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Moral injury in frontline workers of the COVID-19 pandemic and predicting factors

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Abstract

The spreading of the COVID-19 virus in 2020 led to overloaded hospitals and frontline workers in hospitals were confronted with a lack of resources and inadequate treatments. As a result, patients could not be provided with the best care and frontline workers were faced with moral dilemmas. Moral injury could be developed and this characterised by: (1) betrayal of what is right, (2) either inflicted by oneself or a person of authority and (3) in a high stakes situation. There is an overlap between symptoms of moral injury and Post Traumatic Stress Disorder (PTSD), however PTSD does not completely account for the morally injurious part of trauma. This research aims to gain more insight in moral injury and frontline workers and potential predicting factors. A questionnaire was designed to measure symptoms of moral injury, potential morally injurious events (PMIE's), PTSD symptoms, negative feelings afterwards, event vividness and the centrality of event. The results show that frontline workers experience more PMIE's related to working at the COVID-19 department and PTSD symptoms than the control group. There was no significant difference found between the groups for moral injury symptoms. This could be due to a supportive work environment or the operationalization of moral injury. In addition, the results show that symptoms of moral injury were predicted by negative feelings afterwards, event vividness and the centrality of event. Lastly, an in-depth interview was held to examine the psychological burden of frontline workers. These results suggest that frontline workers experience moral dilemmas and psychological complaints. More research on moral injury and frontline workers is needed, so psychological problems during a crisis can be prevented and treated.

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On March 12 the World Health Organization (2020) declared the COVID-19 virus outbreak as a pandemic. COVID-19 is a virus that spreads through aerosols, air particles released during coughing or sneezing, and has a mortality rate of 0.02% (WHO, 2020). The spreading of the virus led to overloaded hospitals and the frontline workers in hospitals, such as paramedics, doctors and nurses, were confronted with a lack of resources and inadequate treatments (Williamson, Murphy, & Greenberg, 2020). As a result, patients could not be provided with the best care, and lives were lost. In countries such as Italy, questions “Who do we save?” and “Who can’t be saved?” were asked (Rosenbaum, 2020). These questions could be classified as moral questions and have an impact on the frontline workers (Williamson et al., 2020).

Morality can be described as the distinction between wrong and right (Sliwa, 2017). Hofmann, Wisneski, Brandt and Skitka (2014) found that the act of making a right choice led to significantly more happiness and a sense of purpose reported by participants. In addition, Barkan, Ayal, Gino and Ariely (2012) found that immoral behavior causes feelings of guilt and shame and will lower self-esteem. When an immoral decision is made, a discrepancy arises between the ideal moral self and the actual moral self (Hofmann et al., 2014). Mulder and Aquino (2013) found that when this discrepancy arises, people will engage in more moral behaviors to maintain a positive moral self-image. It can be concluded that a positive moral self-image is important, so what happens when this is deeply violated?

Moral injury happens when a positive moral self-image is violated. Shay (2014) defines moral injury as a violation of deeply held morals or beliefs, that is characterised by: (1) betrayal of what is right, (2) either inflicted by oneself or a person of authority and (3) in a high stakes situation. For example, a soldier on a military mission kills another person in a gunfight because his commander told him to do so. This could lead to changes in ideals, character and social attachments. Litz et al. (2009) distinguish three types of moral injury: (1) harming others by your actions, (2) failing at protecting others from harm and (3) witnessing harm done to others.

According to the model of Litz et al. (2009) there has to be an act of transgression, that severely violates a personal or shared belief, for moral injury to be developed. There is a debate going on in clinical research if moral injury is not pathologizing an adaptive moral process. Does every transgression lead to moral injury? Farnsworth, Drescher, Evans & Walser (2017) made a suggestion to separate moral injury from the event itself. They define a morally injurious event (MIE) as a high stakes situation where an important moral value is violated. They view MIE as a necessary but not sufficient factor for the development of moral

injury. They suggest that in response to MIE, moral pain can be experienced. Moral pain are emotions and cognitions about morality, such as guilt and shame. This can be experienced during or after the MIE. These moral feelings can be a motivator to change behavior and are not necessarily 'bad feelings'. It suggests that the individual who is experiencing this, has a moral compass (Haidt, 2003). When coping with moral pain is not successfully done, moral injury could be developed. In addition, Litz et al. (2019) formulated the term potential morally injurious event (PMIE). Some events have the potential to cause moral injury, however the majority of people will not develop moral injury.

Moral injury has similar features as Post Traumatic Stress Disorder (PTSD) (Bryants, 2019). PTSD is a psychological disorder with the criteria; (A) the person was exposed to: death, threatened death, actual or threatened serious injury, or actual or threatened sexual violence, (B) the traumatic event is persistently re-experienced, (C) persistent effortful avoidance of distressing trauma-related stimuli, (D) negative alterations in cognitions and mood and (E) trauma-related alterations in arousal and reactivity (American Psychiatric Association, 2013). Moral injury and PTSD are related and similar because of the psychological, behavioral and physiological problems that arise after an event. Moral injury is embedded in PTSD and could even be a subcategory (Neria & Pickover, 2019). For example, criteria A of PTSD, the traumatic event, could be morally injurious, and therefore an individual could develop PTSD with moral injury.

Although it is still debated whether moral injury should be a subcategory of PTSD, the construct 'moral injury' is needed in psychology because the current criteria of PTSD do not fully account for the morally injurious phenomenology of an event (Litz & Kerig, 2019). Criteria A of PTSD is only applicable for moral injury if the PMIE is in context of life threat. However a PMIE does not have to be life threatening, to violate a moral belief. In addition, PTSD is a victimization-based disorder and moral injury is also predator-based. Moreover, the dominant negative emotions of PTSD are fear, horror and helplessness, and for moral injury they are guilt, shame and anger. Lastly, the necessity that is lost for PTSD is safety, as for moral injury it is trust (Shay, 2014). It is therefore important to do more research on moral injury, because the DSM criteria of PTSD do not completely account for the morally injurious part of trauma (Litz et al., 2009).

Recent studies on moral injury and frontline workers suggest that healthcare workers are at risk of developing moral injury and PTSD. DeLucia et al. (2019) found that healthcare workers exposed to high-acuity patients are related to moral distress and PTSD symptoms. Working during COVID-19 is a high stakes situation and when there is a betrayal of a moral

belief, either inflicted by oneself of authority, internal conflict could arise. For example, a nurse is working in the emergency room and two patients are in need of a ventilator. Only one ventilator is available, and the nurse decides to give the ventilator to the patient who she thinks needs it the most. Both patients die eventually and the nurse wonders if she made the right decision. In addition, Hines, Chin, Levine and Wickwire (2020) found that the scores on severity of moral injury of frontline workers were lower than militaries working in the frontline, but similar to the scores of military service members exposed to war zone deployments. This finding suggests that moral injury not only occurs in the military but also in healthcare. Moreover, Carmassi et al. (2020) found that healthcare workers are at risk of developing PTSD because of traumatic events that occur such as; experiencing life or death situations, taking care of traumatized people, frequent witnessing of death and trauma, operating in crowded settings and having a disturbed circadian rhythm due to shift work. In conclusion, working during a pandemic increases the risk of developing moral injury, PTSD and other health problems.

Predicting factors for developing moral injury and PTSD are important to explore, so developing symptoms could be prevented or treated. Besides that PMIE's increase the chance of developing moral injury, there are other factors that play a role in the process. It is interesting to look at how traumatic memories are remembered and experienced in people. Memories are an important part of structuring the narrative life story of a person. When memories are highly accessible and vivid, they influence how current events are perceived and how future events are expected. When a traumatic or stressful event is experienced, the memory is remembered better than a neutral autobiographical event (Rubin, Feldman, & Beckham, 2004). This suggests that traumatic memories have a higher chance of being accessible and vivid and that it could influence everyday experiences and emotions. An individual with a traumatic memory could for example overestimate the chance of the traumatic event happening again. Berntsen & Rubin (2006) found that when a traumatic event was centrally integrated in the personality of an individual, the chance of developing PTSD increased.

This research aims to gain more insight in moral injury and frontline workers and potential predicting factors. To answer the questions: (1) "Do frontline workers experience more PMIE's than the control group and what is the nature of these PMIE's?", (2) "Do frontline workers experience more PTSD symptoms and moral injury symptoms than the control group?" and (3) "Are there predictors for moral injury?", three hypotheses have been formulated based on the literature stated above. Firstly, it is expected that healthcare workers

experience more PMIE's related to working at the COVID-19 department (hypothesis 1). Secondly, it is expected that frontline workers experience more (2a) PTSD symptoms and (2b) symptoms of moral injury, than the normal population (Hypothesis 2). Lastly, it is expected that moral injury is predicted by (3a) strong negative feelings afterwards, (3b) event vividness and (3c) the centrality of event (Hypothesis 3).

Method

Participants

In total 116 participants completed the questionnaire. The target group was frontline workers (N=35) and a control group represented the normal population (N=81). The participants were recruited through flyers, social media and snowball sampling.

Operationalization

A questionnaire was designed to measure symptoms of moral injury, PMIE's, PTSD symptoms, negative feelings afterwards, event vividness and the centrality of event. The questionnaire consisted of;

An information letter (appendix A) - Information about the study and data was given. It explained that the data was confidential and secured.

