What is the influence of the COVID-19 pandemic on mental wellbeing?
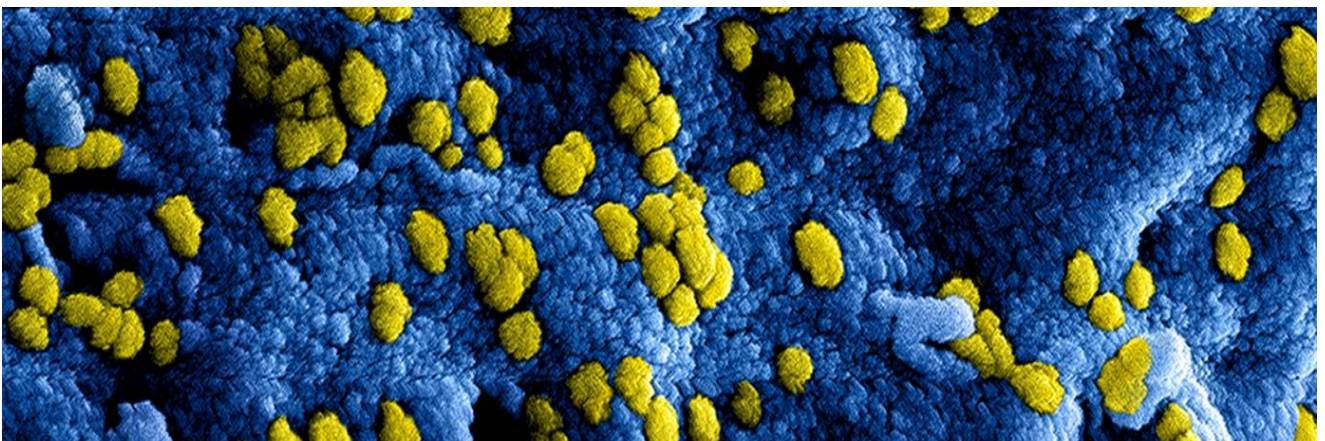
Master thesis

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Background. In recent months, our lives have been drastically changed by the covid19 pandemic. Many national governments have imposed significant societal restrictions to minimize the spread and impact of the pandemic on their citizens and healthcare systems. Research on the influence of the covid19 pandemic has been inconclusive. Most of the previous studies focused on the negative effects of the covid19 pandemic on mental wellbeing, but there is some support that the pandemic may also have positive influences on mental wellbeing. This should be further explored as it potentially may reduce the negative effects. The study aims to explore what the influence of the covid19 pandemic is on mental wellbeing. **Method.** In this study 14 people participated. The method of writing a love or break-up letter was used. Participants were asked to write a love or break-up letter to the coronavirus about its influence on their mental wellbeing. The participants first had to choose whether to focus on the positive (love letter) or negative influence (break-up letter) of the pandemic on their mental wellbeing. The letter could contain the experiences, thoughts, and feelings of the participants about the influence of the covid19 pandemic on their mental wellbeing. After writing the first letter, participants were asked if they could write another letter but from the opposite perspective (e.g. when they wrote a love letter first, they should have written a break-up letter second). Additionally, the Mental Health Continuum Short Form was conducted. The letters were analysed for content. The initial coding scheme was developed deductively based on all components of mental wellbeing (Westerhof & Keyes, 2008). Further analysis was done inductively and with consultations with a second coder. Additional descriptive statistics were done. **Results.** Overall, the letters contained more negative emotions, less life satisfaction and indicated that participants felt less autonomous because of covid19. Positive relationships were the most prominent positive influence covid19 had on the participants. **Discussion and conclusion.** This study provides insight in the prevalence of positive and negative influences from the pandemic on mental wellbeing. It also indicates the importance of future research to explore the possibilities of how to reduce the negative effects of the covid19 pandemic on the citizens mental wellbeing. Furthermore, it is important that healthcare institutions provide education about what people could do to remain a positive mental wellbeing.

Introduction

In recent months there has been a virus among us that has drastically changed everyday life. This virus was first discovered late 2019 in China in a group of people with pneumonia (WHO, n.d.). This group of people was associated with the life animal and seafood market in Wuhan (WHO, n.d.). Since then the virus has spread rapidly in China and many other countries, and it became a pandemic (Cao et al., 2020). This virus was a previously unknow virus but is now known as the Coronavirus (COVID-19). In most cases the virus causes mild symptoms similar to a common cold. But in some cases, this virus can lead to pneumonia or even death (Rijksoverheid, n.d.). People who have a lung disease or are 70 years of age and older are most at risk of becoming seriously ill when infected with covid19. There is no vaccine available and until then preventive measures should be taken (WHO, n.d.). The virus can spread through the drops during coughing and sneezing (Guan, et al., 2020). To prevent contamination, it is important to cough and sneeze in the elbow, regularly wash hands and avoid close contact with others (keep 1.5 meters distance) (RIVM, n.d.). Many national governments have imposed significant societal restrictions to minimize the spread and impact of the pandemic on their citizens and healthcare systems. The pandemic is likely to have a negative effect on the general population, as it directly or indirectly endangers important resources such as safety, health, social contacts and income (Van der Velden, Contino, Das, Van Loon, & Bosmans, 2020). This pandemic is different from disasters that occur at the local or regional level (e.g. 9/11 terrorist attacks) or national level (e.g. bush fires or tsunami). Maunder (2009) states that the stressful impact of an infectious disease is distinct from the stress of other disasters (e.g. bush fires) because people isolate themselves socially because of the risk of infection and people are afraid for their own safety but also for that of loved ones.

