-19 or animals' effect on well-being on people in general. The

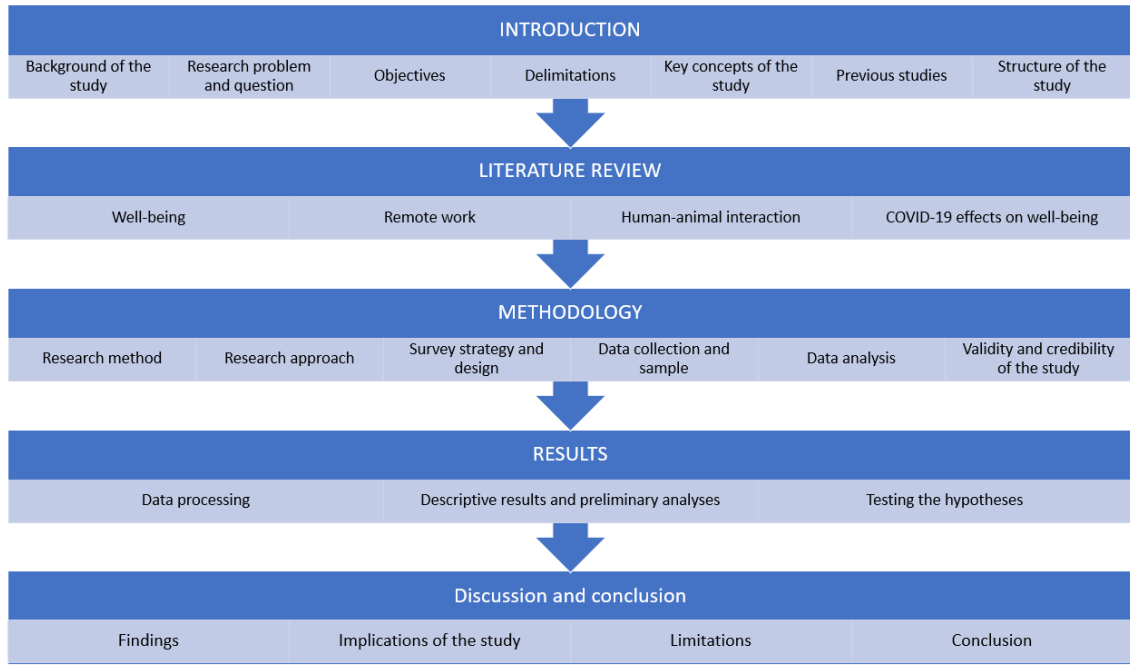
importance of the study will be that it will provide up-to-date information on people working remotely during COVID-19. Additionally, it can be used to understand the importance of having pet animals and the connection between them and people's mental health and well-being in general.

## **1.7 Structure of the study**

The structure of the study consists of different sections: introduction, literature review, methodology of the study, results and discussion and conclusion. Introduction provides background for the study, introduces the research problem and research question, covers the objectives and delimitations of the study, and explains the key concepts. Additionally, previous studies are introduced.

Literature review provides more comprehensive information related to different themes of the thesis. Animal-people interaction and its effect on people's mental and physical well-being will be reviewed in addition to the effects of COVID-19 on people's well-being. Effects of COVID-19 on pet animals' increase is covered as well. Literature review will be used as a basis to support or to criticise the findings of the study.

Methodology of the study consists of research approach and method used followed by introducing the questionnaire design, data collection and data analysis. Additionally, validity and credibility of the study is covered in the methodology of the study section after which the results of the study will be discussed, and hypotheses tested. Final section of the study, discussion and conclusion, is related to the findings of the study through discussion. Implications and limitations of the study are covered. References and appendices are provided at the end of the research. Figure 1 below shows the structure of the study.



**Figure 1. Structure of the study.**

## **2 Literature review**

Literature review of the thesis consists of four subchapters: well-being, remote work, human-animal interaction and COVID-19 effects on well-being. Each of the subchapters are divided into smaller sections. The literature review aims to provide theoretical background for the relevant topics regarding the thesis. For example, well-being includes both mental and physical health of humans in addition to providing theoretical background for emotional well-being, social interaction's relation to mental health and other influencers for mental health. The remote work on the other hand focuses on remote work's impacts on people's well-being when working remotely prior to the pandemic and during it.

When it comes to the human-animal interaction part of the literature review, there will be provided theory for the human-animal interaction itself in addition to its impact on people's well-being. Moreover, emotional support animals and service animals and their purpose and impact on humans' mental health is introduced. The difference between mental health problems and severe mental illnesses and pet animals' impact on those will be assessed. In addition, possible negative aspects of owning a pet to one's mental health is reviewed by providing appropriate theoretical background. Finally, there will be theoretical background for COVID-19 effects on humans' mental health and how the pandemic has influenced on pet animals' amount within households.

### **2.1 Well-being**

Well-being refers to individual's sense of feeling well. Well-being includes aspects of mental health and physical health. For instance, one may consider their well-being to be on a stable level when they are feeling healthy both physically and mentally. Being able to manage stress, feeling purposeful and feeling happy in general are aspects of human well-being. (Davis, 2019) Well-being subchapter of the literature review includes theory of mental health and physical health. Mental health section focuses mainly on mental health and how physical health and social interaction affect it. Additionally, theory on

emotional well-being is provided as well. Physical health on the other hand covers theory from the point of view of what is meant by physical health and how it is connected to the overall well-being of an individual.

### **2.1.1 Mental health**

Brooks et al (2018) suggest that humans' mental health and overall well-being is influenced by the biopsychosocial model. Biological aspect includes humans' physical health such as heart health. Psychological aspect on the other hand focuses on the state of mental health of an individual whereas social aspect focuses on socializing and its importance to an individual. Biological, psychological and social aspects are all intertwined with each other. Thus, if one aspect is in poor state, the other aspects may become worse as well. (Brooks, et al., 2018)

Mental health is subjective. An individual may feel mentally healthy whilst experiencing some symptoms related to for instance depression whereas another person may feel extremely depressed with similar symptoms. Also, cultural background influences acknowledging the mental health related problems. Some cultures may not even have a word for "depression". In fact, they tend to refer to mental health problems and their symptoms by expressing physical symptoms such as stating that they have stomach-ache. (Mielenterveystalo, n/a)

When an individual's mental health is in a healthy condition, they are likely to perform well in their everyday life and have the ability to manage stressful situations. They are able to take of their well-being and balance between different activities within their lives. The article of Felman (2020) suggests that mental health is affected by individual's life activities, social interaction and physical activity. Additionally, lack of one of the mentioned aspects may influence the mental health negatively and vice versa. (Felman, 2020)

Felman (2020) also states that mental health is shaped by the individual's living environment, financial and social circumstances and their genes and biological background. For instance, having continuous stress related to financial aspect may disrupt the state of the mental health. Additionally, having a physical disease such as cancer may result the person having anxiety and depression. (Felman, 2020) Therefore, mental health can be considered as a complex part of a person's life and it can be impacted positively and negatively by different factors.

However, there are ways to improve one's mental health. For example, seeking for help from psychotherapy may have a positive impact on increasing the level of a person's mental health. The aim of the treatment is to help people to understand and define their problems and seek solutions and ways on how they can improve their mental health on their own. (Felman, 2020)

### **2.1.2 Physical health's impact on mental health**

According to Mental Health Foundation (2022) "research shows that people with a mental health problem are more likely to have a preventable physical health condition such as heart disease" (Mental Health Foundation, 2022). There are several reasons for mental health affecting physical health. For instance, individual's genetic background may make them more vulnerable for developing mental health problems that may result in having physical health problems as well. Individuals with mental health problems may need to take medication that effects their ability to take care of themselves. Mental health problems may also decrease individuals' concentration and planning skills which might result them to postpone attending medical appointments for physical symptoms, leading the physical symptoms to become worse. (Mental Health Foundation, 2022)

Occasionally, mental health problems may be associated with physical symptoms causing doctors to not either investigate the symptoms further or them assuming the symptoms are part of the mental health problems. The doctors may also disregard the need for professional support in cases where they might consider the individual is unable to quit

unhealthy habits such as drinking or smoking. This leads an individual to be alone with their possible unhealthy behaviours, in addition to their mental health problems. However, mental health problems are often related to physical symptoms due to humans' bodies being connected to their minds. For instance, having a depression might cause physical problems such as headaches, fatigue, or stomach issues. Thus, physical health is affected by mental health and vice versa. (Mental Health Foundation, 2022)

#### **2.1.2.1 Mental illnesses**

Mental health and mental illnesses differ from each other. Mental health is combined with aspects of emotional, psychological and social well-being. Mental illnesses on the other hand are illnesses that effect on an individuals' way of thinking, emotions or behaviour. Examples of mental illnesses are depression, anxiety disorders and schizophrenia. (McLean Harvard Medical School Affiliate, 2021)

Mental illness can be also referred to as mental health disorder. Depending on the mental illness in question, the symptoms may vary. However, common symptoms are feeling sad, isolating from friends and family, having extreme mood changes or feeling extremely guilty. There can be also problems with substance use or experiencing major changes with eating habits. Suicidal thinking, aggressiveness, being unable to express emotions or experiencing paranoia or hallucinations are also symptoms of mental illnesses. (Mayo Clinic, 2022)

The above-mentioned symptoms of mental illnesses can be caused by variety of reasons. Genes, environmental factors and brain chemistry tend to be the main causes for mental illnesses. For example, exposure to substance before being born is one major factor. Additionally, mental illnesses such a schizophrenia may "run in the family" meaning that it can be inherited. Moreover, there are certain risks that can increase the chances of becoming mentally ill. Such risks include chronic disease, having history of mental illness in the family, brain injury or having traumatic experiences may result an individual

becoming mentally ill. Also, isolating and using substances are risk factors as well. (Mayo Clinic, 2022)

Nevertheless, individuals may influence on their risks of having a mental illness. Some risks such as genes and traumatic experiences (for instance an abuse experience in one's childhood) are something that cannot be affected. However, abstaining from excessive substance use and paying attention to own symptoms, individuals may decrease the above-mentioned risks of becoming mentally ill. Also, seeking for help early on is a significant factor in preventing the condition becoming worse in addition to living a healthy lifestyle in general. (Mayo Clinic, 2022)

#### **2.1.2.2 Effects of social interaction on mental health**

Social interaction refers to the interaction between humans through the process of acting and reacting with others (Moffitt & Chapel, 2015). Humans have become social creatures through evolution (Vrticka, 2013). Social interaction influences humans' mental and physical health in various ways. For example, being social increases the stability of mental health by releasing endorphins and creates trust amongst humans. Additionally, it can lower the risk of having dementia since it increases the health of one's brains. (MercyCare, n/a) Social interaction also supports individuals throughout their lives and regardless of their life situations. As an example, people starting their universities may feel less stress through having social support from other people in their lives. Eventually, it decreases the levels of stress and can prevent depression. (South University, 2018)

Mental health is affected by social interaction in other aspects of mental health as well. For example, feeling of loneliness and isolation is decreased when an individual has stronger social connections with other people. It also provides a sense of belonging and purpose which increases the level of mental health positively. (Brody, 2017) Thus, lacking social interactions influence people's mental health negatively.

### **2.1.2.3 Emotional well-being**

Emotional well-being is referred to when discussing about an individual's ability to face different challenges throughout life, expressing emotions and feelings and ability to manage stress. Also managing negative feelings and finding positive aspects of challenges is another part of emotional well-being when it is in a good level. Emotional well-being is part of the overall well-being of an individual meaning it has an affect on the well-being when regardless of the state of the emotional well-being. (Melkonian, 2021)

### **2.1.2.4 Other influencers on mental health**

Humans are all different and what works for others, may not work for everyone. However, there are ways an individual can affect their own mental health and overall well-being. Having a schedule or a routine that one follows is crucial when thinking about individual's mental health, especially when working. Having a schedule that allows breaks is also important. As mentioned above, social interaction is something that human needs, thus communicating with others is needed as well. (Center For Workplace Mental Health, 2022)

Additionally, keeping one's immune system functioning is important because it protects from bacteria and viruses. Immune system can be boosted by having a good hand hygiene, sleeping enough, eating healthy food, and drinking enough water and taking vitamins to support the immune system. Getting fresh air, exercising, and staying active are also major parts of one's mental health since they decrease the levels of stress and increase the release of endorphins. All these above-mentioned factors influence individual's mental health in long-term. (Center For Workplace Mental Health, 2022)

### **2.1.3 Physical health**

Physical health as a term covers different physical aspects of one's health. It includes activity, nutrition and diet, substance use, medical self-care and having enough rest and

sleep. (Koshuta & Chapel, 2015) Being physically active can improve the overall well-being of an individual by improving the health of brain, managing weight and reducing the risk of becoming severely ill caused by a disease. Physical activity can strengthen bones and make the bones stronger. (Centers for Disease Control and Prevention, 2022)

By making healthy choices related to nutrition and physical activity, one may avoid serious physical illnesses. Physical health is connected to the overall well-being since it also effects the mental health of an individual. Taking care of their own physical health, people tend to live longer, prevent themselves from becoming ill and living a balanced life in terms of mental and physical well-being. (American Association of Nurse Anesthesiology, 2022)

### **2.1.3.1 Effects of social interaction on physical health**

Social interaction also influences the level of physical health of people. A study of Berkman and Syme (1979) investigated Alameda County residents' social networks relationship with mortality. The findings indicate that individuals who lack of strong social connections with other people were more likely to die earlier than the ones who have strong social connections. This is due to the basic need of social interaction in human's life. (Berkman & Syme, 1979)

The article of Harvard Health Publishing (2010) also supports the longevity's and social interaction's impact on each other. Additionally, there are other physical health benefits influenced by social interaction or their lack of. For instance, when an individual has strong social interaction within their life, they are more likely to prevent themselves from having a chronic inflammation. Chronic inflammation is referred to as "silent killer" due to the damage it does without being noticed easily. Chronic inflammation diseases include cardiovascular disease and type two diabetes. Lack of social interaction's impact on people's physical health is comparable to one smoking more than ten cigarettes daily. (Harvard Health Publishing, 2010)

Another positive aspect of social interaction is that people with strong social connections seem to have stronger immune system than those with weaker social connections. For example, even though they would be exposed to viruses, individuals with plenty of social interactions may not be infected with the viruses in question. (NIH News in Health, 2017) Additionally, people who have already a severe medical condition, for example a heart disease, are more likely to become better by having stronger social connections. (Brummett, et al., 2001) Therefore, there are several benefits of social interaction when it comes to humans' physical health.

## **2.2 Remote work**

The subchapter of remote work consists of providing theoretical background for remote work's effects on humans' mental health prior to COVID-19 and during the pandemic. Theory for remote work's effects on humans' physical health will be provided as well.

### **2.2.1 Effects on mental health prior to COVID-19**

The importance of good level of mental health of an employee is crucial due to several reasons. From the employer's point of view, investing in mental health support may decrease the absenteeism of employees whilst increasing their productivity. Supporting the employees' mental health and their well-being, the medical costs of a company decrease in the long-term. As for the employees themselves, the feeling of being supported also mentally may make the employees more engaged to the company and receiving help if needed will eventually benefit their overall well-being. (Upshaw, 2021)

Remote work is referred to when an employee is working somewhere else than the office. Remote work can be practised either at the employee's own home or for instance at a coffee shop or when travelling abroad. Remote work is generally applied by the employee communicating with the colleagues or managers by using computer or phone. (Cambridge Dictionary, 2022) Prior to the pandemic of COVID-19, working remotely in European Union countries had remained in the same level in which 5.4% of employed

EU citizens worked remotely. The workers working from home were mainly self-employed people. After the pandemic outbreak, nearly 40% of employees started working remotely. (European Union, 2020) Thus, the pandemic has had an impact on the number of employees working remotely.

According to the article of Otsuka (2021), even before COVID-19, the employees working remotely showed signs of mental health related problems due to working remotely. For instance, remote employees had problems finishing work for the day and starting their free time. They also showed signs of feeling lonely and lack of staying motivated. The pandemic has increased the above-mentioned aspects of mental health problems. Additionally, poor working conditions, such as lack of movement and poor home set up, may have an impact on employees' mental health in the long-term when working from home. (Otsuka, 2021)

However, there are also benefits of working remotely. For example, employees result in saving time and money in business related costs, increasing their productivity, and balancing possible family needs. In the end, having more time for the above-mentioned factors may decrease the stress of an individual. On the other hand, remote work may decrease the trust between colleagues as interacting with them in person may increase the trust between them. Informal interactions may also suffer due to remote work since interaction between managers and their employees may not be as spontaneous as in real life. The same applies to interacting with customers: face to face meetings with customers are more likely to build stronger relationships with them. These aspects of remote work will effect on the work itself and have an influence on the well-being of the employees. (George, 2021)

The article of Tavares (2017) examined remote work's effects on employees' health. The findings of the study indicated that remote work can be beneficial for employees possessing certain types of characteristics and traits. These characteristics and traits include being self-motivated, having high level of knowledge on the job and high

performance and independence and confidence. Additionally, an individual may benefit from being comfortable of working alone rather than with other people and they should possess good level of time management and organisation skills in order to be successful when working remotely. (Tavares, 2017)

However, the article of Tavares (2017) established that there are health related issues when it comes to working remotely. These issues are musculoskeletal problems, isolation and depression, stress and overwork. For instance, musculoskeletal problems are caused by the fact that remote workers may not result in having enough breaks and they tend to sit by the computer for long hours causing for example bad posture. As humans tend to need social interaction, employees working remotely do not have the same level of social interaction when comparing to the ones working at the office. Thus, the feeling of isolation and depression may increase. Additionally, stress and the amount of overwork tend to increase when working remotely. Long-term disadvantages of stress and overwork will most likely result the employees' mental health to suffer. (Tavares, 2017)

Nevertheless, the above-mentioned stress-related aspects of remote work can be overcome by the benefits of remote work. The benefits include the possibility to balance the relationship between work and personal life by allowing more room for scheduling, leaving more time for work when not needing to commute to the office, feeling of having better life control and improved job satisfaction. Nevertheless, the individual working remotely may value different aspects of remote work differently than another individual. Therefore, the benefits of remote work may not seem as important as the benefits of working at the office which include spontaneous social interaction with one's colleagues. (Tavares, 2017)

### **2.2.2 Effects on mental health during COVID-19**

The spread of COVID-19 forced governments worldwide to make decisions of lockdowns of their societies. As a result, many societies around the world were forced to stay at

home which meant an increase of remotely working employees within many industries. The rapid change of forced to work remotely lead to many employees having an unbalanced amount of work and pressure to perform in a timely manner. As a result, many employees felt an increase on their levels of stress and mental health issues. However, there are also employees who prefer to work from home since it provides more flexibility. Thus, even though being forced to work remotely, some employees may find it more suitable for them than working at the office. (Al-Habaibeh, Watkins, Waried, & Bathaei Javareshk, 2021)

Aetna International conducted a global health survey which indicates that ever since the pandemic, an increase of 32% of stress level has been reported (Aetna International, 2020). In addition, 40% of the respondents are concerned on their mental health due to working from home because of the pandemic. Thus, according to Aetna International's study (2020), the pandemic has had a negative effect on employees' mental health when being forced to work remotely. (Aetna International, 2020)

On the other hand, working remotely provides the opportunity for employees to continue having an income which may decrease the income-related stress. For instance, during lockdowns or when being quarantined, the employees with remote work opportunity, may continue working from home ensuring their regular level of income. However, especially in cases where an individual is in quarantine and working from home, their colleagues are working at the office which may increase the feeling of isolation. Additionally, the responsibility of separating boundaries between work and personal life is left to the employee. Thus, remote work during COVID-19 has been resulting in an increase of mental health issues for employees. (Hamouche, 2020)

Another aspect of being forced to work from home during the COVID-19 pandemic is called family-work conflict which concerns employees with families. In many countries during the pandemic also children were forced to study remotely. This may cause a family-work conflict for the employees since they need to take care of their children

during a workday. For instance, children that normally go to school are able to eat at the school whereas studying remotely they are dependent on their parents. Thus, employees may experience more stress when being forced to work remotely whilst taking care of the responsibilities within their families. (Galanti, Guidetti, Mazzei, Zappalà, & Toscano, 2021)

Another effect of COVID-19 pandemic is that the employees' working remotely may feel more isolated than previously. This tends to lead to depression or other mental health problems caused by remote work during the pandemic. The levels of stress have also been reported to increase during COVID-19 which may be caused by the factor that many employees do not have suitable working conditions, such as quietness and equipment, when being forced to work remotely. (Galanti, Guidetti, Mazzei, Zappalà, & Toscano, 2021)

### **2.2.3 Effects on physical health during COVID-19**

Remote work during COVID-19 has affected the physical activity of employees. A study conducted in the United States of America indicated that many employees have had negative effects on their physical health when working remotely during COVID-19. These physical symptoms caused by remote work is for instance having up to 50% decrease on their mobility when comparing to the times before COVID-19. Additionally, many employees have resulted in having very low amount of steps on their daily activities since they only move from their bedroom to their workstation at their house. They also reported in having increased pain in their lower backs and shoulders and they feel that their eyes are strained because of remote work. (Robinson, 2021)

## **2.3 Human-animal interaction**

This subchapter of human-animal interaction focuses on defining human-animal interaction and how it influences humans' mental and physical health. Additionally,

theoretical background of Emotional Support Animals (ESAs) and service animals is provided. Pet animals' effect on employees will be reviewed as well.