Consent statement (appendix B) - The participant was asked to give their consent to participate in the questionnaire. The participant could stop at any time when he or she did not want to participate anymore.

General questions - Questions were asked about gender, age, education, student status, work, marital status, religion and undergoing mental healthcare.

MIEEC (appendix C) - The MIEEC is a checklist of potential moral injurious events (PMIE's) designed by ARQ centrum '45 (2020). It consists of 33 items. The participant is asked to think back about their whole life and answer which events he or she has experienced. Firstly, it is asked if an event is experienced. A sample item is: "Fire or explosion". The items are rated on a 6-point Likert scale where participants could answer if the event is applicable for them and the participant could choose multiple answer options (1= it happened to somebody else because of your act or omission, 2= it happened to you personally, 3= you witnessed it happen to someone else, 4= you learned about it happening to a close family member or close friend, 5= you are not sure if it applies to you, 6= it does not apply to you). Secondly, it is asked if during or afterwards the event the participant experienced moral conflict because of the behavior of his or her own (1=yes, 2= no). Moreover, it is asked if during or afterwards this event the participant experienced moral

conflict because of the behavior of others (1= yes, 2=no). Lastly, it is asked how much stress, tension and other emotions are experienced looking back at the event (rating 0-100).

This research was specifically interested in PMIE's related to working at the COVID-19 department. These PMIE's are; (1)“Life threatening illness or injury”, (2)“Severe human suffering, (3)“Not being able to provide someone with necessary help or treatment that they should have received in the circumstances”, (4)“Having to collaborate with a colleague (on behalf of supervisor/manager) who was not sufficiently knowledgeable” and (5)“Carrying out work (on behalf of supervisor/manager) without feeling sufficiently knowledgeable”

MR-MI (appendix D)- The Moral Recall Scale assesses the emotions experienced during a stressful or threatening experience. Designed by ARQ centrum '45 (2020). The participant is asked to recall a memory of a moral conflict or dilemma that still evokes negative feelings thinking back at it. It consists of 23 items. Firstly, the participant writes down a memory of a stressful or threatening experience that still evokes negative feelings. Secondly, it is asked when the event took place (1= last week, 2= last month, 3= last year, 4= 2-5 years ago, 5= 6-10 years ago, 6= 11-20 years ago, 7= 21-30 years ago, 8=more than 30 years ago). Moreover, it is asked if it took place at work (1=yes, 2=no). In addition, it is asked which emotions were experienced. A sample item is: “I felt anxious during this event”. The items are rated on a 7-point Likert scale where participants indicate the extent to which they agree with the statement (1= strongly disagree, 7= strongly agree). Lastly, it is asked how much stress is experienced looking back at it (rating between 0-100) and if the memory is vivid (1= strongly disagree, 7= strongly agree).

CES-R- MI (appendix E)- The Centrality of Event Scale measures if the trauma is integrated into one's identity and its relation to post-traumatic stress disorder symptoms. The participant is asked to recall a memory of a moral conflict or dilemma that still evokes negative feelings. It consists of 7 items. A sample item is: “I feel that this event has become a central part of my life story”. The items are rated on a 7-point Likert scale where participants indicate the extent to which they agree with the statement (1= strongly disagree, 7= strongly agree). The reliability and validity of the questionnaire is strong, $.88 < \alpha < .94$ (Berntsen & Rubin, 2006). Within this research, Cronbach's Alpha higher than .70 is rated as satisfactory (Nunnally & Bernstein, 1994).

PCL-5 (appendix F)- The Posttraumatic Stress Disorder Checklist for DSM-5 assesses symptoms of PTSD. It consists of a list of problems in response to stressful experiences. The list consists of 20 problems and it is asked: "How much did this bother you in the past month?". A sample item is: "Feeling jumpy or easily startled". The items are rated on a 5-point Likert scale where participants indicate the extent to which they agree with the statement (1 = not at all, 5 = extremely). The reliability and validity of the PCL-5 is strong, $\alpha = .94$ (Blevins, Weathers, Davis, Witte, & Domino, 2015).

MIAS (appendix G) - The Moral Injury Appraisals Scale assesses the distress related to the appraisal of a moral violation. The questionnaire consists of 9 items and there are 2 subscales. There are 5 items about moral violations committed by others and 4 items about violations committed by themselves. Sample items are "I am troubled by morally wrong things done by other people" and "I am troubled by morally wrong things I have done". The items are rated on a 4-point Likert scale where participants indicate the extent to which they agree with the statement (1 = not at all, 4 = very much). The reliability and validity is strong (Hoffman, Liddell, Bryant, & Nickerson, 2019).

Debriefing (appendix H) - After the questionnaires were completed the participant received the debriefing. The aim of the research was again explained and information was given on who to contact to talk to afterwards. The questionnaire could evoke emotional reactions and it is important that participants have the opportunity to contact the researchers and potential professionals.

Design

A cross sectional design was used for this research. The first and second hypotheses use a between subject design because it compares groups (frontline workers and control group). The third hypothesis uses a within subject design because it determines the effects of variables within both groups on the outcome variable (moral injury).

Procedure

An anonymous internet link was sent to the participants via social media, mail and the UU-site (Utrecht University). The participant could stop at any time and continue with the questionnaire in a time window of two weeks.

Software

The questionnaire was programmed in Qualtrics. For the analysis of the results SPSS Statistics 26 was used.

Data analysis

Firstly, the data of both groups were merged together into one file. Secondly, the data was inspected for missing data. Participants who did not finish the questionnaire were deleted. From the 116 participants, 8 were deleted in total (N= 108). From the frontline workers 2 participants were deleted (N=33) and from the control group 6 participants (N=75). In addition, the data was inspected for normal distributions of the scores. There were no outliers found. Moreover, the assumptions for the analyses were checked for the statistical analyses.

The demographic variables were explored and there was a significant difference found between the two groups on the use of healthcare. The control group consisted of significantly more participants who are currently, or in the past, under treatment at a mental healthcare facility, than frontline workers, $X^2 = (1, N=108) = 5.10, p < .05$. Therefore, to compare the two groups, the use of mental healthcare serves as a covariate to control for the effect it has on psychological complaints.

For the first hypothesis an one-way ANCOVA was performed. The dependent factor was; PMIE's related to working at the COVID-19 department, the independent factor was; group (frontline workers vs. control group) and the covariate was; mental healthcare use. The PMIE's were further explored to examine the nature and frequencies.

For the second hypothesis two one-way ANCOVA's were performed. The dependent factors were (1) PTSD symptoms and (2) moral injury symptoms, the independent factor was; group (frontline workers vs. control group) and the covariate was; mental healthcare use.

For the third hypothesis three independent regressions were performed. The dependent factor was: moral injury symptoms. The independent factors (predictors) were; (1) strong negative feelings afterwards, (2) event vividness and (3) centrality of event.

Lastly, an in- depth interview was held to examine the psychological burden of frontline workers that is used as an illustration of the results (appendix I).

Results

Firstly, the demographic variables were explored.

Table 1

Demographic variables				
Sex	Men 25%	Women 75%		
Age	M 24.86	SD 7.78		
Education	WO 37%	HBO 11.1%	MBO 19.4%	Highschool 32.4%
Student	Yes 83%	No 17%		
Work	Yes 65.8%	No 34.2%		
Marital status	Married 6.5%	Relationship 48.1%	Single 45.4%	
Religion	No religion 77.8%	Christianity 15.7%	Islam 5.6%	Different 0.9%
Mental healthcare	Yes 10.2%	No 56.5%	In the past 33.3%	

Secondly, ANCOVA's were performed to test the first and second hypotheses. The descriptive statistics were calculated of the frontline workers and the control group for the PMIE's, PTSD symptoms and moral injury symptoms. Table 2 shows a representation.

Table 2

Descriptive statistics

	PMIE's		PTSD Symptoms		Moral injury symptoms	
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>
Total (N= 108)	2.56	2.15	41.14	18.35	20.61	6.82
Frontline workers (N=33)	3.21	2.27	43.15	20.75	20.52	8.00
Control group (N=75)	2.27	2.04	40.25	17.27	20.65	6.29

(1) An one-way ANCOVA was conducted to determine a statistically significant difference between frontline workers and the normal population on the number of PMIE's

controlling for use of mental healthcare. Frontline workers experience significantly more PMIE's related to working at the COVID-19 department than the control group after controlling for the use of mental healthcare, $F(1, 107) = 6.779, p < .05$. The hypothesis is accepted. The PMIE's were furthermore explored. The percentages of participants that experienced a PMIE related to working at the COVID-19 department is shown in table 3.

Table 3

The percentages of participants that experienced a PMIE (potential morally injurious event) related to working at the COVID-19 department

PMIE number	1	2	3	4	5
Frontline workers (N=33)	48.5%	30.3%	45.5%	69.7%	48.5%
Control Group (N=75)	45.3%	48.0%	24.0%	22.7%	26.7%

Noot. PMIE number: (1)“Life threatening illness or injury”, (2)“Severe human suffering, (3)“Not being able to provide someone with necessary help or treatment that they should have received in the circumstances”, (4)“Having to collaborate with a colleague (on behalf of supervisor/manager) who was not sufficiently knowledgeable” and (5)“Carrying out work (on behalf of supervisor/manager) without feeling sufficiently knowledgeable

(2a) An one-way ANCOVA was conducted to determine a statistically significant difference between frontline workers and the normal population on PTSD symptoms controlling for use of healthcare. Frontline workers experience significantly more PTSD symptoms than the control group after controlling for the use of mental healthcare, $F(1, 107) = 3.251, p < .05$. The hypothesis is accepted.

