Major Depressive Disorder, Hypersomnia and Loneliness in the Context of the Government Imposed Curfew

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Abstract

Background. As COVID-19 pandemic began in March 2020 different measures were implemented in order to prevent spreading of the virus. As a consequence of these measures, our daily routines have drastically altered, resulting in growing stress levels and giving rise to increased uncertainty, loneliness and in some cases depressive disorders, such as Major Depressive Disorder (MDD). A frequently occurring symptom of MDD is sleep disturbance. However, studies in the context of the pandemic are generally focused on insomnia and not on hypersomnia. Additionally, research has found a correlation between stress and loneliness. Therefore, the current study evaluates the symptoms of MDD, hypersomnia and loneliness in relation to the curfew that was implemented in the Netherlands between January 28, 2021 and April 28, 2021.

Methods. The study type was cross-sectional. Three questionnaires were implemented in order to measure the three variables: Epworth Sleepiness Scale for hypersomnia, Beck Depression Inventory for MDD and UCLA Loneliness Scale. Each questionnaire inquired for three time frames: before the curfew, during the curfew and after the curfew.

Results. 70 participants completed the survey. The one-way repeated measures ANOVA analysis indicated significant differences between all three variables, but not within each condition. There was a significant difference between MDD levels before the curfew compared to MDD levels during, and after the curfew. Moreover, there is a significant difference between hypersomnia after the curfew compared to hypersomnia before the curfew and hypersomnia during the curfew. Furthermore, there is a difference in loneliness during the curfew compared to loneliness before and after the curfew, but not to the extent as the previous two variables.

Conclusion. People exhibited different levels of MDD, hypersomnia and loneliness in the different time frames. However, those differences cannot be attributed simply to the curfew. One of the possible explanations for that is the fact that the study is cross-sectional and not longitudinal. Further research is necessary to investigate how a measure such as a curfew can have an impact on MDD, hypersomnia and loneliness.

Key words: COVID-19, curfew, MDD, hypersomnia, loneliness

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Introduction

The COVID-19 pandemic, also known as coronavirus pandemic, is an ongoing infectious disease-related pandemic caused by the SARS-CoV-2 virus that has started in March 2020 and has impacted the lives of the people worldwide. The measures aiming to restrict the virus spread have drastically altered our daily routines, such as our working and studying habits, resulting in deprivation from a normal and familiar social environment important to alleviate the stress and the pressure generated by various family-, study- and work-related burdens, thereby leading to additional feeling of insecurity, loneliness and in some cases depression (Vigo et al, 2021). Presently, many studies demonstrate that stress can lead to depressive disorders such as Major depressive disorder (MDD) (Richter-Levin & Xu, 2018; Slavich & Irwin, 2014). One of the most frequently occurring symptoms of MDD is sleep disturbance (Zimmerman et al, 2015). Sleep disturbance can be divided into two main categories in the framework of MDD, namely the lack of ability to sleep (insomnia), and increased sleep during the day (hypersomnia) (Liu et al, 2007). In the context of COVID-19, research has been predominantly focused on studies related to insomnia (Abdulah & Musa, 2020; Nigam et al, 2021; Voitsidis et al., 2020), whereas the goal of the current study is to assess hypersomnia. Research conducted by Nigam et al. (2021) has shown

that there is no relation between hypersomnia and the introduction of COVID-19 measures in France from March 17 till May 11 2020. However, the measures implemented by the French government did not include a curfew between March 17 and May 11 2020, and a curfew has been perceived as the strictest measure throughout the pandemic (Saidan et al., 2020). In addition, a study in Turkey has found that throughout the curfew, there was a decrease in mental health which correlates with loneliness (Kilincel et al., 2020).

Hence, the current study examines whether MDD, hypersomnia and loneliness are different before, during and after the curfew in the Netherlands, which was introduced on January 28, 2021 and lasted until April 28, 2021. Such research is necessary to give insight into the relationship between mental health, and confinement measures such as the curfew implemented during the COVID-19 pandemic.

Major depressive disorder in COVID-19

Major depressive disorder (MDD) is a common psychiatric disorder that is represented by sad mood and melancholy as well as a pattern of psychosomatic disabilities, decrease of concentration, and other cognitive functions (Martin et al., 2020). The lifetime prevalence of MDD is around 11% (Avenevoli et al., 2015). The prevalence of MDD for people who were diagnosed with MDD at a certain point in their lives before the pandemic and reported MDD in the first six weeks of the pandemic was 45%. In addition, the prevalence for people who were not diagnosed with MDD before the pandemic but reported MDD during the pandemic was 41% (Abba-Aji et al., 2020).

According to the fifth edition of the Diagnostic and Statistical Manual of Mental (DSM-5), the symptoms of MDD are: depressed mood, loss of interest/pleasure, weight loss or gain, sleep disturbance- (insomnia or hypersomnia), psychomotor agitation and retardation, fatigue, feeling worthless, concentration problems and thoughts of suicide (American Psychiatric Association, 2013). In order for MDD to be diagnosed, five of those nine have to be experienced in the span of two weeks (American Psychiatric Association, 2013; Uher, Payne, Pavlova, & Perlis, 2014). The frequency of the symptoms in people is different for the different criteria. Depressed mood is displayed by approximately 94% of the patients with MDD, fatigue - 88%, concentration problems - 87%, sleep disturbance - 85%, loss of interest - 82%, feeling worthless - 74%, weight loss or gain - 70%, psychomotor agitation - 52% and thoughts of suicide - 50% (Zimmerman et al., 2015).

Major stressful life events are the best predictors of MDD (Slavich & Irwin, 2014). These events may interfere with an individual's goals, plans and ambitions. Examples of such events may include end of a relationship with a close confidant, rupture of romantic relationship, significant financial losses, major health-related events (e.g., cancer diagnosis, heart attack, death), and the ending of an important job (e.g., due to being laid off) (Slavich, & Irwin, 2014). In the current study, the COVID-19 pandemic is considered such an event.

Considering the pandemic, studies report mixed findings. On one hand, the study by Leightley et al. (2021) discovered that there was no worsening of symptoms in people with MDD during the COVID-19 pandemic outbreak, which is contradictory to the expectation that vulnerable groups will experience more distress (Pan, et al., 2021). That was confirmed by another study showing older individuals did not show a decrease in their psychological well-being in the first months of the COVID-19 pandemic (Hamm et al., 2020). On the other hand, it was discovered that Chinese adolescents with MDD experience more psychological stress and symptoms of post-traumatic stress disorder (Zhang, et al., 2021). In addition, a study conducted in the USA reported that people previously diagnosed with MDD displayed increased levels of alcohol consumption as of the beginning of the COVID-19 pandemic confinement measures (Tsai et al., 2021). A systematic review conducted by Xiong et al. (2020) identified several risk factors affiliated with the symptoms of depression during the COVID-19 pandemic: females reported more depressive symptoms than males, people below 40 years old recorded a higher number of depressive symptoms in comparison to those above 40 years of age (Xiong et al, 2020). Moreover, occupational status turned out to be a predictive factor as students reported more depressive symptoms compared to people that are employed or retired. Finally, lower educational status is another predictive factor indicating that people with lower educational status showed higher levels of depressive symptoms compared to those with higher educational status (Xiong et al., 2020).

