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Loneliness caused by the Covid-19 pandemic and its impact on Emotional Brand Attachment

Antonia Ellinor Valerie Schlotfeldt

Dissertation written under the supervision of Prof. João Niza Braga

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ABSTRACT

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The global pandemic caused by the novel coronavirus has changed everyone's lives. The drastic cuts that were implemented to control the outbreak reduced individual freedoms that had previously been taken for granted. The restrictions changed social life in many ways and led to an increased incidence of mental health problems. Social isolation can cause insecurity and increases the level of loneliness. An unwelcome feeling arises from a lack of intimate relations with close others.

This study investigates whether a lack of social interaction causes people to develop an emotional bond with brands. The results show that lonely people tend to adopt materialistic traits. Insecurities are compensated with the purchase of items. Additionally, social media is a relevant factor, as lonely people spend significantly more time online. Higher social media interaction influences the effect of loneliness on emotional brand attachment. An important aspect of the attachment process is the product type. Whereas a hedonic product led to a higher brand attachment, no effect was found for a utilitarian product.

Higher emotional brand attachment leads to a loyal and satisfied customer. Therefore, it is of interest for brand managers to understand this process. In addition, the problem of increased loneliness did not only arise during the pandemic, it has already been a problem in society. Thus, the findings of this study can be used to gain a better understanding of target groups.

Keywords: Emotional Brand Attachment, Loneliness, Self-isolation, Covid-19, Pandemic, Ideal self-concept, Materialism, Social Media, Social Media Interaction, Hedonic products, Utilitarian products

SUMÁRIO

Solidão causada pela pandemia de Covid-19
e o seu impacto no Apego Emocional à Marca

Antonia Ellinor Valerie Schlotfeldt

A pandemia global causada pelo novo coronavírus mudou a vida de todos. Os cortes drásticos implementados para controlar o surto reduziram as liberdades individuais que anteriormente eram tomadas como garantidas. As restrições alteraram bastante a vida social e levaram a um aumento da incidência de problemas de saúde mental. O isolamento social pode provocar insegurança e aumentar o nível de solidão. Um sentimento indesejável surge da falta de relações íntimas com os demais.

Este estudo relata se a falta de interação social leva as pessoas a desenvolver uma ligação emocional com as marcas. Os resultados indicam que pessoas solitárias tendem a adotar traços materialistas. As inseguranças são então compensadas com a compra de bens materiais. Além disso, as redes sociais são também um fator relevante, uma vez que as pessoas solitárias passam significativamente mais tempo online. Uma maior interação nas redes sociais influencia o efeito da solidão no apego emocional à marca. Um aspeto importante do processo de apego é o benefício do produto. Enquanto que um produto hedónico leva a um maior apego à marca, não foi encontrado qualquer efeito para um produto utilitário.

Um maior apego emocional à marca traduz-se num cliente leal e satisfeito. Por conseguinte, é de interesse para os gestores de marcas compreenderem este mesmo processo. Além disso, o problema do aumento da solidão não surgiu apenas durante a pandemia, visto que já era um problema da atual sociedade. Assim, os resultados deste estudo podem ser utilizados para obter uma melhor compreensão dos grupos alvo.

Palavras-chave: Apego à Marca Emocional, Solidão, Autoisolamento, Covid-19, Pandemia, Autoconceito Ideal, Materialismo, Meios de Comunicação Social, Interacção nos Meios de Comunicação Social, Produtos Hedónicos, Produtos Utilitários

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GLOSSARY

EBA – Emotional Brand Attachment

SMI – Social Media Interaction

SNAIS – Social Networking Activity Intensity Scale

UCLA – Emotional Loneliness subscale of the University of California

WHO – World Health Organization

CHAPTER 1: INTRODUCTION

1.1 BACKGROUND & PROBLEM STATEMENT

History has been made in the year 2020. The Covid-19 outbreak led to a change in every aspect of human life. To stop the spread of the virus, there was a worldwide shutdown. National borders were closed, travel restrictions imposed and the population was asked to self-isolate. There were work shortages in all economic sectors. As a result, many people lost their jobs and faced financial problems (Nicola et al., 2020). The restrictions had a great impact on activities of everyday life. This led to a striking increase in mental health problems. Besides issues like anxiety, depression and insomnia, it also led to an increased level of loneliness (Kumar & Nayar, 2020).

People have a natural need for connection. Humans likely bond with people who are in comparable situations or have experienced similar events. When this is suppressed or not given, discomfort occurs. Like interpersonal relationships, bonds can also be develop with a brand. Due to the pandemic, the population spends a lot of time alone. When human contact is to be avoided but the need for affiliation arises, it is likely that people more easily develop a bond with a brand (Dunn & Hoegg, 2014).

The main objective of this study is to investigate whether loneliness leads to increased emotional brand attachment. A closer look is taken at the process of bond formation. Materialism and social media interaction are considered as variables that represent a link in the development process. Materialism is considered as it arises especially in people with lower self-esteem. These kind of people want to enhance their status by acquiring products. In addition, social media is becoming increasingly important these days. A growing number of people make use of it. Thus, it is interesting to understand to what extent these variables affect the connection between loneliness and emotional brand attachment. Additionally, the impact of a hedonic product is considered in comparison to a utilitarian one.

From these considerations, the following research questions were formed, which will be answered in the course of this thesis.

> **RQ1**: Does increased loneliness, triggered by a Covid reminder, lead to stronger Emotional Brand Attachment?

RQ2: Is materialism a mediator between loneliness and Emotional Brand Attachment?

RQ3: Does a high Social Media interaction explain the process between loneliness and Emotional Brand Attachment?

An experimental approach is applied in this study. A between-subjects design is used to understand the impact of Covid on loneliness.

1.2 RELEVANCE & IMPLICATIONS

The outbreak of the pandemic happened more than one and a half year ago. Despite this, there is still no proper end in sight. Mutations are spreading and it is becoming increasingly obvious that the world's population needs to adopt to living with the virus. Moreover, mental health problems will not be solved with the end of the pandemic. It is already assumed that people will suffer long-term consequences. People have been forced to abandon social contacts for a long time. It will certainly be difficult for some to find their way back into an 'open' world.

In addition, the issue of loneliness did not arise from the Covid outbreak. It was already a problem that the population suffered from before. To date, there are few studies that examine loneliness in relation to marketing topics. Thus, the study is of great relevance. The results will show which psychological factors are important in the bonding process with a brand. Thus, human behaviour can be better understood and comprehended. The results will help managers understand their target group. Accordingly, they can adapt their strategies to best serve customers' needs.

1.3 DISSERTATION OUTLINE

This study consists of five chapters: (i) Introduction , (ii) Literature Review, (iii) Methodology, (iv) Results, (v) Discussion.

Following the introduction, the Literature Review will provide an overview of secondary data. It shows findings from studies previously conducted. Based on this, hypotheses are created. The method section explains in detail how the study was realised and briefly shows how the analysis is approached. In the results section, the analysis of the data is explained precisely. The hypotheses are investigated. Finally, in the discussion, findings will be interpreted and conclusions are drawn. Limitations are pointed out and suggestions for future research are given.

CHAPTER 2: LITERATURE REVIEW

This section presents an overview of existing literature on the research topic. It summarizes findings from previous studies and provides a foundation. The gained insights form the basis for the derived hypotheses.

Previous studies have already examined the effect of different mood states on emotional brand attachment. However, only a few studies have addressed the issue of loneliness in association with brand attachment. Above all, there is no study that considers the influence of Covid on loneliness and emotional brand attachment.

This chapter focuses on different variables that can ultimately all be linked together. First, it provides an overview of the pandemic outbreak and how it leads to loneliness. The connection between the feeling of loneliness with materialism and social media use is explained. In the last section, the theory of emotional brand attachment is discussed in more detail. This section refers again to the association with the two variables of materialism and social media interaction.

2.1 COVID-19 PANDEMIC

In late 2019, an increasing number of cases of pneumonia of unknown cause were reported in Wuhan, the sprawling capital of central China's Hubei province. The virus, hitherto unknown in this type, spread rapidly and uncontrollably. Despite the city shutting itself off, the disease quickly began to spread internationally (WHO, 2021a). On March 11th 2020, the outbreak of Covid-19 was declared a pandemic by the World Health Organization (WHO). At that time, there were already more than 118,000 registered cases in 114 countries and 4,291 people had already lost their lives to the virus (WHO, 2020a). One year later, the number of infected people has increased almost a thousandfold (WHO, 2021b).

To counteract the outbreak and to minimize the numbers of infected people, political powers intervened in various ways. In most countries, especially those with particularly high infection rates, a hard lockdown has been implemented. Even now, after one year, this is still noticeable in most parts of the world. Social interactions have been restricted, people are only allowed to leave the house in urgent cases. Travel has also been drastically limited and some borders have been closed for a certain period. Companies were forced to adopt digital in a very short time and employees were sent home to work in isolation (Atalan, 2020).

Even though most people generally support and stick to restrictions, people are getting tired of the measurements. As these are very uncertain times, with no end in sight, pandemic fatigue is a natural response to the prolonged nature of the crisis. Humans have a deep desire for self-determination and freedom. If this is restricted for a long time, they become less motivated and feel that they are losing control (WHO, 2020b). In a study, people stated that the perceived loss of control related to pandemic restrictions is higher than the perceived loss related to the virus itself. The restrictions lead to stress, loneliness and have a negative impact on well-being (WHO, 2020b).

The poor economic situation has led to many people losing their jobs. Predictably, there will be difficulties in the job market for years after the peak of the pandemic. Studies say that the work-place is the main source of interpersonal interaction and relationship building for some adults. If this is eliminated, people will feel even more socially isolated and will suffer from substantial psychological distress (Crayne, 2020).

All these factors, especially the obligation of social isolation, can lead to an increased level of loneliness among the population. In fact, a study which was conducted in the UK between 21st March and 10th May 2020 shows that the feelings of loneliness among the participants are higher compared to a study published a few years earlier. People at a higher risk are those living alone, the ones with low household income and being unemployed. Additionally, young adults were more likely to be lonely compared to older ones. It is notable that especially students reported a higher loneliness level than in the previous study (Bu, Steptoe & Fancourt, 2020). Another study from the U.S., that analysed loneliness during the first lockdown in April 2020, shows similar results. 43 % of the participants exceeded the cut-off for high loneliness. Furthermore, lonely individuals were significantly more depressed than the non-lonely ones (Killgore et al., 2020). This indicates that loneliness is an international issue triggered by the pandemic.

Taking all this into consideration, it becomes apparent that Covid-19 incurs a substantial human cost beyond that of the virus itself. Even though social distancing is necessary to prevent the virus from spreading, it leads to increased loneliness and in turn to mental health issues.

2.2 LONELINESS

Perlman and Peplau defined Loneliness as a “subjective, unwelcome feeling of lack or loss of companionship. It happens when people have a mismatch between the quantity and quality of social relationships that they have, and those that they want” (Perlman & Peplau, 1981, p.38). It results from deficiencies in a person’s social relations and leads to unpleasant feelings and distress (Perlman & Peplau, 1981). Loneliness can be classified as emotional and social loneliness. Emotional loneliness is caused by a lack of intimate relations with close others such as family and friends. In comparison, social loneliness is the lack of social networks in social relationships. This tends to happen when people get little support from their environment. However, this work focuses more on unintentional, emotional loneliness caused by social isolation.

While Loneliness is linked to social isolation, the terms need to be differentiated. Loneliness is the subjective feeling of being alone whereas social isolation is the objective state of an individual’s social environment and interactional patterns (Hwang, Rabheru, Peisah, Reichman & Ikeda 2020). Frequently changes in social relationships in people's lives result in loneliness. This leads to a sub-optimal level of achieved social interaction (Perlman & Peplau, 1981).

In the case of the pandemic, the change in social relations is mostly due to lockdown restrictions. The fact that it is not a self-determined isolation will probably likely lead to a greater degree of negative feelings. This assumption is further strengthened by the fact that physical separation is likely to reduce the number of interactions. Which in turn may raise fear that relationships will be weakened by the absence (Perlman & Peplau, 1981). Thus, the fear of losing close social relationships through the compulsion of social isolation arises. It is also said, that people might have difficulties with their regular social interaction when the lockdown is eased (Rees & Large, 2020).

Loneliness causes several negative mental health outcomes (Hwang et al., 2020). The unfortunate state of mind results in lonely individuals often having a negative outlook. They report being less happy, more pessimistic and are less satisfied with how they spent their time (Perlman & Peplau, 1981). They are more likely to be stressed and anxious, feel bored and have the feeling they have no-one to talk to (Rees & Large, 2020). This could again explain the emergence of pandemic fatigue.

Loneliness is not an issue, which only emerged as a result of the Covid-19 outbreak. It is a problem that has bothered humanity for a long time and is becoming more and more acute. Even before the pandemic it has already been recognized as a major health concern and was called “Behavioural epidemic” (Hwang et al., 2020).

Little research has been done on this topic concerning consumption and brand behaviour. Covid-19 has made the topic even more prominent. Therefore, findings of this study are very relevant and can explain new insights into consumer behaviour. A study has discovered that showing covid-related articles can arouse emotions. Especially, high emotional scores with negative polarity are raised by a connotation of news headlines. In addition, it becomes clear that most coronavirus headlines are classified as being negative (Aslam, Awan, Syed, Kashif & Parveen, 2020). Therefore, the assumption is made that by showing Covid related newspaper articles, higher loneliness can be detected. The reminder of what conditions currently exist worldwide will make participants feel uncomfortable.