(2b) An one-way ANCOVA was conducted to determine a statistically significant difference between frontline workers and the normal population on symptoms of moral injury controlling for use of mental healthcare. There was not a significant difference found, $F(1, 107) = .381, p = .269$. The hypothesis is rejected.

In addition, independent regressions were performed to test the third hypothesis.

(3a) Negative feelings afterwards significantly predicted moral injury scores, $b = .30, t(107) = 4.85, p < .05$. Negative feelings afterwards also explained a significant proportion of variance in moral injury scores, $R^2 = .182, F(1, 107) = 23.54, p < .05$. The hypothesis is accepted.

(3b) Event vividness significantly predicted moral injury scores, $b = 2.106$, $t(107) = 3.44$, $p < .05$. Event vividness also explained a significant proportion of variance in moral injury scores, $R^2 = .10$, $F(1, 107) = 11.86$, $p < .05$. The hypothesis is accepted.

(3c) The centrality of event significantly predicted moral injury scores, $b = .25$, $t(107) = 2.60$, $p < .05$. The centrality of event also explained a significant proportion of variance in moral injury scores, $R^2 = .06$, $F(1, 107) = 6.78$, $p < .05$. The hypothesis is accepted.

Lastly, an in-depth interview was held. Common themes that came out of the interview and answers of the questionnaire with frontline workers of the COVID-19 department were; (1) being unqualified for a task, (2) choosing what the best treatment is for a patient, and (3) choosing when to stop treatment even if that means the patient probably dies. These are all moral dilemmas that affect the staff and could cause psychological problems. A participant indicated that she has trouble sleeping and anxiety because of working at the COVID-19 department. She calls it 'pre-shift stress' because she was dreading all the things that could go wrong during a shift. Her colleagues were also affected by the moral dilemmas and high work pressure: "Some of my colleagues avoid working at the COVID-19 department. They would sometimes leave work crying and some of my colleagues had nightmares for weeks. The nightmares were mostly about being unable to help a lot of unstable patients. You feel powerless". She adds that her colleagues do make it bearable: "We are all on the same side. It feels like we are one team, and we have one job".

Discussion

This research investigated if moral injury occurred among frontline workers of the COVID-19 pandemic and explored potential predicting factors. It is important to examine the effects of the pandemic so psychological problems of frontline workers during a crisis can be prevented and treated.

The results show that frontline workers experience more PMIE's related to working at the COVID-19 department. This conforms with the expectation. PMIE's are high stakes situations where an important moral value is violated. As a response moral injury could potentially be developed (Litz et al., 2019). The in-depth interview shows that moral dilemmas are indeed experienced. Moral dilemmas such as: (1) being unqualified for a task, (2) choosing what the best treatment is for a patient, and (3) choosing when to stop treatment even if that means the patient probably dies. The most common PMIE experienced by frontline workers was; "Having to collaborate with a colleague who was not sufficiently knowledgeable". This could be an interesting finding for implications to protect frontline workers from developing moral injury. If it is made sure in protocols that work is executed by sufficiently knowledgeable workers and these protocols are followed, PMIE's related to working at the COVID-19 department and potential moral injury could be prevented. This finding indicates that frontline workers experience more PMIE's than the normal population while working at the COVID-19 department. The hypothesis is accepted (hypothesis 1)

In addition, the results show that frontline workers experience more PTSD symptoms than the control group. This conforms with the expectation. According to DeLucia et al. (2019) healthcare workers who are exposed to high-acuity patients, experience moral distress and PTSD symptoms. It could be traumatic to experience life or death situations, taking care of traumatized people, frequent witnessing of death and trauma, operating in crowded settings and having a disturbed circadian rhythm due to shift work (Carmassi et al., 2020). The in-depth interview shows that frontline workers experience complaints such as pre-shift stress, anxiety, avoidance behavior and nightmares. This finding indicates that frontline workers are at risk of developing PTSD. The hypothesis is accepted (hypothesis 2a).

Moreover, the results show that symptoms of moral injury were predicted by negative feelings afterwards, event vividness and the centrality of event. This conforms with the expectation. Rubin, Feldman and Beckham (2004) explain that the memory of a traumatic or stressful event is remembered better than a neutral autobiographical event. This suggests that traumatic memories have a higher chance of being accessible and vivid and that it could influence everyday experiences and emotions. In addition, when a traumatic event is centrally

integrated in the personality of an individual, the chance of developing PTSD increases (Berntsen & Rubin, 2006). Negative feelings afterwards, event vividness and the centrality of event predict the development of moral injury symptoms. Recognizing predictors of moral injury early on, is helpful for diagnosing and potentially preventing moral injury. The hypothesis is accepted (hypothesis 3).

However, there was not a significant difference found between the groups for moral injury symptoms. This does not conform with the expectation. The hypothesis is rejected (Hypothesis 2b). A theoretical explanation for this could be that the frontline workers who participated in this research have a supportive workplace environment. Hines, Chin, Glick and Wickwire (2021) found that when a workplace environment was supportive, this was related to lower cases of moral injury. In addition, a stressful, less supportive environment was associated with increased moral injury. The in-depth interview shows that support is felt from colleagues at the COVID-19 department. A participant indicates that her colleagues make working at the COVID-19 department better: “It feels like we are one team, and we have one job.” When frontline workers feel support from their colleagues, this could protect them from developing moral injury. To determine the effect of a supportive environment, future research is needed.

In addition, other explanations for no significant differences between the frontline workers and the control group on the moral injury symptoms can be found in the operationalization. Perhaps the questionnaires did not measure moral injury as well for this specific research. The questionnaire of moral injury focuses mainly on the distress related to the appraisal of a moral violation. It distinguishes between moral violations committed by others and moral violations committed by themselves (Hoffman et al., 2019). This research is however not interested in the appraisal of distress related to moral violation, rather to the existence of symptoms of moral injury. Perhaps a specific questionnaire could be developed that asks about moral injury symptoms related to healthcare work. Research shows that moral injury is related and even embedded in PTSD (Neria & Pickover, 2019). The results of this research show that frontline workers experience significantly more PTSD symptoms than the control group. In addition, PMIE's are a necessary but not a sufficient factor for the development of moral injury (Farnsworth et al., 2017) and in this research frontline workers experience significantly more PMIE's. The higher amount of PMIE's and PTSD symptoms could indicate that there is also a higher chance of moral injury symptoms, however that the questionnaire did not measure moral injury correctly.

Other critical notes of this research are; the duration of the questionnaire was quite long and the sample consisted of mostly highly educated women. When a questionnaire takes a long time to fill out, participants will lose attention and are more likely to quit before the end. When a sample consists of mostly highly educated women, this could affect the generalizability of the research.

Strong sides of this research are; it has a large sample, it uses a control group and it uses existing questionnaires proven to be reliable. The sample consisted of 108 participants. The control group consisted of 75 participants. Questionnaires such as the CES-R, PCL-5 and MIAS are reliable, with a Cronbach's Alpha higher than .70 (Nunnally & Bernstein, 1994).

In conclusion, frontline workers of the COVID-19 pandemic experience more PMIE's related to working at the COVID-19 department and PTSD symptoms than the normal population. Moral injury symptoms are predicted by negative feelings afterwards, event vividness and the centrality of event. There was no significant difference found between frontline workers and the normal population on moral injury symptoms, however this could be due to a supportive work environment of frontline workers or the operationalization of moral injury in this research.

Future research should focus on the operationalization of moral injury and how the development of moral injury could be prevented or treated. An interesting study of Haller et al. (2020) proposed a model for treating COVID-19-related guilt, shame, and moral injury. Trauma-informed guilt reduction therapy (Norman et al., 2019) is a short intervention of 4 to 6 sessions that helps frontline workers to review their role in a traumatic event and encourages the expression of important values. Many people overestimate their responsibility for a negative event and it is important to examine if the actions or inactions truly contributed to the negative event. In addition, an adaptive way to express values is through setting realistic goals for the future, rather than ruminating about a past event and feeling guilty.

Lastly, it is important to note that frontline workers play a key role in fighting the COVID-19 pandemic and their risk of developing PTSD and moral injury should be taken into account when possible future health crises occur. When frontline workers who experience PTSD and moral injury symptoms are diagnosed and treated at an early stage, serious psychological and physical problems could be prevented.

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Appendix A - Information folder

Dear participant,

You have indicated that you would like to participate in the study “Morally injurious experiences and psychological well-being”. Thank you for that!

Purpose of the study

This study aims to gain a better understanding of the impact of stressful experiences in people’s lives. In this study we are specifically interested in experiences in which moral dilemmas played a role. We are particularly curious about the impact of these events on emotional experience, stress complaints, and self-image. Completing the questionnaires takes about 30 - 45 minutes. The study is carried out by ARQ National Psychotrauma Center (Centrum ’45) and Utrecht University.

Consent form and data

Before you start the questionnaires, you will find a consent form. We may only use your data if you provide explicit permission for this. The e-mail address on which you received the link to this study will be stored in order to be able to process the questionnaires.