In 2002 and 2003 the SARS virus affected several countries, and like Covid19, it was a virus that caused a large number of infections and deaths. From the SARS virus is known that it impacted people physically, psychologically, socially, and economically at a global level (Puterman, Delongis, Lee-Baggley, & Greenglass, 2009). People who were perceived to be at risk of SARS (e.g. Asian people) were avoided which can be viewed as detrimental from a psychological and social perspective (Lee-Baggley, Delongis, Voorhoeave, & Greenglass, 2004). Brooks, Dunn, Amlôt, Rubin and Greenberg (2018) also found that the perceived risk of infection had a negative impact on psychological wellbeing. Other negative influences are related to anxiety, stress, and uncertainty. Uncertainty has been related to psychological

distress (Afifi, Felix, & Afifi, 2011). Xiang et al. (2020) found high levels of anxiety and depression during SARS. Additionally, being quarantined was associated with greater posttraumatic stress symptoms (Brooks, Dunn, Amlôt, Rubin, & Greenberg, (2018). Maunder (2009) states that 30% of the people infected with SARS had PTSD or a depressive disorder 30 months after being infected. This indicates that the influence of an infectious disease can have long lasting effects on mental health. The SARS virus and covid19 have several similarities, such as the preventive measures that have been taken by governments. This could mean that a comparable effect on mental wellbeing may be found in the current situation. Because this pandemic affects people worldwide, it is important to gain as much knowledge as possible about the impact of this pandemic on mental health to help society now and in the upcoming months.

Mental health during covid19 pandemic

Mental health is defined by the WHO (2004) as 'a state of well-being in which the individual realizes his or her own abilities, can cope with the normal stresses of life, can work productively and fruitfully, and is able to make a contribution to his or her community.' This definition includes three core components that are known in the literature, namely emotional wellbeing, psychological wellbeing, and social wellbeing. *Emotional wellbeing* is about life satisfaction and about positive feelings such as happiness, interest, and pleasure in life (Diener, Suh, Lucas & Smith, 1999). *Psychological wellbeing* focuses on optimal personal functioning and contains the following six aspects: autonomy, personal growth, purpose in life, environmental control, positive relationships, and self-acceptance (Ryff, 1989; Westerhof & Keyes, 2008). *Social wellbeing* focuses on functioning optimally in society and contains the following five aspects: social acceptance, social actualisation, social contribution, social coherence, and social integration (Keyes, 1998).

The research into the influence of the covid19 pandemic on mental wellbeing has mainly focused on the negative effects but some studies also found positive effects. Furthermore, the results have been contradicting each other in some extent. Therefore, future research is needed, but before moving on to the present study, it is important to look at the studies already performed. The first studies that were done during covid19, showed that the influence of the pandemic on mental wellbeing are likely related to an increase in negative emotions such as anxiety. Furthermore, the CBS (n.d.) showed an increase of job losses in April 2020 compared to January and February 2020 in the Netherlands. Because of the restrictions it is possible that more people will become unemployed. Financial losses due to

unemployment increases negative emotions which could have a negative impact on the wellbeing of a person (Ho, Chee, & Ho, in press). Other studies (Satici, Gocet-Tekin, Deniz & Satici, 2020; Zhang, Wang, Rauch & Wei, 2020; Yang & Ma, 2020; Twenge & Joiner, 2020; Pierse et al., 2020) found that people experienced less life satisfaction and happiness, and at the same time an increase in depression, anxiety and stress was visible. Dawson and Golijani-Moghaddam (2020), found a diminished wellbeing and increased loneliness besides that people expressed being worried about the effects of covid19 on their lives. Similar to that, Brooks et al (2020) explained that loss of routine, reduced social and physical contact with others were shown to cause boredom, frustration and a sense of isolation from the rest of the world. Social distancing was related to more loneliness and people feeling less connected (Courtet, Olié, Debien, & Vaiva, 2020). Furthermore, Giorgi, Arcangeli, Mucci and Cupelli (2014) found that the fear of getting contaminated with a virus like SARS is related to a decrease in social support and an increase in stress. In a qualitative research by Son, Hedge, Smith, Wang, and Sasangohar (2020) 91% of the participants experienced a negative impact from the covid19 pandemic (e.g. decreased social interactions due to physical distancing) as a result of that 71% showed increased levels of stress and anxiety. In contrast, Van der Velden, Contino, Das, Van Loon and Bosmans (2020) found no increase in anxiety and depression symptoms and no decrease in emotional support. This is similar to a research during SARS that showed that people cared more about the feelings and mental health of family and friends and also provided more emotional support (Lau, Yang, Tsui, Pang and Kwok Wing (2006). Sun et al. (2020) found that positive and negative emotions of front-line nurses during covid19 interweaved and coexisted. Research on the influence of the covid19 pandemic has been inconclusive. In addition, most of the studies focused on the negative effects of the covid19 pandemic on mental wellbeing, but there is some support that the pandemic may have positive influences on mental wellbeing (e.g. Sun et al., 2020). This should be further explored as it potentially may reduce the negative effects.