In conclusion, there is not enough clarity regarding the extent to which COVID-19 has an impact on the onset of MDD, as there is no clarity of COVID-19 itself. Therefore, MDD needs to be evaluated with the help of some of the underlying factors. The underlying factor this study evaluates is sleep disturbance and more specifically hypersomnia.

Hypersomnia

In general, hypersomnia is an excessive quantity of sleep amounting to at least 10 hours per 24 hours (at least nine hours are part of the sleep at night) within a period of three months.

(Lammers et al., 2020). Additionally, hypersomnia is associated with difficulties to wake up, and Excessive Daytime Sleepiness (EDS). EDS is characterised by lack of adequate alertness and awakeness and often includes doziness in the context of sedentary work or environment (Dauvilliers et al., 2013). Hypersomnia often triggers a decrease in quality of life (Lammers et al., 2020). Consequently, hypersomnia is often identified as a symptom of the majority of the depressive disorders, as between 80% and 85% of the people diagnosed with any type of depression reported a certain sleeping disorder, out of which 50% accounted for hypersomnia (Sönmez, et.al., 2019; Zimmerman et al., 2015). In a study conducted by Geoffroy et al. (2018), the prevalence of hypersomnia in a major depressive episode was found to account for 47.5% of the cases. There are also age group differences reporting as high as 37% of hypersomnia cases in those aged between 30-44 years and as low as 8.5% in those aged above 65 (Geoffroy et al., 2018). Hypersomnia has been reported more often by males (30%) than by females (10%) (Geoffroy et al., 2018). Finally, there are also differences associated with socioeconomic status (SES) where hypersomnia was found more prevalent for those with a low SES (55%) (Geoffroy et al., 2018).

In the context of the pandemic, hypersomnia levels increased during COVID-19, compared to hypersomnia levels before the pandemic (Najafipour et al, 2021). In addition, people experienced hypersomnia either as a coping strategy or as an underlying symptom of a mental health problem, most commonly, depression (O'Regan et al., 2021). This can be explained by the increased levels of stress that the population encountered during the restrictions caused by the pandemic (O'Regan et al., 2021). Furthermore, hypersomnia was considered a manner to escape the boredom and the feeling of loneliness throughout the lockdown period (O'Regan et al., 2021). Therefore, the current study looks more in depth at the state of loneliness of the participants.

Loneliness in COVID-19

Loneliness often leads to stress (Pan et al., 2021). People previously diagnosed with mental illnesses displayed higher stress levels due to diminished social interactions (Pan et al., 2021). The latter is consistent with the study of Hamza et al. (2021) which demonstrates that mental health concerns are expected to increase rapidly in the context of pandemic-related restriction especially for populations which are predisposed to mental health issues. This is explained by the fact that people possess an inborn desire for social interaction and social belonging, which further facilitates achievement of life goals and promotes psychological and physical well-being. Studies have demonstrated that young adults are particularly vulnerable and represent a risk group in terms of

their mental health fitness condition upon social isolation (Marler et al., 2021). Importantly, as the distress levels related to the fear of viral contagion increased, the levels of depression, emotional distress and panic levels also increased (Pan et al., 2021). Finally, cohabitation with a partner during the lockdown was found to decrease the risk of developing psychological issues and disorders. This is consistent with the findings that people who had less family interactions reported higher levels of anxiety (Best et al., 2021). A further explanation for those higher levels of anxiety is the suppression of emotions that leads to psychological well-being deterioration (Rodríguez-Domínguez et al., 2022). This deterioration often influences the individual in a negative manner, and ultimately leads to self-isolation and loneliness (Van der Weele et al., 2012).

Loneliness is often associated with mental health issues such as depression, higher suicidality, reduction of positive emotions, disrupted sleep and decrease in general health, as well as physiological changes (e.g., increased cortisol awakening response and pro-inflammatory gene expression) (Beutel et al., 2017). Hence, loneliness has a negative impact on life satisfaction, and decreases mental and physical resilience. It can also yield a rise to susceptibility to cardiovascular and other chronic diseases (Beutel et al., 2017). In the context of the COVID-19 pandemic, in the United States it was found that young adults were particularly vulnerable to loneliness which led to higher rates of depression, suicidal thoughts and increased substance abuse (Horigian et al., 2020).

Present study

The COVID-19 pandemic has led to various changes in the people's lifestyles such as work schedule alterations, home confinement and working-from-home, resulting into a varying degree of isolation from family, friends and colleagues (Rodríguez-Domínguez et al., 2021). As mentioned above, such changes may have a substantial impact on people's psychological state. The effect of the COVID-19 pandemic proceedings on mental well-being has been quite diverse depending on the populational groups (Pan et al., 2021).

The current study incorporates three time frames in order to fully investigate the behaviours and emotional states while assessing the consequences of the curfew. The three time frames are three months before the curfew, the period during the curfew and that after it. Using a comparison between the average levels of the investigated constructs before and during the curfew would allow for a better evaluation of changes in the well-being states due to the curfew. Furthermore, the

comparison between the constructs during and after the curfew would allow for an assessment whether well-being has increased or diminished.

Based on previous research, the expectations are that all three constructs (MDD, hypersomnia and loneliness) would report higher numbers during the curfew, in comparison to the other two time frames. As the COVID-19 measures become stricter, well-being would decrease (Burn & Mudholkar, 2020). In order to answer the research question of whether there is a difference between MDD symptoms, hypersomnia and loneliness during the three time frames, the following three hypotheses were formulated:

H1a: There is a difference between MDD levels at the time before the curfew, the time during the curfew and the time after the curfew.

H1b: The scores on MDD are the highest during the curfew.

H2a: There is a difference between hypersomnia levels at the time before the curfew, the time during the curfew and the time after the curfew.

H2b: The scores on hypersomnia are the highest during the curfew.

H3a: There is a difference between loneliness levels at the time before the curfew, the time during the curfew and the time after the curfew.

H3b: The scores on loneliness are the highest during the curfew.

<center>**Methods**</center>

Study design and Participants

   The data was collected with a cross-sectional quantitative questionnaire that encompassed the three different constructs: MDD, hypersomnia and loneliness. The participants were asked to answer questions about each variable over the three timeframes. The three timeframes were before, during and after the curfew. After answering all questions, demographic data (gender, age, nationality, occupation) was collected. Finally, the study included an inquiry regarding the participants' presence in the Netherlands during the curfew period. The participants were recruited mostly via the SONA-systems of the University of Twente and informally (via face-to face solicitation by the researcher). People who participated via SONA were granted 0.25 credits. There was an exclusion criterion as it was necessary to be present in the Netherlands between the dates of the curfew (January 28, 2021 till April 28, 2021). The participants also had to be fluent in English to be able to complete the survey.