We ask you to answer the questions as honest as possible. This questionnaire is secured. In addition, the data from the questionnaires are processed confidentially (pseudo-anonymity; encrypted with a key) and are securely stored on Utrecht University's server. We are obliged to keep the coded research data for 10 years after publication. Your (personal) data will not be shared with third parties.

Other information

We highly appreciate your cooperation. Nevertheless, it is important that completing the questionnaires is not too burdensome. If this proves to be the case, you can stop at any time. If you stop before finishing the questionnaires, you can log in again later with your ID code and continue where you left off.

Need to talk to us?

If you notice that your emotional reactions to filling out the questionnaires are intense and you wish to receive advise on this, please contact the undersigned (via moreelonderzoek@arq.org). You can also contact us for other questions or comments about this study. This study has been approved by the ethics committee of the Faculty of Social Sciences of Utrecht University. If you have a complaint, you can send it to the complaints officer: klachtenfunctionaris-fetcsocwet@uu.nl.

Thank you very much in advance for your cooperation!

Sincerely,

Drs. N. Mooren (Healthcare Psychologist and PhD candidate)

Prof. Dr. P. A. Boelen

Dr. S. de la Rie (Clinical Psychologist)

Curious about the results of this study?

After finalizing the questionnaires, send an email to: moreelonderzoek@arq.org to receive the general results of the study if they have been processed and published in a research article.

Appendix B - Consent statement

for participation in the study **“Morally injurious experiences and psychological well-being”**

Dear participant,

To be able to use your data officially for our study, it is necessary that you provide formal consent. If you give consent, your data will be encrypted (pseudo-anonymity) and only the encrypted data will be used for further processing. We are obliged to keep the research data for 10 years after publication.

Withdrawing your consent

Participation is voluntary. If you decide not to participate, you do not need to take any further steps. If you do decide to participate, you can change your mind and stop at any time during the study. In addition, you can withdraw your consent after your participation (note: until December 31, 2022 at the latest). If you choose to do so, please send an email to moreelonderzoek@arq.org before December 31, 2022. We will then not include your data in the analyses.

Use of your email address

To be able to process this questionnaire, we will store the e-mail address on which you received the link to this study. The e-mail address will be manually removed from our system no later than one year after completion of the data collection (December 31, 2023). If you wish to have your e-mail address removed before this date, you can send an e-mail to moreelonderzoek@arq.org. Your e-mail address can then no longer be traced back to you as a person (and is therefore anonymous). It is therefore no longer possible to withdraw your consent (to use your data)

The data from this questionnaire will be securely stored on Utrecht University's server and only the main investigators (Drs. N. Mooren, Dr. Simone de la Rie, and Prof. Paul Boelen) will have access to it.

If you agree with this, we request that you click on ‘yes, I agree’ on the next page.

By clicking on **‘yes, I agree’** you declare the following:

- I hereby declare that I am aware of the purpose of this study
- I have read the information folder at the beginning of the questionnaire.
- I agree to the answers and the personal data (e-mail address) that I have provided are to be confidentially processed in the research.
- I am aware that participation in this study is voluntary, and I can withdraw my consent to participate at any time without giving any reason, until December 31, 2020.

If you nevertheless decide not to provide your consent, click on the next page on '**no, I don't agree**'. The questionnaire will then be closed.

Thank you for your cooperation!

Appendix C - MIEEC ARQ centrum '45 (2020)

List of experiences

After these instructions you will find a list of events that people experience in their lives. For these events you will be asked whether you have experienced a **moral conflict** or **moral dilemma**. By this we mean that the situation was strongly against your norms and values.

Below are a few examples:

- You had to choose between two “*evils*” and the outcome was negative anyway.
- During or after the event, you had many doubts about whether you made “*the right*” choice or acted “*right*”.
- The event conflicted with what you think is “*right*” or “*wrong*”.

Think back about your **WHOLE life** (both growing up and in adulthood) as you go through the list of events.

We ask you to choose one or more options:

- a) It happened to someone because of your act or omission
- b) It happened to you personally
- c) You witnessed it happen to someone else
- d) You learned about it happening to a close family member or a close friend
- e) You are not sure if it applies to you
- f) It does not apply to you

MIEEC_1: Natural disaster (for example, flood, hurricane, tornado, earthquake)

MIEEC_1_S: During this event or afterwards, did you experience a moral dilemma or moral conflict because of your own behaviour?

MIEEC_1_O: During this event or afterwards, did you experience a moral dilemma or moral conflict because of the behaviour of others?

MIEEC_1_stress: How much stress, tension or other emotions do you experience when you think back to this event?

MIEEC_2: Fire or explosion

MIEEC_2_S: During this event or afterwards, did you experience a moral dilemma or moral conflict because of your own behaviour?

MIEEC_2_O: During this event or afterwards, did you experience a moral dilemma or moral conflict because of the behaviour of others?

MIEEC_2_stress: How much stress, tension or other emotions do you experience when you think back to this event?

MIEEC_3: Transportation accident (for example, car accident, boat accident, train wreck, plane crash)

MIEEC_3_S: During this event or afterwards, did you experience a moral dilemma or moral conflict because of your own behaviour?

MIEEC_3_O: During this event or afterwards, did you experience a moral dilemma or moral conflict because of the behaviour of others?

MIEEC_3_stress: How much stress, tension or other emotions do you experience when you think back to this event?

MIEEC_4: Serious accident at work, home, or during recreational activity

MIEEC_4_S: During this event or afterwards, did you experience a moral dilemma or moral conflict because of your own behaviour?

MIEEC_4_O: During this event or afterwards, did you experience a moral dilemma or moral conflict because of the behaviour of others?

MIEEC_4_stress: How much stress, tension or other emotions do you experience when you think back to this event?

MIEEC_5: Exposure to toxic substance (for example, dangerous chemicals, radiation)

MIEEC_5_S: During this event or afterwards, did you experience a moral dilemma or moral conflict because of your own behaviour?

MIEEC_5_O: During this event or afterwards, did you experience a moral dilemma or moral conflict because of the behaviour of others?

MIEEC_5_stress: How much stress, tension or other emotions do you experience when you think back to this event?

MIEEC_6: Physical assault (for example, being attacked, hit, slapped, kicked, beaten up)

MIEEC_6_S: During this event or afterwards, did you experience a moral dilemma or moral conflict because of your own behaviour?

MIEEC_6_O: During this event or afterwards, did you experience a moral dilemma or moral conflict because of the behaviour of others?

MIEEC_6_stress: How much stress, tension or other emotions do you experience when you think back to this event?

MIEEC_7: Assault with a weapon (for example, being shot, stabbed, threatened with a knife, gun or bomb)

MIEEC_7_S: During this event or afterwards, did you experience a moral dilemma or moral conflict because of your own behaviour?

MIEEC_7_O: During this event or afterwards, did you experience a moral dilemma or moral conflict because of the behaviour of others?

MIEEC_7_stress: How much stress, tension or other emotions do you experience when you think back to this event?

MIEEC_8: Sexual assault (rape, attempted rape, made to perform any type of sexual act through force or threat of harm)

MIEEC_8_S: During this event or afterwards, did you experience a moral dilemma or moral conflict because of your own behaviour?

MIEEC_8_O: During this event or afterwards, did you experience a moral dilemma or moral conflict because of the behaviour of others?

MIEEC_8_stress: How much stress, tension or other emotions do you experience when you think back to this event?

MIEEC_9: Other unwanted or uncomfortable sexual experience

MIEEC_9_S: During this event or afterwards, did you experience a moral dilemma or moral conflict because of your own behaviour?

MIEEC_9_O: During this event or afterwards, did you experience a moral dilemma or moral conflict because of the behaviour of others?

MIEEC_9_stress: How much stress, tension or other emotions do you experience when you think back to this event?

MIEEC_10: Combat or exposure to combat (in the military or as a civilian)

MIEEC_10_S: During this event or afterwards, did you experience a moral dilemma or moral conflict because of your own behaviour?

MIEEC_10_O: During this event or afterwards, did you experience a moral dilemma or moral conflict because of the behaviour of others?

MIEEC_10_stress: How much stress, tension or other emotions do you experience when you think back to this event?

MIEEC_11: Captivity (for example being kidnapped, abducted, held hostage, prisoner of war)

MIEEC_11_S: During this event or afterwards, did you experience a moral dilemma or moral conflict because of your own behaviour?

MIEEC_11_O: During this event or afterwards, did you experience a moral dilemma or moral conflict because of the behaviour of others?

MIEEC_11_stress: How much stress, tension or other emotions do you experience when you think back to this event?

MIEEC_12: Life threatening illness or injury

MIEEC_12_S: During this event or afterwards, did you experience a moral dilemma or moral conflict because of your own behaviour?

MIEEC_12_O: During this event or afterwards, did you experience a moral dilemma or moral conflict because of the behaviour of others?

MIEEC_12_stress: How much stress, tension or other emotions do you experience when you think back to this event?

MIEEC_13: Severe human suffering

MIEEC_13_S: During this event or afterwards, did you experience a moral dilemma or moral conflict because of your own behaviour?

MIEEC_13_O: During this event or afterwards, did you experience a moral dilemma or moral conflict because of the behaviour of others?