Present study

This research aims to explore what the influence of the covid19 pandemic is on mental wellbeing. Most research took place in China and these were predominantly survey studies. Qualitative research that has been done has been within a specific group, such as students or healthcare workers (Son, Hedge, Smith, Wang & Sasangohar, 2020; Sun et al., 2020; Liu, et al., 2020). This means that there is a lack of research outside of China that uses qualitative methods to gain more knowledge about the influence of this pandemic on the mental

wellbeing of the general population. The benefit of using qualitative research methods is that it provides insight into the real-life experiences, thoughts, and emotions of people (Nejar, 2017). In the present study the method of writing a love or break-up letter to the coronavirus is used. In the letters, participants could write what influences of the covid19 pandemic on their mental wellbeing they experienced. In this research field this is an innovative method which can be used to prompt personal thoughts, values, and emotions (Nejar, 2017). The method is mainly used in usability research but other letter methods (e.g. expressive writing) have provided valuable results in the field of psychology. Furthermore, it provides a sense of safety because people do not have to respond directly to questions or can be judged by an interviewer (Burtt, 2020). Research into expressive writing even found health related benefits of writing letters to a significant other (Mosher & Danoff-Burg, 2006). Writing a letter can help people reflect on what they have experienced and how they thought and felt about it (Pithouse-Morgan, Khau, Masinga, & Van de Ruit, 2012). The research questions in this study are:

1. What type of letter do participants choose to write?
2. What negative influences of the covid19 pandemic on mental wellbeing are experienced?
3. What positive influences of the covid19 pandemic on mental wellbeing are experienced?

Methods

Study design

The qualitative method of writing a love or break-up letter was used in this study to gain insight in the experienced positive and negative influences of the covid19 pandemic on mental wellbeing. Furthermore, the Mental Health Continuum short form (MHC-SF) was used to examine to what extent participants experienced mental wellbeing. Ethical approval was given by the Ethics Committee of the University of Twente (Behavioral, Management, and Social sciences), application number 200958.

Participants

Convenience sampling was used to recruit participants. The link to the study (created on the platform Qualtrics) was distributed via WhatsApp and social media of the researcher.

17 participants were recruited. Inclusion criteria were being an adult, living in the Netherlands, good understanding of the Dutch language, having internet access, giving active online informed consent, and completing the study. After excluding three participants (two who had not given informed consent and one who had not filled in the questionnaire) fourteen participants remained.

Participants were aged between 18 and 67 years, with a mean age of 44.07 (SD = 16.74). A slight majority was male (57.1 %). Educational levels of the participants were MBO (50.0%), HBO (42.9%) and WO (7.1%). The participants had a mean score of 4.12 (SD = .91) on the MHC-SF, ranging from 2.93 to 5.71. On the subcomponent psychological wellbeing, participants had a mean score of 4.49 (SD = .90), ranging from 3.17 to 6.00. Participants scored a mean of 3.44 (SD = 1.10) on social wellbeing, ranging from 2.20 to 5.80. On the subcomponent emotional wellbeing, participants had a mean score of 4.50 (SD = .90), ranging from 3.00 to 5.67.

Procedure

The current study was conducted via Qualtrics. Before the actual study was conducted, instructions regarding the letters were tested with four people to ensure that the purpose was clear. After implementing the feedback (examples of what people could implement in these letters), the actual data was collected.

Participants were first asked to give active online informed consent after reading the information regarding the current study. The participants were instructed to write a love or break-up letter to corona. The participants first had to choose whether to focus on the positive (love letter) or negative influence (break-up letter) of the pandemic on their mental wellbeing. After writing the first letter, participants were asked if they could write another letter but from the opposite perspective (e.g. when they wrote a love letter first, they should have written a break-up letter second). This was done because most research as mentioned above found negative influences of the pandemic on mental wellbeing. Therefore, it was expected that most participants would choose to write a break-up letter. Participants were informed that the writing of this second letter was optional so that participants would not be forced to invent positive (or negative) influences. When participants were done writing the letters, they were asked to fill in the MHC-SF questionnaire and to fill in their background data. At the end of the study, participants were thanked for participating. Furthermore, contact details of the researcher were shown again as well as those of the Ethics Committee of the Faculty of Behavioral Sciences at the University of Twente in case of complaints.

Materials

As mentioned above, the current study consisted of writing a love or break-up letter to corona about the perceived influence on mental wellbeing. Assumed was that the open structure would help participants to write down whatever came into their minds. It was important to get insight into their unbiased thoughts and emotions. The letter could contain the experiences, thoughts, and feelings of the participants about the influence of the covid19 pandemic on their mental wellbeing. Participants could mention what they wanted to change or whether they were satisfied with the current situation. There were no right or wrong answers. Participants could use a maximum of 500 words and were instructed not spend to much time overthinking the letter (see Appendix A for the letter instructions).

Mental wellbeing was assessed using the Dutch 14-item Mental Health Continuum Short Form (Lammers, Westerhof, Bohlmeijer, ten Klooster & Keyes, 2011). Participants could indicate how often they felt a certain way (e.g. had the feeling that they contributed something important to society) in the past month on a 6-point Likert scale, ranging from *"never"* (zero) to *"every day"* (five). The first three questions measured emotional wellbeing (α = .87). The next five questions measured social wellbeing (α = .72) and the final six questions measured psychological wellbeing (α = .82). All the questions together measured positive mental wellbeing (α = .91). Mean scores and the total mean score were calculated. The higher the score, the more mental wellbeing was experienced.

Participants were asked about their gender, age, and educational level as demographic data.