Materials

   In order to measure hypersomnia, the Epworth sleepiness scale (ESS) was used (Oosterloo et al., 2006). The UCLA loneliness scale was used to measure how lonely did the respondent feel throughout the given period (Russell et al., 1978). The symptoms of MDD were assessed with the Beck depression inventory (BDI) (Beck et al., 1988). Moreover, an additional 'Cannot remember' option was added after every statement, in each section of the questionnaire, in order to increase reliability, considering that the questions referred to different periods in the past and the participants might not necessarily remember the exact events.

BDI

   The Beck depression inventory is a 21-item score that consists of statements that indicate the extent of physical, cognitive and social well-being. An example statement would be: 'I am sad all the time and I cannot snap out of it'. The values of each statement are combined and interpret depression symptoms as: 0-11 normal state, 11-16 mild mood disturbance, 17-20 borderline clinical depression, 21-30 moderate depression, 31-40 severe depression, 41-63 extreme depression.

   The internal consistency described was of approximately around .9 and the retest reliability ranged from .73 to .96 (Wang, & Gorenstein, 2013). In the current study, when measuring before

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the curfew statements of BDI, the Cronbach alpha yielded a result of .93. During the curfew statements produced Cronbach alpha of .77 and after the curfew statements produced .74.

ESS

The ESS consists of eight statements. Each question tries to assess EDS by measuring the chance of dozing off. An example statement would be 'What is the chance of dozing while riding in a car as a passenger'. The responses are collected with a four-point Likert scale which consist of the following answers: 'No chance of dozing', 'Slight chance of dozing', 'Moderate chance of dozing' and 'High chance of dozing'. The combined scores of all eight statements produce the overall result. According to the present threshold, a score below 6 suggests low hypersomnia, a score between 7 and 15 - moderate hypersomnia and above 16 indicates severe hypersomnia.

The internal consistency of responses to the eight questions has been tested by Cronbach alpha, which typically varies between .73 and .90 (M = .82) (Hagell & Broman, 2007). The test-retest reliability of ESS scores has been tested by the intraclass correlation coefficient which has varied between .81 and .93 on five different occasions. For the current study, the statements of ESS before the curfew resulted in Cronbach alpha of .80. The statements referring to the period during the curfew yielded Cronbach alpha of .83. The statements measuring the period after the curfew produced a Cronbach alpha of .74.

UCLA Loneliness Scale

The UCLA Loneliness Scale survey consists of 20 questions with internal consistency of .96 (Russell et al., 1978). The questionnaire is a four-point Likert scale that combines the scores of each question and it varies from 'Never', 'Rarely', 'Sometimes' and 'Often'. An example of a statement is: 'I have nobody to talk to'. The questionnaire combines the score of all 20 statements to assess the loneliness level. For a score of 0-20 the loneliness is considered average, in the range of 21-30 it is considered mild, and 31-60 indicates severe loneliness (Russel et al., 1978). In the three instances of the UCLA in the survey, statements are formulated in the past tense for language consistency.

The three Cronbach alpha values in the current survey for the UCLA are: .94 for before the curfew, .96 for during the curfew and .97 for after the curfew.

Procedure

The procedure of data collection started after obtaining the approval of the study from the ethics committee of the University of Twente. Afterwards, the study was uploaded on the SONA systems where participants were recruited. An informed consent was presented to the participants with the information about the study, pointing out that the purpose of the study was not aiming to investigate individual results but such that are based on a populational tendencies. Finally, the participants were given the right to stop the study at any point without having to provide any justification.

Participants had to fill-in the three-part questionnaire per respective time frame. In the first part of the questionnaire, the ESS, UCLA and BDI were assessed for the period prior to the curfew (October 31, 2020 till January 27, 2021). The second part consisted of the three respective sections assessed for the period of the curfew (January 28, 2021 till April 28, 2021). The third part was focused on the period after the curfew (April 29, 2021 till October 30, 2021). The dates of the periods before and after the curfew were selected to give an additional time interval to the participants, in order to help better recall and answer specific events as well as emotional experiences that had taken place in the past.

After the three time frame questionnaires were answered, the participants' demographic data was collected. Finally, participants were asked whether they were in the Netherlands during the period of the curfew.

Data Analysis

After the data was collected, a statistical analysis was conducted with IBM SPSS Statistics (Version 28.0). First, the initial sample size (*N*=90) was reduced to 70, as 15 people did not complete the survey or had five or more "cannot remember" answers in a respective section, and five people did not agree to the informed consent. Subsequently, the scores per time period of each section of the questionnaire were combined into a new variable that stated the overall score. Descriptive statistics were used to show the means and the standard deviation in the different time frames. Furthermore, a one-way repeated measures ANOVA assessed whether there is a significant difference between the mean scores throughout the different time frames. The curfew was defined as an independent variable on three different levels. The computed scores per time frame were the dependent variables (e.g., MDD before the curfew, MDD during the curfew and

MDD after the curfew). In case there was a significant difference between the means, a post-hoc analysis was executed to evaluate where the difference came from.

Demographic Data of the Participants

The age of the participants was between 18 and 49 years ($M = 22.29$, $SD = 5.16$) and they were predominantly from Germany (37.2%) and the Netherlands (35.8%). The majority of the participants were students (85.7%) and female (68.6%). The full sample characteristics are shown in Table 1.

Table 1
Demographic Data of Participants

	Frequency	Percentage (%)
Gender		
Male	21	30
Female	48	68.6
Third gender/non-binary	1	1.4
Age		
18-22	53	75.7
23-27	12	17.2
28-49	5	7.1
Nationality		
German	26	37.2
Dutch	25	35.8
Other	19	27
Occupation		
Student	60	85.7
Non-student	6	8.6
Not studying during the curfew	1	1.4
Studying during the curfew	3	4.3

Different stages of the curfew and MDD

Table 2 displays the descriptive statistics and the repeated measures analysis for MDD throughout the different time frames. It is important to state that Mauchly's Test of Sphericity indicated that the assumption of sphericity was violated, $\chi^2(2) = 60.706$, $p < .001$. Sphericity is the assumption that all the within-subject conditions are equal and there is no chance of type 1 error. Since sphericity is violated ($\varepsilon = .629$) a Greenhouse-Geisser correction was used by altering the corrected degrees of freedom. The results indicated a significant difference in MDD means across the different time frames $F (1.25, 86.76) = 65.05$, $p < .001$, $\eta^2 = .48$ with a large effect size. These results suggest that MDD levels before the curfew ($M = 13.17$, $SD = 10.30$) indicated mild mood

disturbance which decreased during the curfew ($M = 2.55$, $SD = 4$) and after the curfew ($M = 2.78$, $SD = 4.09$). Moreover, the post-hoc test stated that there is a significant difference between MDD before the curfew and both MDD during the curfew ($p < .001$) and MDD after the curfew ($p < .001$) but no significant difference between MDD during the curfew and MDD after the curfew ($p = .658$). Hence, H1a: 'There is a difference between MDD levels at the time before the curfew, the time during the curfew and the time after the curfew' is accepted. Moreover, H1b: 'The scores on MDD being the highest during the curfew' is rejected.