H1: Individuals who are exposed to reminders of Covid-19 pandemic display a higher loneliness level.

2.3 LONELINESS TOWARD MATERIALISM AND SOCIAL MEDIA INTERACTION

This study aims to find out which variables influence the development of emotional brand attachment. The causes of loneliness and the link to Covid-19 have already been discussed. The following sections will explain which other aspects are important in the formation of brand attachment and how they affect each other. More specifically, the variables materialism and social media interaction will be looked at and how they explain the process between loneliness and emotional brand attachment.

2.3.1 LONELINESS AND MATERIALISM

The negative emotional state not only has a major impact on mental health but also on behaviour. Studies show a significant correlation between loneliness and low self-esteem. It is reinforced by the discrepancy between the ideal and the actual self (Perlman & Peplau, 1981). The actual self-concept describes how a person currently perceives itself while the ideal self-concept

refers to the way a person wishes to perceive itself. This also refers to others' perception of one's self.

The self-discrepancy theory states that psychological discomfort is experienced when the actual self does not meet the ideal self (Loh, Gaur & Sharma, 2021). Humans always struggle to find a balance between their own beliefs, attitudes and behaviour (Sheeraz et al., 2018). As a result, people use products as a compensatory mean to cope with self-discrepancy to enhance their self-esteem (Loh et al., 2021). The fit between consumers idealized self-view and a brands image is called self-congruity. People seek those brands, that lead to an ideal state of a self-concept. It is the self-enhancement motive that guides human behaviour (Fastoso & González-Jiménez, 2018). It also explains why people tend to adopt performance standards to put their competencies and character in a better light (Dunning, 2007).

In addition, people have a basic need for human connection, belongingness and attachment. When they are faced with negative emotional experiences such as loneliness, they look for ways to cope with that negative feeling to get a positive outcome (Dunn & Hoegg, 2014). They often seek affiliation and look for people who experience similar circumstances. Affiliation helps to release oxytocin, which in turn leads to positive emotions and an increase in trust. In such situations, however, it does not always have to be individuals with whom they connect. Just as interpersonal relationships are formed, people are able to develop deep connections with brands (Dunn & Hoegg, 2014). Especially in times of lockdown, when social contacts have to be avoided, individuals may be forced to find their affiliation elsewhere.

Studies found that the tendency of experiencing social insecurity is associate with a higher level of materialism. It is important for materialistic people to acquire and own material possessions. It is a lifestyle of pleasure-seeking by spending money on items that bring luxury into the consumer’s life. They aim to use these products to move closer to the ideal-self. People that feel socially excluded increase their priorities for money, appearance and popularity (Pieters, 2013). It is their approach to this situation. Firstly, to feel connected and, secondly, to increase one's self-esteem. Thus, loneliness leads to a need for materialism, which can be reinforced by Covid-19 restrictions as people are probably looking for affiliation.

H2: Loneliness leads to a higher level of materialism.

2.3.2 LONELINESS AND SOCIAL MEDIA INTERACTION

In today's society, it is hard to imagine life without social media. It has become a part of everyday life. More than half of the population uses social media actively and spend an average of two hours and 25 minutes a day on it (Kemp, 2021).

A study from June 2020 shows that Covid-19 restrictions increased online and digital activities. People stated to spend more time on social media, on messenger services and mobile apps compared to the times before the pandemic. The report also reveals that internet users increased by 7,3 % between January 2020 and January 2021. Active social media users increased by 13,2 %. The most used social media platforms are Facebook, YouTube, WhatsApp, Facebook Messenger and Instagram (Kemp, 2021). However, the preferred channels differ according to age groups. While Instagram's focus is on 18 - 34-year-olds (Statista, 2021a), Facebook users tend to be 25+ years old (Statista, 2021b). 55,7 % of all web traffic takes place on mobile phones, while 41,4 % happens on a laptop. The main reasons for using the internet are 'finding information', 'staying in touch with friends and family' and 'keeping up to date with news and events'. It is also interesting to note that about 45 % of global internet users look for information about products and services on social networks at least once a month when they are thinking of making a purchase. The number will be even higher for younger age groups (Kemp, 2021).

A study examined the impact of loneliness on social internet use. They found that the use of online technologies contributes to increased loneliness. However, there is not a simple and unilateral relationship between these attributes. The impact differs mainly by the intention of the social media use. When people use social media in a way that displaces offline interactions with online activities it is associated with a higher level of loneliness. Lonely people often find it difficult to socialise in the offline world. Thus, they are more likely to exchange offline relationships with online social activities. But, social media can also be used to make new friends and strengthen existing ones. In that case, it would not be associated with higher loneliness (Nowland, Necka & Cacioppo, 2017).

The study also finds differences in the age groups. Young people are more likely to use the internet to communicate with friends, while older people are more likely to use it for entertainment and information search. Thus, they have different intentions in their online behaviour. Older people are more likely to spend time alone and therefore feel sometimes lonelier. It has

been effective to introduce them to social media as an intervention in reducing loneliness (Nowland et al., 2017).

The outbreak of the Covid-19 pandemic led to an increased level of loneliness in the population. However, it must be noted that loneliness often was not an independent decision and is mainly due to the restrictions. It is therefore interesting to find out whether an increased level of loneliness leads to higher social media use. Even if social media was probably used to keep in touch with friends rather than to displace offline friends with online ones.

H3: Loneliness has an impact on social media interaction.

2.3.3 SOCIAL MEDIA INTERACTION AND MATERIALISM

The previous sections explained how loneliness can reinforce materialism and social media interaction. It is also interesting to find out whether the two variables are related. Studies show that there is a link between social media use and materialism. A study published in 2013 examined the correlation, looking at cultural differences between American and Arab users. They found that in both cultures, high social media usage is a significant predictor of materialism (Kamal, Chu & Pedram, 2013). The results are consistent with another study from 2018. It compared the correlation with participants from the U.S. and South Korea. They also found that there is a positive correlation between high social media use and materialism. The results from both nations were significant (Thoumrungroje, 2018). Thus, the effect of social media interaction on materialism will also be investigated in this study. Ultimately, it will be interesting to see whether the correlation contributes to emotional brand attachment.

H4: High social media interaction leads to materialism.

2.4 EMOTIONAL BRAND ATTACHMENT

> 'Just like hunger signals us to eat, and thirst signals us to drink water, loneliness is thought to be a biological drive that motivates us to reconnect' - Julianne Holt-Lunstad, Ph.D., Professor of Psychology at Brigham Young University (March 2020)

As Julianne Holt-Lunstad mentioned in a presentation on Social Isolation, Mental Health and Covid-19, loneliness leads to a need for connection (SciLine, 2020). In an article on effective solutions for social isolation and loneliness that she contributed to, it becomes clear how important it is to connect with others in times of a pandemic (Holt-Lunstad, Layton, Barton & Smith, 2020). In another paper of hers, however, it also becomes apparent that this must be done without relying on in-person interactions in order to minimise the risk of infections (Kotwal et al., 2020).

Studies have found that people are able to build strong bonds with brands. It can be similar to an interpersonal relationship and is evoked by an association with a close brand. This deep connection that can arise, is called emotional brand attachment. It is an emotionally driven bond between a person and a specific object. Its strength varies. The stronger the attachment the stronger the feelings of connection, affection, love and passion (Thomson, MacInnis & Park 2005). It also leads to a desire to maintain proximity, to trust, satisfaction and commitment, to brand loyalty and a higher willingness to pay (Jiménez & Voss, 2014). Thus, it is an important part of marketing and the desire of every brand manager to gain an emotional attachment to the consumer. It not only leads to a satisfied customer but also increases the efficiency of marketing costs. It reduces the costs of customer retention and influences the stability of units sold (Park, MacInnis & Priester 2008).

The marketing term of emotional brand attachment must be distinguished from other terms, all of which are used in a similar context but refer to different concepts. *Brand attitude*: Consumers feeling attached to a brand are likely to have a favourable attitude toward it. It indicates the evaluation of an object and can be developed without any direct contact. An attitude can be formed by simply listening to and reading reviews. A consumer can therefore form its own opinion from a large number of brands. In contrast, consumers only attach to a small number of brands. These brands are not replaceable, whereas brands that are considered to have positive attributes can easily be replaced with objects that offer similar features (Thomson et al., 2005). *Satisfaction:* It is a foundation by which emotional attachment is formed. Satisfaction can be

developed directly after consumption. Emotional brand attachment, however, is usually built only after a while. *Involvement*: It is a mental process that explains the cognitive readiness for an object. Products that show a high level of involvement often influence pleasure and are described with positive attributes. Nevertheless, emotional attachment goes further than just mental readiness (Thomson et al., 2005). And lastly, *commitment*: It is associated with the decision to have a long-term relationship with a brand. It is a commitment that is triggered by attachment and leads to an intention of brand loyalty. Thus, it is an outcome of brand attachment. However, it must be said that consumers can also be committed to brands when there is a lack of alternatives. Thus, attachment is a more important element in marketing (Park et al., 2008).

There are various statements in the literature on how emotional brand attachment is formed. A study from 2020 says that shared emotions are the main feature of emotional connection. According to this paper, actual consumption does not need to take place (Hang, Aroean & Chen, 2020). A study that investigated the influence of fear on emotional brand attachment states that emotional attachment occurs naturally during highly emotional experiences. However, a more cognitive form of attachment will only be created when there is time to form. This requires a high number of interactions (Dunn & Hoegg, 2014). As already stated in *2.3.1 Loneliness and materialism*, humans seek protection from an object when they experience stress in the external environment (Thomson et al., 2005). This phenomenon probably explains why participants who were exposed to fear showed a higher emotional attachment than those who were triggered with excitement even though the object was not known before. (Dunn & Hoegg, 2014). This leads to the assumption that a similar process happens when people experience external stress through Covid and thus a higher emotional attachment for brands is likely to be recognized.

2.5 ROLES OF MATERIALISM AND SOCIAL MEDIA INTERACTION TOWARD EMOTIONAL BRAND ATTACHMENT

In section 2.3, the variables materialism and social media interaction have already been explained. It became clear how they are caused by the independent variable loneliness. In the following, it will be explained how they ultimately relate to emotional brand attachment.

2.5.1. MATERIALISM AND EMOTIONAL BRAND ATTACHMENT

As previously mentioned, loneliness leads to an urge for materialism. This is related to the conflict of the actual and ideal self. An object is identified with one's self when it is included

in the self-concept. This self-congruity leads to a selective choice of brands which help the consumer to reach a desired state of self-concept (Fastoso, González-Jiménez, 2018).

The emotional ties and connections that are created between the consumer and the brand lead to a development of emotional attachment. This process consists of several phases. First, the consumer will build a connection with the brand to fulfil his actual or ideal self. In the next step, the consumer begins to develop an intense emotional bond with the brand. Usually, a strong emotional attachment to the brand develops only at this point (Loh et al., 2021). The stronger the feeling of a self-brand-connection, the stronger the emotional bond between a customer and a brand (Sheeraz et al., 2018). Therefore, it is assumed that materialistic consumers easily form emotional relationships with brands.

A study has investigated this topic and found that materialism has a positive effect on emotional brand attachment. The bond is especially strong with brands that are high in ideal self-congruity. It is explained by saying that materialists tend to have a low level of self-esteem and thus use brands that provide ego-enhancement benefits. The consumption of these brands creates a sense of security and protection (Fastoso, González-Jiménez, 2018). Thus, this study examines the assumption that materialism influences emotional brand attachment.

The relationship between the actual and the ideal self-congruency may vary depending on the product type in the context of emotional brand attachment (Sheeraz et al., 2008). In the stages of attachment building, three types of resources (hedonic, symbolic, functional) are of particular relevance. Consumers perceive brands as personally meaningful when they offer hedonic means. This includes pleasure, aesthetics and fun. Brands should have a symbolic resource to enrich the self. It allows customers to identify with their peer group and distinguish themselves from others. Lastly, brands must also have a functional role to allow a sense of self-efficacy. This enables the customer to achieve goals. People link brands to their selves when these resources are constantly provided. Marketing activities can create a strong self-brand connection if resources of consumers need are provided (Park et al., 2008).

This demonstrates once again that consumers make purchasing decisions based on their interest, attention and self-concept towards a brand. A consumer decision between a hedonic and a utilitarian product always includes the struggle between the will of being prudent or pleasure seeking. Hedonic products are known to be highly emotionally laden. They are purchased to increase

an emotional state. These are often luxury products that exceed basic needs. In contrast, utilitarian products are more functional and are acquired to fulfil a specific purpose (Sheeraz et al., 2018).

These product categories also differ in perceived involvement. When consumers feel a high level of involvement towards a product, it often means that it is personally significant and of high interest to them. Since it is already known that people buy brands they can identify with, these are often associated with a high level of involvement. The more a brand image reflects the ideal self-concept and a desired image, the more a person will be involved and feel a stronger emotional brand attachment. Compared to utilitarian brands, hedonic brands have a higher potential to evoke consumer emotions (Sheeraz et al., 2018). Therefore, it is assumed that an increased level of product involvement leads to a higher emotional attachment in hedonic brands.

H5: Materialistic people show a higher emotional brand attachment for hedonic products compared to utilitarian products.

2.5.2 SOCIAL MEDIA INTERACTION AND EMOTIONAL BRAND ATTACHMENT

Another approach to look at emotional brand attachment is in connection with loneliness and social media interaction. To the best of authors' knowledge, there is no previously published work related to these specific variables. As in section *2.3.2* already mentioned, loneliness leads to increased social media consumption. However, it should be noted that lonely people usually use online communication to replace offline relationships with online ones (Nowland et al, 2017). In context of the Corona pandemic, social media consumption has increased. It is used to communicate with friends, for entertainment and to get information about current events (Kemp, 2021). Thus, the intentions of online use are somewhat different from previously studied loneliness as it is probably not used to replace offline relationships.