Data analysis

After finishing the data collection, the data was downloaded from Qualtrics. The love and break-up letters were uploaded in ATLAS.ti version 8.4.24., a program for qualitative data analysis. The letters were analysed for content. The initial coding scheme (see Appendix B) was developed deductively based on all components of mental wellbeing (Westerhof & Keyes, 2008). Both the three main components (e.g. emotional wellbeing) as well as all subcomponents (e.g. autonomy) were used. With the first coding scheme seven letters have been coded. The codes self-acceptance, purpose in life, environmental control, social acceptance, social contribution, and social integration did not appear in the letters. These have been removed from the first coding scheme. In a second round of coding, five letters were coded. A second coder then coded six letters. After consultation with the second coder about

the coding scheme and the text fragments that could not be coded, two codes (disease and restrictions were added). The code autonomy became split up into autonomy-activities with others, autonomy-vacation, autonomy-sports, and autonomy-work and study because of the variation within the code. Life satisfaction became split up into life satisfaction-more, life satisfaction-less and life satisfaction-neutral. In addition to the positive emotion code, the negative emotion code was added. Both coders then analysed ten letters independently to check for interrater reliability. The Cohen's Kappa was .81, ranging from .67 to 1 between the codes. With the final coding scheme (see Table 1) all letters were coded by the researcher. Generally, each text section was assigned only one code. The coded fragments were whole sentences. Introductory and closing sentences of the letters were not coded if they gave no valuable results, such as explaining why this letter has been written. The quotes used for the results section of the current study were translated to English.

Quantitative data of the demographic questions as well as the MHC-SF questionnaire were uploaded to SPSS, version 23. Descriptive statistics in form of means and percentages were calculated for the demographic data to have an overview. For the MHC-SF, mean scores of the subcomponents and a total mean score were calculated.

<div align="center">

Results

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Type of letter

Most participants (7) chose to write a break-up letter as the first letter. Only 2 participants chose to write a love letter as the first letter. The other participants first wrote a letter that could not be seen as a love or a break-up letter because it contained both positive and negative elements. When participants were asked to write a second letter from the opposite perspective, five participants wrote a love letter and five participants wrote a break-up letter. The other participants wrote a letter that could not be seen as a love or a break-up letter.

Positive and negative influences of the covid19 pandemic on mental wellbeing

Emotional wellbeing. The category of emotional wellbeing can be distributed into 5 subcategories, namely life satisfaction-less, life satisfaction-more, life satisfaction-neutral, negative emotions, and positive emotions. See Table 1 for a complete overview of all codes and frequencies.

Influence on life satisfaction. Most participants (10) indicated in their letters that they experienced less life satisfaction. As participant 5 wrote: *"It's all so unreal. Your life is completely up. I see this as one year of our lives taken away. Recovery from this pandemic will even take longer".* Fewer participants (8) experienced more life satisfaction according to their letters. Participant 8 indicated in the letter: *"Dear corona, even though you came into my life unexpectedly, I still have beautiful memories of you".* Some participants (8) did experience differences into their lives but did not indicated whether those differences had positively or negatively affected their life satisfaction. As participant 3 wrote: *"Corona, you have made my life orderly. On the one hand I like that, on the other I don't".*

Influence on positive and negative emotions. Negative emotions were mentioned more often by the participants (7) in the letters than positive emotions (3 participants). Negative emotions that were mentioned in the letters were anxiety, uncertainty, sadness, frustration, and stress. As participant 6 indicated in the letter: *"I am very, very anxious to go somewhere".* Positive emotions that participants mentioned in their letters were a sense of calmness. For example, participant 3 stated: *"Thanks to you I go through life more relaxed".*

Psychological wellbeing. The category of psychological wellbeing can be distributed into 6 subcategories, namely autonomy-activities with others, autonomy-vacation, autonomy-sports, autonomy-work and study, positive relationships, and personal growth.

Influence on autonomy. This code was divided into different areas of life in which people did not experience autonomy due to the imposed restrictions. These areas were activities with others, sports, vacation, and work and study. Autonomy regarding activities with others was mentioned by the most participants (7) in the letters. As participant 2 stated: *"In addition, I could have made many nice memories without you, which is not always possible now. Going out for dinner together, or just shopping with the whole family has been made impossible by you".* Some participants (3) mentioned not being able to go on vacation. For example, participant 9 stated: *"thank you for messing up all my plans regarding my vacations. I have had to cancel three vacations".* Two participants indicated that they could not continue doing sports. As participant 8 wrote: *"Because of you I could not carry out my passion, which is sports".* Two participants explained they experienced restrictions in carrying out their work or study due to the pandemic. Participant 12 stated: *"Because of your influence I was hardly able to work anymore".*

Influence on positive relationships. This was the most frequent mentioned by the participants (12) in the letters. Participants wrote about how they value their contacts and intimate relationships. Participant 13 wrote in the letter: *"You taught me to communicate with people in a different way. Even though it was at a distance, we have been brought closer together"*.

Influence on personal growth. This subcategory was mentioned by 4 participants. These participants experienced development in their life. As participants 8 wrote in the letter: *"you have brought us the revelation that the office should not be the workplace for working. For this reason, we will work from home"*.

Social wellbeing. The category of social wellbeing can be distributed into 2 subcategories, namely social actualisation, and social coherence.

Influence on social actualisation. Five participants mentioned that they believed that society developed in a positive way and they were able to contribute to that. As participant 1 wrote: *"I think people have become more friendly"*.

Influence on social coherence. Three participants explained whether they were seeing a social world that they understood or not. As participant 6 wrote in the letter: *"I see that there are people who do not take the restrictions that are still in place seriously. I know it is taking a long time, but I don't understand why people take so much risks"*.

Covid19

The category of covid19 can be distributed into 2 subcategories, namely disease and, restrictions.