### **2.3.1 Pet animals' effects on mental health**

Interacting with pet animals is a subject that concerns many people. Dogs can nowadays be seen in places where they have not been allowed previously. For example, seeing dogs in schools, hospitals and airports have become more common than before. Dogs' effects can be compared to parents seeing their infants: in both cases the level of oxytocin increases which leads a person feeling happy. (Cimons, 2016)

For some individuals having a pet provides a safer environment in which the pet owner willingness to share their feelings and thoughts is increased. For example, many pet owners tend to talk to their pets without a fear that they get rejected or judged. Additionally, many feel that pets provide unconditional love and affection to their owners and conflict-free relationships. (Brooks, et al., 2018)

Having a pet has also other mental health related positive effects. The study of Brooks, Rushton, Lovell, Bee, Walker, Grant and Rogers (2018) show that having a pet animal has positive effects on mental health by reducing depression and feeling of loneliness. Nevertheless, there are also neutral and negative impacts on having a pet animal. For example, one negative impact is that they might cause burden and stress on an emotional level due to needing to take care of them and possible surprising situations. (Brooks, et al., 2018)

Pet animals influence people's mental health in other ways as well. For instance, owning a pet animal may reduce cortisol levels, also known as a stress hormone, which has an impact on general well-being of a person. In addition to easing the feeling of loneliness and depression, pet ownership may result in having better self-esteem when comparing to people who do not have pet animals. Additionally, pets may provide the sense of

purpose to the owners since they need to take care of them. (Johns Hopkins Medicine, 2022)

According to Mental Health Foundation (2022) taking care of the pets, the pet owners are more likely to have a certain routine in their everyday life which brings the feeling of stability. After taking care of their pets, the owner may sense the feeling of accomplishment which influences their self-confidence further. Thus, having a pet animal helps to maintain individuals' mental health in a stable state. (Mental Health Foundation, 2022)

Owning a dog increases social interaction assuming their dogs are friendly and can be approached by other dogs and people. Feeling a sense of belonging increases mental health and owning a dog increases that feeling by offering chances of social encounters. In addition, dogs provide companionship, stability through routines and a sense of purpose to their owners. Each of these improve people's mental health. (The State of Queensland (Queensland Health), 2021)

A study of Wisdom, Saedi and Green (2009) researched how animals can help people suffering from serious mental illnesses. The study's findings were explicit: pets assist people to recover from mental illnesses. For example, they provide empathy and therapy by being present and feeling of pets responds to their emotions and suffering. Additionally, having dogs as pet animals, the owners with serious mental illness were forced to "face the world" and take them for a walk where they would be forced to have social encounters. Moreover, pets increased the study's respondents self-worth by for example preventing from committing a suicide since their pets would need them. (Wisdom, Saedi, & Green, 2009)

However, there can be negative aspects of owning a pet to person's mental health. For example, worrying of pet's health and surprising costs tend to increase the level of stress. Pets are expensive and there occurs surprising costs especially if they get sick.

Sometimes the pet can be unsuitable for certain environments. A dog might not get along with other dogs or it might cause damage at the owner's house which results into more stress and worry for the owner and the dog. This eventually decreases the level of mental health of a pet owner. (Brooks, et al., 2018)

### **2.3.2 Pet animals' effects on physical health**

As mentioned previously, even seeing a dog or petting one decreases the cortisol levels of a person and increases the level of oxytocin. Due to lower cortisol levels, people interacting with pet animals seems to have lower blood pressure and cholesterol levels than people who do not experience any animal interaction. This leads to having better heart health for the pet owners or for people interacting with animals. According to the article of Lundgren, Robinson and Segal (2021) pet owners who have survived from a heart attack are more likely to make to their "one year mark" than those without pets. They also make fewer doctor's appointments in general. (Lundgren, Robinson, & Segal, 2021) The article of Gee, Rodriguez, Fine and Trammel (2021) supports the findings of dogs improving the heart health of the people interacting with the dogs. (Gee, Rodriguez, Fine, & Trammel, 2021)

Additionally, the study of Caciotti and Zuckermman (2021) shows evidence of lower blood pressure and more regular heart rate which have been recorded among dog owners. Also, especially for elderly people, pet animals increase the feeling of having companionship and therefore increases their overall well-being. (Caciotti & Zuckermman, The Benefits of Pets for Human Health, 2021)

Overall, animals can have both positive and negative effects on human being's health. Environmental Health Intelligence New Zealand (N/A) state that the positive impact of animals on human being's well-being is for example that animals reduce people's stress and anxiety. Animals can also provide special assistance or protection. In addition, having pet animals might decrease the risk of children having allergies or asthma. The negative impacts of pet animals on the other hand consist of risks related to bites or other injuries,

as well as diseases and allergies that animals can cause. (Environmental Health Intelligence New Zealand (EHINZ), N/A)

Nevertheless, even though studies have shown that owning a dog has beneficial health effects on both physical and mental health of a person, it is considerable that it can be achieved also through for instance exercising. As an example, a dog owner may be more motivated to go for a walk outside when they need to take the dog out but simultaneously any other person without a dog is able to receive the same benefits from going for a walk. Thus, dogs can also be seen as the motivational factor to take better care of individuals' health whilst taking care of the dogs. (Gee, Rodriguez, Fine, & Trammel, 2021) Therefore, when considering this research, the above-mentioned aspects need to be taken into account.

### **2.3.3 Emotional Support Animals versus Service Animals**

After research have proven pet animals' impact on people's well-being, a relatively new concept has arisen. So called Emotional Support Animals (ESAs) are pet animals which purpose is solely to provide emotional support for people who suffer from mental illnesses. ESAs differ from service animals since service animals are trained to provide guidance for a person who has physical, mental or sensory disability. Emotional support animal on the other hand provides therapeutical support to an individual who suffers from mental or psychiatric disease. (Kentucky Counseling Center, 2021)

People who suffer from different phobias such as agoraphobia (public place phobia), have anxiety disorders or Post Traumatic Stress Disorder (PTSD) or depression, may benefit from having an Emotional Support Animal. ESAs calm anxiety, reduce stress and provide unconditional love which leads to people suffering from mental illnesses feeling calmer and more loved. Additionally, they can help stabilizing different intense emotions and provide social support when facing different situations that may trigger the emotions. (Kentucky Counseling Center, 2021)

There are several different types of people who may benefit from having an ESA. For example, children with autism or teenagers who suffer from depression are more likely to experience positive emotional response and feel sense of companionship through Emotional Support Animals. Additionally, ESAs are the most beneficial for people who have severe mental illnesses such as schizophrenia or bipolar disorders as their quality of life improves and they have better motivation to take care of themselves through ESAs presence. (Kentucky Counseling Center, 2021)

War veterans, active soldiers and prison inmates are also likely to benefit from the presence of an Emotional Support Animal. For example, war veterans may experience trouble sleeping and PTSD symptoms which are eased when accompanied by ESAs. When it comes to the prison inmates, they may suffer from feeling loneliness and isolated and they may experience stress in relation to their own safety. Emotional Support Animals in prison are to reduce the previously mentioned feelings. The same effect may be applied to university students who experience high pressures due to their studies and possible negative effects of student loan payments. (Kentucky Counseling Center, 2021)

However, there also disadvantages of owning an Emotional Support Animal. For example, the owner is responsible for taking care of the pet which may lead to financial distress. Additionally, the pet will most likely die before the owner does causing the owner needing to go through the sorrow process. Additionally, the owner is responsible for finding a place for the animal during their possible holidays if the pet is not taken with them. Since the Emotional Support Animals do not require any training, their behaviour may be problematic and eventually cause more harm than good for the owner by increasing their level of stress. (Sutton, 2022)

Service animals on the other hand, are trained to perform specific tasks depending on their owners' disabilities. For example, a blind person can be entitled to get a service animal to assist them on their daily routines. There are also other disabilities that service

animals can be used for. These disabilities are for example hearing disability, psychiatric disabilities, autism or seizure disorder. The service animals may improve the quality of life of people with the above-mentioned disabilities by alerting them when it is time to take medicine or if an autistic person is showing “distracting repetitive movements” (Brennan & Nguyen, 2022) that are common for them. (Brennan & Nguyen, 2022)

#### **2.3.4 Pet animals influence on employee’s productivity and well-being**

There are workplaces that allow bringing pet animals to the office as its positive impact has been seen on employee productivity and their overall well-being. According to the article of The University of Southern California (2022) bringing pets to workplaces increase the balance between work and life by allowing the employees to have more spontaneous breaks. The breaks on the other hand decrease the risk of working overtime and experiencing stress. Moreover, the employees may result in becoming more productive. (The University of Southern California, 2022)

However, there are factors to consider from the point of view of employers. For instance, some employees may be severely allergic to animals which is why allowing pets to come to the office may not be ideal for everyone. Additionally, good level of hygiene needs to be ensured by the pet owners and obligated by the employers since pets may spread certain viruses, fleas, or ticks to people. Vaccinations of the pet animals should be up to date in addition to making sure that they do not harm other animals nor people when being at the office. (The University of Southern California, 2022)

Another benefit of bringing pets to the workplace is that the employee turnover is decreased within a company since the employees receive more flexibility in terms of work-life balance. Additionally, pet animals tend to bring more relaxing and soothing working environment which results in reduced amount of stress and other burnout related symptoms. Thus, employees’ level of productivity and well-being increase. (Wagner & Pina e Cunha, 2021)

## **2.4 COVID-19 effects on well-being**

COVID-19 has affected both mental and physical health of people. This subchapter of the literature review focuses on the effects of COVID-19 on humans' mental and physical health providing appropriate theoretical background. Additionally, theory related to the amount of pet animals within households will be provided.

### **2.4.1 Effects on mental health**

There are studies found about COVID-19 and its effect on people's mental health throughout the pandemic. For example, the study of Panchal, Kamal, Cox and Garfield (2021) presents the implications of the pandemic of COVID-19 on people's mental health and how the substance use has been affected by the pandemic. They found that 40% in the United States have admitted to having symptoms of depression or anxiety. When compared to the previous study, before the pandemic, the number was 30%. Thus, according to Panchal et al (2021) article, the pandemic has increased the symptoms of mental health problems. (Panchal, Kamal, Cox, & Garfield, 2021)

According to World Health Organization (N/A) the pandemic of COVID-19 caused an increase in the mental health problems. In overall, the main mental health issues are increased levels of stress and anxiety. However, due to possible quarantines, loneliness, depression, and substance use have increased. (World Health Organization, N/A)

The study of Chandola, Kumari, Booker and Benzeval (2020) examined adults in UK and their mental health in relation to the pandemic and lockdowns set due to it. The study findings indicate that 29% of employees with no mental health problems one year before the study had an increase of them during the pandemic and lockdowns. However, the findings support that whenever the restrictions and lockdowns were lifted, the state of mental health of employees was improved. Moreover, loneliness remained on the same level yet. (Chandola, Kumari, Booker, & Benzeval, 2020)

The article of Pietrabissa and Simpson (2020) focused on what type of psychological consequences social isolation during COVID-19 has had. The findings show that there has been an increase of mental health issues such as anxiety, panic, insomnia, depression, and post-traumatic stress syndrome. These tend to be caused the isolation due to COVID-19 pandemic. (Pietrabissa & Simpson, 2020)

#### **2.4.2 Effects on physical health**

The study of Park, Zhong, Yang and Jeong (2022) analysed 61 studies in which majority of the studies were conducted in Asian and European countries and four of the studies were conducted in United States of America. The results show that COVID-19 pandemic effected on decreasing the mobility of the participants. For instance, there was a decrease of walking and physical activity during the pandemic. (Park, Zhong, Yang, & Jeong, 2022)

The study of Puccinelli et al indicate also that COVID-19 effected the level of physical activity. The study was conducted for Brazilian participants and the decreased level of physical activity was related to the respondents' level of depression. (Puccinelli, et al., 2021). Therefore, it can be stated that physical activity was decreased during the COVID-19 pandemic.

#### **2.4.3 Effects on pet animals' amount within households**

An increase of pet animals within households has been reported. 11.38 million Americans have gotten at least one new pet to their households during the pandemic (Today's Veterinary Business, 2020). Additionally, animal shelters may not be able to offer pets to adopt due to the increase on the demand of pet animals (Hedgpeth, 2021). Another effect of COVID-19 on an increase of pet animals within households is reported by the enterprises which sell equipment and pet food online. Especially enterprises focusing on selling equipment and food for dogs is expected to grow rapidly after the

pandemic of COVID-19 supporting the rapid growth of pet animals. (Research and Markets, 2021)

According to Markus Mäki (2022) there was an increase of 17 % among registered dogs in Finland when comparing to the year of 2019. As a result, the number of registered dogs to The Finnish Kennel Club was more than 52 000 dogs. The Finnish Kennel Club's president Harri Lehkonen mentioned that the importance of a dog has enhanced during the pandemic. (Mäki, 2022)

## **2.5 Hypotheses of the research**

There are three hypotheses for this research. Each of the hypotheses will be reviewed and determined whether they are supported or rejected – depending on the findings of the study. The hypotheses are:

**Hypothesis 1.** Owning a dog has impacted employees' mental health in a positive manner when working remotely during COVID-19.

**Hypothesis 2.** Owning a dog has impacted employees' physical health in a positive manner when working remotely during COVID-19.

**Hypothesis 3.** Owning a dog has helped employees to balance their overall well-being during COVID-19.

### **3 Methodology of the study**

Methodology of the study includes introducing research approach, research method and questionnaire design. Additionally, data collection and sample will be assessed after which the pilot test made will be introduced. The data will be analysed but not interpreted, and the study's validity and credibility will be reviewed.

#### **3.1 Research method**

Three types of methods could have been used for this thesis: qualitative research method, quantitative research method and mixed research method (University of Birmingham, 2020). The qualitative research is about collecting data which is not numerical, for example interviews, videos and audios. The quantitative research on the other hand is conducted by collecting numerical data and it is analysed statistically. (Bhandari, 2020). Mixed research method is used when qualitative and quantitative research methods are combined into a research method (University of Birmingham, 2020). Since this study focuses on how people are feeling, how they are experiencing their own mental health and how their dogs may have influenced it when working remotely during the pandemic but simultaneously some factors can be measured quantitatively, the chosen research method was mixed method research.

There are also two types of data that could have been used for this thesis: primary and secondary data. Primary data refers to data that is collected by the researcher themselves whereas secondary data is collected by another party prior to the research. The data used for this thesis was primarily collected data. By using primary data, the data will be more precise to provide a deeper understanding for the research topic. Additionally, it provides real time data which is considered to be more accurate than secondary data which since secondary may be expired or no longer relevant data. (Benedictine University, 2022)

There are several different ways to perform mixed method research that could have been used for this thesis. As mentioned previously, the chosen research method was to conduct a mixed method research by using a survey as a tool to collect the data. Conducting a survey offers the possibility for receiving more respondents than when conducting interviews. Nevertheless, the data of a survey may not be as accurate as for example interview's data as there is room interpretation errors. (Surbhi, 2018)

Nevertheless, conducting semi-structured interviews by using qualitative research method could have been another appropriate method for this thesis as they include both "what and how" questions and there is room for further questions and discussion between the interviewer and the interviewee. (TheEduLab, 2015) However, as a result, the author chose conducting a survey due to preferring to have more variety in respondents and survey being friendly in terms of time usage for the author herself and for the respondents. (Surbhi, 2018)

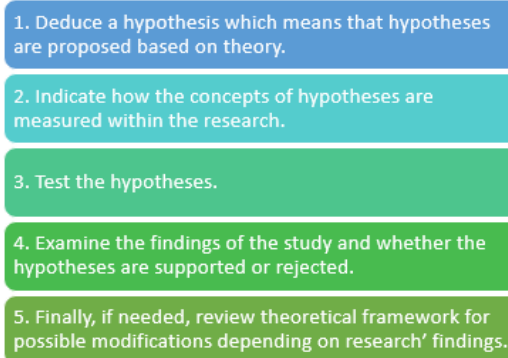
By choosing this method, the research contributes new knowledge in terms of remote employees' state of mental health and whether owning a dog has had an impact on it during COVID-19. Due to mental health being sensitive matter for many people, conducting an anonymous survey was the most suitable way to conduct this research.

### **3.2 Research approach**

Three types of research approaches could have been used for this thesis: deductive, inductive and abductive approaches. The chosen approach is deductive approach due to its nature being the most suitable for the purpose of this research. In deductive approach the set hypotheses are based on theoretical framework after which they will be tested. Once the research' results are analysed, the hypotheses are confirmed or rejected depending on the findings of the study. Inductive approach on the other hand starts by testing the hypotheses, finding a pattern, and finally formulating the theory of the study. (Business Research Methodology, n/a) As for the abductive research approach, it provides the opportunity to search for "surprising facts" that need to be explained within

the research. Abductive research allows the researcher to combine both qualitative and quantitative research methods. (Business Research Methodology, n/a)

According to Saunders (2007) deductive research approach includes five stages. The stages are presented in the Figure 2 below which will be followed in this research. (Saunders, 2007)



**Figure 2. Saunders' suggested five stages of deductive research approach. (Saunders, 2007, p. 117)**

### 3.3 Survey strategy and design

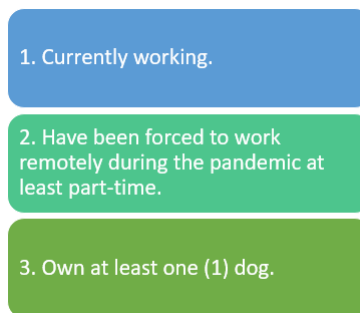
The survey was conducted by means of online survey rather than conducting interviews. Preparing an online survey enabled to contact possible participants around the world and it was more cost efficient. Additionally, online surveys enable the participants to be more honest and since the topic is considered to be sensitive, enabling the participants to respond anonymously was crucial. However, online surveys tend to be more limiting due to having more close-ended questions which was taken into consideration. Thus, the online survey included both close-ended and open-ended questions. By choosing both designs to the survey, it allowed the participants to write more freely to the open-ended questions. (Mahmutovic, 2021)

The survey was distributed via Facebook, LinkedIn, Instagram, Whatsapp and via the author's workplace's internal communication channel. Additionally, conducting an

online survey allowed the author to have larger sample size due to distributing it via above-mentioned channels. However, online surveys do not allow everyone to access it since they require the participants to have access to internet and to have a suitable device for answering the survey (Mahmutovic, 2021). Nevertheless, this disadvantage was not an obstacle due to the respondents needing to be working remotely. Thus, the expectation was that the respondents who are eligible to answer the survey have access to internet and have suitable devices.

### 3.4 Data collection and sample

As mentioned above, the strategy of the thesis was to conduct a survey. The survey form used was Google forms. The criteria for sampling was that the respondents of the survey match the characteristics seen in the figure 3 below.

- 
1. Currently working.
  2. Have been forced to work remotely during the pandemic at least part-time.
  3. Own at least one (1) dog.

**Figure 3. Criteria of the respondents.**

Thus, full-time students that are not working, retired people and unemployed people were not eligible as respondents for the survey. Also, people who do not own a dog were not eligible as participants for this research nor people who have not been working remotely during the pandemic.

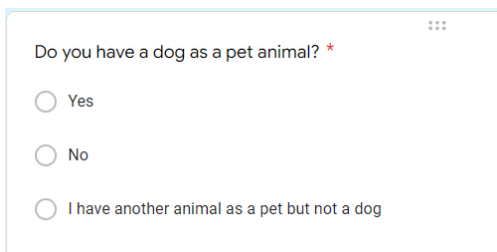
The survey was conducted anonymously in order to gain deeper level of data. The questions asked in the survey were focusing on background of the respondents (including age, gender, home and working country, how much they worked remotely

prior and during the pandemic and whether they owned a dog before the pandemic). Questions focusing on determining the level of well-being of the respondents and whether their dog(s) had an impact on it were asked as Likert scale questions in which the participants were asked to evaluate the level of their dogs' impact on their well-being. At the end of the survey, there were open-ended questions to receive qualitative data. The survey took approximately 10 minutes depending on the respondent.