Table 2

Means and Standard Deviations MDD as a function of different stages of curfew

	Before the curfew		During the curfew		After the curfew			
Variable	*M*	*SD*	*M*	*SD*	*M*	*SD*	*F* (1.25, 86.76)	η^2
MDD	13.17	10.30	2.55	4	2.78	4.09	65.05***	.48

***p < .001.

Different stages of the curfew and hypersomnia

Table 3 displays the descriptive statistics and the repeated measures analysis for hypersomnia throughout the different time frames. Similar to the MDD results, Mauchly's Test of Sphericity indicated that the assumption of sphericity was violated, $\chi^2(2) = 6.448$, $p = .04$. Since sphericity was violated ($\varepsilon = .917$) a Huynh-Feldt correction was used.

The results indicated a significant difference in hypersomnia means across the different time frames F (1.88, 129.83) = 190.46, $p < .001$, $\eta^2 = .73$ with a large effect size. Moreover, the results suggest that the levels of hypersomnia before the curfew ($M = 9.81$, $SD = 5.13$) and the levels of hypersomnia during the curfew ($M = 9.8$, $SD = 5.55$) indicate mild hypersomnia, which subsequently decreased after the curfew ($M = 1.47$, $SD = 1.8$). Furthermore, the post-hoc test indicated a significant difference between hypersomnia after the curfew compared to hypersomnia before the curfew ($p < .001$) or hypersomnia during the curfew ($p < .001$) but no significant difference between hypersomnia before the curfew and hypersomnia during the curfew ($p = .973$). Hence, H2a: 'There is a difference between hypersomnia levels at the time before the curfew, the

time during the curfew and the time after the curfew' is accepted. H2b: 'The scores on hypersomnia being the highest during the curfew' is rejected.

Table 3

Means and Standard Deviations hypersomnia as a function of different stages of curfew

	Before the curfew		During the curfew		After the curfew			
Variable	*M*	*SD*	*M*	*SD*	*M*	*SD*	*F* (1.88, 129.83)	η^2
MDD	9.81	5.13	9.8	5.55	1.47	1.8	190.46***	.73

***p < .001.

Different stages of the curfew and loneliness

Table 4 displays the descriptive statistics and the repeated measures analysis for loneliness throughout the different time frames. Mauchly's Test of Sphericity indicated that the assumption of sphericity was not violated, $\chi^2(2) = 2.155$, *p* = .340.

Table 4

Means and Standard Deviations loneliness as a function of different stages of curfew

	Before the curfew		During the curfew		After the curfew				
Variable	*M*	*SD*	*M*	*SD*	*M*	*SD*	*F* (2, 138)	*p*	η^2
Loneliness	29.85	14.33	31.18	16.20	28.32	17.79	3.25*	.042	.04

*p < .05.

The results indicated a significant difference in loneliness across the different time frames $F (2, 138) = 3.25$, $p = .042$, $\eta^2 = .04$ with a small effect size. The results indicate that the loneliness was mild before the curfew (*M* = 29.85, *SD* = 14.33) but has increased during the curfew (*M* = 31.18, *SD* = 16.20) to severe loneliness (although the difference in the mean scores were not significant), and has subsequently decreased back to mild loneliness after the curfew (*M* = 28.32, *SD* = 17.79). The post-hoc test suggests that a significant difference between loneliness during the curfew or loneliness after the curfew (*p* = .026) but no significant difference between loneliness before the curfew or loneliness during the curfew (*p* = .674) and no significant difference between loneliness before the curfew and loneliness after the curfew (*p* = .638) Hence, H3a: 'There is a difference between loneliness levels at the time before the curfew, the time during the curfew and

the time after the curfew' is accepted. Moreover, H3b: the scores on loneliness being the highest during the curfew is accepted.

<div align="center">**Discussion**</div>

The purpose of this study was to evaluate a possible difference between the scores of MDD, hypersomnia and loneliness in the periods before, during and after the curfew that was implemented in the Netherlands between January 28, 2021 and April 28, 2021 due to the COVID-19 outbreak. In particular, it aims to identify a potential increase of these scores during the curfew. The analysis of the data showed a significant difference in all the constructs but only the loneliness scores were the highest during the curfew.

MDD

The results indicated a significant difference in the MDD levels before the curfew compared to those during or after the curfew. Before the curfew the population experienced mild MDD symptoms, whereas during and after the curfew the people appeared to have experienced almost no MDD symptoms. One possible explanation of the latter observation may be that participants did not remember clearly the state of their feelings, thoughts and emotions and answered with ambiguity the MDD questionnaire. As the period before the curfew was furthest in the past, the participants might have had difficulties in the exact recollection of their mental state. This is supported by the fact that a cross-sectional study was conducted.

Another explanation may be that people did not have a clear perspective of how the COVID-19 could be resolved and the curfew gave them clarity and possibility to manage expectations in regard to their daily activities. Expectations management is an important factor responsible for the clinical outcome of the vast majority of physical and psychological problems (Kube et al., 2017). In addition, managing expectations is a key factor for the treatment of MDD. Expectations are formed by social influences, individual differences and learning processes. Moreover, expectations can be either changed or supported after experiencing an event that brings a change to the individual's environment (Kube et al., 2017). In the case of the current study, one could speculate that the curfew provided the population with more clarity about their daily schedule, positively affecting the stress levels and leading as a consequence to decrease in MDD symptoms (Farabaugh et al., 2004). Therefore, a possible conclusion would be that managing expectations gives people less uncertainty about their short-term plans. However, it is important to state that, contrary to the expectations that the sample is the most representative of the vulnerable populations, the participants did not have any diagnosable MDD. To extend this study, the next

step could involve evaluation of the changes in the activities of the population upon the curfew implementation in combination with an assessment of the MDD symptoms.

Hypersomnia

The results indicate that there was a significant difference between the levels of hypersomnia in the different time frames. More specifically, a significant difference was found between the scores measured for the period after the curfew, when people experienced low levels of hypersomnia, compared to the period before or during the curfew, where the population experienced mild hypersomnia. Here it is important to state the lack of significant change in the hypersomnia levels before the curfew compared to the hypersomnia levels during the curfew was found. A possible explanation for these results may be found in the habits and the social lifestyle which both did not undergo any change to such a degree that would increase the level of hypersomnia. However, this claim needs to be supported with more in-depth research. To a certain extent, this is contradictory to previous findings showing hypersomnia increase in the beginning of the pandemic relative to the pre-pandemic state (Najafipour et al., 2021), possibly because the curfew was not perceived as severely as the government restrictions that were implemented at the beginning of the pandemic.