Disease and restrictions. Participants tended to comment on the restrictions that were implemented by the government and indicate whether they had been infected with covid19 or not even though it was not in the letter instructions. As participant 7 wrote in the letter: *"Fortunately, I have not yet had the virus myself I think, although I sometimes have some doubts"*. Participant 4 wrote in the letter: *"I can understand the plastic and the masks, but I sometimes find the masks difficult and not quite nice"*.

Table 1.

Overview codes and frequencies

Category	Code	Definition	Example quotation	Number of fragments[1]	Number of participants[2]
Emotional wellbeing	Life satisfaction-Less	Experiencing life as difficult or annoying	"The last few months have been awful. You have only brought misery".	13	10
	Life satisfaction-Neutral	Participant does not indicate whether differences are positive or negative	"You have made my life orderly. On the one hand, I like that, on the other I don't".	12	8
	Life satisfaction-More	A feeling of contentment, peace, and fulfillment	"I enjoy life more"	9	8
	Negative emotions	Fear, sadness, anger	"The past months, I felt very stressed".	10	7
	Positive emotions	Happiness, joy, and interest in life	"You made me enjoy being at home again".	5	3
Psychological wellbeing	Positive relationships	Have warm and satisfying relationships	"I like that the family bond has improved due to the virus".	15	12
	Autonomy-Activities with others	Participants could not determine themselves if they wanted to do activities with others	"I would like to go back to my normal life, where I can drink a beer with friends".	13	7
	Personal growth	Have the feeling of continuous development	"You have brought us the revelation that the office should not be the workplace for working. For this reason, we will work from home".	5	4
	Autonomy-Vacation	Participants could not determine themselves if they wanted to go on vacation	"I had to cancel my vacation because of you".	3	3
	Autonomy-Sports	Participants could not determine themselves if they go to sports	"Because of you I was not allowed to exercise my passion, namely sports".	3	2
	Autonomy-Work and study	Participants could not do determine themselves if they went to school and work	"I have not been able to work for several months".	2	2
Social wellbeing	Social actualisation	Contribute to and believe that society develops in a positive way	"I think people have become more friendly".	6	5
	Social coherence	Seeing a social world that can be understood	"I do not understand action groups that do not agree with the measures taken by the government".	5	3
Covid19	Disease	Participants mentioned being sick or not	"Fortunately, I have not yet had the virus myself I think".	11	8
	Restrictions	Participants gave opinions about the restrictions	"In public transport you have to ware a face mask which I don't find very annoying".	12	6

Note. [1]Frequencies of used codes (n=124). [2]Number of participants (n=14) mentioned code in the letters (codes could be mentioned multiple times).

<center>**Discussion**</center>

This research was a first exploration to get more insight in the influence of the covid19 pandemic on mental wellbeing. The aim was to find out what positive and negative influences people experienced from this pandemic on their mental wellbeing by letting participants write a fictious letter to the coronavirus. This method made it possible to collect real life experiences and gave an insight in the thoughts and emotions participants experienced during the pandemic.

Positive and negative influences of the covid19 pandemic

In the current study, most participants chose to write a break-up letter at first. Indicating that the participants likely experienced a negative influence of the pandemic on their mental wellbeing. This would be in line with other studies (e.g. Son, Hedge, Smith, Wang, & Sasangohar, 2020) in which was found that 91% of their participants experienced a negative impact from the pandemic. The negative influences that the participants in the current study indicated were related to emotions, less life satisfaction and being less autonomous because of the imposed restrictions. The negative emotions that were mentioned were anxiety, uncertainty, frustration, sadness, and stress. These emotions were also found in the studies of Sun et al. (2020) and Liu et al. (2020). In the current study there were no depressive symptoms mentioned by the participants. That is in contrast to Satici, Gocet-Tekin, Deniz and Satici (2020); Zhang, Wang, Rauch and Wei (2020); Yang and Ma (2020); Twenge and Joiner (2020) and Pierse et al. (2020). However, the studies that have found depressive symptoms did explicitly ask about the presence or absence of depressive symptoms. These studies focused on the negative influences and were in contrast to the current study and those of Sun et al. (2020) and Liu et al. (2020) survey studies. The negative emotions such as anxiety and uncertainty could be addressed by the government by providing clear and regular updates about the covid19 outbreak (Xiang et al., 2020). It is important to maintain routine by continuing to work, staying in touch with others and keep exercising. This can in most cases be realised online and can prevent negative influences from the pandemic (Galea, Merchant, & Lurie, 2020). Furthermore, the participants indicated that they experienced a lower sense of autonomy due to restrictive manner of the pandemic. Ryan and Deci (2000) have proposed that the basic needs for competence, relatedness and autonomy must be satisfied across the life span of an individual to a sense of wellbeing. The absence of one or more of these basic needs are related to pathology (Ryan & Deci, 2000). The reduction in autonomy can cause more people to experience mental health problems. Offering low-level mental health care can

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prevent mental health problems and when people do experiences mental health problems, they can receive online care (Galea, Merchant, & Lurie, 2020). This can possibly prevent the presence of long-lasting PTSD symptoms, like those were found in SARS patients (Maunder, 2009).