Regardless of intention, a study found that social media interaction affects brand attachment (Abrar, Arif, Sindhu & Hussain, 2017). This is probably due to the fact that social media is becoming an increasingly important aspect of marketing. People who spend a lot of time online will naturally engage with more brands as organizations shift most of their promotional activities toward social platforms (Abrar et al., 2017). These actions have been shown to lead to positive brand impact (Rahmadini & Halim, 2017) and long-term advantages to earning market share (Abrar et al. 2017).

Social Media has also transformed the way that brands and customer interact (Li, Larimo & Leonidou, 2020). As there has been a change in focus from product-centric to customer-centric, social media presence facilitates communication with customers. It creates a two-way interaction between the organization and its customers. It enables quick, interactive and low-cost communication between both parties (Rahmadini & Halim, 2017).

People are directed to companies' social media pages either through promotional campaigns or because they are looking for information. These platforms are also used to exchange knowledge. Users share reviews and their experiences with products. It creates a communication between consumers and potential new customers (Rahmadini & Halim, 2017). This in turn can be used as a promotional tool for companies to convey the power of being all connected (Abrar et al. 2017). Social influence is affecting consumers decisions (Li et, al, 2020). Therefore, today's customer is very knowledgeable even if they have never had any experience with the brand or product themselves (Abrar et al., 2017). Social Media leads to people feeling connected to brands and increases emotional attachment (Rhamadini & Halim, 2017).

H6: High social media interaction leads to a higher emotional brand attachment for hedonic products compared to utilitarian products.

2.6 HYPOTHESIS AND CONCEPTUAL FRAMEWORK

The objective of this study is to find out whether loneliness triggered by Covid leads to a higher emotional brand attachment. This will be tested using an experimental study considering different variables. It has already been explained how the various variables are formed and how they are interrelated. In addition, the mediating and moderating roles of the individual variables will be examined.

The first hypothesis states that people who are triggered with Covid reminders and thus compelled to think about the current pandemic will experience a higher level of loneliness. This is tested by showing Corona related articles to a treatment group and compare the experienced level of loneliness of these participants with a control group.

H1: Individuals who are exposed to reminders of Covid-19 pandemic display a higher loneliness level.

In the next step, the mediator variables are of interest. These are hypothesized to be the process by which the independent variable has an effect on the dependent variable. Firstly, loneliness is expected to increase materialism, which in turn contributes to higher emotional brand attachment. Secondly, it is argued that the process between loneliness and emotional brand attachment is also caused by a high level of social media interaction. These relationships are tested by the hypotheses H2 and H3 as well as with a mediator model that looks at all variables.

H2: Loneliness leads to a higher level of materialism.

H3: Loneliness has an impact on social media interaction.

Additionally, it is interesting to see whether social media interaction partially mediates the effect of loneliness on materialism. It will be tested whether loneliness leads to higher social media interaction, if this has an impact on materialism and finally if this leads to a higher emotional brand attachment.

H4: High social media interaction leads to materialism.

Finally, the moderation of product type in the formation of emotional brand attachment is tested. More specifically, whether a hedonic product leads to higher attachment. This is tested once in context with the mediator variable materialism (H5) as well as with the variable social media interaction (H6).

H5: Materialistic people show a higher emotional brand attachment for hedonic products compared to utilitarian products.

H6: High social media interaction leads to a higher emotional brand attachment for hedonic products compared to utilitarian products.

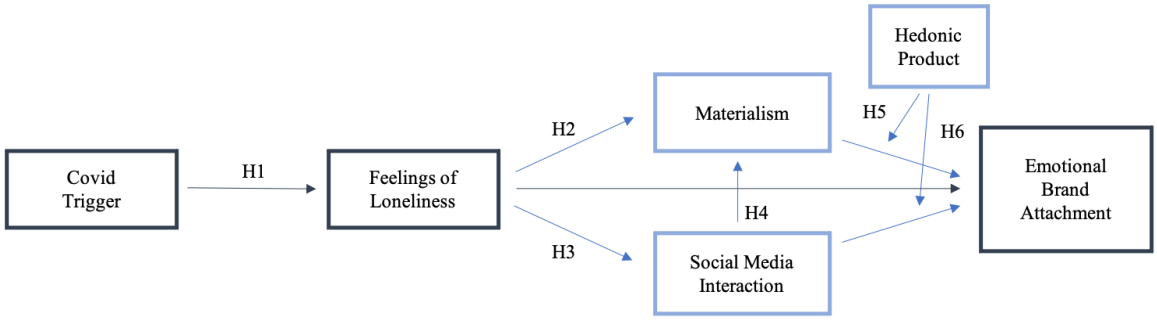

Figure 1: Conceptual Framework

CHAPTER 3: METHODOLOGY

Research is done to understand which variables are the cause and which are the effect of phenomena as well as to test the derived hypothesis. This chapter presents the methodology which was used to answer the research question. First, the study type is described. Then it will be explained how the manipulation was conducted and which scales were used. The study procedure is then described in detail. Finally, the characteristics of the sample will be presented.

3.1 SECONDARY DATA

The secondary research which was highlighted in the literature review has already given an overview of the existing theories. It explained the correlation between variables and pointed to studies that have been conducted on the research topics. It serves as a basis for the hypotheses and generates insights for the following data analysis. Studies have shown that the variables are interrelated. It became clear that loneliness can lead to materialism and social media interaction. This in turn increases emotional brand attachment. Whether the construct also works in conjunction with Covid as a whole was tested in this experimental study.

3.2 PRIMARY DATA

A two-group experimental design was applied in this study. An experimental group was exposed to a treatment while this was not the case for the control group. After the treatment, a measurement took place. Due to budget and time constraints, an online survey was considered the best method for this experimental study. The main advantage of online surveys is the easy use. There is no need for any assistance. Participants can complete the study independently, regardless of location and time. It is the fastest way to get a high number of responses without any financial investment. In addition, there is no bias by the interviewer, which results in fewer errors. The participant can complete the survey anonymously and without social desirability, which increases the likelihood that answers are accurate (Malhotra, Nunan & Birks, 2017).

Using Qualtrics software, one main survey was created in which the different variables of the conceptual framework were tested. It consisted of a structured survey in which most of the items were fixed-response questions. This requires participants to select from a predetermined set of responses. Thus, the survey is easy to administer and the data obtained is consistent. In

addition, answers were forced so no questions could be skipped. This leads to a complete data set and facilitates the analysis.

3.2.1 MATERIALS

As a majority of the population experienced Covid-19 lockdown restrictions at the time of the study, it made it more difficult to implement a manipulation to test the effect of 'Covid' compared to 'no Covid'. However, the aim was to trigger people with the pandemic to raise awareness of current events.

Covid reminders were created by presenting the treatment group with excerpts of Covid articles, including pictures. This was based on studies that show that images can evoke certain emotions. As mentioned in the literature review, Aslam and colleagues conducted a study using Covid articles. They found that most articles are classified as negative and additionally evoke negative feelings (Aslam et al., 2020). Similar results were found in another study, which, however, did not focus on Covid articles. Berger and Milkman demonstrated that showing news articles arouses certain emotions depending on the content. Reactions are especially high when the content evokes high-arousal positive or negative emotions such as anger and anxiety (Berger & Milkman, 2012). Thus, the objective of the stimuli was to make the participants aware of current events to ultimately find out whether this has an influence on loneliness. In comparison, the control group was shown articles that were not related to Covid, in order to avoid drawing their attention to this issue.

Apart from the manipulation, the survey was mainly based on scales that were derived from existing literature. They have been used and tested in various studies. The scales are multivariate measurements that use different items to test the outcome.

Loneliness was measured with the third version of the ten-item emotional loneliness subscale of the University of California, Los Angeles (UCLA) (Russel, 1996). The forced rating scale consisted of four response options (*1=never* to *4=often).*

In order to find out the level of *materialism*, the six-item materialism scale by Richins was used (Richins, 2004). A seven-point Likert scale (*1=strongly disagree to 7=strongly agree*) was displayed to answer the statements.

Social media interaction was measured with a scale covering two topics. The first ten items explain the social function use intensity, while the last four items deal with the topic of entertainment function use intensity. The overall construct is called Social Networking Activity Intensity Scale (SNAIS) (Li et al., 2016) and was measured with a five-point Likert scale (*1=never to 5=often*).

Finally, to identify *emotional brand attachment*, a four-item scale was used (Thomson et al., 2015). The agreement with the statements could be answered on a five-point Likert scale (*1=strongly agree to 5=strongly disagree*). These items were revise coded before being analysed.

3.2.2 PROCEDURE

After the participants have received a short introduction to the study, they were asked to follow a link. This led them either to the treatment group or to the control group. This process was evenly randomized ensuring that in the end, the same number of people completed each survey. Except for the Covid manipulation in the beginning, the survey was identical in structure.

The manipulation consisted of showing three different articles describing the current Covid-19 situation in Europe such as unused AstraZeneca supplies (Figure 2). The other group was presented with articles about current events like Europe's most influential women (Figure 3). Participants were asked to have a look at the articles and choose the one they found most interesting to read. To ensure that participants looked more closely at the articles, a timer was set so that they were only able to move to the next page after 15 seconds.

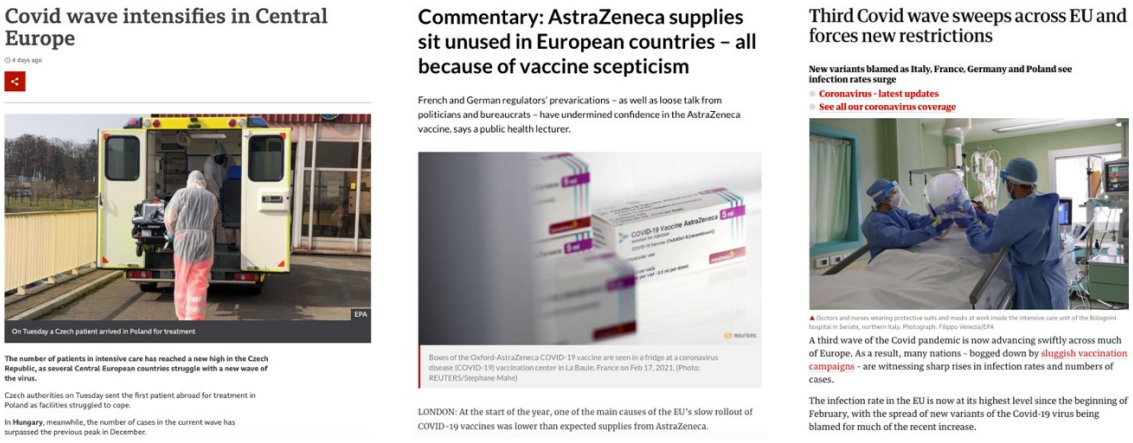

Figure 2: Treatment Group - Covid Manipulation

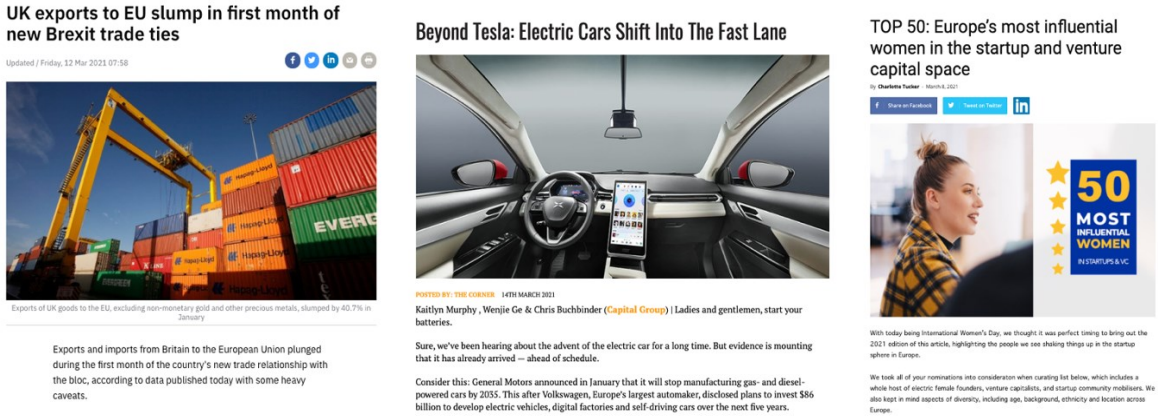

Figure 3: Control Group - No Covid Manipulation

Immediately afterwards, the level of loneliness was asked. In addition, the participants were asked about their personality type. On an 8-point Likert scale (*1=extremely introverted to 8=extremely extroverted*), they could indicate whether they considered themselves to be introverted or extroverted. In the next two blocks, first materialism and then social media interaction were tested using the mentioned scales. In addition to SNAIS, people were asked to indicate the minutes spent on social media a day.

The following major section was about emotional brand attachment. Since one hypothesis states that hedonic products lead to a higher emotional brand attachment, the survey was split random and evenly between the participants once again at this point. Both groups were shown a Coca-Cola drink. The brand was chosen because it is internationally known and thus there is a high probability that all participants are familiar with it. One group was presented with a hedonic product while the other one got a utilitarian product (Figure 4). In the hedonic section, a picture of the drink Coca-Cola Coffee was presented. In addition, the product was framed as hedonic by explaining the positive characteristics of pleasure. Coca-Cola Energy was shown in the utilitarian section. Again, the product was additionally framed as utilitarian by showing the functional aspects. To find out whether the products are also identified as hedonic or utilitarian, the classification was queried on a six-point Likert scale (*1=utilitarian to 6=hedonic*).