MIEEC_13_stress: How much stress, tension or other emotions do you experience when you think back to this event?

MIEEC_14: Sudden violent death (for example homicide, suicide)

MIEEC_14_S: During this event or afterwards, did you experience a moral dilemma or moral conflict because of your own behaviour?

MIEEC_14_O: During this event or afterwards, did you experience a moral dilemma or moral conflict because of the behaviour of others?

MIEEC_14_stress: How much stress, tension or other emotions do you experience when you think back to this event?

MIEEC_15: Sudden accidental death

MIEEC_15_S: During this event or afterwards, did you experience a moral dilemma or moral conflict because of your own behaviour?

MIEEC_15_O: During this event or afterwards, did you experience a moral dilemma or moral conflict because of the behaviour of others?

MIEEC_15_stress: How much stress, tension or other emotions do you experience when you think back to this event?

MIEEC_16: Serious injury, harm, or death you caused to someone else

MIEEC_16_S: During this event or afterwards, did you experience a moral dilemma or moral conflict because of your own behaviour?

MIEEC_16_O: During this event or afterwards, did you experience a moral dilemma or moral conflict because of the behaviour of others?

MIEEC_16_stress: How much stress, tension or other emotions do you experience when you think back to this event?

MIEEC_17: Theft or burglary (e.g. in a shop, at work, on the street)

MIEEC_17_S: During this event or afterwards, did you experience a moral dilemma or moral conflict because of your own behaviour?

MIEEC_17_O: During this event or afterwards, did you experience a moral dilemma or moral conflict because of the behaviour of others?

MIEEC_17_stress: How much stress, tension or other emotions do you experience when you think back to this event?

MIEEC_18: Not being helped or left behind in a emergency (for example a victim of street violence or an accident)

MIEEC_18_S: During this event or afterwards, did you experience a moral dilemma or moral conflict because of your own behaviour?

MIEEC_18_O: During this event or afterwards, did you experience a moral dilemma or moral conflict because of the behaviour of others?

MIEEC_18_stress: How much stress, tension or other emotions do you experience when you think back to this event?

MIEEC_19: Deception (e.g. cheating, lying, withholding or concealing information)

MIEEC_19_S: During this event or afterwards, did you experience a moral dilemma or moral conflict because of your own behaviour?

MIEEC_19_O: During this event or afterwards, did you experience a moral dilemma or moral conflict because of the behaviour of others?

MIEEC_19_stress: How much stress, tension or other emotions do you experience when you think back to this event?

MIEEC_20: Invasion of privacy

MIEEC_20_S: During this event or afterwards, did you experience a moral dilemma or moral conflict because of your own behaviour?

MIEEC_20_O: During this event or afterwards, did you experience a moral dilemma or moral conflict because of the behaviour of others?

MIEEC_20_stress: How much stress, tension or other emotions do you experience when you think back to this event?

MIEEC_21: Destruction of property or belongings

MIEEC_21_S: During this event or afterwards, did you experience a moral dilemma or moral conflict because of your own behaviour?

MIEEC_21_O: During this event or afterwards, did you experience a moral dilemma or moral conflict because of the behaviour of others?

MIEEC_21_stress: How much stress, tension or other emotions do you experience when you think back to this event?

MIEEC_22: Bullying and/or exclusion (e.g. at school, at work or in private)

MIEEC_22_S: During this event or afterwards, did you experience a moral dilemma or moral conflict because of your own behaviour?

MIEEC_22_O: During this event or afterwards, did you experience a moral dilemma or moral conflict because of the behaviour of others?

MIEEC_22_stress: How much stress, tension or other emotions do you experience when you think back to this event?

MIEEC_23: Gossiping (talking in a bad way about absent others)

MIEEC_23_S: During this event or afterwards, did you experience a moral dilemma or moral conflict because of your own behaviour?

MIEEC_23_O: During this event or afterwards, did you experience a moral dilemma or moral conflict because of the behaviour of others?

MIEEC_23_stress: How much stress, tension or other emotions do you experience when you think back to this event?

MIEEC_24: Threat (e.g. on the street, at work or in private)

MIEEC_24_S: During this event or afterwards, did you experience a moral dilemma or moral conflict because of your own behaviour?

MIEEC_24_O: During this event or afterwards, did you experience a moral dilemma or moral conflict because of the behaviour of others?

MIEEC_24_stress: How much stress, tension or other emotions do you experience when you think back to this event?

MIEEC_25: Exploitation (e.g. taking advantage of someone without properly rewarding him/her)

MIEEC_25_S: During this event or afterwards, did you experience a moral dilemma or moral conflict because of your own behaviour?

MIEEC_25_O: During this event or afterwards, did you experience a moral dilemma or moral conflict because of the behaviour of others?

MIEEC_25_stress: How much stress, tension or other emotions do you experience when you think back to this event?

MIEEC_26: Discrimination (e.g. on the street, at work or in private)

MIEEC_26_S: During this event or afterwards, did you experience a moral dilemma or moral conflict because of your own behaviour?

MIEEC_26_O: During this event or afterwards, did you experience a moral dilemma or moral conflict because of the behaviour of others?

MIEEC_26_stress: How much stress, tension or other emotions do you experience when you think back to this event?

MIEEC_27: Betrayal (e.g. not being loyal to someone and thereby getting someone in trouble)

MIEEC_27_S: During this event or afterwards, did you experience a moral dilemma or moral conflict because of your own behaviour?

MIEEC_27_O: During this event or afterwards, did you experience a moral dilemma or moral conflict because of the behaviour of others?

MIEEC_27_stress: How much stress, tension or other emotions do you experience when you think back to this event?

MIEEC_28: Not being able to provide someone with necessary help or treatment that they should have received in the circumstances

MIEEC_28_S: During this event or afterwards, did you experience a moral dilemma or moral conflict because of your own behaviour?

MIEEC_28_O: During this event or afterwards, did you experience a moral dilemma or moral conflict because of the behaviour of others?

MIEEC_28_stress: How much stress, tension or other emotions do you experience when you think back to this event?

MIEEC_29: Having to collaborate with a colleague (on behalf of supervisor/manager) who was not sufficiently knowledgeable

MIEEC_29_S: During this event or afterwards, did you experience a moral dilemma or moral conflict because of your own behaviour?

MIEEC_29_O: During this event or afterwards, did you experience a moral dilemma or moral conflict because of the behaviour of others?

MIEEC_29_stress: How much stress, tension or other emotions do you experience when you think back to this event?

MIEEC_30: Carrying out work (on behalf of supervisor/manager) without feeling sufficiently knowledgeable

MIEEC_30_S: During this event or afterwards, did you experience a moral dilemma or moral conflict because of your own behaviour?

MIEEC_30_O: During this event or afterwards, did you experience a moral dilemma or moral conflict because of the behaviour of others?

MIEEC_30_stress: How much stress, tension or other emotions do you experience when you think back to this event?

MIEEC_31: Being instructed (by a supervisor/manager) to execute immoral acts

MIEEC_31_S: During this event or afterwards, did you experience a moral dilemma or moral conflict because of your own behaviour?

MIEEC_31_O: During this event or afterwards, did you experience a moral dilemma or moral conflict because of the behaviour of others?

MIEEC_31_stress: How much stress, tension or other emotions do you experience when you think back to this event?

MIEEC_32: Having to make a choice between 'two evils'. Both choices had fatal consequences.

MIEEC_32_S: During this event or afterwards, did you experience a moral dilemma or moral conflict because of your own behaviour?

MIEEC_32_O: During this event or afterwards, did you experience a moral dilemma or moral conflict because of the behaviour of others?

MIEEC_32_stress: How much stress, tension or other emotions do you experience when you think back to this event?

MIEEC_33: I have answered all the questions honestly

Totally disagree

Disagree

Slightly disagree

Not disagree/agree

Slightly agree

Agree

Totally agree

Appendix D - MR-MI ARQ centrum '45 (2020)

Memory Task: moral dilemma

We now ask you to record a different memory of a **stressful situation** in your life in which you experienced a **moral conflict or dilemma**.

By this we mean that the situation was strongly against your norms and values. Below are a few examples:

- You had to choose between two “evils” and the outcome was negative anyway.
- During or after the event, you had many doubts about whether you made “the right” choice or acted “right”.
- The event conflicted with what you think is “right” or “wrong” in the world.
- The event evokes feelings of regret and guilt afterwards, because of your own behaviour (or inaction) or the behaviour of others.

Pay attention! It is important that you choose a situation that can (still) evoke negative feelings in you when you think back to it.

Take a moment to recall a memory. You can then go to the next page.

Memory_MI_time: When did this event take place?

Last week

Last month

Last year

2-5 years ago

6-10 years ago

11-20 years ago

21-30 years ago

More than 30 years ago

Memory_MI_work: Did this event take place during work?

Yes

No

Memory_MI_MI_2: What was your moral conflict or moral dilemma?