However, some participants also wrote a love letter as their first letter. This would indicate that some experience positive influences from the pandemic on their mental health. That would be in contrast with most studies but in line with Sun et al. (2020) in which was found that both positive and negative coexisted. The positive influences that were mentioned in the present study were related to relationships, positive emotions, more life satisfaction, and personal growth. Participants did not indicate feeling less connected or being socially isolated. This contrasts with the findings of Courtet, Olié, Debien, and Vaiva (2020); Dawson and Golijani-Moghaddam (2020) and Brooks et al. (2020), who all found an increase in loneliness. Galea, Merchant and Lurie (2020) addressed the importance of staying in contact with others by using online sources or by telephone contact, which could be encourages by governments. People can help others in how to use these online platforms. Son, Hedge, Smith, Wang, and Sasangohar (2020) argue that the perceived negative impact of the pandemic is largely explained by social distancing and increased social isolation. Which again makes it clear that staying in touch with others during the pandemic is important for the mental wellbeing. In the current study some participants experienced positive emotions and more life satisfaction. This would be in contrast with most research but is in line with Sun et al. (2020). That study showed that people can experience both negative and positive emotions. A finding that was not found in other studies during this pandemic was that of personal growth. Some participants indicated that they were coping very well and experienced a sense of development. This could lead to posttraumatic growth as described by Tedeschi and Calhoun (2004). They explain that some people can experience posttraumatic growth when they have the ability to use multiple resources leading up to that (e.g. social support, goals in life).

In the present study social contribution was not mentioned in the letters. It could be that people thought that because they had to write about their own mental wellbeing, they thought that helping others was not affecting their own mental wellbeing. Helping others is something the government but also health institution could encourage because helping others is associated with higher levels of mental health (Schwartz, Meisenhelder, Ma & Reed, 2003).

Strengths and limitations

This study did not only focus on the negative influences of the covid19 pandemic but also searched for positive influences. Most of the previous studies focused on negative

influences and health problems what made it even more important to investigate whether there were positive influences of the pandemic on mental wellbeing. This gave insight into the things people could use or are already using to prevent mental health problems and experience a sense of wellbeing. The letter method gave insight in the experiences, thoughts, and feelings of people. Because the participants were encouraged to write two letters, both negative and positive influences could be found. Furthermore, writing letters provided a sense of anonymously and safety because they could not be judged on what they wrote. Unfortunately, the letters were relatively short (average of 100 words). Because of the length of the letters, most participants were inclined to simply state what they thought and felt and did not elaborate on that, which would have provided more insight into their experiences. This could be overcome by setting a minimum word count. Another way of overcoming this limitation is by conducting an interview through letter writing (Burtt, 2020). That would mean that the participants and the researcher write letters back and forth in which the participants are able to explain their answers further. In that way, people do have the time to think about what they want to answer and are relatively anonymous, but it provides the benefit of being able to ask questions and gain additional information. A strong point is that the study sample was not focused to a particular group (e.g. students) in contrast to qualitative studies that were done on this topic. This gave insight into how the general public is experiencing the influence of the pandemic on their mental wellbeing. However, the current participant group did not include elderly people (70+ ages) which could mean that the results are different for that group of people. In future research the elderly population could be reached by mail or telephone. Another limitation would be that the MHC-SF was conducted after the participants wrote the letters. Therefore, the results are possibly influenced by the last written letter (either negative or positive). Since most love letters were written as the second letter, that could possibly explain why the participants scored relatively high on the mental wellbeing questionnaire but show mostly the opposite in the letters. This could be overcome by conducting the questionnaire before the participants were asked to write the letters.

Implications and future research

The findings of the current study are a valuable addition to the studies done in this novel situation because it contains real life experiences of people. It provides valuable information about which positive and negative influences are being experienced. The results indicate the importance of paying attention to maintaining and improving mental health during the pandemic by government and healthcare institutions in order to avoid long-term

consequences, such as those found after SARS. For future research it would be interesting to explore what the long-term effects on mental health are during this pandemic and to compare that to for example SARS. This could for example be done by a longitudinal survey study.

Conclusion

Both positive and negative influences of the pandemic on mental wellbeing have been found. The negative emotions could be addressed by providing clear and regular information about the covid19 pandemic. The positive relationships and the importance of social contacts could be encouraged to prevent future mental health problems. Furthermore, it is important that healthcare institutions provide education about what people could do to remain a positive mental wellbeing.

References

Afifi, W.A., Felix, E.D., & Afifi, T. D. (2011). The impact of uncertainty and communal coping on mental health following natural disasters. *Anxiety, stress and coping, 25*(3). 329-347. doi: 10.1080/10615806.2011.603048

Brooks, S.K., Dunn, R., Amlôt, R., Rubin, G.J., & Greenberg, N. (2018). A systematic, thematic review of social and occupational factors associated with psychological outcomes in healthcare employees during an infectious disease outbreak. *Journal of occupational and environmental medicine, 60*(3). 248-257. doi: 10.1097/JOM.0000000000001235

Brooks, S.K., Webster, R.K., Smith, L.E., Woodland, L., Wessely, S., Greenberg, N., & Rubin, G.J. (2020). The psychological impact of quarantine and how to reduce it: rapid review of the evidence. *Lancet, 395*(10227), 912-920. doi: 10.1016/S0140-6736(20)30460-8

Burtt, E. (2020). When access is denied: conducting an interview through letter writing. *Qualitative research*. doi: 10.1177/1468794120936123

Cao, W., Fang, Z., Hou, G., Han, M., Xu, X., Dong, J., & Zheng, J. (2020). The psychological impact of the COVID-19 epidemic on college students in China. *Psychiatric research, 287.* doi: 10.1016/j.psychres.2020.112934