### 3.4.1 Pilot test

Pilot test as a term is referred when a researcher conducts a preliminary test with either a smaller sample size or to check whether the tools used in research are functioning properly. Conducting a pilot test in research is crucial in order to establish possible problems and define the feasibility of the study. (van Teijlingen & Hundley, 2002) Thus, pilot test was conducted. This study's pilot test focused on examining the functioning of the survey tool used rather than conducting a smaller study.

The survey was shared with around 10 people to see whether they consider it being clear and functional. The feedback received was mainly positive. However, there were feedback related to planned questions and whether they are necessary when thinking about the purpose of the study. The questions can be seen below in Figure 4 and Figure 5. The question in the Figure 4 was deleted after the pilot study whereas the question in Figure 5 was rephrased to match the study's purpose better.



Do you have a dog as a pet animal? \*

Yes

No

I have another animal as a pet but not a dog

**Figure 4. Pilot test's deleted question.**

If you have a dog as a pet animal, did you have it before the pandemic started? If you do not have a dog, please submit the survey without answering further questions.

Yes

No, I took a dog during the pandemic

Yes, I had a dog but I also took another one

**Figure 5. Pilot test's question before rephrasing.**

Another feedback received was related to lacking a question in which country the participants are currently working. Thus, a question related to that was added to the survey. Moreover, the participants of the pilot test felt that the survey is clear, and they comprehend the questions. Therefore, after making the needed modifications, the author was able to continue establishing the proper survey of the study to collect data.

### **3.5 Data analysis**

There were 171 participants for the survey. Even though the survey was conducted in English, the author had mentioned that Finnish is considered as a suitable language as well. This was due to the fact that the author wanted to receive as many responses as possible and to ensure that it is reachable for people who might not be comfortable with writing English. Once the data was processed, the author of the study cleaned the data. Since there were 10 participants working in other countries than Finland, those responses were not analysed due to there not being enough data to have a comparison between Finland and other countries. There were also two respondents who answered that they were not working remotely during the first outbreak of COVID-19. Hence, 157 responses were eligible for the study. There occurred themes in qualitative questions' responses which are discussed more thoroughly in chapter 4.2.2. Quantitative data. No images were used in the survey.

### **3.6 Validity and credibility of the study**

The validity of a qualitative research refers to the study's methodology used, including the research method, approach, tools and data (Leung, 2015). In order to ensure the validity of the thesis, the author has carefully selected the survey questions and sample criteria. The purpose of the questions and sample criteria is to provide as valid information as possible to be able to answer the research question of the study.

Reliability on the other hand is connected to the replicability of the study meaning that another researcher would be able to get the same results of the study when having the same environment for the process. (Leung, 2015) However, this study examines how the respondents have felt at the beginning of COVID-19 which may impact the reliability of this research since people may forget their own feelings when time passes. Nevertheless, the reliability can be enhanced by having the same survey questions and having the same criteria for the participants eligible for the research.

## **4 Results of the study**

This chapter focuses on analysing the results of the research. Data processing will be covered by reviewing how the data was processed and explaining the “coding system” of the data. Additionally, the data analysis program used will be introduced after which the descriptive results and preliminary analyses will be introduced. Finally, the hypotheses will be tested based on the descriptive results and preliminary analyses.

### **4.1 Data processing**

Data was processed in order to provide more coherent data prior to analysing it. Data was coded into different categories to make the analysing more reliable when using the data analysis program. (Allen, 2017) The data analysis program used is IBM SPSS Statistics program which enables the user to first import the data, then create codes and finally run different tests according to the needs of the user. (IBM, n/a) Data was coded in the following way: 1=male, 2=female for each question except for qualitative questions and Likert scale questions since Likert scale questions are already in the number format. The results will be introduced and analysed in subchapter 4.2. below.

### **4.2 Descriptive results and preliminary analyses**

This chapter focuses on the descriptive results and preliminary analyses of the study. Quantitative data and qualitative data are divided into separate chapters in which data will be reviewed and analysed.

#### **4.2.1 Quantitative data**

In order to make quantitative data analysis, the data was coded. Exact codes can be found in an appendix 2. An example of the code for question related to gender is 1=male, 2=female. Main statistical values used in quantitative data analysis are mean, median, mode, standard deviation of the mean, minimum and maximum. Mean refers to the average value, median is the middle value between the highest and lowest value and

mode is the value occurring the most. Standard deviation of the mean represents the how much numbers deviate from the average. Minimum is the lowest value whereas maximum is the highest values. (MacMillan, Preston, Wolfe, & Yu, 2022)

#### 4.2.1.1 Analysis for respondents' background

Figure 6 below shows the statistics and pie chart for age group. The mean of the age group is 3.10, median is 3.00, mode 2, minimum is 1 and maximum is 6. There were 157 participants in the study of which the majority were 20-29 years old with 37.6%. 15-19 years old participants represent the minority of the study with 1.9%. There were also 30-39 years old participants whose age group represents 24.8% and 40-49 years old with 22.9%. 50-59 years old participants are 10.2% of the study whereas 60-69 years old participants are 2.5%. Thus, the majority of the participants are between 20-49 years old.

##### Frequencies

##### Statistics

Age group		
N	Valid	157
	Missing	0
Mean		3.10
Median		3.00
Mode		2
Std. Deviation		1.148
Minimum		1
Maximum		6

Age group					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	15-19 years	3	1.9	1.9	1.9
	20-29 years	59	37.6	37.6	39.5
	30-39 years	39	24.8	24.8	64.3
	40-49 years	36	22.9	22.9	87.3
	50-59 years	16	10.2	10.2	97.5
	60-69 years	4	2.5	2.5	100.0
Total		157	100.0	100.0	

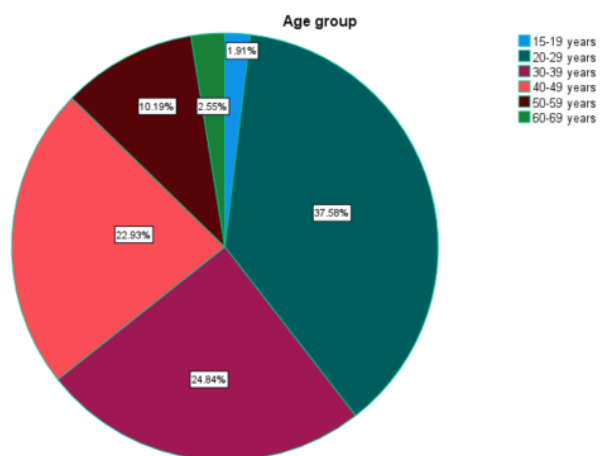
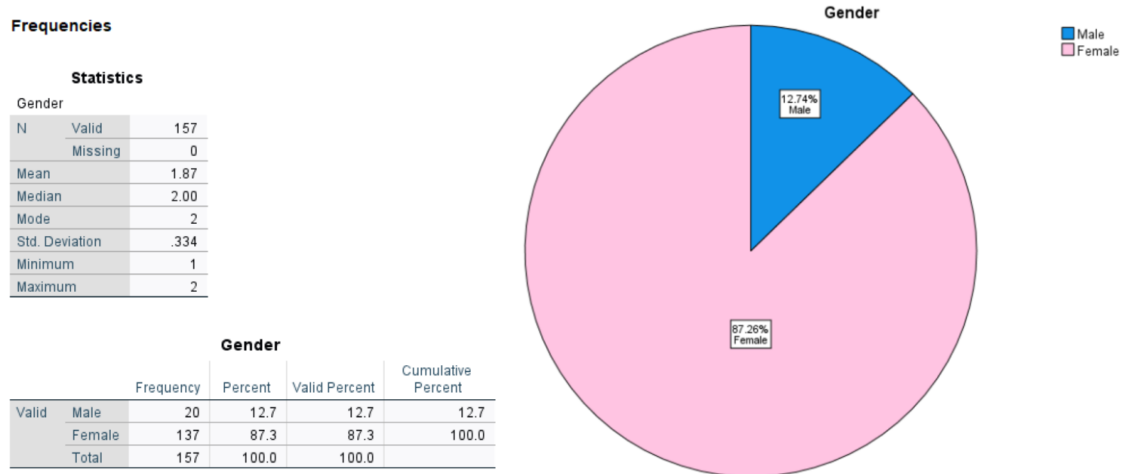


Figure 6. Statistics and pie chart for age group.

The division of gender of the participants can be seen in Figure 7. Majority of the respondents were females with 87.3% and rest of the respondents were males. No participant responded to belong to the gender group of “other” or “prefer not to say”.



**Figure 7. Statistics and pie chart for gender.**

Figure 8 below shows the division of the respondents' countries where they come from. Majority of the respondents, 96.2%, come from Finland. Nevertheless, there were participants coming from other countries as well. One participant, 0.6% comes from United Kingdom and the same number of participants come from Vietnam, India, United States of America, Portugal and Germany. In total, there were participants coming from seven different countries, both in Europe and outside of Europe.

**Frequencies**

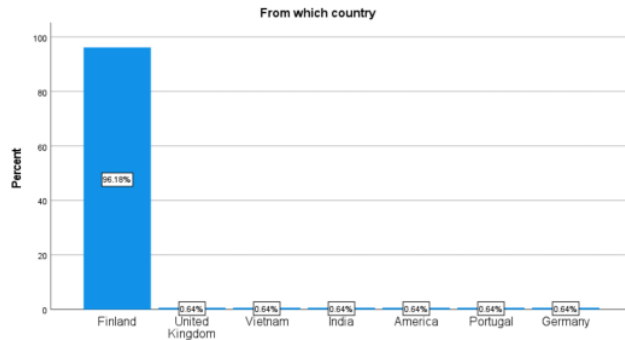
**Statistics**

From which country

N	Valid	157
	Missing	0
Mean		1.13
Median		1.00
Mode		1
Std. Deviation		.752
Minimum		1
Maximum		7

**From which country**

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid Finland	151	96.2	96.2	96.2
United Kingdom	1	.6	.6	96.8
Vietnam	1	.6	.6	97.5
India	1	.6	.6	98.1
America	1	.6	.6	98.7
Portugal	1	.6	.6	99.4
Germany	1	.6	.6	100.0
Total	157	100.0	100.0	



**Figure 8. Statistics and bar chart for from which country the participants are from.**

Figure 9 shows the statistics and bar chart of the working country of the 157 respondents which is Finland. As mentioned previously, there were participants working in other countries as well. However, since there was not enough variety and data from other countries, the author focused on participants working in Finland either fully or half of the time as one respondent mentioned they work both in Luxembourg and in Finland.

**Working country**

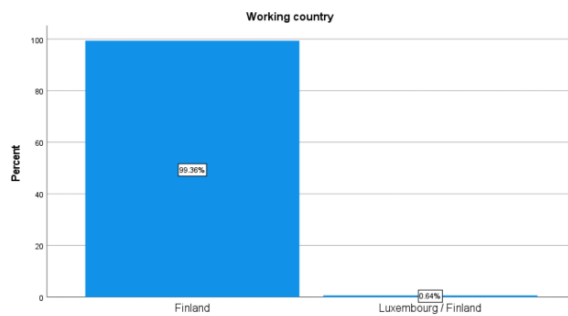
**Statistics**

Working country

N	Valid	157
	Missing	0
Mean		1.01
Median		1.00
Mode		1
Std. Deviation		.080
Minimum		1
Maximum		2

**Working country**

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid Finland	156	99.4	99.4	99.4
Luxembourg / Finland	1	.6	.6	100.0
Total	157	100.0	100.0	



**Figure 9. Statistics for from which country the participants are working in.**

Figure 10 below shows the statistics and pie chart of whether the participant owned a dog prior to the pandemic. The mode of the results is 1, meaning that majority of the participants already had a dog before the first outbreak of COVID-19. The percentage of

those participants is 61.1% whereas 26.1% participants took a dog during the pandemic. However, there were also participants who took another dog during the pandemic in addition to the dog they had already prior to it. The percentage of those participants is 12.7%.

#### Frequencies

##### Did participant own a dog before the pandemic

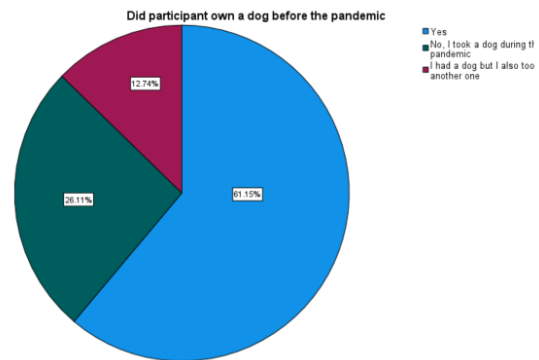
#### Statistics

Did participant own a dog before the pandemic

N	Valid	157
	Missing	0
Mean		1.52
Median		1.00
Mode		1
Std. Deviation		.713
Minimum		1
Maximum		3

##### Did participant own a dog before the pandemic

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Yes	96	61.1	61.1	61.1
	No, I took a dog during the pandemic	41	26.1	26.1	87.3
	I had a dog but I also took another one	20	12.7	12.7	100.0
	Total	157	100.0	100.0	



**Figure 10. Statistics and pie chart for whether the participant owned a dog prior to the pandemic.**

When it comes to defining whether a participant had already experienced working remotely prior to the pandemic, the results shown in Figure 11 indicate that 7.6% of them were working mainly remotely before the first outbreak of COVID-19 started. 20.4% were working 1-3 times a week remotely whereas 17.8% were working once or twice in a month remotely. Since 19.7% of the participants worked remotely few times a year, only 34.4% of the participants had never worked remotely prior to the pandemic. As a result, majority of the people had experience on working remotely before the pandemic started to some extent, which may affect the findings of the study due to remote work not being new way of working to many of the respondents.

**Frequencies**

**Did participant work remotely before the pandemic**

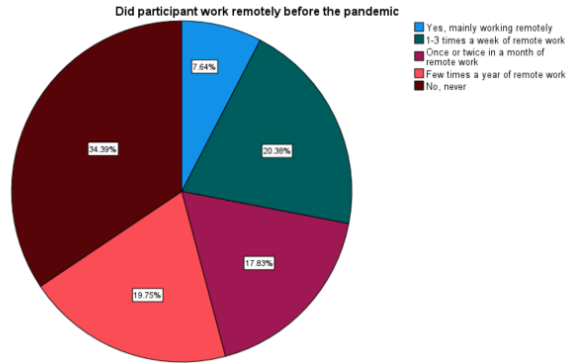
**Statistics**

Did participant work remotely before the pandemic

N	Valid	157
	Missing	0
Mean		3.53
Median		4.00
Mode		5
Std. Deviation		1.347
Minimum		1
Maximum		5

**Did participant work remotely before the pandemic**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Yes, mainly working remotely	12	7.6	7.6	7.6
	1-3 times a week of remote work	32	20.4	20.4	28.0
	Once or twice in a month of remote work	28	17.8	17.8	45.9
	Few times a year of remote work	31	19.7	19.7	65.6
	No, never	54	34.4	34.4	100.0
Total		157	100.0	100.0	



**Figure 11. Statistics and pie chart for whether the participants worked remotely prior to the pandemic.**

However, there were changes on the number of times people were working remotely due to the pandemic. As a comparison, people working mainly remotely prior to the pandemic was 7.6% whereas after the pandemic started, there were 89.8% working mainly remotely. 7% of the respondents were working remotely 1-3 times a week and minority of the respondents, 3.2% were working remotely once or twice in a month. As a result, it can be stated that the pandemic caused a major increase in people working mainly remotely. The results can be seen in Figure 12 below.

**How often did participant start working remotely during the pandemic**

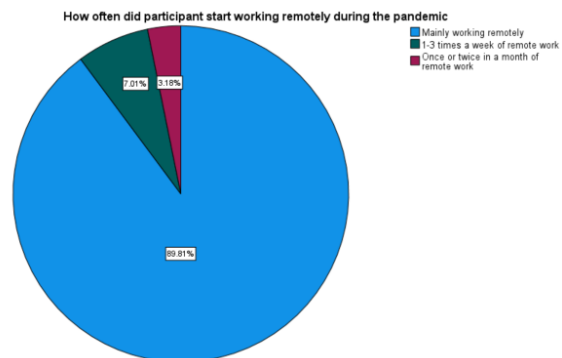
**Statistics**

How often did participant start working remotely during the pandemic

N	Valid	157
	Missing	0
Mean		1.13
Median		1.00
Mode		1
Std. Deviation		.425
Minimum		1
Maximum		3

**How often did participant start working remotely during the pandemic**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Mainly working remotely	141	89.8	89.8	89.8
	1-3 times a week of remote work	11	7.0	7.0	96.8
	Once or twice in a month of remote work	5	3.2	3.2	100.0
Total		157	100.0	100.0	



**Figure 12. Statistics for how often the participants started working remotely during the pandemic.**

When asking participants whether they felt their dog impacted their mental health, regardless of the impact being positive or negative, 87.9% of the respondents felt that their dog had an impact on their mental health during the first outbreak of COVID-19. The results can be seen in Figure 13 below. The same applied to physical health since as shown in Figure 14 below, 80.3% of the respondents acknowledged that their dog had an impact on their physical health as well.

**Frequencies**

**Did dog have an impact on mental health**

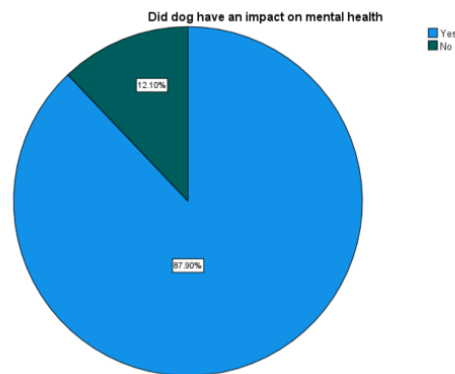
**Statistics**

Did dog have an impact on mental health

N	Valid	157
	Missing	0
Mean		1.12
Median		1.00
Mode		1
Std. Deviation		.327
Minimum		1
Maximum		2

**Did dog have an impact on mental health**

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid Yes	138	87.9	87.9	87.9
No	19	12.1	12.1	100.0
Total	157	100.0	100.0	



**Figure 13. Statistics and pie chart for whether the participants consider dog impacting their mental health.**

**Did dog have an impact on physical health**

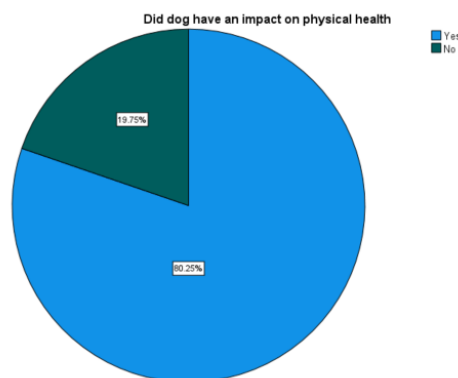
**Statistics**

Did dog have an impact on physical health

N	Valid	157
	Missing	0
Mean		1.20
Median		1.00
Mode		1
Std. Deviation		.399
Minimum		1
Maximum		2

**Did dog have an impact on physical health**

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid Yes	126	80.3	80.3	80.3
No	31	19.7	19.7	100.0
Total	157	100.0	100.0	



**Figure 14. Statistics and pie chart for whether the participants consider dog impacting their physical health.**

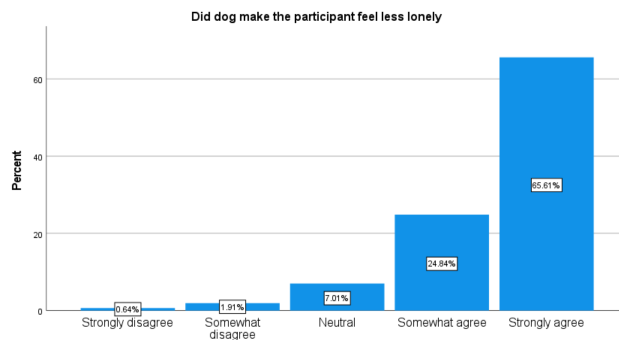
The rest of the questions were asked as Likert scale questions. As seen in Figure 15, majority of the respondents, 65.6% felt that their dog made them feel less lonely during the first outbreak of COVID-19 whereas 24.84% felt that they somewhat agree on their dog impacting their feeling of loneliness. 7.01% of the respondents felt neutral, meaning that they did not feel their dog impacted their possible feeling of loneliness. However, there were 0.6% of the participants who strongly disagreed with the statement and 1.9% who somewhat disagreed. It is not determined why the ones disagreeing with the statement felt that their dog had impacted negatively to their feeling of loneliness. Regardless, since 90.4% of the participants felt that their dog had made them feel less lonely and the mode of the results is 5 (strongly agree with the question), it can be stated that dogs had a positive impact on remote employees during the first outbreak of COVID-19.