Fill in

Memory_MI_fear: I felt fear during this event

Strongly disagree

Disagree

Slightly disagree

Not disagree/agree

Slightly agree

Agree

Strongly agree
Memory_MI_horror: I felt horro during this event
Strongly disagree
Disagree
Slightly disagree
Not disagree/agree
Slightly agree
Agree
Strongly agree
Memory_MI_joy: I felt joy during this event
Strongly disagree
Disagree
Slightly disagree
Not disagree/agree
Slightly agree
Agree
Strongly agree
Memory_MI_panic: I felt panic during this event
Strongly disagree
Disagree
Slightly disagree
Not disagree/agree
Slightly agree
Agree
Strongly agree
Memory_MI_shame: I felt shame during this event
Strongly disagree
Disagree
Slightly disagree
Not disagree/agree
Slightly agree
Agree
Strongly agree
Memory_MI_guilt: I felt guilt during this event
Strongly disagree
Disagree
Slightly disagree
Not disagree/agree
Slightly agree
Agree
Strongly agree
Memory_MI_sadness: I felt sadness during this event
Strongly disagree
Disagree

Slightly disagree
Not disagree/agree
Slightly agree
Agree
Strongly agree

Memory_MI_disgust: I felt disgust during this event

Strongly disagree
Disagree
Slightly disagree
Not disagree/agree
Slightly agree
Agree
Strongly agree

Memory_MI_anger: I felt anger during this event

Strongly disagree
Disagree
Slightly disagree
Not disagree/agree
Slightly agree
Agree
Strongly agree

How strong are your emotions now when you think back to them?

0 = not strong/intense
100 = very strong/intense

Memory_MI_vividness: My memory for this event is very vivid

Strongly disagree
Disagree
Slightly disagree
Not disagree/agree
Slightly agree
Agree
Strongly agree

Memory_MI_self: This memory determines how I see myself

Strongly disagree
Disagree
Slightly disagree
Not disagree/agree
Slightly agree
Agree
Strongly agree

Memory_MI_details: My memory for this event involves a lot of sensory information
(sounds, smells, tastes, etc.)

Strongly disagree
Disagree

Slightly disagree
Not disagree/agree
Slightly agree
Agree
Strongly agree

Memory_MI_accessible: This memory was easy for me to recall

Strongly disagree
Disagree
Slightly disagree
Not disagree/agree
Slightly agree
Agree
Strongly agree

Memory_MI_coherence: The order of the events in the memory are clear

Strongly disagree
Disagree
Slightly disagree
Not disagree/agree
Slightly agree
Agree
Strongly agree

Memory_MI_sharing: Since it happened, I have talked about this event many times

Strongly disagree
Disagree
Slightly disagree
Not disagree/agree
Slightly agree
Agree
Strongly agree

Memory_MI_distance: I feel like the person in this memory is a different person than who I am today

Strongly disagree
Disagree
Slightly disagree
Not disagree/agree
Slightly agree
Agree
Strongly agree

Memory_MI_field: I see the experience in the memory through my own eyes

Strongly disagree
Disagree
Slightly disagree
Not disagree/agree
Slightly agree

Agree

Strongly agree

Memory_MI_observer: In my memory, I see this experience through the eyes of others

Strongly disagree

Disagree

Slightly disagree

Not disagree/agree

Slightly agree

Agree

Strongly agree

Appendix E - CES-R

Instruction

You have just written down a memory of a stressful or threatening event.

Now several questions will follow about what this event means to you.

CES_MI_1: I feel that the event has become part of my identity

- Strongly disagree
- Disagree
- Slightly disagree
- Not disagree/agree
- Slightly agree
- Agree
- Strongly agree

CES_MI_2: This event has become a reference point for the way I understand myself and the world

- Strongly disagree
- Disagree
- Slightly disagree
- Not disagree/agree
- Slightly agree
- Agree
- Strongly agree

CES_MI_3: I feel that this event has become a central part of my life story

- Strongly disagree
- Disagree
- Slightly disagree
- Not disagree/agree
- Slightly agree
- Agree
- Strongly agree

CES_MI_4: This event has coloured the way I think and feel about other experiences

- Strongly disagree
- Disagree
- Slightly disagree
- Not disagree/agree
- Slightly agree
- Agree
- Strongly agree

CES_MI_5: This event permanently changed my life

- Strongly disagree
- Disagree

Slightly disagree
Not disagree/agree
Slightly agree
Agree
Strongly agree

CES_MI_6: I often think about the effects this event will have on my future

Strongly disagree
Disagree
Slightly disagree
Not disagree/agree
Slightly agree
Agree
Strongly agree

CES_MI_7: This event is turning point in my life

Strongly disagree
Disagree
Slightly disagree
Not disagree/agree
Slightly agree
Agree
Strongly agree

Appendix F - PCL-5

Instruction

Please answer the following questions for the last memory you wrote previously.

This means: the memory of the **morally injurious event** where you experienced a moral dilemma or conflict.

Part 3: Below is a list of problems that people sometimes have in response to a very stressful experience. Keeping your worst event in mind, please read each problem carefully and then circle one of the numbers to the right to indicate how much you have been bothered by that problem in the past month.

Instructions: Below is a list of problems that people sometimes have in response to a very stressful experience. Please read each problem carefully and then circle one of the numbers to the right to indicate how much you have been bothered by that problem in the past month.

<i>In the past month, how much were you bothered by:</i>	<i>Not at all</i>	<i>A little bit</i>	<i>Moderately</i>	<i>Quite a bit</i>	<i>Extremely</i>
1. Repeated, disturbing, and unwanted memories of the stressful experience?	0	1	2	3	4
2. Repeated, disturbing dreams of the stressful experience?	0	1	2	3	4
3. Suddenly feeling or acting as if the stressful experience were actually happening again (<i>as if you were actually back there reliving it</i>)?	0	1	2	3	4
4. Feeling very upset when something reminded you of the stressful experience?	0	1	2	3	4
5. Having strong physical reactions when something reminded you of the stressful experience (<i>for example, heart pounding, trouble breathing, sweating</i>)?	0	1	2	3	4
6. Avoiding memories, thoughts, or feelings related to the stressful experience?	0	1	2	3	4
7. Avoiding external reminders of the stressful experience (<i>for example, people, places, conversations, activities, objects, or situations</i>)?	0	1	2	3	4
8. Trouble remembering important parts of the stressful experience?	0	1	2	3	4
9. Having strong negative beliefs about yourself, other people, or the world (<i>for example, having thoughts such as: I am bad, there is something seriously wrong with me, no one can be trusted, the world is completely dangerous</i>)?	0	1	2	3	4
10. Blaming yourself or someone else for the stressful experience or what happened after it?	0	1	2	3	4
11. Having strong negative feelings such as fear, horror, anger, guilt, or shame?	0	1	2	3	4
12. Loss of interest in activities that you used to enjoy?	0	1	2	3	4
13. Feeling distant or cut off from other people?	0	1	2	3	4
14. Trouble experiencing positive feelings (<i>for example, being unable to feel happiness or have loving feelings for people close to you</i>)?	0	1	2	3	4
15. Irritable behavior, angry outbursts, or acting aggressively?	0	1	2	3	4
16. Taking too many risks or doing things that could cause you harm?	0	1	2	3	4
17. Being "superalert" or watchful or on guard?	0	1	2	3	4
18. Feeling jumpy or easily startled?	0	1	2	3	4
19. Having difficulty concentrating?	0	1	2	3	4
20. Trouble falling or staying asleep?	0	1	2	3	4

Appendix G - MIAS

Morally injurious events

Sometimes things happen that we think are morally wrong. People do things, are forced to do things, or witness things that go against what they believe is right. The statements on the next page are about your experiences with such situations.

Please indicate to what extent you agree with the following statements.

There are no right or wrong answers.

	Strongly agree				Strongly disagree
1. I am troubled by morally wrong things done by other people	1	2	3	4	
2. I am troubled because I saw other people do things that were morally wrong	1	2	3	4	
3. I am troubled because I heard about other people doing things that were morally wrong	1	2	3	4	
4. I am troubled because other people have acted against important moral rules	1	2	3	4	
5. I am troubled because I did things that were morally wrong	1	2	3	4	
6. I am troubled because I acted against important rules	1	2	3	4	
7. I am troubled by morally wrong things I have done	1	2	3	4	
8. I went against my own morals by failing to do something I should have done	1	2	3	4	
9. I am troubled because I acted in ways that went against my own moral code or values	1	2	3	4	

Appendix H - Debriefing

Closing

Dear Sir/Madam,

Thank you for your participation in the study "Morally injurious experiences and psychological well-being".

This study aims to increase insight into what stressful/traumatic experiences people have had in their lives. In this study we are specifically interested in experiences in which moral dilemmas also played a role and the impact of these events on emotional experiences, stress complaints, way of thinking and self-image.

Your participation contributes to knowledge about the psychological consequences of stressful experiences. That knowledge can help improve the treatment of these consequences.

Need to talk to us?

If you notice that your emotional reactions to the study are intense and you would like advice on this, please contact the undersigned information. This is also possible if you need to talk to us for another reason. We can then schedule a phone call to discuss your questions or concerns.

If you wish to talk to us, you can contact us by sending an email to:
moreelonderzoek@arq.org.

We thank you again for your cooperation!

Kind regards,

Drs. Nora Mooren (Healthcare psychologist and PhD candidate)

Prof. dr. Paul Boelen

Dr. Simone de la Rie (Clinical psychologist)

Appendix I - In-depth interview (Dutch)

Participant A. - Longverpleegkundige bij het Erasmus MC Rotterdam, werkzaam op de COVID-19 afdeling

“Hoe zou je een dag werken op de COVID-19 afdeling omschrijven?”