The stated result can also be explained by a flaw in the design of the study. It is possible that the assessment tool measures different concepts such as lack of energy or boredom, which correlate to, but do not necessarily cause hypersomnia. In general, EDS is used in combination with other tools when investigating hypersomnia. Therefore, similarly to MDD, it is important to assess hypersomnia in combination with a tool that can monitor lifestyle and the changes that a measure such as the curfew poses in order to reach more concrete and objective conclusions. Moreover, the study was cross-sectional which implies that the participants did not necessarily remember their exact behaviour at the time.

In addition, excessive daytime sleepiness may also be caused by sleep deprivation which by definition is the opposite of hypersomnia (Gozal & Kheirandish-Gozal, 2009). Therefore, in order to assess hypersomnia properly there needs to be an evaluation of the sleeping habits and sleep quality of the participants.

Loneliness

The data indicated a significant difference between the levels of loneliness in the three time frames although these differences were not as big as compared to the differences observed in MDD

and hypersomnia. The scores of loneliness indicate that the participants experienced moderate to severe loneliness.

These findings may be explained by the sample that was predominantly represented by students and by young adults who were previously found to be the most vulnerable to loneliness throughout the pandemic (Smith & Lim, 2020). The latter has been confirmed also by a study conducted in Germany which has demonstrated that the loneliness measured in students during the COVID-19 pandemic has emerged as a problem with long-term consequences and that it takes more time for the students to return to their normal state of social well-being (Werner et.al., 2021). Therefore, simply alleviating the measures is not enough to change the feeling of loneliness. In addition, there is a possibility that the majority of the participants did not consider the curfew as a major change of their social life as people in the Netherlands got accustomed to receiving more restriction for the COVID-19 in comparison to the beginning of the pandemic (Meier et al., 2020). Although the opportunities for socialising were present from the end of April 2021, people did not feel much less lonely and the reason for that might be that the interactions people had were not considered as meaningful and fulfilling as expected. However, this conclusion could be supported by further research which evaluates the quality of the interaction with other people.

An alternative explanation could be that people managed to maintain their level of social interaction during daytime and that the curfew only subtly decreased their social life routines. This is supported by a study in Canada, in which the implementation of a curfew resulted in an increase in daytime activities compensating the lack of nightly activities (Brown et al., 2021). This explanation can be assessed in further research by means of a self-report measure (e.g., diary) that would allow them to evaluate specific habits in the social lifestyle and how these habits have changed (not only in the frame of the curfew but in the overall scope of the pandemic). This tool needs to be employed in combination with the UCLA in order to get a deeper and more targeted understanding of how government precautions such as the curfew have influenced perceived loneliness.

Strengths and limitations

The current study has a number of advantages. The group is relatively homogenous as the vast majority of the participants is students. In addition, the study provides insights about how a future study of this sort should be conducted in order to get more reliable results. More precisely, the study shows disadvantages of using questionnaires as a sole assessment of mental health issues.

With the help of more reliable results, it is possible to assess the differences in people's response towards measures such as the curfew, so that specific interventions can be developed in cases of increasing mental health issues.

The study also experiences a number of limitations. The design of the study is cross-sectional, whereas a longitudinal study would have more success in obtaining more reliable data, because the memory of the participants who had to recall specific information from the past may result in data bias, selective abstraction or arbitrary interference (Eckhardt & Kassinove, 1998). Moreover, people tend to block unpleasant information when recalling it and are in general not inclined to recollect unpleasant experiences (Küpper et al., 2014). In addition, the questionnaires that were investigating the period after the curfew was too wide in terms of the date span (April 28, 2021 till October 30, 2021) implying a possibility of people feeling differently throughout the time-course of this period (e.g., less depressed in the first couple of months and more depressed in the next couple of months). Moreover, the small sample size is not representative for a study of such magnitude for which a much larger data set is necessary in order to obtain more valid and conclusive results, in which a power analysis should be conducted in order to establish the appropriate sample size. Therefore, the sampling procedure could be improved by investigating a larger fraction of the population.

Furthermore, the ESS is only measuring EDS which is part of hypersomnia but is not a valid measure for hypersomnia by itself (Vernet & Arnulf, 2009). This implies that the current study does not measure length of sleep but only one specific aspect of behaviour namely drowsiness. Therefore, it is possible that this measure assesses a different concept namely boredom. In general, the ESS is assessed with a combination of Multiple Sleep Latency Test (MSLT) (Vernet & Arnulf, 2009). In the MSLT the subject is given four to five opportunities to sleep between one and two hours and a specialist is measuring how fast the subject is falling asleep and when the REM phase of the sleep begins. In the current study MSLT could not be implemented due to practical reasons. Therefore, the current study does not assess hypersomnia properly, in comparison to MDD and loneliness where the measures were more valid.

Recommendations for future research

Several recommendations for future research have been established. A longitudinal study design would be more appropriate to conduct such an investigation. Specifically, the study should commence when lifestyle changes on a populational level (especially for populations that are

already predisposed to mental health issues) are expected (in the case of the current study at the beginning of the curfew would have been optimal). Importantly, the second period should encompass the end of the curfew and the third period – the three months after the curfew. In the case of COVID-19, this type of research can be implemented when the number of new cases of the disease increase and a stricter measure is to be put into effect.

As mentioned above, there are more valid instruments for measuring hypersomnia such as the implementation of the MSLT with ESS (Vernet & Arnulf, 2009) and the use of assessment tools to measure the changes of the habits and the behaviour within each time frame. This tool can come in the form of a diary where the individual is noting their daily schedule. This method might give a more specific understanding of how people adapt to the changes that the pandemic poses.

A further recommendation for future research is to assess hypersomnia with electronic measurements which are able to measure sleep quality. Those devices vary from devices such as smartwatches that measure REM sleep to more complex devices such as Electroencephalogram (EEG) (Ko et al., 2022). A smart watch is able to measure the stage of REM sleep by estimating the heart pulse and body movements. This method has the advantage of being easy to administer but the accuracy is not always optimal. EEG on the other hand provides much more accurate results because it measures brain waves but is less practical for obtaining a larger set of data (Ko et al., 2022).

Conclusion

This study aimed to assess whether there was a difference in the population's MDD symptoms, hypersomnia and loneliness in the scope of the curfew. The obtained data suggested that there is a significant difference between MDD symptoms before the curfew in comparison with these during and after the curfew where the MDD symptoms before the curfew were significantly higher. It is important to note that the sample did not consist of people with severe MDD symptoms. The hypersomnia scores after the curfew are significantly lower compared to the periods before or during the curfew and loneliness is slightly higher during the curfew compared to after the curfew. However, those cannot be necessarily attributed to the curfew. Some of the reasons for that are certain validity flaws in the study namely the extent to which EDS is a measure of hypersomnia. Moreover, there is a strong limitation as the study was cross-sectional and not longitudinal. Therefore, further research is required in order to understand better how the

measurements implemented during the COVID-19 pandemic have affected the mental well-being of the population.