#### Frequencies

##### Did dog make the participant feel less lonely

Statistics	
Did dog make the participant feel less lonely	
N	Valid 157
	Missing 0
Mean	4.53
Median	5.00
Mode	5
Std. Deviation	.764
Minimum	1
Maximum	5

Did dog make the participant feel less lonely					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly disagree	1	.6	.6	.6
	Somewhat disagree	3	1.9	1.9	2.5
	Neutral	11	7.0	7.0	9.6
	Somewhat agree	39	24.8	24.8	34.4
	Strongly agree	103	65.6	65.6	100.0
	Total	157	100.0	100.0	



**Figure 15. Statistics and bar chart for dog making the participants feel less lonely.**

Figure 16 below show the results of how participants felt their dog impacted their feeling of isolation during the beginning of the pandemic. The results are relatively similar to the figure 15 results discussed above; majority, 77.1%, of the participants strongly agreed or somewhat agreed that their dog made them feel less isolated. The mode of the results is 5, meaning that the most occurred response has been “strongly agree”. However, 8.3% chose the options of strongly or somewhat agreed with the statement, meaning that some of the participants felt that living with their dog made them feel more isolated at the beginning the pandemic.

**Did dog make the participant feel less isolated**

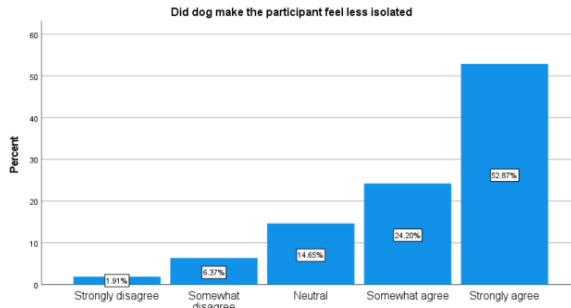
**Statistics**

Did dog make the participant feel less isolated

N	Valid	157
	Missing	0
Mean		4.20
Median		5.00
Mode		5
Std. Deviation		1.034
Minimum		1
Maximum		5

**Did dog make the participant feel less isolated**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly disagree	3	1.9	1.9	1.9
	Somewhat disagree	10	6.4	6.4	8.3
	Neutral	23	14.6	14.6	22.9
	Somewhat agree	38	24.2	24.2	47.1
	Strongly agree	83	52.9	52.9	100.0
Total		157	100.0	100.0	



**Figure 16. Statistics and bar chart for dog making the participants feel less isolated.**

When it comes to dogs’ impact on remote employees’ anxiety, as seen in Figure 17, majority of the respondents, 80.3%, somewhat or strongly agreed that their dog made them feel less anxious. 14% of the respondents did not consider their dog impacted their feeling on anxiety in any way whereas 5.7% somewhat or strongly disagreed on the statement. Thus, even though there were participants feeling that their dog may have made them feel more anxious when working remotely, majority still felt that their dogs had a positive impact on feelings of anxiety.

**Did dog make the participant feel less anxious**

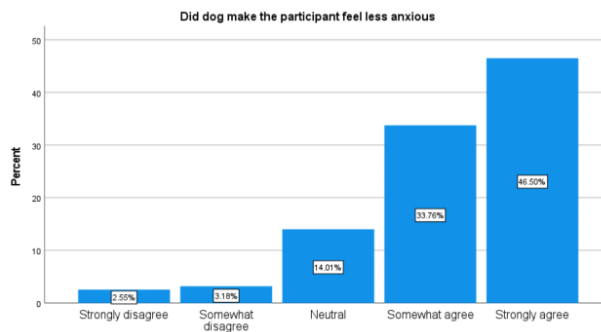
**Statistics**

Did dog make the participant feel less anxious

N	Valid	157
	Missing	0
Mean		4.18
Median		4.00
Mode		5
Std. Deviation		.966
Minimum		1
Maximum		5

**Did dog make the participant feel less anxious**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly disagree	4	2.5	2.5	2.5
	Somewhat disagree	5	3.2	3.2	5.7
	Neutral	22	14.0	14.0	19.7
	Somewhat agree	53	33.8	33.8	53.5
	Strongly agree	73	46.5	46.5	100.0
Total		157	100.0	100.0	



**Figure 17. Statistics and pie chart for dog making the participants feel less anxious.**

Figure 18 below indicates the results of whether participants of the study felt their dog impacted their feeling of being depressed. Total of 82.8% of people who participated in the survey, either somewhat agreed or strongly agreed that they felt less depressed

during the first outbreak of COVID-19 due to living with a dog. 12.1% felt that their dog had no impact on it whereas 5.1% felt that their dog made them feel more depressed at least to some extent. As a result, dogs have had a positive impact on remotely employees in Finland during the first outbreak of COVID-19.

**Did dog make the participant feel less depressed**

**Statistics**

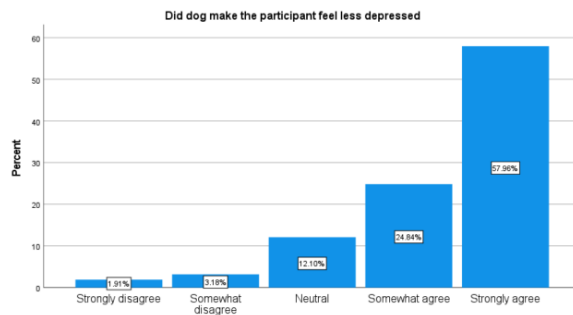
Did dog make the participant feel less depressed

N	Valid	157
	Missing	0
Mean		4.34
Median		5.00
Mode		5
Std. Deviation		.944
Minimum		1
Maximum		5

**Did dog make the participant feel less depressed**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly disagree	3	1.9	1.9	1.9
	Somewhat disagree	5	3.2	3.2	5.1
	Neutral	19	12.1	12.1	17.2
	Somewhat agree	39	24.8	24.8	42.0
	Strongly agree	91	58.0	58.0	100.0
	Total	157	100.0	100.0	



**Figure 18. Statistics and pie chart for dog making the participants feel less depressed.**

However, as seen in Figure 19, the mode of the results is number 3, meaning that the most occurred number is 3 which indicates the meaning of neutral in the survey. Nevertheless, 53.5% of the participants did feel that their dog made them feel less tired since they had either somewhat or strongly agreed with the statement. There were also 14.6% of the participants who felt that their dog made them feel more tired. It is yet to be determined whether it has been caused by for example the dog being a new thing for the participants, the dog being a puppy which takes a lot of energy or their dog being a challenging individual in general. Regardless the mode of the results being 3, the majority of the respondents felt that their dog made them feel less tired.

**Did dog make the participant feel less tired**

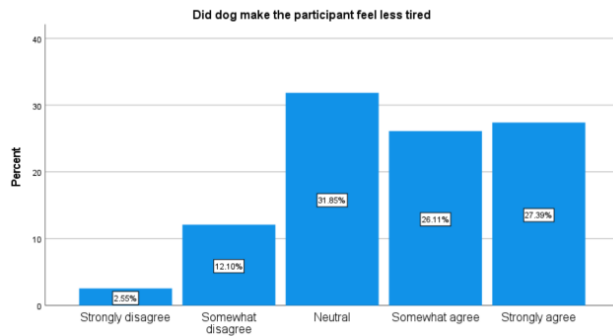
**Statistics**

Did dog make the participant feel less tired

N	Valid	157
	Missing	0
Mean		3.64
Median		4.00
Mode		3
Std. Deviation		1.087
Minimum		1
Maximum		5

**Did dog make the participant feel less tired**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly disagree	4	2.5	2.5	2.5
	Somewhat disagree	19	12.1	12.1	14.6
	Neutral	50	31.8	31.8	46.5
	Somewhat agree	41	26.1	26.1	72.6
	Strongly agree	43	27.4	27.4	100.0
	Total	157	100.0	100.0	



**Figure 19. Statistics and bar chart for dog making the participants feel less tired.**

Figure 20 shows clear results for the dog making the participants feel more joy during the first outbreak of COVID-19 as the mode of the results is 5 (strongly agree) and 95.6% of the participants felt that they either strongly agree (73.9%) or somewhat agree (21.7%). None of the participants felt that they somewhat disagree whereas there were two respondents who strongly disagreed with the statement, resulting in 1.3% of the 157 participants. There were also participants (3.2%) who did not feel that their dog impacted them feeling more joy.

**Did dog make the participant feel more joy**

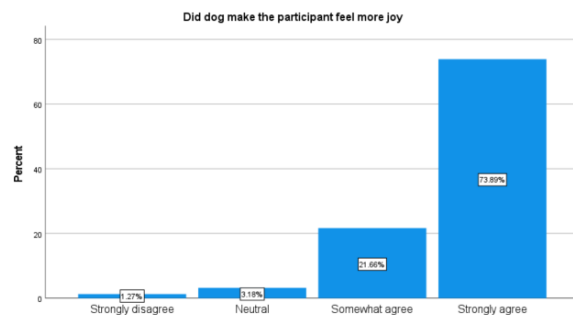
**Statistics**

Did dog make the participant feel more joy

N	Valid	157
	Missing	0
Mean		4.67
Median		5.00
Mode		5
Std. Deviation		.664
Minimum		1
Maximum		5

**Did dog make the participant feel more joy**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly disagree	2	1.3	1.3	1.3
	Neutral	5	3.2	3.2	4.5
	Somewhat agree	34	21.7	21.7	26.1
	Strongly agree	116	73.9	73.9	100.0
	Total	157	100.0	100.0	



**Figure 20. Statistics and bar chart for dog making the participants feel more joy.**

Figure 21 shows that 156 responded to the question of if their dog made them more stressed because of their dog. As a result, 42% of the respondents felt that they strongly agree with the statement and 28% somewhat disagreed. 14% felt neutral indicating that their dog had no impact on their stress levels leaving the rest (15.3%) somewhat agreeing or strongly agreeing that their dog made them feel more stressed. The reason for the stress is yet to be determined.

#### Did dog make the participant more stressed

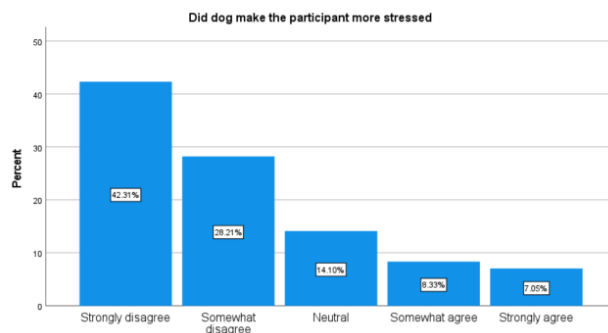
##### Statistics

Did dog make the participant more stressed

N	Valid	156
	Missing	1
Mean		2.10
Median		2.00
Mode		1
Std. Deviation		1.238
Minimum		1
Maximum		5

##### Did dog make the participant more stressed

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly disagree	66	42.0	42.3	42.3
	Somewhat disagree	44	28.0	28.2	70.5
	Neutral	22	14.0	14.1	84.6
	Somewhat agree	13	8.3	8.3	92.9
	Strongly agree	11	7.0	7.1	100.0
	Total	156	99.4	100.0	
Missing	System	1	.6		
	Total	157	100.0		



**Figure 21. Statistics and bar chart for dog making the participants more stressed.**

When it comes to the question of whether the participants felt that their dog made them feel more energetic during the first outbreak of COVID-19, 156 people answered to the question. The mode of the results, which can be seen in Figure 22, is value 4, indicating that majority of them felt that they somewhat agreed their dog increasing their energy levels. 25.5% of the respondents felt that they strongly agreed whereas 30.6% considered their dog to have a neutral impact. There were 13 respondents, 8.2%, that felt their dog made them feel less energetic to some extent.

Did dog make the participant have more energy

**Statistics**  
Did dog make the participant have more energy

N	Valid	156
	Missing	1
Mean		3.76
Median		4.00
Mode		4
Std. Deviation		.986
Minimum		1
Maximum		5

**Did dog make the participant have more energy**

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid Strongly disagree	4	2.5	2.6	2.6
Somewhat disagree	9	5.7	5.8	8.3
Neutral	48	30.6	30.8	39.1
Somewhat agree	55	35.0	35.3	74.4
Strongly agree	40	25.5	25.6	100.0
Total	156	99.4	100.0	
Missing System	1	.6		
Total	157	100.0		

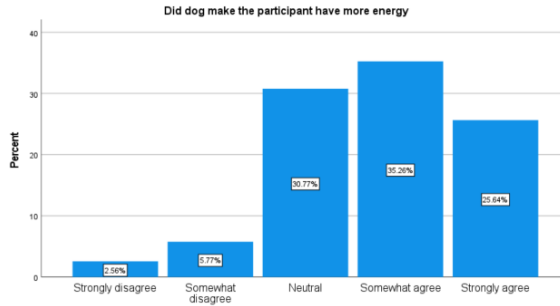


Figure 22. Statistics and bar chart for dog making the participants have more energy.

According to the results of Figure 23 below, the mode of the results is 3, indicating the choice of neutral, meaning that dogs did not have an impact on the ability of the respondents to handle important tasks. However, there were 40.1% who somewhat or strongly agreed that their dog increased their ability to handle important tasks whereas 19.8% of the respondents felt that their dog negatively affected it, at least to some extent. Thus, it can be stated that despite of the mode being 3, majority of the respondents felt that their dog increased their ability to handle important tasks.

Did dog increase the ability to handle important tasks

**Statistics**  
Did dog increase the ability to handle important tasks

N	Valid	156
	Missing	1
Mean		3.34
Median		3.00
Mode		3
Std. Deviation		1.081
Minimum		1
Maximum		5

**Did dog increase the ability to handle important tasks**

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid Strongly disagree	7	4.5	4.5	4.5
Somewhat disagree	24	15.3	15.4	19.9
Neutral	62	39.5	39.7	59.6
Somewhat agree	35	22.3	22.4	82.1
Strongly agree	28	17.8	17.9	100.0
Total	156	99.4	100.0	
Missing System	1	.6		
Total	157	100.0		

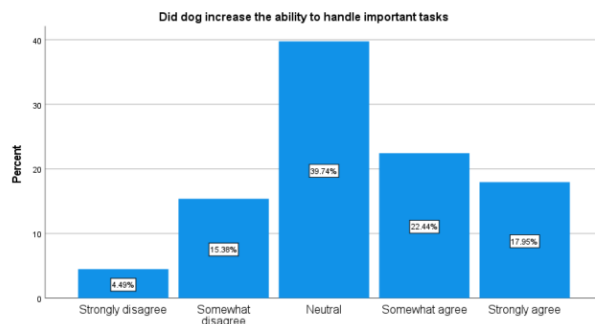


Figure 23. Statistics and bar chart for dog increasing the participants ability to handle important tasks.

When asking if the participants considered their dog impacting their eating habits, making them to eat in a healthier way, 47.8% of the respondents felt that their dog impacted it in a negative way. However, 40.1% did not consider their dog having a negative or positive impact, resulting 10.8% feeling that their dog impacted their eating habits in a positive way. According to the results seen in Figure 24, dogs negatively impacted the remote employees' eating habits. It is yet to be determined why they feel this way.

#### Did dog make the participant eat healthier

##### Statistics

Did dog make the participant eat healthier

N	Valid	155
	Missing	2
Mean		2.48
Median		3.00
Mode		3
Std. Deviation		1.034
Minimum		1
Maximum		5

##### Did dog make the participant eat healthier

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly disagree	30	19.1	19.4	19.4
	Somewhat disagree	45	28.7	29.0	48.4
	Neutral	63	40.1	40.6	89.0
	Somewhat agree	9	5.7	5.8	94.8
	Strongly agree	8	5.1	5.2	100.0
	Total	155	98.7	100.0	
Missing	System	2	1.3		
	Total	157	100.0		

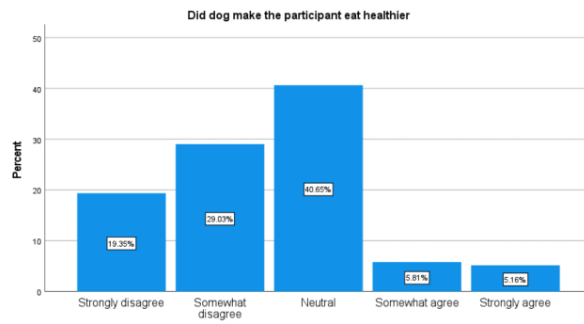


Figure 24. Statistics and bar chart for dog making the participant eat healthier.

Figure 25 below shows results for whether the participants felt that dogs had an impact on ensuring more rest for them. Mode is 3, meaning that the most occurred response was neutral. However, 40.1% of the respondents somewhat or strongly disagreed, resulting the dog negatively affecting their level of rest. Nevertheless, there were people who felt that dog had impacted their level of rest positively. Despite of that, the majority of the respondents still experience that dog impacted their resting negatively. Thus, it can be stated that dogs did have a negative impact on remote employees’ rest levels when working remotely during the first outbreak of COVID-19. The same applies to the results of sleep since 49.1% of the respondents felt that dog impacted their sleep negatively. The results can be seen in Figure 26.

Did dog help to ensure more rest

**Statistics**  
Did dog help to ensure more rest

N	Valid	157
	Missing	0
Mean		2.76
Median		3.00
Mode		3
Std. Deviation		1.052
Minimum		1
Maximum		5

**Did dog help to ensure more rest**

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid Strongly disagree	19	12.1	12.1	12.1
Somewhat disagree	44	28.0	28.0	40.1
Neutral	59	37.6	37.6	77.7
Somewhat agree	26	16.6	16.6	94.3
Strongly agree	9	5.7	5.7	100.0
Total	157	100.0	100.0	

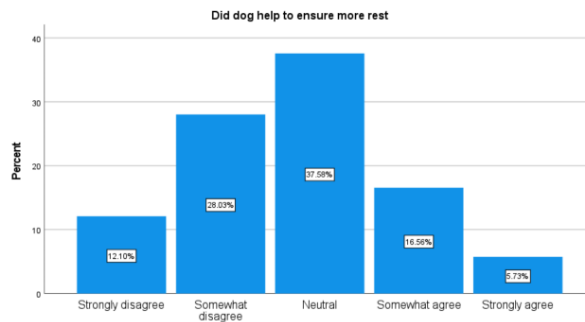


Figure 25. Statistics and bar chart for dog helping to ensure more rest.

Did dog help to ensure more sleep

**Statistics**  
Did dog help to ensure more sleep

N	Valid	157
	Missing	0
Mean		2.62
Median		3.00
Mode		2
Std. Deviation		1.101
Minimum		1
Maximum		5

**Did dog help to ensure more sleep**

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid Strongly disagree	24	15.3	15.3	15.3
Somewhat disagree	53	33.8	33.8	49.0
Neutral	50	31.8	31.8	80.9
Somewhat agree	19	12.1	12.1	93.0
Strongly agree	11	7.0	7.0	100.0
Total	157	100.0	100.0	

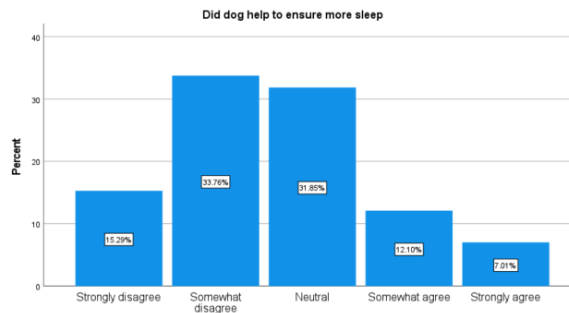


Figure 26. Statistics and bar chart for dog helping to ensure more sleep.

Nevertheless, majority of the respondents felt that their dog impacted their overall well-being when working remotely during the first outbreak of COVID-19. The results seen in Figure 27 indicate that 79% of the people who answered the survey considered their dog impacting positively to their overall well-being.

Did dog help to balance overall wellbeing

**Statistics**

Did dog help to balance overall wellbeing

N	Valid	157
	Missing	0
Mean		4.06
Median		4.00
Mode		4
Std. Deviation		.965
Minimum		1
Maximum		5

**Did dog help to balance overall wellbeing**

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid Strongly disagree	3	1.9	1.9	1.9
Somewhat disagree	10	6.4	6.4	8.3
Neutral	20	12.7	12.7	21.0
Somewhat agree	65	41.4	41.4	62.4
Strongly agree	59	37.6	37.6	100.0
Total	157	100.0	100.0	

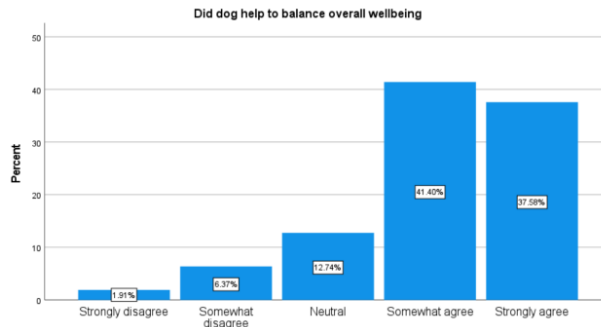


Figure 27. Statistics and bar chart for dog helping to balance overall well-being.