Figure 4: Hedonic product, Utilitarian product

To get the respondents even more involved with the product and ultimately the brand, both groups were subsequently asked questions whether they would try and buy the product and about how familiarized they are with the brand. In the next section, the items of the emotional brand attachment scale were asked. At the end of the survey, there was a manipulation check. Various questions were asked about the participant's feelings toward Covid-19. The answers are used to figure out whether the manipulation in the beginning was effective. Finally, demographic data such as age, gender and occupation were collected (see appendix 1 for survey structure).

In total, the survey took about six minutes. It was published for seven days in April 2021 and was distributed through social media (Facebook, LinkedIn, WhatsApp). There was no exclusion criterion for the study to address a broad range of people. Respondents participated voluntarily, without receiving any kind of payments. During this period, 174 people completed the survey. The treatment group and the control group were evenly divided so that they each consisted of 87 people. 86 participants were presented with the hedonic product, while 88 saw the utilitarian product. In order to analyse the data, it was exported into an SPSS file.

3.2.3 SAMPLE CHARACTERIZATION

Testing the frequencies resulted in the following data: The majority of participants were female (66%), while 34% were male. Participants were able to indicate their age using a slider. For simplification, they were then grouped. Respectively, 67 participants stated that they were under 25 or between 26 and 40 years old. In total, the two groups accounted for 77% of the responses. Ten participants were between 41 and 55 years old and 30 participants belonged to the group '56 years or older'. Most participants originated from Germany (71%), 14 people from England, five from Portugal, two from Spain, four from France and three from the Netherlands.

23 participants stated that they had another nationality, mainly Europe. Based on this data, it can be assumed that people were in a strict or at least partial lockdown at the time of the study. 41% of the participants said they were currently students, while 44% were employed. 17 people are not employed, three of them due to the pandemic. Eight people indicated to be retired. Half of the participants stated that their annual net household income is less than 40.000€. 15% have more than 100.000€ at their disposal. The remaining participants are in between. 50% of the participants live together with their family or partner. 55 live in a shared flat and 32 stated to live alone. A detailed table of the data is provided in appendix 2.

3.2.4 DATA ANALYSIS

All the tests and analyses were conducted using IBM SPSS Statistics Version 26. After checking if the data was complete and correct, the two data sets of the treatment and control group were merged into one file. Before testing the hypothesis, the value of reliability was assessed using Cronbach's Alpha. Most hypotheses were calculated using ANOVA or Linear Regression, depending on the metric nature of the variables. To investigate the mediators and moderators role of the different variables, a model from Haye's PROCESS was calculated. For all statistical tests, a significance level of 5% was set.

CHAPTER 4: RESULTS AND ANALYSES

This chapter reports the main findings of the conducted analysis. Hypotheses are tested to determine whether the results are significant. The most important relationships are highlighted. Following this, the mediators and moderators are tested. Subsequently, in chapter 5, the results will be discussed and conclusions will be drawn. The appendix lists all the test results.

4.1 RELIABILITY MEASURES

Before proceeding with the analysis of the data it is necessary to measure the reliability of the variables. Thus, Cronbach's alpha was calculated. It indicates the degree to which the observed variables measure the true value. A score above 0.9 is excellent, between 0.8 and 0.9 good, between 0.7 and 0.8 acceptable (Hair, Black, Babin & Anderson, 2014). All trust indexes revealed a high internal consistency and scales had the highest scores with all items included. Thus, the reliability is acceptable to excellent and the survey results can be used for analysis. More information are provided in appendix 3.

Cronbach's Alpha		
Scale	N° of items	Cronbach's α
Emotional Loneliness	10	0,905
Materialism	6	0,781
Social Media Interaction	14	0,823
Emotional Brand Attachment	4	0,972

Table 1: Cronbach's Alpha

4.2 MANIPULATION

The first step of the analysis was to test whether the manipulation had the desired effect and whether hypothesis one can therefore be accepted. Thus, to see whether people who were triggered with Covid articles reported higher levels of loneliness. To determine whether the manipulation worked, the manipulation check was looked at first. It consisted of questions about the personal assessment of Covid. After that, Hypothesis one was tested.

An independent sample t-test was conducted using the manipulation check questions. A significant difference between the experimental (*M = 2.87, SD = 1.149*) and the control group (M= 2.56, SD = .949) was found in the question '*How much do you think of unpleasant feelings*

when thinking about the Covid-19 pandemic' (*t(172) = 1.942 , p = .054*). There is also a marginal significant difference (*t(172) = 1.680, p = .095*) in *'How much do you consider Covid-19 to be a threat to your health'* (*M experimental group = 3.86, SD experimental group = 1.786, M control group = 3.44, SD control group = 1.545*). This implies that the manipulation has made a difference in some cases and can be considered effective.

To test hypothesis one, a univariate ANOVA was conducted using manipulation as the independent variable and loneliness as the dependent variable. No significant differences were found between the experimental (*M = 2.229, SD = .669*) and the control group (*M = 2.204, SD = .667*) for the variable loneliness (*F(1,173) = .062, p = .803*). These results suggest that when exposed to a reminder of the Covid-19 pandemic, individuals do not show an increased level of loneliness. The manipulation, therefore, did not have its intended effect. **Hypothesis one must be rejected**, as individuals exposed to the reminder of Covid-19 did not report significantly higher levels of loneliness.

To test whether the manipulation has a direct effect on emotional brand attachment, further tests were performed. First, a two-way ANOVA was conducted, in which the manipulation and the product types were set as independent variables and emotional brand attachment as a dependent variable. Looking at the manipulation, there was a difference between brand attachment and product type. As expected, the hedonic framed product resulted in a higher brand attachment in the treatment group (*M = 2.8352, SD = 1.084*) compared to the control group (*M =2.5357, SD = 1.1576*). In addition, people in the treatment group indicated a higher brand attachment for the hedonic product compared to the utilitarian (*M = 2.5930, SD = .9940*). However, the interaction effect did not indicate significance (*F(1,173) = 1.866, p = .174*). This suggests, that the manipulation did not significantly affect higher emotional brand attachment. Testing the effect of the manipulation on emotional brand attachment and considering only the people who were assigned to the hedonic product in a further ANOVA, there was also no significant effect (*F(1,85) = 1.534, p = .219*). But the effect is much closer to the significance level compared to looking only at the utilitarian group (*F(1,87) = .443, p = .508*).

The previous results show that the manipulation did not have its intended effect. In addition, Covid reminders did not lead to significantly higher levels of emotional brand attachment. Therefore, it was tested whether the level of loneliness directly leads to a higher emotional brand attachment. Participants were divided into high loneliness (*N=88*) and low loneliness (*N=86*) regardless of their initial group. They were divided according to their indication on the

UCLA. It was done by a median split of the computed loneliness variable. The following tests were performed using this newly computed variable

A two-way ANOVA was conducted with loneliness and product type as the independent variable and emotional brand attachment as the dependent variable. Again, the interaction level did not show any significant results (F(1,173) = .472, p = .493). Planned comparisons also show no significant effect for the hedonic product (*F(1,85) = 1.723, p = .193*) and for the utilitarian product (*F(1,87) = .179, p = .673*). Although there was no significant result in the hedonic group, it was very clear to see that it is going in the predicted direction. Lonelier people (*M = 2.851, SD = .980*) show higher levels of emotional brand attachment than the less lonely ones (*M = 2.534, SD = 1.238*).

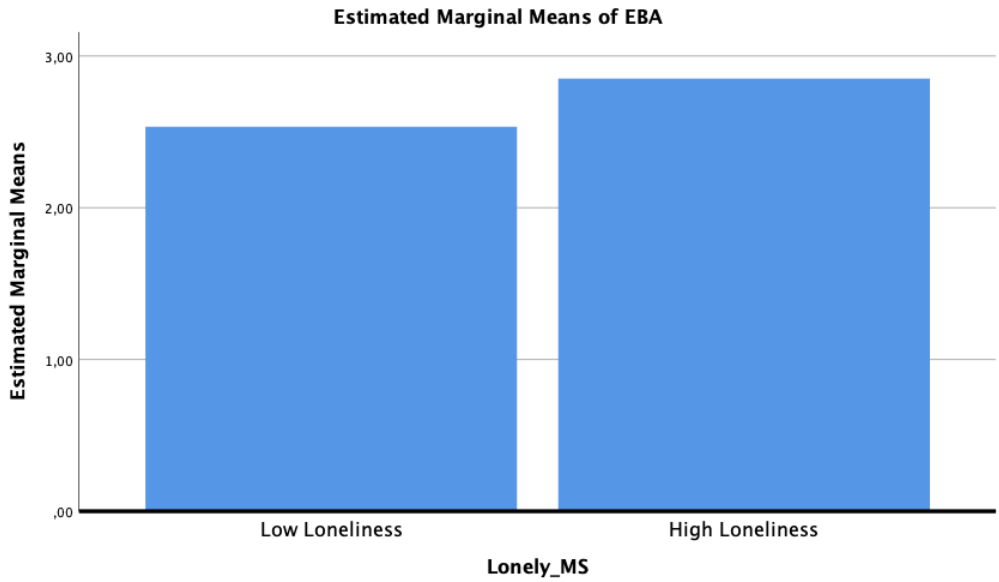

Figure 5: Profile Plots considering the hedonic group

From these results, it can be suggested that the hedonic group would probably show significant results if the sample size was larger. Hence, it can be assumed that there might be a direct effect between loneliness and emotional brand attachment.

4.3 HYPOTHESIS TESTING

The following tests evaluate the further established hypotheses. It will be highlighted which other variables are of importance in a brand attachment process.

4.3.1 HYPOTHESIS TWO

Hypothesis two states that loneliness leads to a higher level of materialism. To check if there is an effect between these two variables a univariate ANOVA was conducted. Loneliness was set as the independent variable and materialism as the dependent one. The results show a significant difference (*F(1,173) = 14.597, p = .000*) between low loneliness (*M = 3.366, SD = 1.168*) and high loneliness (*M = 4.024, SD = 1.103*). Therefore, it can be assumed that participants who reported being lonely, tend to feel a higher level of materialism. **Hypothesis two is thus accepted.**

4.3.2 HYPOTHESIS THREE

Hypothesis three tests whether loneliness has an impact on social media interaction. An ANOVA was conducted to test whether the median split variable of loneliness has an impact on the social media interaction variable. The means indicate that the answers follow the expected direction (*M low loneliness = 2.749, SD = .762, M high loneliness = 2.874, SD = .615*). However, no significant results could be detected (*F(1,173) = 1.420, p = .235*).

Yet, the variable that indicates the minutes spent on social media a day is also of interest in this context. The descriptive statistics show that people spend an average of 98,28 minutes on social media (*M = 98.28, SD = 76.487*). That's one hour and 27 minutes per day. However, based on the standard deviation, it is apparent that the numbers vary greatly between the participants. Comparing this information with the level of loneliness brought interesting insights. Performing an ANOVA, significant results could be identified (*F(1,172) = 7.414, p = .007*). Participants who stated to be more lonely (*M = 113.56, SD = 82.465*) spent significantly more time on social media than those who were less lonely (*M = 82.46, SD = 66.620*). However, it only indicates the minutes spent on social media but does not say anything about the interaction. These two interpretations must be distinguished. Since the **hypothesis three** is based on interaction, it **must be rejected** as loneliness does not lead to a significant increase in social media interaction.

4.3.3 HYPOTHESIS FOUR

The literature review highlighted studies that found high social media usage to be a predictor of materialism. This hypothesis is tested using a Linear Regression. Using the computed social

media interaction variable, calculated from the scale, as the independent variable and materialism as the dependent variable, revealed a statistically significant regression model ($p = .000$, $R^2 = .091$, $\beta = .301$). Looking at the results, one can see that when social media interaction rises so does the level of materialism, being responsible for 9.1% of the variation in the latter. **Thus, hypothesis 4 can be accepted.**

4.3.4 HYPOTHESIS FIVE

Hypothesis five relates to the relationship between materialism and emotional brand attachment including the product type. It says that materialistic people show a higher emotional brand attachment for hedonic products compared to utilitarian products. Before this was tested, it was examined whether the products shown were also considered hedonic or utilitarian. An independent sample t-test was conducted which showed a significant difference ($t(172) = 2.824$, $p = .005$). Thus, the null hypothesis of equal levels of product classification can be rejected. As intended, Coca-Cola coffee was considered as a hedonic product and Coca-Cola energy as a utilitarian one.