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Appendix A: Informed consent

Thank you for your interest in our study! This study examines hypersomnia during the curfew (a regulation requiring people to remain indoors between specified hours) during early 2021 (28.01.2021-28.04.2021). Furthermore, it examines psychological constructs such as depressive symptoms and loneliness and to what extent they contribute to hypersomnia. Some of the questions assess sensitive information, but it is important to note that this research does not evaluate your individual responses, but is interested in populations' tendencies. The survey takes approximately 15 minutes to complete. The data will be completely anonymized and it will not be possible to track back your personal information to you as an individual. Your anonymized data will be summarized in a bachelor thesis at the University of Twente. The data will not be transferred to third parties. If you are interested in the results of this study, you can give your email address to the researcher and you will be sent the results after the study is finished. Your participation is voluntary and you have the right to take breaks, or discontinue your participation at any time without having to give any reasons. Please contact Manol Krastev (m.krastev@student.utwente.nl) in case you have any questions about this study. I consent voluntarily to be a participant in this study and understand that I can refuse to answer questions and I can withdraw from the study at any time, without having to give a reason.

○ No

○ Yes

Appendix B: ESS before the curfew

The following questions are about the chance of dozing off (falling asleep for a short period) in the following situations. Please think of the period before the introduction of the COVID-19 curfew in the Netherlands between the dates **31/10/2020** and **27/01/2021** and, to the best of your recollection, select the most appropriate answer.

Sitting and reading

Watching TV

Sitting inactive in a public place (e.g., a theater or a meeting)

As a passenger in a car for an hour without a break

Lying down to rest in the afternoon when circumstances permit

Sitting and talking to someone

Sitting quietly after a lunch without alcohol

In a car, while stopped for a few minutes in traffic

For each item, the answers included: 'No chance of dozing' (0), 'Slight chance of dozing' (1), 'Moderate chance of dozing' (2), 'High chance of dozing' (3) and 'Cannot remember' (4).

Appendix C: UCLA before the curfew

The following questions assess the extent to which you felt lonely. Please think of the period before the introduction of the COVID-19 curfew in the Netherlands between the dates **31/10/2020** and **27/01/2021** and, to the best of your recollection, select the most appropriate answer:

I was unhappy doing so many things alone.

I had nobody to talk to.

I could not tolerate being so alone.

I lacked companionship.

I felt as if nobody really understands me.

I found myself waiting for people to call or write.

There was no one I can turn to.

I was no longer close to anyone.

My interests and ideas were not shared by those around me.

I felt left out.

I felt completely alone.

I was unable to reach out and communicate with those around me.

My social relationships were superficial.

I felt starved for company.

No one really knows me well.

I felt isolated from others.

I was unhappy being so withdrawn.

It was difficult for me to make friends.

I felt shut out and excluded by others.

People were around me but not with me.

For each item, the answers included: 'Never' (0), 'Rarely' (1), 'Sometimes' (2), 'Often' (3) and 'Cannot remember' (4)

Appendix D: BDI before the curfew

The following statements are about how you have been feeling. Please think of the period before the introduction of the COVID-19 curfew in the Netherlands between the dates **31/10/2020** and **27/01/2021** and, to the best of your recollection select the most appropriate answer.

I did not feel sad. (0)

I felt sad. (1)

I was sad all the time and I could not snap out of it. (2)

I was so sad and unhappy that I could not stand it. (3)

Cannot remember. (4)

I was not particularly discouraged about the future. (0)

I felt discouraged about the future. (1)

I felt nothing I have nothing to look forward to. (2)

I felt the future is hopeless and that things could not improve. (3)

Cannot remember. (4)

I did not feel like a failure. (0)

I felt I have failed more than the average person. (1)

As I looked back on my life, all I could see is a lot of failures. (2)

I felt I was a complete failure as a person. (3)

Cannot remember. (4)

I got as much satisfaction out of things as I used to. (0)

I did not enjoy things the way I used to. (1)

I did not get real satisfaction out of anything anymore. (2)

I was dissatisfied or bored with everything. (3)

Cannot remember. (4)

I did not feel particularly guilty. (0)

I felt guilty a good part of the time. (1)

I felt quite guilty most of the time. (2)

I felt guilty all of the time. (3)

Cannot remember. (4)

I didn't feel I was being punished. (0)

I felt I may be punished. (1)

I expected to be punished. (2)

I felt I was being punished. (3)

Cannot remember. (4)

I didn't feel disappointed in myself. (0)

I was disappointed in myself. (1)

I was disgusted in myself. (2)

I hated myself. (3)

Cannot remember. (4)

I didn't feel I was any worse than anybody else. (0)

I was critical of myself for my weaknesses or mistakes. (1)

I blamed myself all the time for my faults. (2)

I blamed myself for everything bad that happened. (3)

Cannot remember. (4)

I didn't have any thoughts of killing myself. (0)

I had thoughts of killing myself, but I would not carry them out. (1)

I would have liked to kill myself. (2)

I would have killed myself if I had the chance. (3)

Cannot remember. (4)

I didn't cry any more than usual. (0)

I cried more at this period than I used to. (1)

I cried all the time. (2)

I used to be able to cry, but at this period I couldn't cry even though I wanted to. (3)

Cannot remember. (4)

I was no more irritated by things than I ever was. (0)

I was slightly more irritated now than usual. (1)

I was quite annoyed or irritated a good deal of the time. (2)

I felt irritated all the time. (3)

Cannot remember. (4)

I did not lost interest in other people. (0)

I was less interested in other people than I used to be. (1)

I lost most of my interest in other people. (2)

I lost all of my interest in other people. (3)

Cannot remember. (4)

I made decisions about as well as I ever could. (0)

I put off making decisions more than I used to. (1)

I had greater difficulty in making decisions more than I used to. (2)

I couldn't make decisions at all anymore. (3)

Cannot remember. (4)

I didn't feel that I looked any worse than I used to. (0)

I was worried that I was looking old or unattractive. (1)

I felt there were permanent changes in my appearance that made me look unattractive (2)

I believed that I looked ugly. (3)

Cannot remember. (4)

I could work about as well as before. (0)

It took an extra effort to get started at doing something. (1)

I had to push myself very hard to do anything. (2)

I couldn't do any work at all. (3)

Cannot remember. (4)

I could sleep as well as usual. (0)

I didn't sleep as well as I used to. (1)

I woke up 1-2 hours earlier than usual and found it hard to get back to sleep. (2)

I woke up several hours earlier than I used to and cannot get back to sleep. (3)

Cannot remember. (4)

I didn't get more tired than usual. (0)

I got tired more easily than I used to. (1)

I got tired from doing almost anything. (2)

I was too tired to do anything. (3)

Cannot remember. (4)

My appetite was no worse than usual. (0)

My appetite was not as good as it used to be. (1)

My appetite was much worse at this period. (2)

I had no appetite at all. (3)

Cannot remember. (4)

I barely lost weight if any. (0)

I lost more than 2 kg (5 ibs). (1)

I lost more than 5 kg (10 ibs). (2)

I lost more than 7 kg (15 ibs). (3)

Cannot remember. (4)

I was no more worried about my health than usual. (0)

I was worried about physical problems like aches, pains, upset stomach, or constipation. (1)

I was very worried about physical problems and it's hard to think of much else. (2)

I was so worried about my physical problems that I cannot think of anything else. (3)

Cannot remember. (4)

I had not noticed any recent change in my interest in sex. (0)

I was less interested in sex than I used to be. (1)

I have almost no interest in sex. (2)

I have lost interest in sex completely. (3)

Cannot remember. (4)

Appendix E: ESS during the curfew

The following questions are about the chance of dozing off (falling asleep for a short period) in the following situations. Please think of the period of the COVID-19 curfew in the Netherlands between the dates **28/01/2021** and **28/04/2021** and, to the best of your recollection, select the most appropriate answer.