Figure 28 indicates that dogs also helped the participants to increase their level of physical activity. The results show that mode of the results is 5, strongly agree, whereas 79.6% of the respondents answered either somewhat agree or strongly agree to the question. 7% or 11 people felt that their dog impacted it negatively. Rest of them, 13.4% did not consider their dog having an impact on their physical activity at all.

Did dog increase physical activity

**Statistics**

Did dog increase physical activity

N	Valid	157
	Missing	0
Mean		4.18
Median		4.00
Mode		5
Std. Deviation		.997
Minimum		1
Maximum		5

**Did dog increase physical activity**

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid Strongly disagree	4	2.5	2.5	2.5
Somewhat disagree	7	4.5	4.5	7.0
Neutral	21	13.4	13.4	20.4
Somewhat agree	50	31.8	31.8	52.2
Strongly agree	75	47.8	47.8	100.0
Total	157	100.0	100.0	

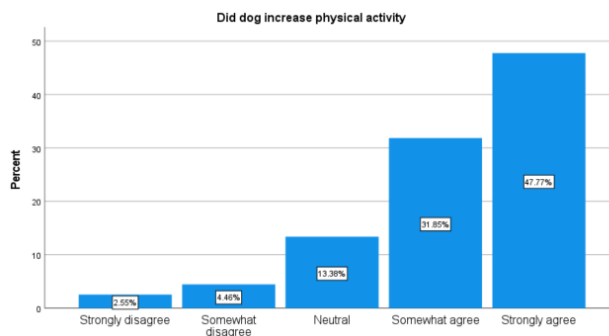


Figure 28. Statistics and bar chart for dog increasing physical activity.

As for the breaks and whether owning a dog impacted positively to having more breaks when working remotely, the results seen in Figure 29 indicate that 84.1% of the respondents considered dogs increasing their breaks during remote work. Only 6.4% somewhat or strongly disagreed and 8.9% did feel that their dogs did not have an impact on the amount of their breaks.

Did dog help to have more breaks

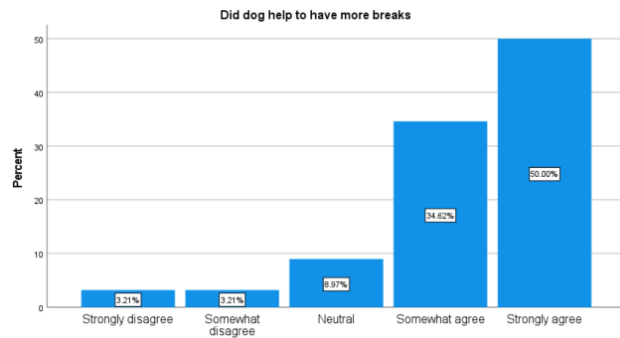
**Statistics**

Did dog help to have more breaks

N	Valid	156
	Missing	1
Mean		4.25
Median		4.50
Mode		5
Std. Deviation		.975
Minimum		1
Maximum		5

**Did dog help to have more breaks**

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid Strongly disagree	5	3.2	3.2	3.2
Somewhat disagree	5	3.2	3.2	6.4
Neutral	14	8.9	8.9	15.4
Somewhat agree	54	34.4	34.6	50.0
Strongly agree	78	49.7	50.0	100.0
Total	156	99.4	100.0	
Missing System	1	.6		
Total	157	100.0		



**Figure 29. Statistics and bar chart for dog helping to have more breaks.**

As seen in Figure 30 below, 75.8% of the respondents felt that they were able to have more social encounters because of their dogs during the first outbreak of COVID-19. However, there were also people who somewhat or strongly disagreed or did not consider their dog had an impact at all. Nevertheless, it can be stated that dogs did have a positive impact on the number of social encounters.

Did dog help to have more social encounters

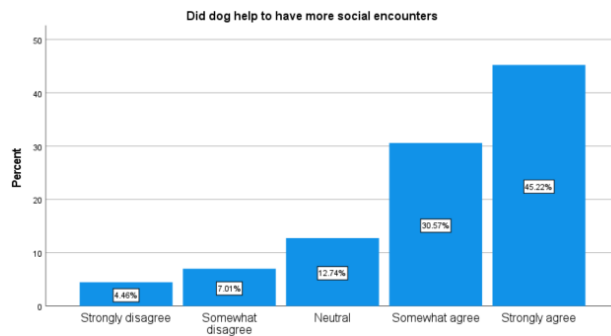
**Statistics**

Did dog help to have more social encounters

N	Valid	157
	Missing	0
Mean		4.05
Median		4.00
Mode		5
Std. Deviation		1.125
Minimum		1
Maximum		5

**Did dog help to have more social encounters**

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid Strongly disagree	7	4.5	4.5	4.5
Somewhat disagree	11	7.0	7.0	11.5
Neutral	20	12.7	12.7	24.2
Somewhat agree	48	30.6	30.6	54.8
Strongly agree	71	45.2	45.2	100.0
Total	157	100.0	100.0	



**Figure 30. Statistics and bar chart for dog helping to have more social encounters.**

#### 4.2.1.2 T-Test for gender and Likert scale questions

In order to determine whether gender impacted the results of the quantitative questions of the study, independent T-Test was conducted. Independent T-Test measures how two different groups, in this case male and female, compare to the dependent variable (Likert scale question). Comparison is done by determining the means of the groups and dependent variable and whether they are statistically significantly different. The difference can be seen in the results if the Sig. /p-value is less than 0.05. (Laerd Statistics, 2018)

For instance, as seen in Figure 31 below, T-Test for gender and whether participants felt that dog impacted their mental and physical health shows that gender had no impact on how the participants felt in regards of dog impacting their mental health ( $p=0.531$ ). On the contrary, there was a significant positive correlation between gender and physical health ( $p=0.008$ ), resulting in gender having an impact on how the participants felt their dog impacting their level of physical health.

##### T-Test

Group Statistics									
	Gender	N	Mean	Std. Deviation	Std. Error Mean				
Did dog have an impact on mental health	Male	20	1.10	.308	.069				
	Female	137	1.12	.331	.028				
Did dog have an impact on physical health	Male	20	1.10	.308	.069				
	Female	137	1.21	.410	.035				

Independent Samples Test											
		Levene's Test for Equality of Variances			t-Test for Equality of Means						
		F	Sig.	t	df	Significance One-Sided p	Two-Sided p	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference Lower	Upper
Did dog have an impact on mental health	Equal variances assumed	.395	.531	-.307	155	.380	.760	-.024	.079	-.179	.131
	Equal variances not assumed			-.324	25.849	.374	.749	-.024	.074	-.177	.129
Did dog have an impact on physical health	Equal variances assumed	7.304	.008	-1.170	155	.122	.244	-.112	.095	-.300	.077
	Equal variances not assumed			-1.446	29.838	.079	.159	-.112	.077	-.269	.046

**Figure 31. T-Test for gender and whether dog impacted mental and physical health.**

T-Test result in Figure 32 below determine whether gender had an impact on how the felt if dog had decreased their feeling of loneliness, isolation and anxiety. According to the results, gender had no impact on those dependent variables ( $p=0.669$  for loneliness,  $p=0.549$  for isolation,  $p=0.799$  for anxiety).

Group Statistics					
	Gender	N	Mean	Std. Deviation	Std. Error Mean
Did dog make the participant feel less lonely	Male	20	4.30	.733	.164
	Female	137	4.56	.766	.065
Did dog make the participant feel less isolated	Male	20	3.95	.945	.211
	Female	137	4.23	1.045	.089
Did dog make the participant feel less anxious	Male	20	3.85	1.040	.233
	Female	137	4.23	.949	.081

Independent Samples Test											
		Levene's Test for Equality of Variances		t-test for Equality of Means						95% Confidence Interval of the Difference	
		F	Sig.	t	df	Significance One-Sided p	Two-Sided p	Mean Difference	Std. Error Difference	Lower	Upper
Did dog make the participant feel less lonely	Equal variances assumed	.183	.669	-1.437	155	.076	.153	-.262	.182	-.622	.098
	Equal variances not assumed			-1.485	25.450	.075	.150	-.262	.176	-.625	.101
Did dog make the participant feel less isolated	Equal variances assumed	.360	.549	-1.147	155	.127	.253	-.284	.247	-.772	.205
	Equal variances not assumed			-1.237	26.281	.114	.227	-.284	.229	-.755	.188
Did dog make the participant feel less anxious	Equal variances assumed	.065	.799	-1.668	155	.049	.097	-.384	.230	-.838	.071
	Equal variances not assumed			-1.557	23.853	.066	.133	-.384	.246	-.892	.125

**Figure 32. T-Test for age and dependent variables of feeling less lonely, isolated and anxious.**

Figure 33 shows the results of whether gender impacted the participants feeling less depressed, tired or feeling more joy. Gender had no impact on the dependent variables (p=0.559 for depression, p=0.296 for tiredness, p=0.718 for feeling more joy).

Group Statistics					
	Gender	N	Mean	Std. Deviation	Std. Error Mean
Did dog make the participant feel less depressed	Male	20	4.30	.865	.193
	Female	137	4.34	.958	.082
Did dog make the participant feel less tired	Male	20	3.25	.967	.216
	Female	137	3.69	1.095	.094
Did dog make the participant feel more joy	Male	20	4.65	.489	.109
	Female	137	4.67	.687	.059

Independent Samples Test											
		Levene's Test for Equality of Variances		t-test for Equality of Means						95% Confidence Interval of the Difference	
		F	Sig.	t	df	Significance One-Sided p	Two-Sided p	Mean Difference	Std. Error Difference	Lower	Upper
Did dog make the participant feel less depressed	Equal variances assumed	.342	.559	-.190	155	.425	.850	-.043	.227	-.491	.405
	Equal variances not assumed			-.205	26.308	.420	.839	-.043	.210	-.474	.388
Did dog make the participant feel less tired	Equal variances assumed	1.098	.296	-1.715	155	.044	.088	-.443	.259	-.954	.067
	Equal variances not assumed			-1.883	26.659	.035	.071	-.443	.236	-.927	.040
Did dog make the participant feel more joy	Equal variances assumed	.131	.718	-.135	155	.446	.893	-.022	.159	-.336	.293
	Equal variances not assumed			-.173	31.152	.432	.863	-.022	.124	-.275	.232

**Figure 33. T-Test for gender and dependent variables of feeling less depressed, tired and feeling more joy.**

As seen in Figure 34 below, gender had no impact on participants' feeling more stressed ( $p=0.104$  for increased level of stress). However, gender had a positive impact on having more energy and ability to handle important tasks due to owning a dog ( $p=0.013$  for having more energy,  $p=0.030$  for ability to handle important tasks).

Group Statistics					
	Gender	N	Mean	Std. Deviation	Std. Error Mean
Did dog make the participant more stressed	Male	19	2.32	.885	.203
	Female	137	2.07	1.279	.109
Did dog make the participant have more energy	Male	20	3.65	.587	.131
	Female	136	3.77	1.033	.089
Did dog increase the ability to handle important tasks	Male	20	3.00	.858	.192
	Female	136	3.39	1.103	.095

Independent Samples Test											
		Levene's Test for Equality of Variances				t-Test for Equality of Means					
		F	Sig.	t	df	Significance		Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
						One-Sided p	Two-Sided p			Lower	Upper
Did dog make the participant more stressed	Equal variances assumed	2.670	.104	.824	154	.206	.411	.250	.303	-.349	.849
	Equal variances not assumed			1.085	29.599	.143	.287	.250	.231	-.221	.721
Did dog make the participant have more energy	Equal variances assumed	6.368	.013	-.516	154	.303	.607	-.122	.237	-.590	.346
	Equal variances not assumed			-.771	39.076	.223	.445	-.122	.158	-.442	.198
Did dog increase the ability to handle important tasks	Equal variances assumed	4.783	.030	-1.512	154	.066	.133	-.390	.258	-.899	.119
	Equal variances not assumed			-1.821	29.112	.039	.079	-.390	.214	-.827	.048

**Figure 34. T-Test for gender and dependent variables of feeling more stress, having more energy and ability to handle important tasks.**

The results seen in Figure 35 show that gender did not impact the dependent variables of eating healthier, ensuring more rest and sleep ( $p=0.745$  for eating healthier,  $p=0.106$  for ensuring more rest,  $p=0.082$  for ensuring more sleep).

Group Statistics					
	Gender	N	Mean	Std. Deviation	Std. Error Mean
Did dog make the participant eat healthier	Male	19	2.47	1.020	.234
	Female	136	2.49	1.040	.089
Did dog help to ensure more rest	Male	20	2.60	.754	.169
	Female	137	2.78	1.089	.093
Did dog help to ensure more sleep	Male	20	2.35	.813	.182
	Female	137	2.66	1.134	.097

Independent Samples Test											
		Levene's Test for Equality of Variances				t-Test for Equality of Means					
		F	Sig.	t	df	Significance		Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
						One-Sided p	Two-Sided p			Lower	Upper
Did dog make the participant eat healthier	Equal variances assumed	.108	.743	-.046	153	.482	.964	-.012	.254	-.514	.490
	Equal variances not assumed			-.046	23.537	.482	.963	-.012	.250	-.529	.506
Did dog help to ensure more rest	Equal variances assumed	2.638	.106	-.717	155	.237	.474	-.181	.252	-.679	.317
	Equal variances not assumed			-.940	31.935	.177	.354	-.181	.193	-.573	.211
Did dog help to ensure more sleep	Equal variances assumed	3.069	.082	-1.166	155	.123	.245	-.307	.263	-.827	.213
	Equal variances not assumed			-1.490	30.984	.073	.146	-.307	.206	-.727	.113

**Figure 35. T-Test for gender and dependent variables of eating healthier, ensuring more rest and sleep.**

Figure 36 below shows the results of T-Test for gender and dependent variables of overall well-being, increased level of physical activity, having more breaks and social encounters. According to the results, gender had no impact on those dependent variables ( $p=0.356$  for overall well-being,  $p=0.255$  for increased level of physical activity,  $p=1.000$  for having more breaks,  $p=0.060$  for having more social encounters).

#### T-Test

Group Statistics					
	Gender	N	Mean	Std. Deviation	Std. Error Mean
Did dog help to balance overall wellbeing	Male	20	3.95	.887	.198
	Female	137	4.08	.978	.084
Did dog increase physical activity	Male	20	4.20	.951	.213
	Female	137	4.18	1.007	.086
Did dog help to have more breaks	Male	20	4.25	.910	.204
	Female	136	4.25	.987	.085
Did dog help to have more social encounters	Male	20	3.95	.826	.185
	Female	137	4.07	1.164	.099

Independent Samples Test											
		Levene's Test for Equality of Variances		T-test for Equality of Means						95% Confidence Interval of the Difference	
		F	Sig.	t	df	One-Sided p	Two-Sided p	Mean Difference	Std. Error Difference	Lower	Upper
Did dog help to balance overall wellbeing	Equal variances assumed	.858	.356	-.563	155	.287	.574	-.130	.232	-.588	.327
	Equal variances not assumed			-.605	26.228	.275	.550	-.130	.215	-.573	.312
Did dog increase physical activity	Equal variances assumed	1.305	.255	.104	155	.459	.918	.025	.239	-.448	.498
	Equal variances not assumed			.108	25.621	.457	.915	.025	.229	-.447	.497
Did dog help to have more breaks	Equal variances assumed	.000	1.000	.000	154	.500	1.000	.000	.234	-.463	.463
	Equal variances not assumed			.000	26.025	.500	1.000	.000	.220	-.453	.453
Did dog help to have more social encounters	Equal variances assumed	3.588	.060	-.428	155	.335	.669	-.116	.270	-.649	.418
	Equal variances not assumed			-.552	31.270	.293	.585	-.116	.210	-.543	.312

**Figure 36. T-Test for gender and dependent variables of overall well-being, increased level of physical activity, having more breaks and social encounters.**

Since figures 31, 32, 33, 35 and 36 results show, gender had no impact on the dependent variables. Thus, it can be stated that no matter of the gender of the participants, the results of the Likert scale questions are not impacted by whether the respondent has been a male or a female. However, figure 34 showed that p-value for having more energy and ability to handle important tasks due to owning dogs was significantly positive, meaning that gender had a positive impact on those variables. As a result, depending on the age of the participants of the study, dogs did impact positively on their level of energy and ability to handle important tasks.

#### **4.2.1.3 Correlation between well-being and how much respondents worked remotely**

Another part of the quantitative analysis of the data was to research whether there was a correlation between the Likert scale questions and the amount of remote work done by the respondents. The data was analysed by using SPSS Pearson's correlation test. If the value of the correlation ( $r$ ) is  $-1$ , there is a high negative correlation between the two chosen variables. If there is a  $0$  value for the correlation, there is no linear relation between the chosen variables. Value  $1$  indicates that there is a strong, positive correlation between the variables. Additionally, if Sig. (2-tailed), or  $p$ -value, is less than  $0.05$ , there is a significant correlation between the variables chosen. (SPSS Tutorials, 2022) Thus, these values will be reviewed upon analysis of the correlations. However, since there were differences between the number of respondents with each question, the correlation rate may vary between those questions. Regardless, the lowest number of participants was  $156$  whereas the highest was  $157$ . Therefore, the difference between correlations is not considered to be significant.

The correlation between how often a participant started working remotely during the pandemic and if a dog had an impact on mental and physical health (which can be seen in Figure 37) indicates that there was a weak positive correlation between the amount of remote work done and respondents' mental health ( $r=0.159$ ,  $p=0.046$ ). Since p-value for correlation between the amount of remote work done and did owning a dog affect participants' mental health is less than 0.05, the amount of remote work done did have a positive impact on whether a dog impacted the participants' mental health. Nevertheless, there was a moderate positive correlation between the amount of remote work done and respondents' physical health ( $r=0.32$ ,  $p=0.689$ ) meaning that no effect of physical activity and amount of remote work was observed.

#### Correlations

Descriptive Statistics				
	Mean	Std. Deviation	N	
How often did participant start working remotely during the pandemic	1.13	.425	157	
Did dog have an impact on mental health	1.12	.327	157	
Did dog have an impact on physical health	1.20	.399	157	

Correlations				
		How often did participant start working remotely during the pandemic	Did dog have an impact on mental health	Did dog have an impact on physical health
How often did participant start working remotely during the pandemic	Pearson Correlation	1	.159*	.032
	Sig. (2-tailed)		.046	.689
	N	157	157	157
Did dog have an impact on mental health	Pearson Correlation	.159*	1	.601**
	Sig. (2-tailed)	.046		<.001
	N	157	157	157
Did dog have an impact on physical health	Pearson Correlation	.032	.601**	1
	Sig. (2-tailed)	.689	<.001	
	N	157	157	157

\*. Correlation is significant at the 0.05 level (2-tailed).

\*\*. Correlation is significant at the 0.01 level (2-tailed).

**Figure 37. Correlation between how often participants worked remotely and dogs' impact on mental and physical health.**

Figure 38 below shows the results of correlation between amount of remote work done by the respondents of the survey and whether a dog made them feel less lonely and isolated. There was a weak negative correlation between amount of remote work done and feeling less lonely ( $r=-0.02$ ,  $p=0.980$ ), meaning that the amount of remote work did not correlate with the respondents feeling less lonely. Additionally, there was a weak

positive correlation between amount of remote work done and feeling less isolated ( $r=0.042$ ,  $p=0.605$ ), resulting in no effect of remote work and feeling of isolation was not observed.

#### Correlations

Descriptive Statistics			
	Mean	Std. Deviation	N
How often did participant start working remotely during the pandemic	1.13	.425	157
Did dog make the participant feel less lonely	4.53	.764	157

Correlations			
		How often did participant start working remotely during the pandemic	Did dog make the participant feel less lonely
How often did participant start working remotely during the pandemic	Pearson Correlation	1	-.002
	Sig. (2-tailed)		.980
	N	157	157
Did dog make the participant feel less lonely	Pearson Correlation	-.002	1
	Sig. (2-tailed)	.980	
	N	157	157

#### Correlations

Descriptive Statistics			
	Mean	Std. Deviation	N
How often did participant start working remotely during the pandemic	1.13	.425	157
Did dog make the participant feel less isolated	4.20	1.034	157

Correlations			
		How often did participant start working remotely during the pandemic	Did dog make the participant feel less isolated
How often did participant start working remotely during the pandemic	Pearson Correlation	1	.042
	Sig. (2-tailed)		.605
	N	157	157
Did dog make the participant feel less isolated	Pearson Correlation	.042	1
	Sig. (2-tailed)	.605	
	N	157	157

**Figure 38. Correlation between how often participants worked remotely and dogs' impact on feeling less lonely and isolated.**

The same applies to the results of Figure 39 since there was a weak negative correlation between amount of remote work done and feeling less anxious ( $r=-0.045$ ,  $p=0.576$ ) and no effect of feeling less isolated and remote work done was observed. Thus, amount of remote work did not correlate with the feeling of being less isolated during the first outbreak of COVID-19. Also, as seen in the same figure, correlation between the amount of remote work done and feeling less depressed was a weak negative correlation ( $r=-0.001$ ,  $p=0.986$ ) as no effect of remote work and feeling less depressed was not observed. Therefore, amount of remote work did not have an effect on feeling less depressed.