After that, two tests were conducted for the hypothesis analysis. In the first step, only those people who were exposed to the hedonic product were considered. These cases led to a sample size of N=86. A Linear Regression was performed using materialism as the independent variable and the computed variable of the emotional brand attachment scale as the dependent variable. The results indicate a significant effect ($p = .000$, $R^2 = .162$, $\beta = .402$), which would confirm the hypothesis. However, it still needed to be tested whether there is an effect on the utilitarian group. Therefore, in the second step, only people who were exposed to the utilitarian product (Coca-Cola Energy) were considered. This resulted in a sample size of N=88. Again, a Linear Regression was performed. As assumed, it did not lead to any significant result ($p = .727$, $R^2 = .001$, $\beta = -.038$). Hence, it became clear that materialism leads to higher emotional brand attachment when it comes to a hedonic product while this is not the case for a utilitarian product. **Hypothesis five is thus accepted.**

4.3.5 HYPOTHESIS SIX

Hypothesis six is similar in structure to hypothesis five, except that instead of materialism, it deals with the variable social media interaction. Again, the different effect between the hedonic and the utilitarian product on brand attachment was analysed. A linear regression was conducted

with social media interaction as the independent variable and emotional brand attachment as the dependent variable. Looking only at the hedonic cases, the result was significant ($p = .000$, $R^2 = .156$, $\beta = .395$). However, if utilitarian cases are considered, no significant effect was identified ($p = .403$, $R^2 = .008$, $\beta = .090$). The results demonstrate that social media interaction also leads to a higher emotional brand attachment if it involves a hedonic product rather than a utilitarian one. **Hypothesis six is also accepted.**

4.4 MEDIATING AND MODERATING ROLES OF MATERIALISM AND SOCIAL MEDIA INTERACTION

In the previous section, hypotheses were tested to understand how the variables are related. In this section, the role of materialism and social media interaction is explored in the context of the overall conceptual framework.

Hypothesis three had to be rejected as no significant impact of loneliness on social media interaction was identified. Thus, the variable cannot be a mediator of loneliness on emotional brand attachment. Similarly, even if social media interaction leads to materialism, there cannot be a serial mediation of loneliness to social media interaction (mediator 1) to materialism (mediator 2) and finally on emotional brand attachment. However, it became clear that lonely people spend more time on social media. Although the results of SNAIS were not significant, they showed higher social media interaction among lonely people compared to the less lonely ones. Thus, it seems that there is a relation between these variables. Social media interaction may actually be understood as a potential moderator of the effect of loneliness on emotional brand attachment. This hypothesis was examined in the following test using PROCESS macro version 3.5 by Andrew F. Hayes.

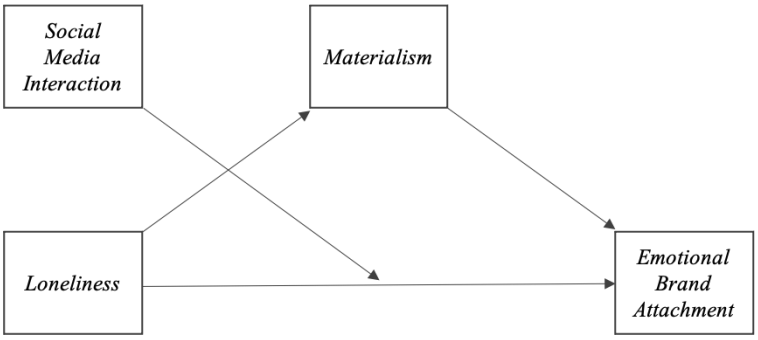

Figure 6: Model 5 - Conceptual Diagram

Model five was used with materialism as a mediator and social media interaction as a moderator for the effect of loneliness on emotional brand attachment. This test was conducted twice. First, only the participants of the hedonic group were considered, following those of the utilitarian group. Considering only the hedonic participants, significant results were obtained for the interaction between loneliness and social media interaction on emotional brand attachment ($p = .0024$). The indirect effect of loneliness on emotional brand attachment with the mediator materialism was also found to be significant with a 95% confidence interval: .0254 to .3012. In comparison, there were no significant test results when looking at the utilitarian group. Thus, Model 5 perfectly explains the relationship between the individual variables and is consistent with the validated hypotheses. Accordingly, materialism is a mediator of the effect of loneliness on emotional brand attachment, while social media interaction influences the connection between the independent variable and the dependent variable as a moderator.

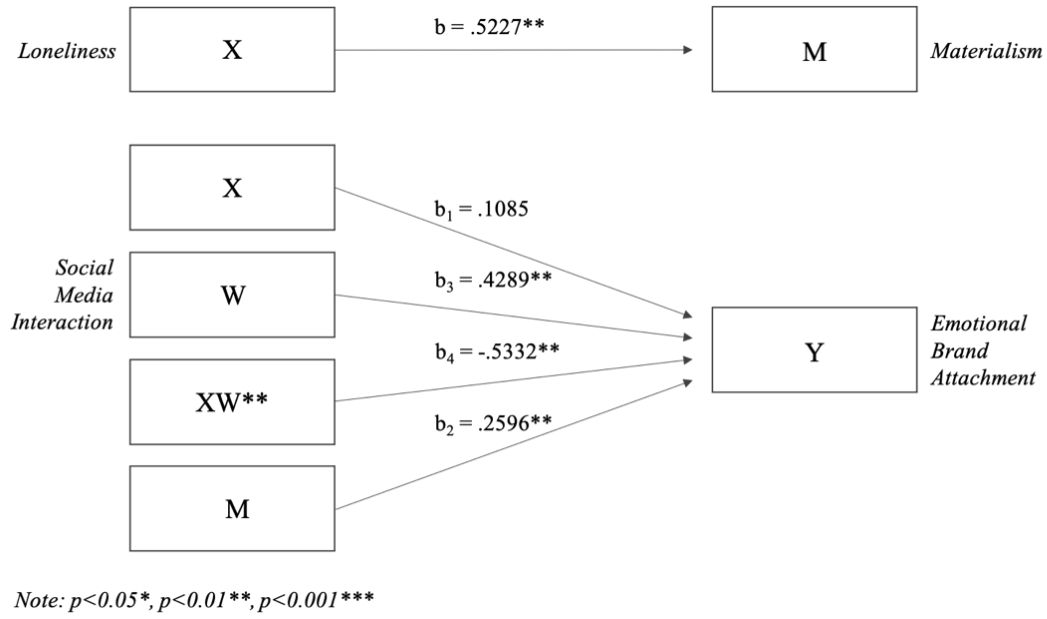

Figure 7: Statistical Model 5 considering the hedonic group

4.5 FURTHER ANALYSES

Since the manipulation did not meet its intended purpose, it was investigated which other factors led to increased loneliness. The impact of personality type and demographic data was tested. Various analyses were conducted using univariate ANOVA. The results for personality type were remarkable ($F(1,169) = 13.385, p = .000$). People who indicated to rather be introverted ($M = 2.457, SD = .678$) showed a significantly higher level of loneliness compared to the extroverted participants ($M = 2.082, SD = .630$). In addition, significant effects of age

(*F(3,173) = 3.643, p = .014*) and occupation (*F(4,173) = 2.625, p = .036*) were observed. Compared to the oldest age group (older than 56 years) (*M = 1.906, SD = .475*), under-25s (*M = 2.376, SD = .753*) reported to feel more lonely. In line with this, students (*M = 2.358, SD = .746*) reported higher levels of loneliness than employees (*M = 2.1, SD = .609*). Even though people who indicated to live alone displayed a higher loneliness level, the differences in the living situation are not significant (*F(2,173) = 1.779, p = .172*).

In the literature review it was discussed that there are differences in age groups and behaviour on social media. Therefore, further tests were conducted. Testing the impact of age on minutes spent on social media, there were significant differences (*F(3,172) = 12.252, p = .000*). People younger than 25 (*M = 131.60, SD = 87,174*) spent far more time on social media than people being 56 or older (*M = 42.83, SD = 42.501*). Since the SNAIS consists of different subscales, it was also tested whether younger people spend more time on social communication and older people on entertainment as indicated in the study of Nowland et al.. Therefore, the scale was subdivided and the age groups were compared in each case using an ANOVA. Looking at communication, there was a significant result (*F(1,173) = 3.687, p = .013*). The young age group (*M = 2.748, SD = .7717*) spend more time communicating with friends on social media compared to the oldest group (*M = 2.300, SD = .7095*). Contrary to the assumption, there were similar results for entertainment (*F(1,173) = 620, p = .000)*. Again, the younger ones (*M = 3.585, SD = .7315*) reported higher use than the older ones (*M = 2.708, SD = .95386*).

A study was referenced in the literature review stating that feelings of fear lead to higher emotional brand attachment. Fear was not directly asked in this study, but the manipulation check questions could be associated with feelings of anxiety. As already discovered, the manipulation led to a significant effect in the question about unpleasant feelings and corona being a threat to health. Therefore, it was tested whether these variables have an influence on the emotional brand attachment. Linear regressions were conducted for this purpose, first with the hedonic group and second with the utilitarian group. In both tests, there were no significant results. Thus, it can be concluded that these factors were not the reasons for participants to indicate a higher emotional attachment.

CHAPTER 5: DISCUSSION

The last chapter highlights the main findings and conclusions based on the results and literature review. It presents managerial and academic implications, as well as study limitations. Finally, recommendations for future research are identified.

5.1 MAIN FINDINGS & CONCLUSIONS

The study aimed to identify the formation process of emotional brand attachment. After presenting the analytical data, it is essential to answer the research questions.

RQ1: Does increased loneliness, triggered by a Covid reminder, leads to stronger Emotional Brand Attachment?

Studies present that there is a link between Covid-19 outbreak and increased loneliness. In addition, some studies demonstrate that negative emotions are evoked by showing Covid articles. Nevertheless, the manipulation in this study did not have the intended effect. This might be due to the fact that loneliness is mostly contextual and may not be as easy to manipulate as feelings of fear or excitement. The manipulation did not create a memory effect, as the articles shown probably did not form the context that would have made participants feel lonelier. However, at the time of the study, the pandemic was a globally relevant issue, which most likely caused the majority of participants to live in social isolation and limit their personal contacts. Clearly, the reported level of loneliness cannot be entirely attributed to the pandemic situation, but it is reasonable to assume that it may be an affecting factor.

In addition, other indicators were able to be identified that led to increased levels of loneliness. In line with the study of Bu, Steptoe and Fancourt published in 2020, especially younger people and students indicated to be lonely. This could be due to the fact that especially younger age groups have suffered from lockdown restrictions and had to limit their social contacts immensely. The analysis also revealed that introverts are significantly lonelier than extroverts. This is also consistent with a study that examined personality types in the context of the Covid-19 outbreak. The paper argues that introverts have more problems regulating their emotions. They have been linked to showing less help-seeking behaviour than extroverts. It is also likely for them to turn inward to cope with unexpected situations such as Covid-19 (Wei, 2020).

By dividing the sample into high and low loneliness and investigating whether it is a direct predictor of emotional brand attachment, no significant results were obtained. As shown in Figure 5, however, there are expected differences between the two groups when it comes to a hedonic product. Perhaps, there might be a significant effect if the sample size were larger. Thus, it can be argued that loneliness - most likely - has a direct impact on emotional brand attachment. This is probably because people have a need for affiliation when they are in unpleasant situations. A bond with a product or brand can take place on a similar level to that of an interpersonal relationship. Especially in times of Covid-19 where social contact must be avoided, a brand can replace the bond with another person.

It is safe to say that a relationship between loneliness and emotional brand attachment exist when materialism and social media interaction are involved in the bonding process.

RQ2: Is materialism a mediator between loneliness and emotional brand attachment?

The hypothesis suggesting that loneliness leads to higher levels of materialism was accepted. Equally, the hypothesis was validated that being materialistic leads to a higher emotional brand attachment for the hedonic product. No significant effect could be identified for the utilitarian product. This is consistent with the studies mentioned in the literature review. It confirms the assumption that lonely people use products to cope with their self-discrepancy. Positive emotions, such as happiness are associated with the acquisition of products. A sense of security is created that boosts their self-esteem. Materialism causes people with lower self-esteem to follow others and to change their behaviour. They adapt their performance to be better perceived.

People generally have a basic need for connection. The desire increases especially when they experience negative emotions. Therefore, materialists seek those brands that lead to an ideal self-concept. It creates brand awareness and is ultimately what enhance a strong bond with a brand. The bond is particularly strong with brands that are high in ideal self-congruity. This is often the case with hedonic products, as they are associated with pleasure. It explains why the hedonic product led to emotional brand attachment compared to the utilitarian one. This supports the statement that consumers prefer products that are personally important to them.

The variable materialism is given another important role in the study. The analysis demonstrated that it is also considered to be a mediator. It mediates the link between increased loneliness and emotional brand attachment. This again only took place under consideration of the hedonic product.

RQ3: Does a high Social Media Interaction explain the process between loneliness and emotional brand attachment?

In contrast to the studies shown in the literature review, higher loneliness did not lead to higher social media interaction when looking at the items of SNAIS. A study found that loneliness was not associated with higher social media interaction when people used it to strengthen their existing friendships. However, there was a link found when the online world was used to replace offline relationships (Nowland et al., 2017). This could be the explanation for the absence of a significant effect. Due to the lockdown restrictions, people spend more time on their own and therefore more time online (Kemp, 2021). Their intention in communicating online will probably be to maintain their existing friendships. In line with that, lonelier people were found to spend significantly more time on social media. It must be added that this differs with age. In general, younger people spend more time online compared to older people.

During the analysis, it became apparent that high social media interaction leads to materialism. People are confronted with product ads online every day. Social Media users are exposed to new trends, can follow what kind of products their social environment uses and which brands are in vogue. In addition, they use online platforms to find out about product information. Thus, people are easily influenced to feel like they need to belong to a certain standard. Successful people are admired and a need for luxury is created.

In addition, people are exposed to many brands online. Not only do they see personalised ads continually, but they also have the opportunity to follow certain brands and products online. This means they are always up to date, know about offers and innovations. Depending on the online platform, the content is adapted to the target group. Today's consumer is therefore very knowledgeable. As a result, people who spend a lot of time online have a higher emotional attachment to brands. The data in the analysis confirmed this. Again, only a significant effect was observed associated with the hedonic product.