Ik zou het omschrijven als hectisch, onvoorspelbaar maar ook leerzaam. Het is hectisch omdat de COVID-19 afdeling een bij elkaar geraapt zootje van middelen, uitzendkrachten en verpleegsters is. Je kent je team nog niet goed genoeg en staat altijd voor nieuwe verrassingen. Ten tweede, het is onvoorspelbaar omdat er tegelijkertijd heel veel mensen in kunnen storten. Ik heb gezien dat mensen heel snel achteruit kunnen gaan. Opeens kan een patiënt in kritieke toestand naar de IC moeten worden gebracht of dat de optiflow (zuurstof) moet worden verhoogd. Wanneer meerdere patiënten opeens instorten is dit soms veel werk tegelijkertijd en dan moet je snel keuzes maken. Tot slot, het is leerzaam. Je ziet verschillende ziektebeelden in combinatie met COVID-19 en dit is erg interessant. COVID-19 is ook een nieuw ziektebeeld en er zijn nog vele onderzoeken ernaar gaande. Je werkt daarnaast ook veel met verschillende disciplines wat het interessant maakt.

“Hoe was de eerste golf van Corona?”

Dit was echt niet leuk. Je moet er misschien van houden. Al die hectiek en paniek. Ik zelf vond het echt niet leuk. In het begin was COVID-19 natuurlijk super onbekend voor iedereen. Het voelde beangstigend. Het was overal in het nieuws en wij, verpleegsters, zouden er als eerst mee in aanraking komen. Het was heel onvoorspelbaar. Ik weet niet helemaal hoe het was met mijn eerste patiënt. Het ging zo snel allemaal. Het voelt nog een beetje als een waas. Ik weet nog wel dat we op de longafdeling 8 bedden hadden en op een gegeven moment ging het niet meer. Ze kwamen met colonnes naar ons toe vanaf breda. We liepen over. Er waren heel veel opnames. Toen werd er naast de longafdeling de tijdelijke COVID-19 afdeling opgesteld. De ondersteuning van defensie was opzich wel leuk. Het voelde alsof we een team waren en een taak hadden.

Ik heb mijn moeder in het begin een maand niet gezien. Je wist natuurlijk nog niet wat Corona was. Mijn opa en oma heb ik bijna een jaar gezien. Die wilde ik natuurlijk echt niet aansteken. Maar over mijn eigen gezondheid heb ik me geen zorgen gemaakt. Ik was wel heel bang andere mensen te besmetten. Ook andere patiënten die niet op de COVID-19 afdeling lagen bijvoorbeeld.

Er werd echt super veel van iedereen gevraagd. We moesten dingen doen waar we eigenlijk nog niet bekwaam voor zijn. Er waren bijna geen pauzes. We moesten heel veel overwerken. Eerst je werk afmaken voordat je naar huis gaat.

Collega's waren wel heel ondersteunend. Je collega moest echt zeggen: “Ga naar huis. Je hebt genoeg gedaan”. We letten wel elkaar. Behalve in een acute situatie. Dan is het even een situatie van leven of dood.

In het begin hadden we het er niet heel erg over met elkaar. We waren denk ik te druk met overleven. Later hebben we het er wel over gehad. Toen kwamen er pas verhalen naar boven. Dit was fijn om met elkaar te delen.

Wat er voornamelijk in het werk is veranderd is dat we met mondkapjes werken. We merken ook dat mensen steeds zieker naar het ziekenhuis. Iedereen was beetje bang. Dat maakt het werk iets zwaarder. Omdat mensen nog langer de tijd nodig hebben om op te knappen.

Wat mij het meest is bijgebleven van de eerste golf is de snelle achteruitgang van mensen. Het gevoel dat je niks kon doen. We hadden toen nog niet de juiste medicijnen en kennis en daardoor voel je je machteloos. Ik heb kern gezonde mensen heel snel zien overlijden. Daarnaast vond ik heftig dat je alleen overlijdt. Wij hadden een geval van een oud stel. Ze hadden allebei Corona en de vrouw is uiteindelijk alleen op de IC overleden. De man is uiteindelijk beter geworden maar heeft geen afscheid kunnen nemen. Hij was er kapot van. Dit vond ik heel heftig.

“Hoe was de tweede golf van Corona?”

De tweede golf was anders. We waren meer voorbereid op wat er kwam maar dachten “Oh nee hier gaan we weer”. Veel mensen hadden geen zin meer en we gingen ons irriteren aan gewone burgers. Veel burgers hielden zich niet meer aan de regels, terwijl het in de ziekenhuizen super druk was.

We zagen ook dat mensen moeite hadden met opknappen na Corona. Dit was vaak een lange weg. We zagen veel gevallen van het Post Intensive Care Syndroom (PICS). Dit is een soort PTSS die is ontwikkeld door de heftige ervaringen op de ic. Mensen hadden de verschrikkelijkste dingen meegemaakt en gezien en moesten hier echt van bijkomen.

“Hoe was derde golf van Corona?”

Nog meer frustratie aan burgers. Aan de ene kant wil ik zelf ook naar het terras enzo, maar we moeten nog even volhouden. Echt een tweestrijd. Vaccineren gaf wel houvast. Het komt ooit goed en we gaan eruit komen met z'n alle.

“Er is/was kans op code zwart, hoe is/was dat?”

Code zwart maakte heel veel indruk op mij. Ik vond het heel bizar en eng. Ik was er echt verdrietig van. Ik dacht dit wil echt niemand. Ik ging andere mensen blamen ervoor. De normale burgers. Het was heel heftig. Code zwart werd uitgelegd door professors in een online meeting. Er waren verschillende fases die konden worden bereikt. Als de ergste fase zou worden bereikt zouden er geen reanimaties meer plaatsvinden, loting voor de ic ongeacht leeftijd en of je COVID-19 hebt en sneller optiflow afbouwen. Dit zou kunnen betekenen dat als jij 18 bent en net een ongeluk hebt gehad met de auto, je kunt worden uitgeloot voor de IC en zal komen te overlijden. Ik heb het er niet over gehad met collega's. We waren er stil van. Gelukkig is het niet zover gekomen.

“Wat voor soort dilemma's maak je mee?”

Optiflow (zuurstof) wel of niet? Vaak heb je te weinig plek om iedereen zuurstof te geven. Dan moet je kiezen: Wie wel? Ik mag mee beslissen. Ik werk er nog maar een jaar, maar omdat ik longverpleegkundige ben, en al met optiflow had gewerkt, had ik soms de verantwoordelijkheid voor mijn team. We gingen dan kijken naar comorbiditeit. En kozen iemand met goede vooruitzichten.

Soms moet je keuzes maken waarvan je weet dat de patiënt kan komen te overlijden. Optiflow is natuurlijk maar tijdelijk. Uiteindelijk zal de patiënt zelf genoeg zuurstof binnen moeten krijgen. Dit is soms lastig. Wanneer bouw je optiflow af? Soms wisten wij dat een patiënt niet zonder de optiflow zou kunnen, maar moesten wij afbouwen. Dit is wel heel moeilijk, want dan bepaal jij eigenlijk wanneer iemand komt te overlijden.

“Heb je voor een moreel dilemma gestaan? Zoals werk uitvoeren wat je niet kunt of iemand niet de juiste zorg kunnen verlenen?”

Heel veel. Ik zie dat heel veel. Heel erg in het begin. Ik kreeg als longverpleegkundige heel veel verantwoording. Maar ik had helemaal niet veel ervaring. Je hebt hele instabiele patiënten en een nieuw team. Ik vond eigenlijk dat ik zelf niet bekwaam genoeg was om over het team te leiden, maar er was geen andere keus.

Wij kregen vaak op de afdeling patiënten van de IC die daar eigenlijk nog hadden moeten blijven. Het liefst zou je ze terug willen sturen, maar je weet dat daar geen plek meer is. Dit vond ik ook heel moeilijk. En dan deden we maar wat konden. Dit gaf stress en dubbele gevoelens.

“Hoe was dat? Hoe ging je daar mee om? Neem je deze zorgen mee naar huis?”

Ik had zeker in het begin heel veel stress. Niet op gezonde manier. Ik ging minder eten en slechter slapen. Ik vermeed mijn eigen klachten een beetje. Ik dacht: “Het is zoals het is. En het gaat voorbij”. Het gaat nu wel beter. Maar als ik weet dat ik op de COVID-19 afdeling sta voor de shift, ga ik wel een beetje met tegenzin naar mijn werk.

“Ervaar jij psychologische klachten vanwege COVID-19?”

Klein beetje. Vooral in het begin. Meer last van angst klachten. Pre shift stress. Heel erg zorgen maken van tevoren wat er allemaal mis kan gaan tijdens je werk. Meestal viel het dan in het echt wel mee, maar dan kon ik echt buikpijn hebben van tevoren of niet kunnen slapen. Je wist gewoon dat het een lange, drukke, moeilijke shift zou worden.

“Zijn er collega's die psychologische klachten hebben ontwikkeld vanwege COVID-19?”

Ja! Mijn klachten vallen nog mee. Er gingen soms mensen huilend van werk. Er zijn een paar collega's die niet op de COVID-19 willen staan. Ik heb collega's die drie maanden nachtmerries hebben gehad. Nachtmerries over het feit dat je naast het bed staat en je kan niks doen. Geen controle. Maar je voelt je wel verantwoordelijk.