Correlations

Descriptive Statistics			
	Mean	Std. Deviation	N
How often did participant start working remotely during the pandemic	1.13	.425	157
Did dog make the participant feel less anxious	4.18	.966	157

Correlations			
		How often did participant start working remotely during the pandemic	Did dog make the participant feel less anxious
How often did participant start working remotely during the pandemic	Pearson Correlation	1	-.045
	Sig. (2-tailed)		.576
	N	157	157
Did dog make the participant feel less anxious	Pearson Correlation	-.045	1
	Sig. (2-tailed)	.576	
	N	157	157

Correlations

Descriptive Statistics			
	Mean	Std. Deviation	N
How often did participant start working remotely during the pandemic	1.13	.425	157
Did dog make the participant feel less depressed	4.34	.944	157

Correlations			
		How often did participant start working remotely during the pandemic	Did dog make the participant feel less depressed
How often did participant start working remotely during the pandemic	Pearson Correlation	1	-.001
	Sig. (2-tailed)		.986
	N	157	157
Did dog make the participant feel less depressed	Pearson Correlation	-.001	1
	Sig. (2-tailed)	.986	
	N	157	157

**Figure 39. Correlation between how often participants worked remotely and dogs' making the participants feel less anxious and depressed.**

Figure 40 shows the results of correlation between the amount remote work done by the participants of the survey and whether dog made them to feel less tired. The results indicate that there was a weak positive correlation between the variables ( $r=0.023$ ,  $p=0.779$ ) but no effect of variables on each other was observed. The results of the same figure indicate that there was a weak positive correlation between amount of remote work done and feeling more joy ( $r=0.067$ ,  $p=0.404$ ) meaning that there was no effect of the variables on each other.

Correlations

Descriptive Statistics			
	Mean	Std. Deviation	N
How often did participant start working remotely during the pandemic	1.13	.425	157
Did dog make the participant feel less tired	3.64	1.087	157

Correlations			
		How often did participant start working remotely during the pandemic	Did dog make the participant feel less tired
How often did participant start working remotely during the pandemic	Pearson Correlation	1	.023
	Sig. (2-tailed)		.779
	N	157	157
Did dog make the participant feel less tired	Pearson Correlation	.023	1
	Sig. (2-tailed)	.779	
	N	157	157

Correlations

Descriptive Statistics			
	Mean	Std. Deviation	N
How often did participant start working remotely during the pandemic	1.13	.425	157
Did dog make the participant feel more joy	4.67	.664	157

Correlations			
		How often did participant start working remotely during the pandemic	Did dog make the participant feel more joy
How often did participant start working remotely during the pandemic	Pearson Correlation	1	.067
	Sig. (2-tailed)		.404
	N	157	157
Did dog make the participant feel more joy	Pearson Correlation	.067	1
	Sig. (2-tailed)	.404	
	N	157	157

**Figure 40. Correlation between how often participants worked remotely and dogs' making the participants feel less tired and more joy.**

There was a weak positive correlation between amount of work done remotely and whether participants felt more stressed due to their dogs ( $r=0.036$ ,  $p=0.652$ ) but no effect of variables between them was observed. Correlation between amount of remote work done and whether the participants felt more energetic due to their dogs can be seen in figure 44. There was a weak negative correlation between those variables ( $r=-0.044$ ,  $p=0.583$ ) but no effects of variables were observed. The result of the correlations can be seen in Figure 41 below.

**Correlations**

Descriptive Statistics			
	Mean	Std. Deviation	N
How often did participant start working remotely during the pandemic	1.13	.425	157
Did dog make the participant more stressed	2.10	1.238	156

Correlations			
		How often did participant start working remotely during the pandemic	Did dog make the participant more stressed
How often did participant start working remotely during the pandemic	Pearson Correlation	1	.036
	Sig. (2-tailed)		.652
	N	157	156
Did dog make the participant more stressed	Pearson Correlation	.036	1
	Sig. (2-tailed)	.652	
	N	156	156

**Correlations**

Descriptive Statistics			
	Mean	Std. Deviation	N
How often did participant start working remotely during the pandemic	1.13	.425	157
Did dog make the participant have more energy	3.76	.986	156

Correlations			
		How often did participant start working remotely during the pandemic	Did dog make the participant have more energy
How often did participant start working remotely during the pandemic	Pearson Correlation	1	-.044
	Sig. (2-tailed)		.583
	N	157	156
Did dog make the participant have more energy	Pearson Correlation	-.044	1
	Sig. (2-tailed)	.583	
	N	156	156

**Figure 41. Correlation between how often participants worked remotely and dogs' making the participants feel more stressed and having more energy.**

Figure 42 below indicates that there was a weak negative correlation between amount of remote work done by the participants and whether dog impacted their ability to handle important tasks ( $r=-0.030$ ,  $p=0.711$ ) and no effect between the variables was observed. As for the correlation between amount of remote work done and whether their dogs made them eat healthier, there was weak positive correlation ( $r=0.079$ ,  $p=0.327$ ) and there was no effect observed between the two variables.

Correlations

Descriptive Statistics			
	Mean	Std. Deviation	N
How often did participant start working remotely during the pandemic	1.13	.425	157
Did dog increase the ability to handle important tasks	3.34	1.081	156

Correlations			
		How often did participant start working remotely during the pandemic	Did dog increase the ability to handle important tasks
How often did participant start working remotely during the pandemic	Pearson Correlation	1	-.030
	Sig. (2-tailed)		.711
	N	157	156
Did dog increase the ability to handle important tasks	Pearson Correlation	-.030	1
	Sig. (2-tailed)	.711	
	N	156	156

Correlations

Descriptive Statistics			
	Mean	Std. Deviation	N
How often did participant start working remotely during the pandemic	1.13	.425	157
Did dog make the participant eat healthier	2.48	1.034	155

Correlations				
		How often did participant start working remotely during the pandemic	Did dog make the participant eat healthier	
How often did participant start working remotely during the pandemic	Pearson Correlation	1	.079	
	Sig. (2-tailed)		.327	
	N	157	155	
Did dog make the participant eat healthier	Pearson Correlation	.079	1	
	Sig. (2-tailed)	.327		
	N	155	155	

**Figure 42. Correlation between how often participants worked remotely and dogs' increasing the ability to handle important tasks and eating healthier.**

Figure 43 below shows that there was a weak negative correlation between the variables ( $r=-0.013$ ,  $p=0.870$ ) and no effect between the variables was observed. Additionally, there was a weak negative correlation between the amount of remote work done and whether a dog helped to ensure more sleep for the respondents ( $r=-0.068$ ,  $p=0.396$ ) but there was no effect between the variables that was observed.

Correlations

Descriptive Statistics			
	Mean	Std. Deviation	N
How often did participant start working remotely during the pandemic	1.13	.425	157
Did dog help to ensure more rest	2.76	1.052	157

Correlations			
		How often did participant start working remotely during the pandemic	Did dog help to ensure more rest
How often did participant start working remotely during the pandemic	Pearson Correlation	1	-.013
	Sig. (2-tailed)		.870
	N	157	157
Did dog help to ensure more rest	Pearson Correlation	-.013	1
	Sig. (2-tailed)	.870	
	N	157	157

Correlations

Descriptive Statistics			
	Mean	Std. Deviation	N
How often did participant start working remotely during the pandemic	1.13	.425	157
Did dog help to ensure more sleep	2.62	1.101	157

Correlations				
		How often did participant start working remotely during the pandemic	Did dog help to ensure more sleep	
How often did participant start working remotely during the pandemic	Pearson Correlation	1	-.068	
	Sig. (2-tailed)		.396	
	N	157	157	
Did dog help to ensure more sleep	Pearson Correlation	-.068	1	
	Sig. (2-tailed)	.396		
	N	157	157	

**Figure 43. Correlation between how often participants worked remotely and dogs ensuring more rest and sleep.**

Correlation between amount of remote work done by the participants and whether a dog helped to balance their overall well-being is a weak negative correlation ( $r=-0.083$ ,  $p=0.299$ ) and no effect of the variables on each other was observed. Also, there was a weak negative correlation between the amount of remote work done by the participants and if a dog increased their level of physical activity ( $r=-0.102$ ,  $p=0.203$ ) and no effect between the variables was observed. The results are shown in Figure 44 below.

#### Correlations

Descriptive Statistics			
	Mean	Std. Deviation	N
How often did participant start working remotely during the pandemic	1.13	.425	157
Did dog help to balance overall wellbeing	4.06	.965	157

Correlations			
		How often did participant start working remotely during the pandemic	Did dog help to balance overall wellbeing
How often did participant start working remotely during the pandemic	Pearson Correlation	1	-.083
	Sig. (2-tailed)		.299
	N	157	157
Did dog help to balance overall wellbeing	Pearson Correlation	-.083	1
	Sig. (2-tailed)	.299	
	N	157	157

#### Correlations

Descriptive Statistics			
	Mean	Std. Deviation	N
How often did participant start working remotely during the pandemic	1.13	.425	157
Did dog increase physical activity	4.18	.997	157

Correlations			
		How often did participant start working remotely during the pandemic	Did dog increase physical activity
How often did participant start working remotely during the pandemic	Pearson Correlation	1	-.102
	Sig. (2-tailed)		.203
	N	157	157
Did dog increase physical activity	Pearson Correlation	-.102	1
	Sig. (2-tailed)	.203	
	N	157	157

**Figure 44. Correlation between how often participants worked remotely and dogs helping to balance overall well-being and increased levels of physical activity.**

Figure 45 shows the correlation between the amount of work done remotely and whether a dog helped to have more breaks was a weak negative correlation ( $r=-0.019$ ,  $p=0.810$ ) and no effect between the amount of remote work done and having more breaks due to their dogs was observed. The same figure indicates a weak positive correlation between the amount of remote work done and having more social encounters due to their dogs ( $r=0.066$ ,  $p=0.411$ ) but no effect between them was observed.

#### Correlations

Descriptive Statistics			
	Mean	Std. Deviation	N
How often did participant start working remotely during the pandemic	1.13	.425	157
Did dog help to have more breaks	4.25	.975	156

Correlations			
		How often did participant start working remotely during the pandemic	Did dog help to have more breaks
How often did participant start working remotely during the pandemic	Pearson Correlation	1	-.019
	Sig. (2-tailed)		.810
	N	157	156
Did dog help to have more breaks	Pearson Correlation	-.019	1
	Sig. (2-tailed)	.810	
	N	156	156

#### Correlations

Descriptive Statistics			
	Mean	Std. Deviation	N
How often did participant start working remotely during the pandemic	1.13	.425	157
Did dog help to have more social encounters	4.05	1.125	157

Correlations			
		How often did participant start working remotely during the pandemic	Did dog help to have more social encounters
How often did participant start working remotely during the pandemic	Pearson Correlation	1	.066
	Sig. (2-tailed)		.411
	N	157	157
Did dog help to have more social encounters	Pearson Correlation	.066	1
	Sig. (2-tailed)	.411	
	N	157	157

**Figure 45. Correlation between how often participants worked remotely and did dog help to have more breaks and social encounters.**

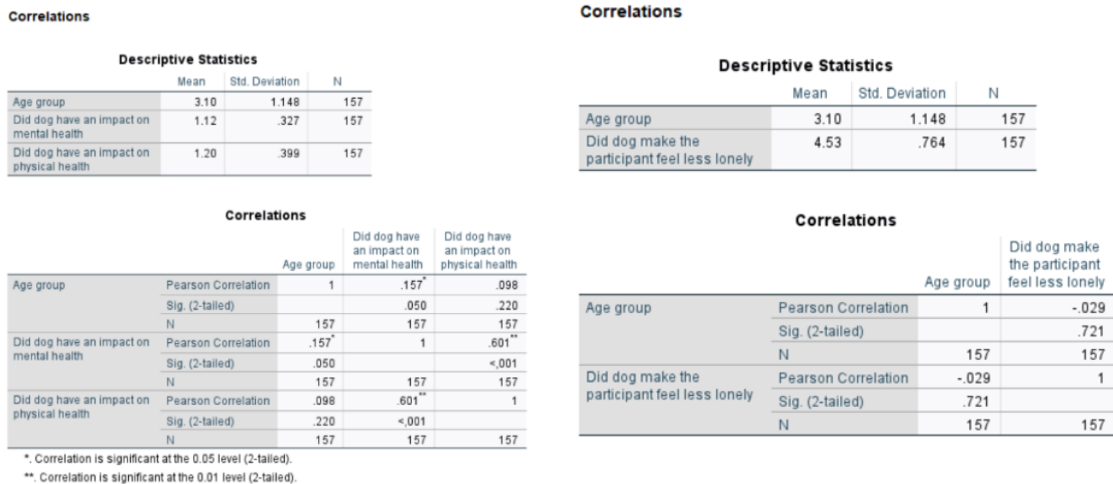
In conclusion, the amount of remote work done had no effect on the well-being of the respondents as there were not any moderate or strong positive correlations between the amount of remote work done and other chosen variables.

#### 4.2.1.4 Correlation between well-being and age

This section focuses on correlation between well-being (Likert scale questions) and the participants' age. The correlations are made to see whether age has impacted the results of the Likert scale questions. Additionally, the author chose to also make correlations between age and whether the respondents felt that their dog impacted their mental and

physical health in any way. The correlations are reviewed in a same way as in previous subchapter: r-value of Pearson correlation and p-value of Sig. (2-tailed).

As seen in Figure 46 below, age has a weak positive correlation with whether the respondents felt their dog impacted their mental health ( $r=0.157$ ,  $p=0.050$ ) and physical health in any way ( $r=0.098$ ,  $p=0.220$ ). Thus, age impacted the respondents' feelings of dog impacting their mental health but not on the physical health in any way since no effects between age and physical health was observed. The same figure shows that there was a weak negative correlation between age and whether the participants felt less lonely ( $r=-0.029$ ,  $p=0.721$ ). No effects between these variables was observed.



**Figure 46. Correlation between mental and physical health and feeling less lonely.**

There was a weak positive correlation between age and feeling less isolated ( $r=0.200$ ,  $p=0.012$ ). Thus, age had a positive impact on feeling less isolated due to living with a dog. However, there was a weak positive correlation between age and feeling less anxious ( $r=0.065$ ,  $p=0.419$ ) and no effects between them was observed. The results can be seen in Figure 47 below.

**Correlations**

Descriptive Statistics			
	Mean	Std. Deviation	N
Age group	3.10	1.148	157
Did dog make the participant feel less isolated	4.20	1.034	157

Correlations			
		Age group	Did dog make the participant feel less isolated
Age group	Pearson Correlation	1	.200*
	Sig. (2-tailed)		.012
	N	157	157
Did dog make the participant feel less isolated	Pearson Correlation	.200*	1
	Sig. (2-tailed)	.012	
	N	157	157

\*. Correlation is significant at the 0.05 level (2-tailed).

**Correlations**

Descriptive Statistics			
	Mean	Std. Deviation	N
Age group	3.10	1.148	157
Did dog make the participant feel less anxious	4.18	.966	157

Correlations			
		Age group	Did dog make the participant feel less anxious
Age group	Pearson Correlation	1	.065
	Sig. (2-tailed)		.419
	N	157	157
Did dog make the participant feel less anxious	Pearson Correlation	.065	1
	Sig. (2-tailed)	.419	
	N	157	157

**Figure 47. Correlation between age and feeling less isolated and anxious.**

Figure 48 below shows that there was a weak positive correlation between age and feeling less depressed ( $r=0.023$ ,  $p=0.772$ ) but no effects between variables was observed. When it comes to correlation between age and feeling less tired, there was a weak positive correlation ( $r=0.100$ ,  $p=0.213$ ) and no effects between variables was observed.

**Correlations**

Descriptive Statistics			
	Mean	Std. Deviation	N
Age group	3.10	1.148	157
Did dog make the participant feel less depressed	4.34	.944	157

Correlations			
		Age group	Did dog make the participant feel less depressed
Age group	Pearson Correlation	1	.023
	Sig. (2-tailed)		.772
	N	157	157
Did dog make the participant feel less depressed	Pearson Correlation	.023	1
	Sig. (2-tailed)	.772	
	N	157	157

**Correlations**

Descriptive Statistics			
	Mean	Std. Deviation	N
Age group	3.10	1.148	157
Did dog make the participant feel less tired	3.64	1.087	157

Correlations			
		Age group	Did dog make the participant feel less tired
Age group	Pearson Correlation	1	.100
	Sig. (2-tailed)		.213
	N	157	157
Did dog make the participant feel less tired	Pearson Correlation	.100	1
	Sig. (2-tailed)	.213	
	N	157	157

**Figure 48. Correlation between age and feeling less depressed and tired.**

Figure 49 below indicates that there was a weak positive correlation between participants' age and feeling more joy ( $r=0.050$ ,  $p=0.532$ ) but no effects between age and feeling joy was observed. The same figure shows that there was a weak negative

correlation between age and feeling more stressed ( $r=-0.080$ ,  $p=0.323$ ) and no effects between variables was observed.

**Correlations**

Descriptive Statistics			
	Mean	Std. Deviation	N
Age group	3.10	1.148	157
Did dog make the participant feel more joy	4.67	.664	157

Correlations			
		Age group	Did dog make the participant feel more joy
Age group	Pearson Correlation	1	.050
	Sig. (2-tailed)		.532
	N	157	157
Did dog make the participant feel more joy	Pearson Correlation	.050	1
	Sig. (2-tailed)	.532	
	N	157	157

**Correlations**

Descriptive Statistics			
	Mean	Std. Deviation	N
Age group	3.10	1.148	157
Did dog make the participant more stressed	2.10	1.238	156

Correlations			
		Age group	Did dog make the participant more stressed
Age group	Pearson Correlation	1	-.080
	Sig. (2-tailed)		.323
	N	157	156
Did dog make the participant more stressed	Pearson Correlation	-.080	1
	Sig. (2-tailed)	.323	
	N	156	156

**Figure 49. Correlation between age and feeling more joy and more stressed.**

Figure 50 below shows that there was a weak negative correlation between age and having more energy ( $r=-0.077$ ,  $p=0.337$ ) but no effects between variables was observed. Additionally, there was a weak positive correlation between age and ability of handling important tasks ( $r=0.121$ ,  $p=0.158$ ) but no effects between the variables was observed.

**Correlations**

Descriptive Statistics			
	Mean	Std. Deviation	N
Age group	3.10	1.148	157
Did dog make the participant have more energy	3.76	.986	156

Correlations			
		Age group	Did dog make the participant have more energy
Age group	Pearson Correlation	1	-.077
	Sig. (2-tailed)		.337
	N	157	156
Did dog make the participant have more energy	Pearson Correlation	-.077	1
	Sig. (2-tailed)	.337	
	N	156	156

**Correlations**

Descriptive Statistics			
	Mean	Std. Deviation	N
Age group	3.10	1.148	157
Did dog increase the ability to handle important tasks	3.34	1.081	156

Correlations			
		Age group	Did dog increase the ability to handle important tasks
Age group	Pearson Correlation	1	.114
	Sig. (2-tailed)		.158
	N	157	156
Did dog increase the ability to handle important tasks	Pearson Correlation	.114	1
	Sig. (2-tailed)	.158	
	N	156	156

**Figure 50. Correlation between age and having more energy and being able to handle important tasks.**

Figure 51 below indicates that there was a weak positive correlation between age and eating healthier ( $r=0.121$ ,  $p=0.133$ ) and no effects between the variables was observed. Nevertheless, there was a weak positive correlation between age and dog helping to ensure more rest ( $r=0.237$ ,  $p=0.003$ ). Thus, age impacted positively on dogs ensuring to have more rest.

#### Correlations

##### Descriptive Statistics

	Mean	Std. Deviation	N
Age group	3.10	1.148	157
Did dog make the participant eat healthier	2.48	1.034	155

##### Correlations

		Age group	Did dog make the participant eat healthier
Age group	Pearson Correlation	1	.121
	Sig. (2-tailed)		.133
	N	157	155
Did dog make the participant eat healthier	Pearson Correlation	.121	1
	Sig. (2-tailed)	.133	
	N	155	155

#### Correlations

##### Descriptive Statistics

	Mean	Std. Deviation	N
Age group	3.10	1.148	157
Did dog help to ensure more rest	2.76	1.052	157

##### Correlations

		Age group	Did dog help to ensure more rest
Age group	Pearson Correlation	1	.237**
	Sig. (2-tailed)		.003
	N	157	157
Did dog help to ensure more rest	Pearson Correlation	.237**	1
	Sig. (2-tailed)	.003	
	N	157	157

\*\* . Correlation is significant at the 0.01 level (2-tailed).