Initially, it was assumed that social media interaction is a mediator between loneliness and emotional brand attachment. This is not the case. However, in the analysis section, it became clear that social media interaction is a moderator for the relationship between loneliness and emotional brand attachment. It influences the association between the two variables and leads to a significant effect. Thus, the conceptual framework set up at the beginning must be adapted.

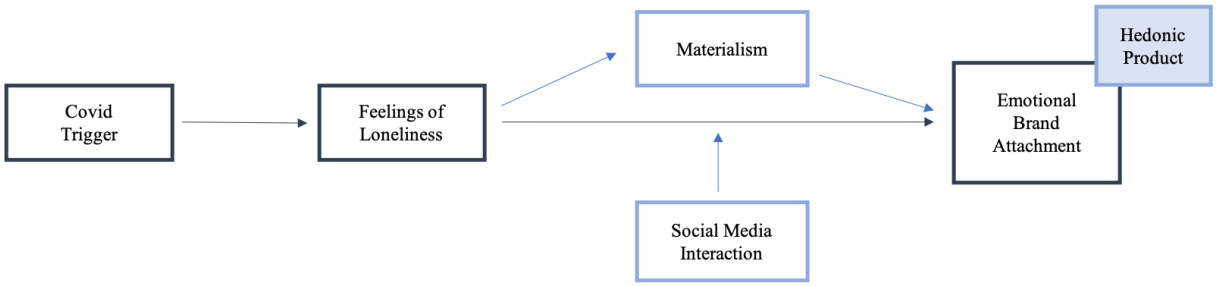

Figure 8: Revised Conceptual Framework

5.2 MANAGERIAL & ACADEMIC IMPLICATIONS

In marketing, consumers are becoming increasingly important. While companies used to pay attention to the features of their products, today they focus on clients. For the success of a brand, it is important to understand the target group. When customers feel an emotional brand attachment, they also show a high level of loyalty towards the brand. They are satisfied with the products. Thus, they also have a higher willingness to pay. It increases the efficiency of marketing costs and influences the stability of units sold. Therefore, it is a great concern of managers to understand how brand attachment is created.

The findings of this study provide several managerial implications. The results can be considered as a guidance for brand managers to connect with lonely people. Especially in times of pandemic, when many people are dissatisfied, it is important to adjust the strategic planning in order to address people properly. A brand should be promoted in such a way that it serves as means to cope with loneliness. It should appeal to people who are looking for affiliation. A sense of community and support should be created. Consumers supposed to have the feel that brands support them in difficult times. The materialistic functions of a brand can be highlighted. It should be demonstrated that the ideal-self can be achieved through acquisition.

The study showed that people spend a lot of time online, especially lonely ones. Thus, investments should be made in social media. Digitalisation is advancing more and more. There will be increasingly more online activities that replace offline behaviour. As customers get informed

online, organizations need to provide and constantly update information. They can address potential customers through online ads and draw attention to their product offer. Thereby, the age of the target group and its preferred online platform should be taken into account.

Products with hedonic characteristics will always have advantages. But, utilitarian products can also be framed as hedonic. Not only the functional features should be presented, but also those that lead to pleasure. In addition, it would be advisable to create a high involvement between the utilitarian product and the customer in order to make bonding more likely to happen.

All these implications are worth considering when making strategic decisions to retain customers and keep them as long-term clients.

5.3 LIMITATIONS & FURTHER RESEARCH

As the study was written under certain resource constraints, there have been some limitations, which are now listed.

Participants were selected using the non-probability sampling method. The convenience sample caused mainly people from the researcher's social environment to take part in the survey. Most of the participants were mainly from Germany and predominantly younger than 30 years old, which leads to an uneven distribution. Therefore, the data do not provide generalizable results and thus cannot be applied to the population. Additionally, a sample size of 174 participants is quite small. More accurate statements could be obtained with a larger number of participants.

There was no incentive for taking part in the study, which may have led to participants being less motivated to answer the questions properly. Most of the participants come from a non-English speaking country. Thus, language barriers might have existed while filling in the questionnaire. In some cases, very personal questions were asked. Even though participation was anonymous, people may have felt uncomfortable and falsified their answers.

A major limitation was the manipulation not working as expected. The stimulus could be improved in further studies. Short video clips could be shown to the participants in order to evoke emotions, as it was the case in a study that investigated the impact of fear on emotional brand attachment (Dunn & Hoegg, 2014). However, this would involve a more complex study.

It would also be interesting to see which other high-arousal emotions have an influence on brand attachment and whether there is a difference between social and emotional loneliness. This study focused more on emotional loneliness. Social loneliness refers to a lack of social networks in social relationships. Thus, one could investigate whether there is a difference between the types and its impact on the emotional brand attachment. In addition, the same study could be conducted after the pandemic to check whether lockdown restrictions led to certain outcomes.

Further studies that want to include the impact of the pandemic, can focus on emotions triggered by Covid articles. For instance, these would be anger, anticipation or sadness (Aslam et al., 2020). It would also be worth looking at whether perceived isolation influences brand attachment. In addition, other mediators could be involved, for instance, brand anthropomorphism. It would be very interesting to observe whether human-like characteristics in products can lead to brands replacing an interpersonal relationship. In general, studies could focus on different demographic characteristics. For example on age, to understand more precisely where differences exist. Cultural diversity could also provide important insights. Also, future work should consider further products in their study, to understand the attachment process for other (non-drink) products.

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APPENDICES

APPENDIX 1: SURVEY STRUCTURE

Start of Block: Manipulation

Q3 Please have a look at the following snippets of articles about the **Covid-19 pandemic in Europe**. Take a moment to think about the options and select the one you are most interested in reading.

- o Image: Covid wave in Europe
- o Image: AstraZeneca
- o Image: New Restrictions

OR

Q3 Please have a look at the following snippets of articles about **current events in the world**. Take a moment to think about the options and select the one you are most interested in reading.

- o Image: Brexit
- o Image: Tesla
- o Image: Women

Start of Block: Loneliness

Q4 Please have a look at the following questions and answer them according to your current feelings.

	Never (1)	Rarely (2)	Sometimes (3)	Often (4)
How often do you feel that you **lack companionship**?	○	○	○	○
How often do you feel that there is **no one you could turn to**?	○	○	○	○
How often do you **feel alone**?	○	○	○	○
How often do you feel that you are **no longer close to anyone**?	○	○	○	○
How often do you feel that **your interests and ideas are not shared** by those around you?	○	○	○	○
How often do you **feel left out**?	○	○	○	○
How often do you feel that your **relationships with others are not meaningful**?	○	○	○	○
How often do you feel **no one really knows you well**?	○	○	○	○
How often do you feel **isolated from others**?	○	○	○	○

How often do you feel that people are **around you but not with you**?	○	○	○	○

Q21 How would you rate your personality type?

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	
Extremely **introverted**	○	○	○	○	○	○	○	○	Extremely **extroverted**

Start of Block: Materialism

Q5 Please answer these statements according to your agreement.

I admire people who own expensive homes, cars and clothes. (1)	▼ Strongly disagree (1) ... Strongly Agree (7)
The things I own say a lot about how well I am doing in life. (2)	▼ Strongly disagree (1) ... Strongly Agree (7)
Buying things give me a lot of pleasure. (3)	▼ Strongly disagree (1) ... Strongly Agree (7)
I like a lot of luxury in my life. (4)	▼ Strongly disagree (1) ... Strongly Agree (7)
My life would be better if I owned certain things I don't have. (5)	▼ Strongly disagree (1) ... Strongly Agree (7)
I would be happier if I could afford to buy more things. (6)	▼ Strongly disagree (1) ... Strongly Agree (7)

Start of Block: Social Media Interaction

Q7 How much time a day do you spend on social media? Please indicate the **minutes**.

Q6 How often have you performed the following **online social networking activities** in the last months?

	Never (1)	Few (2)	Occasional (3)	Sometimes (4)	Often (5)
Sent messages to friends on message boards	○	○	○	○	○
Chatted with friends via instant messaging function (e.g. WhatsApp, Facebook messenger)	○	○	○	○	○
Replied to comments made by social networking friends	○	○	○	○	○
Commented on friends' status, logos, photos	○	○	○	○	○
Shared/Forwarded content	○	○	○	○	○
Browsed others' logs/photos/statuses/albums	○	○	○	○	○

Updated self-status	○	○	○	○	○
Posted photos/videos on personal web profile	○	○	○	○	○
Wrote blogs	○	○	○	○	○
Decorated personal web profile (changed image/contact information/privacy setting)	○	○	○	○	○
Surfed entertainment/current news	○	○	○	○	○
Watched video/listened to music	○	○	○	○	○
Played games/applications	○	○	○	○	○
Bought/gave virtual goods (e.g. birthday gifts)	○	○	○	○	○

Start of Block: Hedonic/Utilitarian

Q15 **Coca-Cola** launched a new **drink with luxury Brazilian coffee**. The refreshment **sips like the classic Coke** and **finishes like a coffee**. It is a hybrid innovation that provides a **perfect mid-afternoon pick-me-up** and delivers an **emotional uplift**. People do not longer have to leave Coca-Cola to **get the pleasure of coffee**.

OR

Q19 **Coca-Cola** launched a new **energy drink**. It provides **natural energy** through caffeine and guarana, without any taurine. Even with the higher caffeine level, the drink does not lose the **classic Coca-Cola flavour.** Theenergy boost helps you to **focus on your goals**. It is the perfect drink that provides **vital energy** and combines **performance**

Q37 How would you classify this product?

	(1)	(2)	(3)	(4)	(5)	(6)	
Functional for **performance (utilitarian)**	○	○	○	○	○	○	Pleasurable for **enjoyment (hedonic)**

Q27 How likely are you to **try** the Coca-Cola energy drink?

	(1)	(2)	(3)	(4)	(5)	
Highly unlikely	○	○	○	○	○	Highly likely

Q28 How certain is that you will **purchase** this product?

	(1)	(2)	(3)	(4)	(5)	
Highly uncertain	○	○	○	○	○	Highly certain

Start of Block: EBA

Q34 How familiar are you with the brand **Coca-Cola**?

	Strongly agree (1)	Somewhat agree (2)	Neither agree nor disagree (3)	Somewhat disagree (4)	Strongly disagree (5)
I am quite familiarized with the brand	○	○	○	○	○
I am quite familiarized with the products offers	○	○	○	○	○

Q17 Thinking about the brand **Coca-Cola**, please answer the following statements.

	Strongly agree (1)	Somewhat agree (2)	Neither agree nor disagree (3)	Somewhat disagree (4)	Strongly disagree (5)
I feel **captivated** for this brand	○	○	○	○	○
I feel **strongly bonded** to this brand	○	○	○	○	○
I feel **delighted** for this brand	○	○	○	○	○
I feel **passionate** for this brand	○	○	○	○	○

Start of Block: Covid

Q31 Thinking about the **current Covid-19 pandemic**, please answer the questions.

	Not at all (1)	Only a little (2)	To some extend (3)	Rather much (4)	Very much (5)
How **close** do you feel to death?	○	○	○	○	○
How **fearful** do you feel about death?	○	○	○	○	○
How much do you think of **unpleasant feelings**?	○	○	○	○	○

Q22 How much do you consider Covid-19 to be a **threat to your health**?

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	
Not a threat at all	○	○	○	○	○	○	○	An extreme threat

Q24 How optimistic are you that the pandemic will **soon be under control**?

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	
Not optimistic at all	○	○	○	○	○	○	○	Extremely optimistic

Q25 How **tired** are you **of lockdown measures**?

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	
I am very bothered by the measures	○	○	○	○	○	○	○	The measures do not bother me at all

Start of Block: Demographics

Q9 Please indicate your age.

	0 10 20 30 40 50 60 70 80 90 100
Age ()	

Q10 Nationality

○ German ○ Portuguese ○ Spanish ○ English

○ French ○ Dutch ○ Other:

Q11 Gender

○ Male ○ Female ○ Non-binary/third gender ○ Prefer not to say

Q12 Occupation

○ Student ○ Employed ○ Not employed

○ Unemployed due to Covid outbreak ○ Retired

Q13 Please state your annual net household income.

○ Less than 10.000€ ○ 10.000€ - 24.999€ ○ 25.000€ - 39.999€ ○ 40.000€ - 54.999€

○ 55.0000€ - 69.999€ ○ 70.000€ - 84.999€ ○ 85.000€ - 99.999€ ○ More than 100.000€

Q14 What is your current living situation?