“Als er in de toekomst weer een pandemie ontstaat, hoe zou het zorgpersoneel hier mee om moeten gaan? Zou er bijvoorbeeld psychologische ondersteuning moeten komen?”

Mijn beste advies is dat er bekwaam personeel geplaatst wordt op de afdeling. En het personeel goed begeleiden. Het liefst ervaren mensen. Niet nieuwe studenten, zoals nu, die verzopen helemaal in alle hectiek en stress. Meer psychologische ondersteuning is ook zeker een goed idee. Het liefst een actieve psycholoog die er is. In plaats van nu: je kan me bellen. Er moet echt worden opgepassen voor burn outs. Je merkt bijvoorbeeld dat mensen harder worden. Mensen worden onverschillig als ze weer een hele zieke patiënt zien, omdat ze er al zoveel hebben gezien. Als een soort zelfbescherming misschien. Maar het is wel zonde. Ik merk bijvoorbeeld dat ik vroeger veel sneller ging rennen voor patiënten. Als ik nu zie dat iemands saturatie (zuurstofgehalte in het bloed) heel laag is, raak ik niet meer in paniek en denk ik die patiënt wacht maar even. Terwijl het wel heel erg vervelend is voor de patiënt en zelfs gevaarlijk kan zijn.

“Heb je een moreel dilemma meegemaakt op de COVID-19 afdeling?”

Participant B

“Bij een instabiele patiënt zorg moeten geven tijdens het inwerken”

Participant C

“Doorgaan met behandelen terwijl een patiënt al uitbehandeld is. Stoppen met behandelen zou patiënt snel komen te overlijden, doorgaan met behandeling had een negatief effect op het kwaliteit van leven. Familie wilde nog afscheid komen nemen, alleen duurde het een aantal dagen voordat alle familieleden langs konden komen. De familie stond erop om iedereen afscheid te laten nemen, terwijl de patiënt steeds oncomfortabel werd. Patiënt was niet meer wilsbekwaam dus familie besloot hoe het behandeltraject eruit zou zien. Doorgaan met behandelen ging tegen mijn gevoel in omdat de patiënt steeds benauwder werd. Meer morfine mochten we niet geven omdat hij dan rustig in slaap zou vallen, en waarschijnlijk niet meer wakker zou worden. Hierdoor kon de familie geen afscheid meer nemen. In mijn ogen heb ik de patiënt onnodig laten lijden.”

Participant D

“Tijdens mijn nachtdienst twee kritieke patiënten hebben die eigenlijk allebei op de ic hadden moeten liggen en niet op een verpleegafdeling. Door beddendruk tijdens de Corona crisis was daar geen plek. Een patiënt is uiteindelijk overleden. Dat je weet dat deze patiënt hier niet veilig ligt. Dat hij op de ic moest liggen en het misschien dan wel overleeft had.”

Participant E

“Iemand injecteren met antroposofische medicatie, geen bijsluiter of weten wat er in de injectie aanwezig is/was. Het niet willen injecteren van deze middelen, collega en zorgvrager vonden dat ik het wel moest doen.”

Participant F

“Als verpleegkundige komen er vooral ervaringen naar voren die betrekking hebben op wel of niet doorgaan met behandelen van een patiënt waarvan de kans zo klein is dat de behandeling effect gaat hebben en de behandeling naar mijn gevoel enkel de levensverwachting verlengt en niet kwaliteit levert als behandeling, maar door het bespreekbaar maken met collega's kan ik deze situaties eigenlijk altijd positief afsluiten.”

Participant G

“Ik heb meerdere malen tijdens mijn stage in de gezondheidszorg meegemaakt dat ik taken kreeg waar ik uiteindelijk nog niet bevoegd voor was. Dit ging tegen mijn eigen principes in.”

Participant H

“Ik moest iemand verzorgen in opdracht van mijn leidinggevende, waar ik het moreel en ethisch niet mee eens was.”

Participant I

“Een patiënt (69 jaar) is met een toevallsbevinding COVID-19 opgenomen op de COVID-19 unit toen zij voor radiotherapie kwam. De eerste twee dagen is zij stabiel, zelfstandig en licht zuurstofbehoefstig. Zij en de familie maken zich geen zorgen, alleen om het recent gediagnosticeerde tongcarcinoom. Op dag 3 van opname werk ik een avonddienst en tref ik haar aan het begin van de dienst aan met een saturatie van 72%. Uiteindelijk krijg ik haar met 15L zuurstof (maximaal mogelijk op afdeling) op een saturatie van 88% (streef 94%) en AH38. Ik heb de arts erbij gehaald, deze is het met mij eens dat zij hard achteruit gegaan is en het niet goed gaat. Ondertussen blijft de saturatie dalen. Hij heeft de IC in consult gevraagd aangezien patiënt nog een volledig beleid heeft en zij qua klinisch beeld richting IC-behoefstig gaat. IC komt erbij, waardoor er een moeilijke situatie ontstaat. De IC-arts heeft overlegd met de oncologie, waarbij de prognose besproken wordt als de behandeling eventueel weken stil komt te liggen door de IC-opname. Ook is de vraag of patiënt een IC opname wel aankan op dit moment met dit onderliggend lijden en hoe zij hieruit gaat komen. De prognose en herstel als zij naar de IC zal gaan is volgens de IC-arts slecht, en de kans dat zij er niet meer af komt is groot. Aan de andere kant heb je een patiënt die heel bewust gekozen heeft om te gaan vechten tegen de kanker, nog jong is en lichamelijk in goede conditie was. Zonder kanker was de keuze tot IC-opname vrij eenvoudig geweest. Als de patiënt niet naar de IC gaat is de kans op overlijden groot, waarschijnlijk zelfs in korte tijd. De keus is tussen twee kwaden, waarbij deze keus uit het niets ineens gemaakt moet worden laat op de avond. Hierbij was het mijn taak om de patiënt te begeleiden in deze situatie en in het maken van haar keuze. Hierbij moest ik moest bewaken dat ik de keuze bij haar liet en ik niet te sturend was in mijn communicatie. Daarbij moest ik ook haar zoon opvangen en informeren, welke ook opeens levenskeuzes met zijn moeder moest gaan maken. En dat alles binnen een

bestek van 3 dagen na een toevalsdiagnose COVID-19. Hierbij heb ik 's avonds laat nog hele gesprekken gevoerd over de zin van het leven en geprobeerd de patiënt de keuze te laten maken welke voor haar het beste was. Zij was heel angstig, waardoor ik veel bij haar gezeten heb en haar heb ondersteund waar ik dat kon. Uiteindelijk heeft patiënte ervoor gekozen niet meer naar de IC te gaan, ze was volgens haar te uitgeput om verder te vechten. Er is nog kort optiflow geprobeerd als tussenoplossing, maar 1,5 dag na mijn avonddienst is mw al overleden. Hierbij vraag ik mij vaak af of het anders had gelopen als zij naar de IC was gegaan en of ik niet te sturend ben geweest in mijn gesprekken met haar. Dit is ook het geval bij alle andere COVID-19-patiënten in soortgelijke situaties.”

Participant J

“Zorg moeten leveren voor een patiënt terwijl ik mij hier niet voldoende toe in staat voelde. Als ik deze patiënt niet verzorgde, dan zou deze patiënt niet, of pas veel later, zijn benodigde zorg krijgen. Ik heb de zorg uiteindelijk wel geleverd en dit is goed afgelopen, maar hier heb ik mij wel vervelend over gevoeld. Enerzijds de patiënt graag nu willen helpen, maar anderzijds niet de benodigde deskundigheid bezitten.”

Participant K

“De keus moeten maken wie er van de COVID-19 patiënten op de IC blijft en wie wordt teruggestuurd naar de verpleegafdeling. COVID-19 is erg onvoorspelbaar en zelfs patiënten met goede prognoses (geen voorgeschiedenis van ziektes en van relatieve jonge leeftijd) kunnen plotseling heel erg snel achteruit gaan. Soms zijn er patiënten met goede prognoses teruggestuurd naar de verpleegafdeling, simpelweg omdat de IC niet genoeg capaciteit meer had, en zijn alsnog komen te overlijden.”

Participant L

“Je machteloos voelen omdat je een patiënt niet beter kunt maken.”

Participant M

“Ik moest kiezen tussen overwerken en voor mij zelf kiezen en naar huis gaan. Ik vond dit moeilijk omdat ik echt helemaal kapot was en net een nachtdienst had gehad. Maar ik wilde ook mijn collega's niet in de steek laten.”

Participant N

“Onmacht voelen wanneer je patiënten niet kunt helpen. Op de COVID-19 afdeling krijgen patiënten niet de kans om afscheid te nemen van hun naaste. Ik vond dit verschrikkelijk om te zien. Dat je niet eens waardig kunt overlijden omdat het besmettingsgevaar te groot is. Het liefst zou ik de familie bij de patiënt laten, maar dat kan niet vanwege het besmettingsgevaar.”

Participant O

“Samenwerken met iemand die niet deskundig genoeg was. Dit komt heel veel voor, maar soms is het niet anders. Je wilt goede zorg verlenen maar hebt ook alle stagiairs nodig die er zijn.”