**Figure 51. Correlation between age and dog helping to eat healthier and ensuring more rest.**

According to the results of Figure 52, there was a weak positive correlation between age and dogs ensuring more sleep ( $r=0.202$ ,  $p=0.011$ ) resulting age impacting positively on dogs ensuring more sleep. However, the figure also indicates that there was a weak positive correlation between age and overall well-being ( $r=0.006$ ,  $p=0.940$ ) but no effects between the variables was observed meaning that age did not impact on dogs helping to balance overall well-being.

**Correlations**

**Descriptive Statistics**

	Mean	Std. Deviation	N
Age group	3.10	1.148	157
Did dog help to ensure more sleep	2.62	1.101	157

**Correlations**

		Age group	Did dog help to ensure more sleep
Age group	Pearson Correlation	1	.202*
	Sig. (2-tailed)		.011
	N	157	157
Did dog help to ensure more sleep	Pearson Correlation	.202*	1
	Sig. (2-tailed)	.011	
	N	157	157

\*. Correlation is significant at the 0.05 level (2-tailed).

**Correlations**

**Descriptive Statistics**

	Mean	Std. Deviation	N
Age group	3.10	1.148	157
Did dog help to balance overall wellbeing	4.06	.965	157

**Correlations**

		Age group	Did dog help to balance overall wellbeing
Age group	Pearson Correlation	1	.006
	Sig. (2-tailed)		.940
	N	157	157
Did dog help to balance overall wellbeing	Pearson Correlation	.006	1
	Sig. (2-tailed)	.940	
	N	157	157

**Figure 52. Correlation between age and dog ensuring more sleep and helping to balance overall well-being.**

Figure 53 below shows that there was a weak positive correlation between age and increased level of physical activity ( $r=0.013$ ,  $p=0.871$ ) and no effects between the variables was observed. Also, there was a weak positive correlation between age and having more breaks when working remotely ( $r=0.116$ ,  $p=0.148$ ). No effects between variables were observed.

**Correlations**

**Descriptive Statistics**

	Mean	Std. Deviation	N
Age group	3.10	1.148	157
Did dog increase physical activity	4.18	.997	157

**Correlations**

		Age group	Did dog increase physical activity
Age group	Pearson Correlation	1	.013
	Sig. (2-tailed)		.871
	N	157	157
Did dog increase physical activity	Pearson Correlation	.013	1
	Sig. (2-tailed)	.871	
	N	157	157

**Correlations**

**Descriptive Statistics**

	Mean	Std. Deviation	N
Age group	3.10	1.148	157
Did dog help to have more breaks	4.25	.975	156

**Correlations**

		Age group	Did dog help to have more breaks
Age group	Pearson Correlation	1	.116
	Sig. (2-tailed)		.148
	N	157	156
Did dog help to have more breaks	Pearson Correlation	.116	1
	Sig. (2-tailed)	.148	
	N	156	156

**Figure 53. Correlation between age and dog increasing physical activity and allowing more breaks.**

Figure 54 below shows the results for correlation between age and having more social encounters. There was a weak positive correlation between the variables ( $r=0.071$ ,  $p=0.379$ ) and no effects between the variables was observed.

#### Correlations

Descriptive Statistics			
	Mean	Std. Deviation	N
Age group	3.10	1.148	157
Did dog help to have more social encounters	4.05	1.125	157

Correlations			
		Age group	Did dog help to have more social encounters
Age group	Pearson Correlation	1	.071
	Sig. (2-tailed)		.379
	N	157	157
Did dog help to have more social encounters	Pearson Correlation	.071	1
	Sig. (2-tailed)	.379	
	N	157	157

**Figure 54. Correlation between age and social encounters.**

Due to there were p-values of 0.05 or less with variables between age and dogs helping with mental health and ensuring more sleep and rest, it can be stated that dogs did help participants to balance their mental health and to ensure more sleep and rest, depending on the participants' age. However, with the other Likert scale questions, there no correlations between the variables resulting age not impacting those other variables.

#### 4.2.1.5 Correlation between well-being and variable of owning a dog before the pandemic

Another aspect of the quantitative part of the study was to determine whether owning a dog prior to the pandemic effected the participants' responses regarding the Likert scale questions. According to the results shown in Figure 55 below, there was a weak negative correlation between having to own a dog prior the pandemic and mental health ( $r=-0.160$ ,  $p=0.046$ ) and physical health ( $r=-0.067$ ,  $p=0.401$ ). Thus, no effects between the variables were observed.

**Correlations**

Descriptive Statistics			
	Mean	Std. Deviation	N
Did participant own a dog before the pandemic	1.52	.713	157
Did dog have an impact on mental health	1.12	.327	157
Did dog have an impact on physical health	1.20	.399	157

Correlations				
		Did participant own a dog before the pandemic	Did dog have an impact on mental health	Did dog have an impact on physical health
Did participant own a dog before the pandemic	Pearson Correlation	1	-.160*	-.067
	Sig. (2-tailed)		.046	.401
	N	157	157	157
Did dog have an impact on mental health	Pearson Correlation	-.160*	1	.601**
	Sig. (2-tailed)	.046		<.001
	N	157	157	157
Did dog have an impact on physical health	Pearson Correlation	-.067	.601**	1
	Sig. (2-tailed)	.401	<.001	
	N	157	157	157

\*. Correlation is significant at the 0.05 level (2-tailed).  
 \*\*. Correlation is significant at the 0.01 level (2-tailed).

**Figure 55. Correlation between owning a dog prior to pandemic and dogs’ impact on mental and physical health.**

The correlation between having a dog prior to pandemic and whether dog impacted the participants’ feeling of loneliness, isolation, anxious and depressed was a weak correlation between each variable ( $r=-0.033$ ,  $p=0.680$  for loneliness,  $r=-0.017$ ,  $p=0.829$  for isolation,  $r=-0.037$ ,  $p=0.646$  for anxiety and  $r=-0.032$ ,  $p=0.646$  for depression). Therefore, no correlation between the variables was observed. The results can be seen in Figure 56 below.

**Correlations**

Descriptive Statistics			
	Mean	Std. Deviation	N
Did participant own a dog before the pandemic	1.52	.713	157
Did dog make the participant feel less lonely	4.53	.764	157
Did dog make the participant feel less isolated	4.20	1.034	157

Correlations				
		Did participant own a dog before the pandemic	Did dog make the participant feel less lonely	Did dog make the participant feel less isolated
Did participant own a dog before the pandemic	Pearson Correlation	1	-.033	-.017
	Sig. (2-tailed)		.680	.829
	N	157	157	157
Did dog make the participant feel less lonely	Pearson Correlation	-.033	1	.629**
	Sig. (2-tailed)	.680		<.001
	N	157	157	157
Did dog make the participant feel less isolated	Pearson Correlation	-.017	.629**	1
	Sig. (2-tailed)	.829	<.001	
	N	157	157	157

\*\* . Correlation is significant at the 0.01 level (2-tailed).

**Correlations**

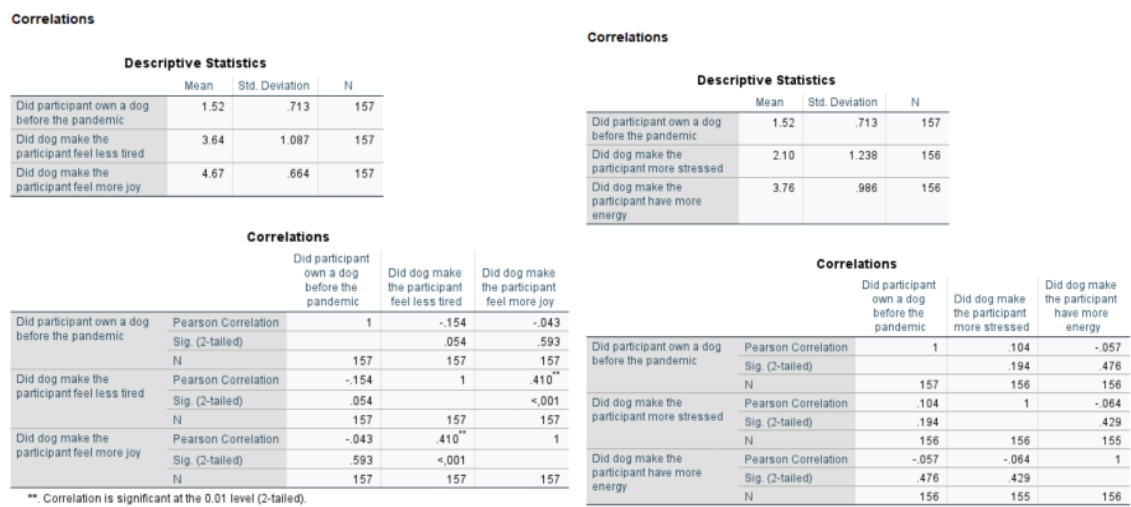
Descriptive Statistics			
	Mean	Std. Deviation	N
Did participant own a dog before the pandemic	1.52	.713	157
Did dog make the participant feel less anxious	4.18	.966	157
Did dog make the participant feel less depressed	4.34	.944	157

Correlations				
		Did participant own a dog before the pandemic	Did dog make the participant feel less anxious	Did dog make the participant feel less depressed
Did participant own a dog before the pandemic	Pearson Correlation	1	-.037	-.032
	Sig. (2-tailed)		.646	.692
	N	157	157	157
Did dog make the participant feel less anxious	Pearson Correlation	-.037	1	.795**
	Sig. (2-tailed)	.646		<.001
	N	157	157	157
Did dog make the participant feel less depressed	Pearson Correlation	-.032	.795**	1
	Sig. (2-tailed)	.692	<.001	
	N	157	157	157

\*\* . Correlation is significant at the 0.01 level (2-tailed).

**Figure 56. Correlation between owning a dog prior to pandemic and whether participants felt less lonely, isolated, anxious and depressed.**

Figure 57 below indicates the results for correlation between owning a dog prior to pandemic and feeling less tired, more joy, more stressed and having more energy. The correlation between owning a dog prior to the pandemic and feeling less tired, more joy and having more energy was a weak negative correlation ( $r=-0.154$ ,  $p=0.054$  for tiredness,  $r=-0.043$ ,  $p=0.593$  for joy and  $r=-0.057$ ,  $p=0.476$  for energy). However, there was a weak positive correlation between being more stressed out and having a dog prior to pandemic ( $r=0.104$ ,  $p=0.194$ ). Moreover, there was no effect between the variables observed.



**Figure 57. Correlation between owning a dog prior to pandemic and feeling less tired, more joy, more stressed and having more energy.**

As for the correlation between owning a dog prior to pandemic and being able to handle important tasks, eat healthier and having more sleep, there was a weak negative correlation ( $r=-0.088$ ,  $p=0.275$  for ability to handle important tasks,  $r=-0.041$ ,  $p=0.609$  for eating healthier and  $r=-0.033$ ,  $p=0.681$  for having more sleep). The correlation between owning a dog prior to pandemic and ensuring more rest was a weak positive correlation ( $r=0.014$ ,  $p=0.865$ ). Nevertheless, no effect between the variables was observed. The results can be seen in Figure 58 below.

Correlations

Descriptive Statistics			
	Mean	Std. Deviation	N
Did participant own a dog before the pandemic	1.52	.713	157
Did dog increase the ability to handle important tasks	3.34	1.081	156
Did dog make the participant eat healthier	2.48	1.034	155

Correlations

		Did participant own a dog before the pandemic	Did dog increase the ability to handle important tasks	Did dog make the participant eat healthier
Did participant own a dog before the pandemic	Pearson Correlation	1	-.088	-.041
	Sig. (2-tailed)		.275	.609
	N	157	156	155
Did dog increase the ability to handle important tasks	Pearson Correlation	-.088	1	.575**
	Sig. (2-tailed)	.275		<.001
	N	156	156	154
Did dog make the participant eat healthier	Pearson Correlation	-.041	.575**	1
	Sig. (2-tailed)	.609	<.001	
	N	155	154	155

\*\* . Correlation is significant at the 0.01 level (2-tailed).

Correlations

Descriptive Statistics			
	Mean	Std. Deviation	N
Did participant own a dog before the pandemic	1.52	.713	157
Did dog help to ensure more rest	2.76	1.052	157
Did dog help to ensure more sleep	2.62	1.101	157

Correlations

		Did participant own a dog before the pandemic	Did dog help to ensure more rest	Did dog help to ensure more sleep
Did participant own a dog before the pandemic	Pearson Correlation	1	.014	-.033
	Sig. (2-tailed)		.865	.681
	N	157	157	157
Did dog help to ensure more rest	Pearson Correlation	.014	1	.805**
	Sig. (2-tailed)	.865		<.001
	N	157	157	157
Did dog help to ensure more sleep	Pearson Correlation	-.033	.805**	1
	Sig. (2-tailed)	.681	<.001	
	N	157	157	157

\*\* . Correlation is significant at the 0.01 level (2-tailed).

**Figure 58. Correlation between owning a dog prior to pandemic and being able to handle important tasks, eating healthier, having more rest and sleep.**

The results of Figure 59 below show the correlation between owning a dog prior to pandemic and dogs helping to balance overall well-being, increase physical activity, allowing to have more breaks and having more social encounters. The results indicate that there was a weak positive correlation between owning a dog prior to pandemic and helping to balance overall well-being and increased level of physical activity ( $r=0.157$ ,  $p=0.050$  for well-being,  $r=0.023$ ,  $p=0.774$  for physical activity). Since p-value for balancing overall well-being is 0.050, owning a dog prior to the pandemic did impact positively the variable of dog helping to balance overall well-being. Moreover, there was a weak negative correlation between owning a dog prior to pandemic and having more breaks and social encounters ( $r=-0.095$ ,  $p=0.238$  for breaks and  $r=-0.089$ ,  $0.268$  for social encounters). However, there were no effects between the variables observed.

**Correlations**

Descriptive Statistics			
	Mean	Std. Deviation	N
Did participant own a dog before the pandemic	1.52	.713	157
Did dog help to balance overall wellbeing	4.06	.965	157
Did dog increase physical activity	4.18	.997	157

Correlations				
		Did participant own a dog before the pandemic	Did dog help to balance overall wellbeing	Did dog increase physical activity
Did participant own a dog before the pandemic	Pearson Correlation	1	.157*	.023
	Sig. (2-tailed)		.050	.774
Did dog help to balance overall wellbeing	Pearson Correlation	.157*	1	.388**
	Sig. (2-tailed)	.050		<.001
Did dog increase physical activity	Pearson Correlation	.023	.388**	1
	Sig. (2-tailed)	.774	<.001	
	N	157	157	157

\*. Correlation is significant at the 0.05 level (2-tailed).  
 \*\*. Correlation is significant at the 0.01 level (2-tailed).

**Correlations**

Descriptive Statistics			
	Mean	Std. Deviation	N
Did participant own a dog before the pandemic	1.52	.713	157
Did dog help to have more breaks	4.25	.975	156
Did dog help to have more social encounters	4.05	1.125	157

Correlations				
		Did participant own a dog before the pandemic	Did dog help to have more breaks	Did dog help to have more social encounters
Did participant own a dog before the pandemic	Pearson Correlation	1	-.095	-.089
	Sig. (2-tailed)		.238	.268
Did dog help to have more breaks	Pearson Correlation	-.095	1	.498**
	Sig. (2-tailed)	.238		<.001
Did dog help to have more social encounters	Pearson Correlation	-.089	.498**	1
	Sig. (2-tailed)	.268	<.001	
	N	157	156	157

\*\* . Correlation is significant at the 0.01 level (2-tailed).

**Figure 59. Correlation between owning a dog prior to pandemic and overall well-being, increased level of physical activity, having more breaks and social encounters.**

As a result, there were positive results for T-test with p-value of 0.05 or below for the following factors:

- T-test for gender and positive impacts of owning a dog:
  - Gender impacted positively for having more energy due to owning a dog
  - Gender impacted positively for ability to handle important tasks due to owning a dog

Correlations between age and Likert scale questions show the following results:

- Correlation between age and mental health: positive impact
- Correlation between age and feeling less lonely: positive impact
- Correlation between age and dog helping to ensure more rest: positive impact
- Correlation between age and dog helping to ensure more sleep: positive impact
- Correlation between owning a dog prior to pandemic and dog helping to balance overall well-being: positive impact

As for the other chosen variables, there were no correlations between the tested variables and Likert scale questions.

#### **4.2.2 Qualitative data**

When asking the participants open-ended questions to collect qualitative data, the number of respondents varied between the questions. The exact questions can be found in an appendix 1. The first open-ended question focused on asking about the positive effects of living with a dog whilst working remotely during the outbreak of COVID-19. In total, there were 138 responses from which 130 responses were considered as valid. Some of the participants shared more whereas some of them described the positive effects with few words.

The second question focused on the negative effects of living with a dog whilst working remotely during the first outbreak of COVID-19. There were 135 responses, from which 128 were valid. However, for this particular question, 47 respondents answered that there were no negative effects. Therefore, 81 participants explained further the negative effects they had experienced.

Third open-ended question focused on the participants expressing how they perceive living with a dog has impacted their overall well-being. There was a brief explanation what overall well-being consists of. For instance, mental health includes emotional well-being and physical health includes nutrition and rest amongst other aspects. 127 valid responses for the question.

There occurred six major themes when analysing the qualitative results of the study. The themes can be seen in Figure 61 below. The clear themes found were focusing on companionship, structure and routine, getting daily exercise, remembering breaks, having positive feelings such as joy and happiness and finally, maintaining social interactions. The data was coded according to the themes occurred, leaving there some room for data outside of the themes.

Themes of the quantitative part's results



**Figure 60. Themes of the quantitative part's results.**

The quantitative results of the study will be divided into three subchapters:

- Positive effects of living with a dog during the first outbreak of COVID-19
- Negative effects of living with a dog during the first outbreak of COVID-19
- Overall impact of dogs on well-being during the first outbreak of COVID-19

Upon analysis, the themes seen in figure 60 above will be discussed as well.

#### **4.2.2.1 Positive effects of living with a dog during the first outbreak of COVID-19**

Company was one of the themes found within the results of the study. When asking the participants for positive aspects of living with a dog during the first outbreak of COVID-19, many of them responded companionship being one of the positive sides. For instance, one of the participants responded the following: *“There was someone with me all the time when you couldn’t see friends etc.”* (Anonymous respondent of the study, 2022).

There were some participants who also mentioned that dog brought more company. One responded mentioned that because of their dogs, they felt that they had someone to talk to. Another one felt that due to working remotely during the first outbreak of COVID-19, social encounters were decreased but since living with a dog, they found that their dog provided company when working at home. One participant mentioned that their dog “helped them to survive the whole COVID-19 time” (anonymous respondent of the study, 2022) due to having someone by their side.

In total, there were 25 respondents who used the word “company” either in English or in Finnish to describe the most positive effects of living with a dog. Thus, it became a theme of the qualitative study and is perceived as one positive impact of living with a dog.

When asking the most positive effects of living with a dog during the first outbreak of COVID-19, 33 respondents who work in Finland used the word “structure” and 6 of those respondents also used the word “routine” in addition to structure. 9 other respondents mentioned routine as one of the most positive effects of living with a dog during the first outbreak of COVID-19. However, one respondent answered the following:

*It did not bring any change to my life/daily routine. The dogs slept during the day as before. The only thing that was different was when one or the other dog joined Teams meetings. Anonymous respondent of the study, 2022.*

Nevertheless, since majority of the respondents using the words “structure” and “routine” to describe the most positive effects of living with a dog during the first outbreak of COVID-19, it can be stated that dogs did bring more structure and routine to the days when working remotely in Finland during the first outbreak of COVID-19.

Additionally, several respondents mentioned having daily exercise is one major positive effect of living with a dog during the first outbreak of COVID-19. For instance, one respondent mentioned the following:

*Living with my dog impacted me in a positive way because I had to go for walks and so I would get fresh air and feel energized and what I need to do instead of lying in bed and not go out for many days which would impact on my sleep and so on. Anonymous respondent of the study, 2022.*

Another respondent agreed that their dog helped to maintain physical activity amongst other positive effects:

*Tremendously, my dogs bring me so much joy and make me feel less alone everyday. They force me to keep a schedule which is hard for me especially when working from home. For me personally physical activity also plays a huge role in my mental health, so having dogs and being forced to go for a walk outside several times every day has a significant positive impact on my mental health. Also, cuddling with dogs is the best.* Anonymous respondent of the study, 2022.