Sitting and reading

Watching TV

Sitting inactive in a public place (e.g., a theater or a meeting)

As a passenger in a car for an hour without a break

Lying down to rest in the afternoon when circumstances permit

Sitting and talking to someone

Sitting quietly after a lunch without alcohol

In a car, while stopped for a few minutes in traffic

For each item, the answers included: 'No chance of dozing' (0), 'Slight chance of dozing' (1), 'Moderate chance of dozing' (2), 'High chance of dozing' (3) and 'Cannot remember' (4).

Appendix F: UCLA during the curfew

The following questions assess the extent to which you felt lonely. Please think of the period of the COVID-19 curfew in the Netherlands between the dates **28/01/2021** and **28/04/2021** and, to the best of your recollection, select the most appropriate answer:

I was unhappy doing so many things alone.

I had nobody to talk to.

I could not tolerate being so alone.

I lacked companionship.

I felt as if nobody really understands me.

I found myself waiting for people to call or write.

There was no one I can turn to.

I was no longer close to anyone.

My interests and ideas were not shared by those around me.

I felt left out.

I felt completely alone.

I was unable to reach out and communicate with those around me.

My social relationships were superficial.

I felt starved for company.

No one really knows me well.

I felt isolated from others.

I was unhappy being so withdrawn.

It was difficult for me to make friends.

I felt shut out and excluded by others.

People were around me but not with me.

For each item, the answers included: 'Never' (0), 'Rarely' (1), 'Sometimes' (2), 'Often' (3) and 'Cannot remember' (4)

The following statements are about how you have been feeling. Please think of the period of the COVID-19 curfew in the Netherlands between the dates **28/01/2021** and **28/04/2021** and, to the best of your recollection, select the most appropriate answer.

I did not feel sad. (0)

I felt sad. (1)

I was sad all the time and I could not snap out of it. (2)

I was so sad and unhappy that I could not stand it. (3)

Cannot remember. (4)

I was not particularly discouraged about the future. (0)

I felt discouraged about the future. (1)

I felt nothing I have nothing to look forward to. (2)

I felt the future is hopeless and that things could not improve. (3)

Cannot remember. (4)

I did not feel like a failure. (0)

I felt I have failed more than the average person. (1)

As I looked back on my life, all I could see is a lot of failures. (2)

I felt I was a complete failure as a person. (3)

Cannot remember. (4)

I got as much satisfaction out of things as I used to. (0)

I did not enjoy things the way I used to. (1)

I did not get real satisfaction out of anything anymore. (2)

I was dissatisfied or bored with everything. (3)

Cannot remember. (4)

I did not feel particularly guilty. (0)

I did not feel particularly guilty. (0)

I felt guilty a good part of the time. (1)

I felt quite guilty most of the time. (2)

I felt guilty all of the time. (3)

Cannot remember. (4)

I didn't feel I was being punished. (0)

I felt I may be punished. (1)

I expected to be punished. (2)

I felt I was being punished. (3)

Cannot remember. (4)

I didn't feel disappointed in myself. (0)

I was disappointed in myself. (1)

I was disgusted in myself. (2)

I hated myself. (3)

Cannot remember. (4)

I didn't feel I was any worse than anybody else. (0)

I was critical of myself for my weaknesses or mistakes. (1)

I blamed myself all the time for my faults. (2)

I blamed myself for everything bad that happened. (3)

Cannot remember. (4)

I didn't have any thoughts of killing myself. (0)

I had thoughts of killing myself, but I would not carry them out. (1)

I would have liked to kill myself. (2)

I would have killed myself if I had the chance. (3)

Cannot remember. (4)

I didn't cry any more than usual. (0)

I cried more at this period than I used to. (1)

I cried all the time. (2)

I used to be able to cry, but at this period I couldn't cry even though I wanted to. (3)

Cannot remember. (4)

I was no more irritated by things than I ever was. (0)

I was slightly more irritated now than usual. (1)

I was quite annoyed or irritated a good deal of the time. (2)

I felt irritated all the time. (3)

Cannot remember. (4)

I did not lost interest in other people. (0)

I was less interested in other people than I used to be. (1)

I lost most of my interest in other people. (2)

I lost all of my interest in other people. (3)

Cannot remember. (4)

I made decisions about as well as I ever could. (0)

I put off making decisions more than I used to. (1)

I had greater difficulty in making decisions more than I used to. (2)

I couldn't make decisions at all anymore. (3)

Cannot remember. (4)

I didn't feel that I looked any worse than I used to. (0)

I was worried that I was looking old or unattractive. (1)

I felt there were permanent changes in my appearance that made me look unattractive (2)

I believed that I looked ugly. (3)

Cannot remember. (4)

I could work about as well as before. (0)

It took an extra effort to get started at doing something. (1)

I had to push myself very hard to do anything. (2)

I couldn't do any work at all. (3)

Cannot remember. (4)

I could sleep as well as usual. (0)

I didn't sleep as well as I used to. (1)

I woke up 1-2 hours earlier than usual and found it hard to get back to sleep. (2)

I woke up several hours earlier than I used to and cannot get back to sleep. (3)

Cannot remember. (4)

I didn't get more tired than usual. (0)

I got tired more easily than I used to. (1)

I got tired from doing almost anything. (2)

I was too tired to do anything. (3)

Cannot remember. (4)

My appetite was no worse than usual. (0)

My appetite was not as good as it used to be. (1)

My appetite was much worse at this period. (2)

I had no appetite at all. (3)

Cannot remember. (4)

I barely lost weight if any. (0)

I lost more than 2 kg (5 ibs). (1)

I lost more than 5 kg (10 ibs). (2)

I lost more than 7 kg (15 ibs). (3)

Cannot remember. (4)

I was no more worried about my health than usual. (0)

I was worried about physical problems like aches, pains, upset stomach, or constipation. (1)

I was very worried about physical problems and it's hard to think of much else. (2)

I was so worried about my physical problems that I cannot think of anything else. (3)

Cannot remember. (4)

I had not noticed any recent change in my interest in sex. (0)

I was less interested in sex than I used to be. (1)

I have almost no interest in sex. (2)

I have lost interest in sex completely. (3)

Cannot remember. (4)

The following questions are about the chance of dozing off (falling asleep for a short period) in the following situations Please think of the period after the COVID-19 curfew in the Netherlands between the dates **28/04/2021** and **30/10/2021** and, to the best of your recollection, select the most appropriate answer.