CBS. (n.d.). *Social impact of Covid-19.* Retrieved from: https://www.cbs.nl/en-gb/dossier/coronavirus-crisis-cbs-figures/social-impact-of-covid-19

Courtet, P., Olié, E., Debien, C., & Vaiva, G. (2020). Keep socially (but not physically) connected and carry on: Preventing suicide in the age of Covid-19. *The journal of clinical psychiatry, 81*(3). doi: 10.4088/JCP.20com13370

Dawson, D.L., & Golijani-Moghaddam, N. (2020) Covid-19: psychological flexibility, coping, mental health and wellbeing in the UK during the pandemic. *Journal of contextual behavioral science, 17*, 126-134. doi: 10.1016/j.jcbs.2020.07.010

Diener, E., Suh, E.M., Lucas, R.E., & Smith, H.L. (1999). Subjective well-being: three decades of progress. *Psychological bulletin, 125*(2), 276-302. doi: 10.1037/0033-2909.125.2.276

Galea, S., Merchant, R.M., & Lurie, N. (2020). The mental health consequences of covid-19 and physical distancing; the need for prevention and early intervention. *JAMA internal medicine, 180*(6), 817-818. doi: 10.1001/jamainternmed.2020.1562

Giorgi, G., Arcangeli, G., Mucci, N., & Cupelli, V. (2014). Economic stress in workplace: the impact of fear the crisis on mental health. *Work, 51*(1), 135-142. doi: 10.3233/WOR-141844

Guan, W., Ni, Z., Hu, Y., Liang, W., Ou, C., He, J., Liu., L., … Zhong, N. (2020). Clinical characteristics of Coronavirus disease 2019 in China. *The new England journal of medicine, 382*, 1708-1720. doi: 10.1056/NEJMoa2002032

Ho, C.S.H., Chee, C.Y.I., & Ho, R.C.M. (in press). Mental health strategies to combat the psychological impact of Covid-19 beyond paranoia and panic

Keyes, C.L.M. (1998). Social well-being. *Social psychology quarterly, 61*(2), 121-140. doi: 10.2307/2787065

Lammers, S.M.A. Westerhof, G.J., Bohlmeijer, E.T., Klooster ten, P.M., & Keyes, C.L.M. (2011) Evaluating the psychometric properties of the mental health continuum-short form (MHC-SF). *Journal of clinical psychology, 67*(1), 99-110. doi: 10.1002/jclp.20741

Lau, J.T.F., Yang, X., Tsui, H.Y., Pang, E., & Kwok Wing, Y. (2006). Positive mental health-related impacts of the SARS epidemic on the general public in Hong Kong and their associations with other negative impacts. *Journal of infection, 53*(2), 114-124. doi:10.1016/j.jinf.2005.10.019

Lee-Baggeley, D., DeLongis, A., Voorhoeave, P., & Greenglass, E. (2004). Coping with the threat of severe acute respiratory syndrome: role of threat appraisals and coping responses in health behaviors. *Asian journal of social psychology, 7*(1), 9-23. doi:10.1111/j.1467-839X.2004.00131.x

Liu, Q., et al. (2020). The experiences of health-care providers during the covid-19 crisis in China: a qualitative study. *The Lancet global health, 8*(6), 790-798. doi:10.1016/S2214-109X(20)30204-7

Maunder, R.G. (2009). Was SARS a mental health catastrophe? *General hospital psychiatry, 31*(4), 316-317. doi:10.1016/j.genhosppsych.2009.04.004

Mosher, C.E., & Danoff-Burg, S. (2006). Health effects of expressive letter writing. *Journal of social & clinical psychology, 25*(10), 1122-1139. doi: 10.1521/jscp.2006.25.10.1122

Nejar, A. (2017). What's love got to do with research? Retrieved from https://uxdesign.cc/whats-love-got-to-do-with-research-c31fc7f92221

Pierse, M., et al. (2020). Mental health before and during the covid-19 pandemic: a longitudinal probability sample survey of the UK population. *The Lancet psychiatry, 7*(10), 883-892. doi:10.1016/S2215-0366(20)30308-4

Pithouse-Morgan, K., Khau, M., Masinga, L., & Ruit van de C. (2012). Letters to those who dare feel: using reflective letter-writing to explore emotionality of research. *International journal of qualitative methods.* doi: 10.1177/160940691201100104

Puterman, E., Delongis, A., Lee-Baggley, D., & Greenglass, E. (2009). Coping and health behaviors in times of global health crises: lessons from SARS and West Nile. *Global public health, 4*(1), 69-81. doi:10.1080/17441690802063304

Rijksoverheid. (n.d.). *Nederlandse aanpak en maatregelen tegen het coronavirus [Dutch approach and measures against the coronavirus].* Retrieved from: https://www.rijksoverheid.nl/onderwerpen/coronavirus-covid-19/nederlandse-maatregelen-tegen-het-coronavirus

Rijksoverheid. (n.d.). *Veel gestelde vragen over de aanpak en maatregelen in Nederland [Frequently asked questions about the approach and measures in the Netherlands].* Retrieved from: https://www.rijksoverheid.nl/onderwerpen/coronavirus-covid-19/nederlandse-maatregelen-tegen-het-coronavirus/veelgestelde-vragen-aanpak

RIVM (n.d.). *Covid-19 (nieuwe coronavirus) [Covid-19 (new coronavirus)]. Retrieved from:* https://www.rivm.nl/coronavirus-covid-19

Ryan, R.M., & Deci, E.L. (2000). Self-determination theory and the facilitation of intrinsic motivation, social development, and wellbeing. *American psychologist, 55*(1), 68-78. doi:10.1037/0003-066X.55.1.68