However, there was one participant who mentioned that due to owning a dog, their physical activity has decreased, regardless of the pandemic:

*The level of my physical activity went down when I got the dog 9 years ago. I would have more time for actual exercise if I didn't have to walk the dog many times a day. So overall impact of the dog on my physical wellbeing is negative, pandemic or not. Not having to commute for work during full-remote times was the only thing that made me more active: I spent the saved time in training. Mental health: for that the dog is both positive and negative. Its existence does bring joy and laughter, and positive emotions, but also worry and stress about taking care of its needs. It limits your freedom as you have to take care of walking, feeding, playing, not leaving alone for too long times etc. so it adds to your "to-do" list every day.* Anonymous respondent of the study, 2022.

Thus, even though needing to take the dogs for a walk which decreased the physical activity of the respondent above, remote work enabled them to have more time to exercising without their dog. However, several other participants mentioned increased physical activity as a positive effect of owning a dog during the first outbreak of COVID-10. It needs to be comprehended that as this is qualitative part of the study, each participant was responsible for determining their previous level of activity and if it changed during the first outbreak of COVID-19. Therefore, the accuracy of the amount of physical activity is yet to be determined.

When it comes to the remembering having breaks, 33 participants mentioned that as a positive effect. For instance, many mentioned that they were forced to have breaks when working remotely due to needing to take care of their dogs. For many participants, when the gyms were closed during the first outbreak of COVID-19, they were able to maintain

the physical activity due to taking the dogs out for a walk. One participant mentioned the following:

*Helps me keep breaks from work as otherwise you could easily just forget lunch and have 8h worth of online meetings. Anonymous respondent of the study, 2022*

As having breaks during workday is important in terms of employees' well-being especially in long-term, it can be stated that dogs did have a positive impact on remembering to have breaks when working remotely during the first outbreak of COVID-19.

There were also 40 respondents who mentioned dogs bringing positive feelings. The feelings mentioned are for example love, joy, happiness, feeling needed and having a sense of purpose in their life due to their dog. For instance, one participant responded the following:

*I felt happy to be able to be around my dogs more, and they definitely brought joy and structure to the life. Without them I would have felt more lonely. Anonymous respondent of the study, 2022.*

As a result, owning a dog or living with one during the pandemic has impacted positively employees working remotely. The positive effects have been noticeable when thinking about structure of everyday life, maintaining or increasing the level of exercise, having more fresh air and remembering to have breaks when working. Additionally, several respondents felt that they experienced more positive feelings and feelings of being isolated or lonely were decreased due to living with dogs.

#### **4.2.2.2 Negative effects of living with a dog during the first outbreak of COVID-19**

When it comes to negative effects of living with a dog, 135 participants responded the question. Half of them mentioned that there were no negative effects. However, there were participants who felt that dogs did impact negatively on their work by interrupting them or requiring attention. Some felt that there was less sleep and for some there was

more stress about the dog possibly interrupting their work calls by barking. For example, one participant mentioned the following *“Sometimes I stressed beforehand if the dog would start barking during a call with a client”* (Anonymous respondent of the study, 2022).

Some of the negative effects of dogs’ impact on remote employees during COVID-19 were focused on different situations with dogs. For instance, there were participants who mentioned that they had a puppy which caused extra stress due to not being able to train them as they would have liked due to COVID-19. Couple of participants mentioned that their dogs had gotten ill, meaning that they were stressed about their dogs’ well-being and how to handle those situations when needing to work at the same time. Nevertheless, one participant mentioned that being able to work remotely made it easier to take care of the dog, resulting in lower level of stress:

*Of course the responsibility creates stress in general, but I think with remote working I could take much better care of the dog, than I could have taken if I was at the office. So due to remote working I had less stress than I would have had, if I had to be in the office.* Anonymous respondent of the study, 2022.

Some participants felt that their dogs became co-dependent due to working remotely which brought more stress. Additionally, as they were working remotely, their dogs may have been interrupting meetings. The main negative effects found were focusing on stressing about teaching a puppy to be alone during and after the pandemic and having a good environment for working remotely without any distractions caused by the dogs. Moreover, many participants felt that the positive impacts of dogs overruled the few negative impacts.

#### **4.2.2.3 Overall impact of dogs on well-being during the first outbreak of COVID-19**

There were 126 responses when asking about overall impact of dogs on well-being during the first outbreak of COVID-19. The question included a clarification of what well-being includes: mental health (emotional well-being, mental health symptoms, ability to take care of important tasks) and physical health (physical activity, nutrition, sleep and

rest). Especially dogs' impact on mental health were experienced positively whereas nutrition and sleep were considered not to be impacted by the dogs. However, majority of the participants felt that the dogs impacted their overall well-being positively. Nevertheless, there was one respondent who mentioned the following:

*The level of my physical activity went down when I got the dog 9 years ago. I would have more time for actual exercise if I didn't have to walk the dog many times a day. So overall impact of the dog on my physical wellbeing is negative, pandemic or not. Not having to commute for work during full-remote times was the only thing that made me more active: I spent the saved time in training. Mental health: for that the dog is both positive and negative. Its existence does bring joy and laughter, and positive emotions, but also worry and stress about taking care of its needs. it limits your freedom as you have to take care of walking, feeding, playing, not leaving alone for too long times etc. so it adds to your "to-do" list every day. Anonymous respondent of the study, 2022.*

Thus, there are both positive and negative effects of owning a dog on remote employees' overall well-being. Remote working on the other hand enables the employees to have more time to take care of the dog, resulting in decreased levels of stress. For some people, needing to take the dog out many times a day may cause more stress but for some it may decrease it. Therefore, it can be stated that even though there are mainly positive effects of living with a dog during COVID-19 and working remotely, there are some situations in which either dog's health or individual needs may bring negative effects or then the person's individual needs may cause obstacles when needing to take care of the dog.

In conclusion, according to the results of qualitative data of the study, there were both positive and negative aspects of owning a dog during the COVID-19 pandemic whilst working remotely. For instance, negative aspects include the responsibility of taking care of the dog. The dog might have been also distracting some people and causing more stress about if the dog will distract their upcoming meetings and calls by for example barking. Additionally, training the dog to be able to be alone at home became challenging for several participants with puppies. Nevertheless, there were more positive impacts of

owning a dog during the COVID-19 pandemic whilst working remotely. For example, several participants felt that their dogs increased their level of physical activity, allowed to have more social encounters, eased the feeling of loneliness and isolation and increased their feelings of happiness and joy. Dogs also brought more company to them, especially to the ones living alone.

### 4.3 Testing the hypotheses

The hypotheses were introduced in literature review, subchapter 2.5. on page 41. They can also be seen in Figure 61 below.

**Hypothesis 1.** Owning a dog has impacted employees' mental health in a positive manner when working remotely during COVID-19.

**Hypothesis 2.** Owning a dog has impacted employees' physical health in a positive manner when working remotely during COVID-19.

**Hypothesis 3.** Owning a dog has helped employees to balance their overall well-being during COVID-19.

#### **Figure 61. Hypotheses of the study.**

According to the study's results, hypothesis 1 is supported. The findings of the both quantitative data and qualitative data show that there owning a dog has impacted employees' mental health in a positive manner when working remotely during COVID-19. For instance, there was a positive correlation between age and mental health when owning a dog or living with one, resulting dogs impacting the participants mental health positively. Additionally, several participants expressed to feel more happy and less lonely due to owning a dog. Thus, hypothesis 1 is supported by the findings of the study.

Hypothesis 2 is also being supported by the findings of the qualitative study. Several participants expressed that without their dogs, they would not have been as active during the pandemic, which increased their level of physical activity. Therefore, hypothesis 2 is supported.

Hypothesis 3 is supported as well. Quantitative findings of the study indicate that there was a positive correlation between owning a dog prior to the pandemic and dog helping to balance their overall well-being. Additionally, qualitative findings of the study indicate that the participants felt that their dogs did impact positively their overall well-being by affecting positively their mental and physical health despite there being sometimes concerns of their dogs' levels of health. Thus, hypothesis 3 is supported.

## **5 Discussion and conclusion**

This thesis focused on examining whether dogs had an impact on employees forced to work remotely during COVID-19 pandemic. The theoretical framework of the thesis was divided into different approaches: mental and physical health, overall well-being, impact of COVID-19 on well-being and theory of human-animal interaction. There were no prior research on the same topic to this extent.

### **5.1 Summary of the findings**

The findings of the study implicate that dogs did have a positive impact on remote employees during the first outbreak of COVID-19 in Finland. The most significant impact was on the feeling of loneliness, isolation and feeling happier. Additionally, dogs did have a positive impact on remote employees' overall well-being since remote employees were forced to have more breaks when working and were able to maintain a clear structure during the remote working days. When it comes to the physical activity of the remote employees, there were no significant factors that indicate that dogs would have had an impact on those. However, some of the participants felt that without their dogs, they would not have had any or very low levels of physical activity. As mentioned previously, all three hypotheses were supported by the findings of the study.

The amount of remote work done or whether the participant had a dog prior to the pandemic did not have any effect on the results of the study. Therefore, it can be stated that individuals experience different mental and physical health symptoms differently but regardless, majority of the participants felt that dogs did have a positive impact on their mental health and overall well-being. When it comes to being able to eat healthier or being able to handle important tasks, dogs did not have an impact on those.

Overall, the findings of the study indicate that dogs did have a positive impact on remote employees' mental and physical health and overall well-being during the first outbreak of COVID-19 in Finland.

Summary of the findings can be found in figures 62, 63 and 64 below. Figure 62 shows the results of T-test results which had an impact two variables of the Likert scale questions: did owning a dog increase the participants' level of energy and ability to handle important tasks. The other T-test results did not have an impact on the Likert scale questions.

Positive results of quantitative data:  
T-test

Gender + did owning a dog increase participants level of energy: p-value=0.013

Gender + did owning a dog increase the ability to handle important tasks: p-value=0.030

**Figure 62. Positive results of quantitative data: T-test**

The positive results of quantitative data in terms of correlations can be found in figure 63 below. It shows the p-value of the age's correlation to mental health, feeling less isolated and dogs helping to ensure more rest and sleep. Additionally, it shows the p-value of correlation between owning a dog prior to pandemic and whether a dog helped to balance the participants' overall well-being.

Positive results of quantitative data:  
correlation

Age + mental health: p-value=0.050

Age + feeling less isolated: p-value=0.012

Age + dog helping to ensure more rest: p-value=0.003

Age + dog helping to ensure more sleep: p-value=0.011

Owning a dog prior to pandemic + dog helping to balance overall well-being

**Figure 63. Positive results of quantitative data: correlation**

Figure 64 below shows the findings of the qualitative data summarised. There are both negative and positive aspects but since the majority of the participants of the study felt that there are no negative aspects of owning a dog during the pandemic whilst working remotely, each hypothesis was supported resulting in dog having a positive impact on the level of overall well-being of the remote employees in Finland during the first outbreak of COVID-19.

## Findings of the qualitative data

### Positive effects of owning a dog to remote employees' overall well-being during COVID-19

- Easing the feelings of loneliness and isolation
- Increasing their levels of happiness and feeling more joy
- Having more breaks when working
- Having more social encounters

### Negative effects of owning a dog to remote employees' overall well-being during COVID-19

- Challenges of training a puppy to be alone at home
- Co-dependent behavior of the dog
- Interrupting meetings and/or calls
- Stress about their dogs' levels of health (unrelated to the pandemic)

**Figure 64. Findings of the qualitative data**

## 5.2 Implications of the study

Implications of the study include the positive impact of a dog when working remotely. However, they can be taken further in other forms as well. For instance, more and more offices could allow taking dogs to the office to increase employees' well-being and even productivity. However, possible allergies and the responsibilities of the dog owners (e.g. no aggressive dogs are allowed) should be taken into consideration. Additionally, if continuing working remotely, understanding possible limitations of an employee during workdays should be noted. For example, if an employee's dog is sick, an employer should understand if the employee needs to have breaks more frequently.

Additionally, not everyone wants a dog or is able to take one. Thus, an employer should aim to find something else to provide similar benefits of what dog owners have when working remotely. Not everyone is motivated the same, leading room for discussion with employees from what they could be benefited from in order to increase their level of mental health and overall well-being when working remotely.

### **5.3 Limitations**

The limitations of the study are based on the qualitative part of the study. Since the study was conducted after the first outbreak of COVID-19, it left room for errors when asked for participants to remember how they felt. It would have been more beneficial to ask for a current situation but since the first outbreak of COVID-19 in Finland was already over when the research started, the author saw it for the best to ask for the participants to try their best to remember how they felt. Regardless, since the first outbreak of COVID-19 was a first for the participants, it can be trusted that the participants remember relatively clearly their own emotions during that time.

Moreover, the questions may have been interpreted differently by each participant. To overcome this obstacle, the author conducted a pilot test which decreased the risk of the questions being unclear or possible to interpret significantly differently. However, since everyone has their own perception on how severe for instance the level of feeling isolated is, the qualitative part of the study did have some limitations due to this.

This research could be continued further from the point of view of employees continuing working remotely or partially remotely during the time of COVID-19 affecting less the society. There could be more emphasis on the physical activity of the employees and it could be studied more thoroughly on how dogs impact it.

## 5.4 Conclusion

In conclusion, dogs did have a positive impact on remote employees' mental and physical health and overall well-being during the first outbreak of COVID-19. Majority of the participants agreed that dogs impacted positively making them feel less depressed, less isolated and less lonely whilst increasing their level of mental health. Participants felt that due to owning a dog, their level of physical activity remained the same or increased during the pandemic resulting in dogs having a positive impact on remote employees' physical health during the first outbreak of COVID-19 in Finland.

Moreover, the overall well-being of the participants was positively impacted by the dogs for instance by forcing to have more breaks when working remotely, easing the feeling of loneliness and having more energy and ensuring more rest and sleep. Therefore, the findings of the study indicated that dogs did have a positive impact on the level of mental and physical health and overall-being during the first outbreak of COVID-19 on employees working remotely in Finland.

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## Appendices

### Appendix 1. Questions asked in the survey conducted

#### Dogs' impact on people's well-being when working remotely during COVID-19

Hi there! I am Jasmin Lindström, a student completing her master's thesis in University of Vaasa, in School of Management. The degree I am completing is Master's in International Business (MIB). Because I love animals and I am intrigued by what effects employees' mental health and well-being, I figured I would combine these two aspects in my master's thesis. Thus, my thesis topic revolves around how dogs influence people's mental and physical health when working remotely during the first outbreak of COVID-19. The first outbreak of COVID-19 in Finland happened in March 2020 (Parliament of Finland, 2020) but also people working in other countries than Finland are welcome to answer the survey. However, since this survey studies employees' well-being during the first outbreak of the pandemic when working remotely and how dogs have impacted their well-being, only people who match the following criteria are eligible for this survey:

- were working remotely during the first outbreak of COVID-19
- own at least one dog or are living with a dog

If you match the above-mentioned criteria, it would mean the world to me if you would have time to answer my survey. The survey takes around 10 minutes to complete and it will be completely anonymous.

Thank you so much for your time and effort! Have an amazing day! <3

Contact info: [jasmin.lindstrom@student.uvasa.fi](mailto:jasmin.lindstrom@student.uvasa.fi)

Sources: Parliament of Finland, 2020. Adoption of the Emergency Powers Act during the COVID-19 pandemic.

[https://www.eduskunta.fi/FN/naineduskuntatoimii/kirjasto/aineistot/kotimainen\\_oikeus/LA/TI/Pages/valmiuslain-kayttoonottaminen-koronavirustilanteessa.aspx](https://www.eduskunta.fi/FN/naineduskuntatoimii/kirjasto/aineistot/kotimainen_oikeus/LA/TI/Pages/valmiuslain-kayttoonottaminen-koronavirustilanteessa.aspx)

In which age-group do you belong to? \*

- 15-19 years
- 20-29 years
- 30-39 years
- 40-49 years
- 50-59 years
- 60-69 years
- 70 years or above

To which gender do you identify yourself? \*

- Female
- Male
- Other
- Prefer not to say

Where are you from? \*

- Finland
- Other: \_\_\_\_\_

In which country do you work? \*

- Finland
- Other: \_\_\_\_\_

Did you have a dog before the pandemic started?

- Yes
- No, I took a dog during the pandemic
- Yes, I had a dog but I also took another one

#### Remote work

Before the COVID-19 pandemic started, were you working remotely?

- Yes, mainly working remotely
- 1-3 times a week of remote work
- Once or twice in a month of remote work
- Few times a year of remote work
- No, never

Once the pandemic of COVID-19 started, how often did you work remotely?

- Mainly working remotely
- 1-3 times a week of remote work
- Once or twice a month of remote work
- Never



During the first outbreak of COVID-19 when working remotely, living with a dog made me feel less depressed.

1 2 3 4 5

Strongly disagree      Strongly agree

During the first outbreak of COVID-19 when working remotely, living with a dog made me feel less tired.

1 2 3 4 5

Strongly disagree      Strongly agree

During the first outbreak of COVID-19 when working remotely, living with a dog brought me more joy.

1 2 3 4 5

Strongly disagree      Strongly agree

During the first outbreak of COVID-19 when working remotely, living with a dog brought me more stress.

1 2 3 4 5

Strongly disagree      Strongly agree

During the first outbreak of COVID-19 when working remotely, living with a dog increased my level of energy.

1 2 3 4 5

Strongly disagree      Strongly agree

During the first outbreak of COVID-19 when working remotely, living with a dog increased my ability to handle important tasks even when being stressed out.

1 2 3 4 5

Strongly disagree      Strongly agree

During the first outbreak of COVID-19 when working remotely, living with a dog helped me to eat healthier.

	1	2	3	4	5	
Strongly disagree	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Strongly agree

During the first outbreak of COVID-19 when working remotely, living with a dog helped me to ensure enough rest.

	1	2	3	4	5	
Strongly disagree	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Strongly agree

During the first outbreak of COVID-19 when working remotely, living with a dog helped me to make sure I get enough sleep.

	1	2	3	4	5	
Strongly disagree	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Strongly agree

During the first outbreak of COVID-19 when working remotely, living with a dog helped me to balance my overall well-being.

	1	2	3	4	5	
Strongly disagree	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Strongly agree

During the first outbreak of COVID-19 when working remotely, living with a dog increased my physical activity.

	1	2	3	4	5	
Strongly disagree	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Strongly agree

During the first outbreak of COVID-19 when working remotely, living with a dog allowed/reminded me to have more breaks when working.

	1	2	3	4	5	
Strongly disagree	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Strongly agree

During the first outbreak of COVID-19 when working remotely, living with a dog enabled me to have spontaneous social encounters (e.g. when taking the dog for a walk).

1      2      3      4      5

Strongly disagree                  Strongly agree

When you think about living with a dog during the first outbreak of COVID-19 and working remotely, what do you consider are the most positive effects? E.g. does it bring more structure to your everyday life?

Your answer \_\_\_\_\_

When you think about living with a dog during the first outbreak of COVID-19 and working remotely, what do you consider are the most negative effects? E.g. does the responsibility of taking care of the dog create more stress?

Your answer \_\_\_\_\_

How do you perceive living with a dog has impacted your overall well-being during the first outbreak of COVID-19? Overall well-being includes mental health (emotional well-being, mental health symptoms, ability to take care of important tasks) and physical health (physical activity, nutrition, sleep and rest)

Your answer \_\_\_\_\_

Do you have anything else in mind in relation to dogs and your overall well-being when working remotely during the first outbreak of COVID-19 that you would like to share?

Your answer \_\_\_\_\_

## Appendix 2. Codes used in SPSS

### Age group



\*Please note that there were no participants from age group 7, hence it was not included in the data analysis.

### Gender



Please note that there were no participants identifying to a) other and b) prefer not to say. Thus, those were excluded from the data analysis.

### From which country is the participant from?



In which country is the participant working in?

1=Finland	2=Luxembourg / Finland*
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Did participant own a dog before the first outbreak of COVID-19?

1=Yes	2=No, I took a dog during the pandemic
Yes, I had a dog but I also took another one	

Did participant work remotely prior to the pandemic?

1=Yes, mainly working remotely	2=1-3 times a week of remote work	3=Once or twice in a month of remote work
4=Few times a year of remote work	5=No, never	

How often did the participant start to work remotely at the beginning of the pandemic?

1=Mainly working remotely	2=1-3 times a week of remote work	3=Once or twice in a month of remote work
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Did dog have an impact on mental health

1=Yes

2=No

Did dog have an impact on physical health

1=Yes

2=No

Likert scale questions

1=Strongly  
disagree

2=Somewhat  
disagree

3=Neutral

4=Somewhat  
agree

5=Strongly  
agree