○ I live alone ○ I live in a shared flat ○ I live with my family (e.g. parents, companion)

APPENDIX 2: SAMPLE CHARACTERISTICS

Frequency Statistic				
Variable	Value	Frequency	Percentage	Cumulative
Gender	Male	59	33.9%	33.9%
	Female	115	66.1%	100%
Age	Younger/or 25	67	38.5%	38.5%
	26-40	67	38.5%	77%
	41-55	10	5.7%	82.8%
	56 and older	30	17.2%	100%
Nationality	German	123	70.7%	–
	Portuguese	5	2.9%	–
	Spanish	2	1.1%	–
	English	14	8.0%	–
	French	4	2.3%	–
	Dutch	3	1.7%	–
	other	23	13.2%	–
Occupation	Student	72	41.4%	–
	Employed	77	44.3%	–
	Not employed	14	8.0%	–
	Unemployed due to the Covid outbreak	3	1.7%	–
	Retired	8	4.6%	–
Annual net household income	Less than 10.000€	40	23.0%	23.0%
	10.000€ - 24.999€	34	19.5%	42.5%
	25.000€ - 39.999€	21	12.1%	54.6%
	40.000€ - 54.999€	21	12.1%	66.7%
	55.000€ - 69.999€	12	6.9%	73.6%
	70.000€ - 84.999€	9	5.2%	78.7%
	85.000€ - 99.999€	11	6.3%	85.1%
	more than 100.000€	26	14.9%	100%
Current living situation	I live alone	32	18.4%	–
	I live in a shared flat	55	31.6%	–
	I live with my family	87	50%	–

APPENDIX 3: CRONBACH'S ALPHA

Cronbach's Alpha Coefficient			
Variable	Q	Cronbach's α	Cronbach's α if item deleted
Emotional Loneliness	Q4_1	0,905	0,901
	Q4_2		0,893
	Q4_3		0,895
	Q4_4		0,89
	Q4_5		0,9
	Q4_6		0,894
	Q4_7		0,897
	Q4_8		0,896
	Q4_9		0,894
	Q4_10		0,897
Materialism	Q5_1	0,781	0,724
	Q5_2		0,755
	Q5_3		0,734
	Q5_4		0,765
	Q5_5		0,761
	Q5_6		0,745
Social Networking Activity Intensity Scale	Q6_1	0,823	0,837
	Q6_2		0,82
	Q6_3		0,802
	Q6_4		0,795
	Q6_5		0,804
	Q6_6		0,802
	Q6_7		0,797
	Q6_8		0,799
	Q6_9		0,818
	Q6_10		0,806
	Q6_11		0,821
	Q6_12		0,816
	Q6_13		0,827
	Q6_14		0,812
Emotional Brand Attachment	Q17_1	0,972	0,906
	Q17_2		0,911
	Q17_3		0,897
	Q17_4		0,906

APPENDIX 4: MANIPULATION (HYPOTHESIS 1)

4.1 T-Test

Group Statistics				
	Manipulation	Mean	Std. Deviation	Std. Error Mean
How much do you think of unpleasent feelings?	Covid	2,87	1,149	0,123
	No Covid	2,56	0,949	0,102
How much do you consider Covid-19 to be a threat to your health?	Covid	3,86	1,786	0,191
	No Covid	3,44	1,545	0,166

Independent Samples Test										
		Levene's Test for Equality of Variances		t-test for Equality of Means						
		F	Sig.	t	df	Sig (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
									Lower	Upper
How much do you think of unpleasent feelings?	Equal variances assumed	2,343	0,128	1,942	172	0,054	0,310	0,16	-0,005	0,626
	Equal variances not assumed			1,942	166,034	0,054	0,310	0,16	-0,005	0,626
How much do you consider Covid-19 to be a threat to your health?	Equal variances assumed	4,269	0,040	1,680	172	0,095	0,425	0,253	-0,075	0,925
	Equal variances not assumed			1,680	168,52	0,095	0,425	0,253	-0,075	0,925

4.2 ANOVA

Descriptive Statistics			
Dependent Variable: Loneliness			
Manipulation	Mean	Std. Deviation	N
Covid	2,2299	0,6698	87
No Covid	2,2046	0,66785	87
Total	2,2172	0,66702	174

Test of Between-Subjects Effects								
Dependent Variable: Loneliness								
Source	Type III Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared	Noncent. Parameter	Observed Power [b]
Corrected Model	0,028 [a]	1	0,028	0,062	0,803	0,000	0,062	0,057
Intercept	855,412	1	855,412	1912,268	0,000	0,917	1912,268	1
Manipulation	0,028	1	0,028	0,062	0,803	0,000	0,062	0,057
Error	76,94	172	0,447					
Total	932,38	174						
Corrected Total	76,968	173						

a. R Square = ,000 (Adjusted R Squared = -,005)
b. Computed using alpha = ,05

4.3 ANOVA

Descriptive Statistics				
Dependent Variable: EBA				
Manipulation	Product Type	Mean	Std. Deviation	N
Covid	Hedonic	2,8352	1,08497	44
	Utilitarian	2,5930	0,99406	43
	Total	2,7155	1,04212	87
No Covid	Hedonic	2,5357	1,15764	42
	Utilitarian	2,7389	1,05926	45
	Total	2,6409	1,10608	87
Total	Hedonic	2,6890	1,12455	86
	Utilitarian	2,6676	1,102464	88
	Total	2,6782	1,07212	174

Test of Between-Subjects Effects								
Dependent Variable: EBA								
Source	Type III Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared	Noncent. Parameter	Observed Power [b]
Corrected Model	2,415 [a]	3	0,805	0,697	0,555	0,012	2,090	0,196
Intercept	1244,92	1	1244,92	1077,377	0,000	0,864	1077,377	1,000
Manipulation	0,257	1	0,257	0,222	0,638	0,001	0,222	0,076
Product Type	0,017	1	0,017	0,014	0,905	0,000	0,014	0,052
Mani*ProdType	2,156	1	2,156	2,866	0,174	0,011	1,866	0,274
Error	196,437	170	1,156					
Total	1446,875	174						
Corrected Total	198,852	173						

a. R Square = ,012 (Adjusted R Squared = -,005)
b. Computed using alpha = ,05

4.4 ANOVA

Descriptive Statistics				
Dependent Variable: EBA				
Loneliness	Product Type	Mean	Std. Deviation	N
Low Loneliness	Hedonic	2,5341	1,23842	44
	Utilitarian	2,6190	1,01248	42
	Total	2,5756	1,1279	86
High Loneliness	Hedonic	2,8512	0,98008	42
	Utilitarian	2,7120	1,04479	46
	Total	2,7784	1,01103	88
Total	Hedonic	2,6890	1,12455	86
	Utilitarian	2,6676	1,02464	88
	Total	2,6782	1,07212	174

Test of Between-Subjects Effects								
Dependent Variable: EBA								
Source	Type III Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared	Noncent. Parameter	Observed Power [b]
Corrected Model	2,370 [a]	3	0,790	0,684	0,563	0,012	2,051	1,93
Intercept	1247,089	1	1247,089	1079,006	0,000	0,864	1079,006	1,000
Manipulation	1,826	1	1,826	1,580	0,211	0,009	1,580	0,239
Product Type	0,032	1	0,032	0,028	0,868	0,000	0,028	0,053
Mani*ProdType	0,546	1	0,546	0,472	0,493	0,003	0,472	0,105
Error	196,482	170	1,156					
Total	1446,875	174						
Corrected Total	198,852	173						

a. R Square = ,012 (Adjusted R Squared = -,006)
b. Computed using alpha = ,05

APPENDIX 5: HYPOTHESIS 2

5.1 ANOVA

Descriptive Statistics			
Dependent Variable: Materialism			
Loneliness	Mean	Std. Deviation	N
Low Loneliness	3,3663	1,16872	86
High Loneliness	4,0246	1,10396	88
Total	3,6992	1,18024	174

Test of Between-Subjects Effects								
Dependent Variable: Materialism								
Source	Type III Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared	Noncent. Parameter	Observed Power [b]
Corrected Model	18.851 [a]	1	18,851	14,597	0,000	0,078	14,597	0,967
Intercept	2375,891	1	2375,891	1839,694	0,000	0,914	1839,694	1,000
Loneliness_MS	18,851	1	18,851	14,597	0,000	0,078	14,597	0,967
Error	222,131	172	1,291					
Total	2622,956	174						
Corrected Total	240,982	173						

a. R Square = ,078 (Adjusted R Squared = ,073)
b. Computed using alpha = ,05

APPENDIX 6: HYPOTHESIS 3

6.1 ANOVA

Descriptive Statistics			
Dependent Variable: Social media interaction			
Loneliness	Mean	Std. Deviation	N
Low Loneliness	2,7492	0,76263	86
High Loneliness	2,8742	0,61521	88
Total	2,8124	0,69284	174

Test of Between-Subjects Effects								
Dependent Variable: Social Media interaction								
Source	Type III Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared	Noncent. Parameter	Observed Power [b]
Corrected Model	,680 [a]	1	0,680	1,420	0,235	0,008	1,420	0,220
Intercept	1375,382	1	1375,382	2871,174	0,000	0,943	2871,174	1,000
Loneliness_MS	0,680	1	0,680	1,420	0,235	0,008	1,420	0,220
Error	82,365	172	0,479					
Total	1459,311	174						
Corrected Total	83,044	173						

a. R Square = ,008 (Adjusted R Squared = ,002)
b. Computed using alpha = ,05

6.2 Descriptives

Descriptive Statistics					
	N	Minimum	Maximum	Mean	Std. Deviation
Minutes spend on social media a day	173	3	400	98,28	76,487

6.3 ANOVA

Descriptive Statistics			
Dependent Variable: Time spent on social media a day			
Loneliness	Mean	Std. Deviation	N
Low Loneliness	82.46	66.620	85
High Loneliness	113.56	82.465	88
Total	98.28	76.487	173

Test of Between-Subjects Effects								
Dependent Variable: Time spent on social media a day								
Source	Type III Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared	Noncent. Parameter	Observed Power [b]
Corrected Model	41813,9 [a]	1	41813,86	7,414	0,007	0,042	7,414	0,773
Intercept	1661257	1	1661257	294,548	0,000	0,633	294,548	1,000
Loneliness_MS	41813,86	1	41813,86	7,414	0,007	0,042	7,414	0,773
Error	964442,8	171	5640,017					
Total	2677170	173						
Corrected Total	1006257	173						

a. R Square = ,042 (Adjusted R Squared = ,036)
b. Computed using alpha = ,05

APPENDIX 7: HYPOTHESIS 4

7.1 Linear Regression

Descriptive Statistics			
	Mean	Std. Deviation	N
Materialism	3,6992	1,18024	174
SMI	2,8124	0,69284	174

Model Summary				
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	0,301	0,091	0,085	1,12882

ANOVA						
Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	21,815	1	21,815	17,120	0,000
	Residual	219,167	172	1,274		
	Total	240,982	173			

Coefficients						
		Unstandardized Coefficients		Standardized Coefficients		
Model		B	Std. Error	Beta	t	Sig.
1	(Constant)	2,258	0,359		6,294	0,000
	SMI	0,513	0,124	0,301	4,138	0,000

APPENDIX 8: HYPOTHESIS 5

8.1 T-Test

Group Statistics				
	Product type	Mean	Std. Deviation	Std. Error Mean
Product group	Hedonic	4,4070	1,23076	0,13272
	Utilitarian	3,8409	1,40513	0,14979

Independent Samples Test										
		Levene's Test for Equality of Variances		t-test for Equality of Means						
		F	Sig.	t	df	Sig (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
									Lower	Upper
Product Group	Equal variances assumed	3,051	0,082	2,820	172	0,005	0,56607	0,20043	0,17045	0,96169
	Equal variances not assumed			2,829	169,989	0,005	0,56607	0,20012	0,17102	0,96112

8.2 Linear Regression (hedonic)

Descriptive Statistics			
	Mean	Std. Deviation	N
EBA	2,6890	1,12455	86
Materialism	3,6880	1,25734	86

Model Summary				
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	0,402	0,162	0,152	1,03560

ANOVA						
Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	17,405	1	17,405	16,229	0,000
	Residual	90,087	84	1,072		
	Total	107,492	85			

Coefficients						
		Unstandardized Coefficients		Standardized Coefficients		
Model		B	Std. Error	Beta	t	Sig.
1	(Constant)	1,362	0,348		3,914	0,000
	Materialism	0,36	0,089	0,402	4,029	0,000

8.3 Linear Regression (utilitarian)

Descriptive Statistics			
	Mean	Std. Deviation	N
EBA	2,6676	1,02464	88
Materialism	3,7102	1,10684	88

Model Summary				
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	0,038	0,001	-0,010	1,02985

ANOVA						
Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	0,130	1	0,130	0,123	0,727
	Residual	91,210	86	1,061		
	Total	91,340	87			

Coefficients						
		Unstandardized Coefficients		Standardized Coefficients		
Model		B	Std. Error	Beta	t	Sig.
1	(Constant)	2,797	0,386		7,246	0,000
	Materialism	-0,035	0,100	-0,038	-0,350	0,727

APPENDIX 9: HYPOTHESIS 6

9.1 Linear Regression (hedonic)

Descriptive Statistics			
	Mean	Std. Deviation	N
EBA	2,6890	1,12455	86
SMI	2,8480	0,74849	86

Model Summary				
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	0,395	0,156	0,146	1,03927

ANOVA						
Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	16,765	1	16,765	15,522	0,000
	Residual	90,727	84	1,08		
	Total	107,492	85			

Coefficients						
		Unstandardized Coefficients		Standardized Coefficients		
Model		B	Std. Error	Beta	t	Sig.
1	(Constant)	0,999	0,443		2,254	0,027
	Materialism	0,593	0,151	0,395	3,940	0,000

9.2 Linear Regression (utilitarian)

Descriptive Statistics			
	Mean	Std. Deviation	N
EBA	2,6676	1,02464	88
SMI	2,7776	0,63616	88

Model Summary				
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	0,09	0,008	-0,003	1,02637

ANOVA						
Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	0,744	1	0,744	0,707	0,403
	Residual	90,596	86	1,053		
	Total	91,340	87			

Coefficients						
		Unstandardized Coefficients		Standardized Coefficients		
Model		B	Std. Error	Beta	t	Sig.
1	(Constant)	2,264	0,493		4,594	0,000
	Materialism	0,145	0,173	0,090	0,841	0,403

APPENDIX 10: FURTHER ANALYSIS

10.1 ANOVA

Descriptive Statistics			
Dependent Variable: Loneliness			
Personality type	Mean	Std. Deviation	N
Introverted	2,4578	0,67842	64
Extroverted	2,0821	0,63031	106
Total	2,2235	0,67212	170