Sitting and reading

Watching TV

Sitting inactive in a public place (e.g., a theater or a meeting)

As a passenger in a car for an hour without a break

Lying down to rest in the afternoon when circumstances permit

Sitting and talking to someone

Sitting quietly after a lunch without alcohol

In a car, while stopped for a few minutes in traffic

For each item, the answers included: 'No chance of dozing' (0), 'Slight chance of dozing' (1), 'Moderate chance of dozing' (2), 'High chance of dozing' (3) and 'Cannot remember' (4).

Appendix I: UCLA after the curfew

The following questions assess the extent to which you felt lonely. Please think of the period after the COVID-19 curfew in the Netherlands between the dates **28/04/2021** and **30/10/2021** and, to the best of your recollection, select the most appropriate answer.

I was unhappy doing so many things alone.

I had nobody to talk to.

I could not tolerate being so alone.

I lacked companionship.

I felt as if nobody really understands me.

I found myself waiting for people to call or write.

There was no one I can turn to.

I was no longer close to anyone.

My interests and ideas were not shared by those around me.

I felt left out.

I felt completely alone.

I was unable to reach out and communicate with those around me.

My social relationships were superficial.

I felt starved for company.

No one really knows me well.

I felt isolated from others.

I was unhappy being so withdrawn.

It was difficult for me to make friends.

I felt shut out and excluded by others.

People were around me but not with me.

For each item, the answers included: 'Never' (0), 'Rarely' (1), 'Sometimes' (2), 'Often' (3) and 'Cannot remember' (4)

Appendix J: BDI after the curfew

The following statements are about how you have been feeling. Please think of the period of the COVID-19 curfew in the Netherlands between the dates **28/01/2021** and **28/04/2021** and, to the best of your recollection, select the most appropriate answer.

I did not feel sad. (0)

I felt sad. (1)

I was sad all the time and I could not snap out of it. (2)

I was so sad and unhappy that I could not stand it. (3)

Cannot remember. (4)

I was not particularly discouraged about the future. (0)

I felt discouraged about the future. (1)

I felt nothing I have nothing to look forward to. (2)

I felt the future is hopeless and that things could not improve. (3)

Cannot remember. (4)

I did not feel like a failure. (0)

I felt I have failed more than the average person. (1)

As I looked back on my life, all I could see is a lot of failures. (2)

I felt I was a complete failure as a person. (3)

Cannot remember. (4)

I got as much satisfaction out of things as I used to. (0)

I did not enjoy things the way I used to. (1)

I did not get real satisfaction out of anything anymore. (2)

I was dissatisfied or bored with everything. (3)

Cannot remember. (4)

I did not feel particularly guilty. (0)

I felt guilty a good part of the time. (1)

I felt quite guilty most of the time. (2)

I felt guilty all of the time. (3)

Cannot remember. (4)

I didn't feel I was being punished. (0)

I felt I may be punished. (1)

I expected to be punished. (2)

I felt I was being punished. (3)

Cannot remember. (4)

I didn't feel disappointed in myself. (0)

I was disappointed in myself. (1)

I was disgusted in myself. (2)

I hated myself. (3)

Cannot remember. (4)

I didn't feel I was any worse than anybody else. (0)

I was critical of myself for my weaknesses or mistakes. (1)

I blamed myself all the time for my faults. (2)

I blamed myself for everything bad that happened. (3)

Cannot remember. (4)

I didn't have any thoughts of killing myself. (0)

I had thoughts of killing myself, but I would not carry them out. (1)

I would have liked to kill myself. (2)

I would have killed myself if I had the chance. (3)

Cannot remember. (4)

I didn't cry any more than usual. (0)

I cried more at this period than I used to. (1)

I cried all the time. (2)

I used to be able to cry, but at this period I couldn't cry even though I wanted to. (3)

Cannot remember. (4)

I was no more irritated by things than I ever was. (0)

I was slightly more irritated now than usual. (1)

I was quite annoyed or irritated a good deal of the time. (2)

I felt irritated all the time. (3)

Cannot remember. (4)

I did not lost interest in other people. (0)

I was less interested in other people than I used to be. (1)

I lost most of my interest in other people. (2)

I lost all of my interest in other people. (3)

Cannot remember. (4)

I made decisions about as well as I ever could. (0)

I put off making decisions more than I used to. (1)

I had greater difficulty in making decisions more than I used to. (2)

I couldn't make decisions at all anymore. (3)

Cannot remember. (4)

I didn't feel that I looked any worse than I used to. (0)

I was worried that I was looking old or unattractive. (1)

I felt there were permanent changes in my appearance that made me look unattractive (2)

I believed that I looked ugly. (3)

Cannot remember. (4)

I could work about as well as before. (0)

It took an extra effort to get started at doing something. (1)

I had to push myself very hard to do anything. (2)

I couldn't do any work at all. (3)

Cannot remember. (4)

I could sleep as well as usual. (0)

I didn't sleep as well as I used to. (1)

I woke up 1-2 hours earlier than usual and found it hard to get back to sleep. (2)

I woke up several hours earlier than I used to and cannot get back to sleep. (3)

Cannot remember. (4)

I didn't get more tired than usual. (0)

I got tired more easily than I used to. (1)

I got tired from doing almost anything. (2)

I was too tired to do anything. (3)

Cannot remember. (4)

My appetite was no worse than usual. (0)

My appetite was not as good as it used to be. (1)

My appetite was much worse at this period. (2)

I had no appetite at all. (3)

Cannot remember. (4)

I barely lost weight if any. (0)

I lost more than 2 kg (5 ibs). (1)

I lost more than 5 kg (10 ibs). (2)

I lost more than 7 kg (15 ibs). (3)

Cannot remember. (4)

I was no more worried about my health than usual. (0)

I was worried about physical problems like aches, pains, upset stomach, or constipation. (1)

I was very worried about physical problems and it's hard to think of much else. (2)

I was so worried about my physical problems that I cannot think of anything else. (3)

Cannot remember. (4)

I had not noticed any recent change in my interest in sex. (0)

I was less interested in sex than I used to be. (1)

I have almost no interest in sex. (2)

I have lost interest in sex completely. (3)

Cannot remember. (4)

Appendix K: Demographic data

What is your age?

What is your gender?

○ Male

○ Female

○ Non-binary / third gender

○ Prefer not to say

What is your nationality?

What is your occupation?

○ student

○ non-student

○ not studying at the moment but studied during the period of the curfew (28/01/2021-28/04/2021)

○ not studying in the period of the curfew (28/01/2021-28/04/2021) but studying at the moment

Were you present in the Netherlands during the curfew (**28/01/2021-28/04/2021**)?

○ No

○ Yes