Ryff, C.D. (1989). Happiness is everything, or is it? Explorations on the meaning of psychological well-being. *Journal of personality and social psychology, 57*(6), 1069-1081. doi: 10.1037/0022-3514.57.6.1069

Satici, B., Gocet-Tekin, E., Deniz, M.E., & Satici, S.A. (2020). Adaptation of the fear of Covid-19 scale: its association with psychological distress and life satisfaction in Turkey. *Journal of mental health and addiction.* Advanced online publication. doi: 10.1007/s11469-020-00294-0

Schwartz, C., Meisenhelder, J.B., Ma, Y., & Reed, G. (2003). Altruistic social interest behaviors are associated with better mental health. *Psychosomatic medicine journal, 65*(5), 778-785. doi:10.1097/01.psy.0000079378.39062.D4

Son, C., Hedge, S., Smith, A., Wang, X., & Sasangohar, F. (2020). Effects of covid-19 on college students' mental health in the United States: interview survey study. *Journal of medical internet research, 22*(9). doi:10.2196/21279

Sun, N., Wei, L., Shi, S., Jiao, D., Song, R., Ma, L., … Wang, H. (2020). A qualitative study on the psychological experience of caregivers of covid-19 patients. *American journal of infection control, 48*(6), 592-598. doi:10.1016/j.ajic.2020.03.018

Tedeschi, R.G., & Calhoun, L.G. (2004). Posttraumatic growth: conceptual foundations and empirical evidence. *Psychological inquiry, 15*(1), 1-18. doi:10.1207/s15327965pli1501_01

Twenge, J.M., & Joiner, T. E. (2020). U.S. census bureau-assessed prevalence of anxiety and depressive symptoms in 2019 and during the 2020 covid-19 pandemic. *Depression and anxiety*. doi: 10.1002/da.23077

Velden, van der P.G., Contino, C., Das, M., Loon, van P., & Bosmans, M.W.G. (2020). Anxiety and depression symptoms, and lack of emotional support among the general population before and during the covid-19 pandemic. A prospective national study on prevalence and risk factors. *Journal of affective disorders, 277*(1), 540-548. doi:10.1016/j.jad.2020.08.026

Westerhof, G.J., & Keyes, C.L.M. (2008). Geestelijke gezondheid is meer dan de afwezigheid van geestelijke ziekte [Mental health is more than the absence of mental illness]. *Maandblad Geestelijke volksgezondheid, 63*, 808-820

WHO. (n.d.). *Coronavirus desease (Covid-19) pandemic. Retrieved from:* https://www.who.int/emergencies/diseases/novel-coronavirus-2019

WHO. (n.d.). *Ethical considerations in developing a public health response to pandemic influenza.* Retrieved from: https://www.who.int/csr/resources/publications/WHO_CDS_EPR_GIP_2007 _2c.pdf

WHO. (n.d.). *Health at home.* Retrieved from: https://www.who.int/campaigns/connecting-the-world-to-combat-coronavirus/healthyathome

WHO. (2004). *Promoting mental health:concepts, emerging evidence, practice (Summary report). Geneva: WHO*

Yang, H., & Ma, J. (2020). How an epidemic outbreak impacts happiness: factors that worsen (vs. Protect) emotional well-being during the coronavirus pandemic. *Psychiatric research, 289*. doi: 10.1016/j.psychres.2020.113045

Xiang, Y., et al. (2020). Timely mental health care for the 2019 novel coronavirus outbreak is urgently needed. *The lancet psychiatry, 7*(3), 228-229. doi:10.1016/S2215-0366(20)30046-8

Zhang, S.X., Wang, Y., Rauch, A., & Wei, F. (2020) Unprecedented disruption of lives and work: health, distress and life satisfaction of working adults in China one month into the Covid-19 outbreak. *Psychiatry research, 288*. doi: 10.1016/j.psychres.2020.112958

Appendices

Appendix A: Letter instructions

The following points are intended as tips and inspiration to give you an idea of the purpose of the letter. Feel free to write the letter in your own way. We invite you to use your imagination. Do not overthink it but write down what spontaneously comes to mind. You can't go wrong, the letter is always good and unique.

Imagine as vividly as possible writing a love letter or break-up letter to corona. The choices for a love or break-up letter is entirely up to you. Try to explain in the letter how corona has affected or is affecting your mental wellbeing. Does the pandemic have a positive or negative effect on your wellbeing? How do you think and feel about that? Would you like to see it differently or do you like it as it is now?

What exactly you do or do not want to describe in your letter is up to you. The letters consists of a maximum of 500 words.

Appendix B: Initial coding scheme

Category	Code	Definition
Emotional wellbeing	Life satisfaction	A feeling of contentment, peace, and fulfillment.
	Positive emotions	Happiness, joy, and interest in life.
Psychological wellbeing	Self acceptance	Have a positive attitude towards yourself.
	Personal growth	Have the feeling of continuous development.
	Purpose in life	Have goals and direction in life.
	Environmental control	Feeling able to deal with a complex environment.
	Autonomy	Self-determining and independent.
	Positive relationships	Have warm and satisfying relationships.
Social wellbeing	Social acceptance	Have a positive attitude towards others.
	Social actualisation	Contribute to and believe that society develops in a positive way.
	Social contribution	Feel that you have something valuable to give to society.
	Social coherence	Seeing a social world that can be understood.
	Social integration	Feeling part of a community.