Test of Between-Subjects Effects								
Dependent Variable: Loneliness								
Source	Type III Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared	Noncent. Parameter	Observed Power [b]
Corrected Model	5,634 [a]	1	5,634	13,385	0,000	0,074	13,385	0,953
Intercept	822,483	1	822,483	1954,084	0,000	0,921	1954,084	1,000
Q21_1	5,634	1	5,634	13,385	0,000	0,074	13,385	0,953
Error	70,712	168	0,421					
Total	916,84	170						
Corrected Total	76,346	169						

a. R Square = ,074 (Adjusted R Squared = ,068)
b. Computed using alpha = ,05

10.2 ANOVA

Descriptive Statistics			
Dependent Variable: Loneliness			
Age	Mean	Std. Deviation	N
1 (younger/or 25)	2,3761	0,75360	67
2 (26-40)	2,2090	0,61981	67
3 (41-55)	2,1400	0,56999	10
4 (56 and older)	1,9067	0,47556	30
Total	2,2172	0,66701	174

Test of Between-Subjects Effects								
Dependent Variable: Loneliness								
Source	Type III Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared	Noncent. Parameter	Observed Power [b]
Corrected Model	4,649 [a]	3	1,550	3,643	0,014	0,060	10,929	0,791
Intercept	456,582	1	456,582	1073,285	0,000	0,863	1073,285	1,000
Q9_7	4,649	3	1,550	3,643	0,014	0,060	10,929	0,791
Error	72,319	170	0,425					
Total	932,380	174						
Corrected Total	76,968	170						

a. R Square = ,060 (Adjusted R Squared = ,044)
b. Computed using alpha = ,05

10.3 ANOVA

Descriptive Statistics			
Dependent Variable: Loneliness			
Occupation	Mean	Std. Deviation	N
Student	2,3583	0,74678	72
Employed	2,1000	0,60936	77
Not employed	2,1357	0,41807	14
Unemployed due to the Covid outbreak	2,9000	0,52915	3
Retired	1,9625	0,50973	8
Total	2,2172	0,66701	174

Test of Between-Subjects Effects								
Dependent Variable: Loneliness								
Source	Type III Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared	Noncent. Parameter	Observed Power [b]
Corrected Model	4,502 [a]	4	1,126	2,625	0,036	0,058	10,500	0,726
Intercept	235,795	1	235,795	549,905	0,000	0,765	549,905	1,000
Q12	4,502	4	1,126	2,625	0,036	0,058	10,500	0,726
Error	72,466	169	0,429					
Total	932,380	174						
Corrected Total	76,968	173						

a. R Square = ,058 (Adjusted R Squared = ,036)
b. Computed using alpha = ,05

10.4 ANOVA

Descriptive Statistics			
Dependent Variable: Loneliness			
Living Situation	Mean	Std. Deviation	N
I live alone	2,3531	0,55240	32
I live in a shared flat	2,2836	0,77645	55
I live with my family	2,1253	0,62305	87
Total	2,2172	0,66701	174

Test of Between-Subjects Effects								
Dependent Variable: Loneliness								
Source	Type III Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared	Noncent. Parameter	Observed Power [b]
Corrected Model	1,569 [a]	2	0,784	1,779	0,172	0,020	3,558	0,369
Intercept	750,505	1	750,505	1702,088	0,000	0,909	1702,088	1,000
Q13	1,569	2	0,784	1,779	0,172	0,020	3,558	0,369
Error	75,399	171	0,441					
Total	932,380	174						
Corrected Total	76,968	173						

a. R Square = ,020 (Adjusted R Squared = ,009)
b. Computed using alpha = ,05

10.5 ANOVA

Descriptive Statistics			
Dependent Variable: Time spent on social media a day			
Age	Mean	Std. Deviation	N
younger/or 25	131,6	87,174	67
26-40	95	63,416	66
41-55	63	35,214	10
56 and older	42,83	42,501	30
Total	98,28	76,487	173

Test of Between-Subjects Effects								
Dependent Variable: Time spent on social media a day								
Source	Type III Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared	Noncent. Parameter	Observed Power [b]
Corrected Model	179758 [a]	3	59919,47	12,252	0,000	0,179	36,756	1,000
Intercept	676273,1	1	676273,1	138,282	0,000	0,45	138,282	1,000
Age	179758,4	3	59919,47	12,252	0,000	0,179	36,756	1,000
Error	826498,3	169	4890,522					
Total	2677170	173						
Corrected Total	1006257	172						

a. R Square = ,179 (Adjusted R Squared = ,164)
b. Computed using alpha = ,05

10.6 ANOVA

Descriptive Statistics			
Dependent Variable: Communication			
Age	Mean	Std. Deviation	N
younger/or 25	2,7448	0,77171	67
26-40	2,5448	0,71165	67
41-55	3,0500	1,04376	10
56 and older	2,3000	0,70954	30
Total	2,6086	0,77332	174

Test of Between-Subjects Effects								
Dependent Variable: Communication								
Source	Type III Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared	Noncent. Parameter	Observed Power [b]
Corrected Model	6,321 [a]	3	2,107	3,687	0,013	0,061	11,062	0,796
Intercept	693,696	1	693,696	1214,049	0,000	0,877	1214,049	1,000
Age	6,321	3	2,107	3,687	0,013	0,061	11,062	0,796
Error	97,136	170	0,571					
Total	1287,51	174						
Corrected Total	103,457	173						

a. R Square = ,061 (Adjusted R Squared = ,045)
b. Computed using alpha = ,05

10.7 ANOVA

Descriptive Statistics			
Dependent Variable: Entertainment			
Age	Mean	Std. Deviation	N
younger/or 25	3,5858	0,73513	67
26-40	3,3060	0,72145	67
41-55	3,5000	1,02062	10
56 and older	2,7083	0,95386	30
Total	3,3218	0,83882	174

Test of Between-Subjects Effects								
Dependent Variable: Entertainment								
Source	Type III Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared	Noncent. Parameter	Observed Power [b]
Corrected Model	16,295 [a]	3	5,432	8,758	0,000	0,134	26,274	0,994
Intercept	1051,654	1	1051,651	1695,701	0,000	0,909	1695,701	1,000
Age	16,295	3	5,432	8,758	0,000	0,134	26,274	0,994
Error	105,432	170	0,620					
Total	2041,75	174						
Corrected Total	121,727	173						

a. R Square = ,134 (Adjusted R Squared = ,119)
b. Computed using alpha = ,05

10.8 Linear Regression (hedonic)

Descriptive Statistics			
	Mean	Std. Deviation	N
EBA	2,6890	1,12455	86
Unpleasant feelings	2,8500	1,12200	86
Threat to health	3,5800	1,75900	86

Model Summary				
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	0,123	0,015	-0,009	1,12939

ANOVA						
Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	1,624	2	0,812	0,637	0,532
	Residual	105,868	83	1,276		
	Total	107,492	85			

Coefficients						
		Unstandardized Coefficients		Standardized Coefficients		
Model		B	Std. Error	Beta	t	Sig.
1	(Constant)	2,333	0,361		6,460	0,000
	Unpleasant feelings	0,048	0,119	0,048	0,403	0,688
	Threat to health	0,061	0,076	0,096	0,808	0,422

10.9 Linear Regression (utilitarian)

Descriptive Statistics			
	Mean	Std. Deviation	N
EBA	2,6676	1,02464	88
Unpleasant feelings	2,5900	0,99000	88
Threat to health	3,7200	1,60400	88

Model Summary				
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	0,041	0,002	-0,022	1,03575

ANOVA						
Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	0,153	2	0,077	0,072	0,931
	Residual	91,187	85	1,073		
	Total	91,340	87			

Coefficients						
		Unstandardized Coefficients		Standardized Coefficients		
Model		B	Std. Error	Beta	t	Sig.
1	(Constant)	2,636	0,38		6,943	0,000
	Unpleasant feelings	0,037	0,113	0,035	0,323	0,748
	Threat to health	-0,017	0,070	-0,026	-0,242	0,810

APPENDIX 11: PROCESS BY HAYES

11.1 Model 5 (hedonic)

Matrix

```
*************** PROCESS Procedure for SPSS Version 3.5.3 ***************
        Written by Andrew F. Hayes, Ph.D.       www.afhayes.com
    Documentation available in Hayes (2018). www.guilford.com/p/hayes3
**************************************************************************
Model  : 5
    Y  : EBA
    X  : Loneline
    M  : Material
    W  : SocialMe

Sample Size:  86
**************************************************************************
OUTCOME VARIABLE: Material

Model Summary
         R      R-sq       MSE          F         df1       df2         p
     ,2888     ,0834    1,4663     7,6441     1,0000    84,0000     ,0070

Model
              coeff       se         t           p       LLCI      ULCI
constant    2,5239     ,4408    5,7256     ,0000    1,6473    3,4005
Loneline     ,5277     ,1909    2,7648     ,0070     ,1482     ,9073
**************************************************************************
OUTCOME VARIABLE: EBA

Model Summary
         R      R-sq       MSE          F         df1       df2         p
     ,5685     ,3232     ,8982     9,6700    4,0000   81,0000     ,0000

Model
              coeff         se          t          p       LLCI      ULCI
constant   -3,0604    1,2173   -2,5140     ,0139   -5,4825   -,6382
Loneline    1,6270     ,5404    3,0111     ,0035     ,5519    2,7022
Material     ,2596     ,0901    2,8825     ,0051     ,0804     ,4388
SocialMe    1,6050     ,3968    4,0444     ,0001     ,8154    2,3945
Int_1        -,5332     ,1699   -3,1383     ,0024    -,8712   -,1951

Product terms key:
 Int_1    :       Loneline x       SocialMe

Test(s) of highest order unconditional interaction(s):
       R2-chng           F        df1         df2          p
X*W     ,0823     9,8489     1,0000    81,0000     ,0024
----------
    Focal predict: Loneline (X), Mod var: SocialMe (W)

Conditional effects of the focal predictor at values of the moderator(s):

   SocialMe     Effect        se          t          p       LLCI      ULCI
     2,0995     ,5076     ,2240     2,2664     ,0261     ,0620     ,9532
     2,8480     ,1085     ,1596      ,6798     ,4986    -,2091     ,4261
     3,5965    -,2906     ,1821    -1,5960     ,1144    -,6528     ,0717
****************** DIRECT AND INDIRECT EFFECTS OF X ON Y ****************
```

Conditional direct effect(s) of X on Y:

SocialMe	Effect	se	t	p	LLCI	ULCI
2,0995	,5076	,2240	2,2664	,0261	,0620	,9532
2,8480	,1085	,1596	,6798	,4986	-,2091	,4261
3,5965	-,2906	,1821	-1,5960	,1144	-,6528	,0717

Indirect effect(s) of X on Y:

	Effect	BootSE	BootLLCI	BootULCI
Material	,1370	,0707	,0254	,3012

********** ANALYSIS NOTES AND ERRORS **********

Level of confidence for all confidence intervals in output: 95,0000

Number of bootstrap samples for percentile bootstrap confidence intervals: 5000

W values in conditional tables are the mean and +/- SD from the mean.
------ END MATRIX -----

11.2 Model 5 (utilitarian)

Matrix

********** PROCESS Procedure for SPSS Version 3.5.3 **********
Written by Andrew F. Hayes, Ph.D. www.afhayes.com
Documentation available in Hayes (2018). www.guilford.com/p/hayes3
****
Model : 5
Y : EBA
X : Loneline
M : Material
W : SocialMe

Sample Size: 88
****
OUTCOME VARIABLE: Material

Model Summary

R	R-sq	MSE	F	df1	df2	p
,3500	,1225	1,0875	12,0075	1,0000	86,0000	,0008

Model

	coeff	se	t	p	LLCI	ULCI
constant	2,3810	,3994	5,9616	,0000	1,5870	3,1749
Loneline	,5965	,1721	3,4652	,0008	,2543	,9387

****
OUTCOME VARIABLE: EBA

Model Summary

R	R-sq	MSE	F	df1	df2	p
,1199	,0144	1,0847	,3026	4,0000	83,0000	,8755

Model

	coeff	se	t	p	LLCI	ULCI
constant	3,1398	1,8919	1,6596	,1008	-,6232	6,9028
Loneline	-,3491	,8740	-,3994	,6906	-2,0874	1,3893
Material	-,0633	,1117	-,5664	,5726	-,2854	,1589
SocialMe	-,0869	,6783	-,1281	,8984	-1,4360	1,2622
Int_1	,1255	,3120	,4024	,6884	-,4950	,7460

Product terms key:
 Int_1   :   Loneline x   SocialMe

Test(s) of highest order unconditional interaction(s):
          R2-chng   F   df1   df2   p
X*W   ,0019   ,1619   1,0000   83,0000   ,6884
****************** DIRECT AND INDIRECT EFFECTS OF X ON Y ****************

Conditional direct effect(s) of X on Y:
   SocialMe   Effect   se   t   p   LLCI   ULCI
     2,1414   -,0802   ,2616   -,3066   ,7599   -,6006   ,4402
     2,7776   -,0003   ,1839   -,0019   ,9985   -,3662   ,3655
     3,4138   ,0795   ,2793   ,2848   ,7765   -,4759   ,6349

Indirect effect(s) of X on Y:
                Effect   BootSE   BootLLCI   BootULCI
Material   -,0377   ,0825   -,2377   ,0949
********************** ANALYSIS NOTES AND ERRORS ************************

Level of confidence for all confidence intervals in output: 95,0000

Number of bootstrap samples for percentile bootstrap confidence intervals: 5000

------ END MATRIX -----