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**Moral Injury and Moral Self-Image in Healthcare Workers: Centrality of Event as  
a Moderator**

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## **Abstract**

Moral Injury (MI) is a construct that refers to the severe distress, and functional impairments individuals may experience after exposure to traumatic events violating their moral beliefs and values. MI, encompassing two dimensions, MI-Self (violations by oneself) and MI-Others (violations by others), may conflict with one's morals and challenge their moral integrity and self which may lead to developing adverse psychological outcomes. There is growing recognition of MI in healthcare, and the present study aimed to widen the scope of MI and its possible associations with different psychological constructs in a healthcare context. A simple regression analysis was conducted between MI (with MI-Self and MI-Others independently) and moral self-image, to see if MI did challenge one's moral integrity and influence their moral self-image, as well as a moderation analysis between MI (X), moral self-image (Y), and centrality of (morally injurious) event (M). Additionally, a multiple regression analysis was performed to explore the association of these three separate variables to PTSD. 95 participants completed an online survey with five questionnaires on MI and psychological well-being. Results showed significant positive association between MI and moral self-image (for the subscales, same results only for MI-Others), and nonsignificant moderation of centrality of event, and MI and centrality of event significantly predicted PTSD, while moral self-image was nonsignificant. Further research is needed to understand these associations better.

Morality is a complex but essential aspect of human behavior that is important in guiding our actions and decisions (Thornhill & Fincher, 2014) and is closely linked to moral injury (MI). MI describes the negative consequences, including the profound and persistent psychological distress, and biological, spiritual, behavioral, and social effects, of engaging in, failing to stop or prevent, or witnessing acts that transgress one's own deeply held moral beliefs, values, and expectations (Litz et al., 2009; Molendijk et al., 2022). Although not every violation leads to MI (Farnsworth et al., 2017), experience of morally injurious events can have an impact on an individual's sense of self, in which their beliefs and feelings about themselves may be challenged regards to their moral values and actions (Aquino & Reed, 2002).

An individual's morally injurious experience can cause intense feelings of guilt, shame, grief, and betrayal, and previous research has shown that such experiences can then lead to alterations in cognitions and beliefs (Williamson et al., 2021; Currier et al., 2019; Brock & Letitini, 2012). These challenged cognitions and beliefs and altered appraisals (e.g., "I am a failure, I could not prevent it", "The world is a cruel and unjust place") and the loss of meaning and purpose in life are considered to lead to the development of psychological problems. Correspondingly, Bandura's (1991, 2001) socio-cognitive theory of moral identity also suggests MI as a specific experience that combines one's self-structure, emotional dimension, and cognitive evaluation. MI also encompasses two dimensions: MI-Self (violations by oneself) and MI-Others (violations by others), which both have been respectively linked with negative psychological outcomes (Koenig & Al Zaben, 2021).

Although the research on MI has traditionally been focused on the military, there is growing recognition of the prevalence of MI in other settings, including healthcare (Haight et al., 2016). While research is still limited, it has become apparent during COVID-19 pandemic that

MI has become a prevalent concern in healthcare settings. Dzau and colleagues (2020) even suggested that there may be a “parallel pandemic” associated with healthcare workers during the COVID-19, as they were exposed to an increased number of morally injurious events. However, in general, healthcare professionals often experience moral conflicts in high-stress situations (e.g., providing care to patients who are suffering or dying). Making medical decisions under economic, legal, and institutional pressures may also challenge their moral integrity. As Talbot and Dean (2018) argue, “*The moral injury of healthcare is not the offense of killing another human in the context of war. It is being unable to provide high-quality care and healing in the context of health care.*” It is, therefore, important to understand the nature and prevalence of MI among healthcare professionals.

As previously mentioned, the impact that MI may have on an individual’s sense of self is an important aspect to especially comprehend. The transgressions and violations, first and foremost, conflict with what is part of one’s sense of oneself as a person regarding moral integrity which may lead to developing adverse psychological outcomes, since encountering such experiences could lead individuals to question their worth and character (Fisher & Exline, 2010). More explicatively, intense feelings of guilt, shame, and moral dissonance caused by moral violations, which then create alterations in cognitions and beliefs about the self, others, and the world, may primarily challenge an individual’s sense of moral coherence, leading to a shift in moral self-image (Litz et al., 2009).

Jordan and colleagues (2015) define moral self-image as a dynamic and malleable moral self-concept, meaning that the perceptions of an individual’s morality can impact their behaviors, while also getting impacted by social and situational factors, leading to changes in their moral self-view at any moment. MI, whether experienced through self-transgression or witnessing

transgressions of others, has previously been found to associate with negative impacts on moral self-image in war veterans (Currier et al., 2019; Litz et al., 2009). It should be acknowledged that morality, including ethics, is an integral part of healthcare workers' professional life, in addition to their already existing individual morals. Healthcare professionals, for instance, still swear to the Hippocratic Oath (Meskó & Spiegel, 2022). Moreover, healthcare workers were considered the world's most ethical and trusted professionals by Global Trustworthiness Index (McCarthy, 2022). However, they may engage in or be exposed to unethical actions frequently, much more often than anyone can imagine (Mazar et al., 2008; Gino et al., 2009). These pressures, along with the increased risk of exposure to morally injurious violations, healthcare workers may be at risk of having discrepancies with moral self-image that may eventually lead to further psychological problems (Nash et al., 2013; Bryan et al., 2016).

Findings suggest that the association between MI and moral self-image is crucial to investigate to prevent or treat further developing symptoms and associated mental health and well-being problems. Despite the limited research, there may be other factors playing a role in this association that needs further investigation, such as the centrality of the morally injurious event. In the research field of trauma, the chance of developing PTSD has been found to increase when a traumatic event was centrally integrated into one's memory and personality (Bernsten & Rubin, 2006). Centrality of event refers to the degree to which an event is integrated into one's self-concept, meaning that some events may be more central to an individual and their self-concept. These events are more likely to be associated with negative consequences. Studies that have investigated the association between MI and moral self-image have also looked into the centrality of event and demonstrated that the association between MI and moral self-image was stronger when a morally injurious event was highly central to the self and self-concept (Nash &

Litz, 2013; Riley & Park, 2014; Currier et al., 2015). While examining the relationships among MI, moral self-image, and centrality of event, it is apparent that investigating the distinctions between transgressions committed by oneself (MI-Self) and those committed by others (MI-Other) may also be crucial too. By delving into these relationships, valuable insights can be gained.

Lastly, MI was found to be significantly associated with adverse mental health outcomes, including post-traumatic stress disorder (PTSD) (Williamson et al., 2018; Griffin et al., 2019; Norman et al., 2018). MI is closely linked to PTSD, and it is even debated if it should be a subcategory of PTSD (Neria & Pickover, 2019). Regardless of the ongoing debate, recent studies cautioned healthcare workers are at risk of developing MI as well as PTSD. Moreover, even though it is demonstrated that MI significantly associates with PTSD, there is no specific study, focusing on healthcare workers, that have investigated how moral self-image and/or centrality of event may play a role.

All in all, this research aims to gain further insight into MI research in healthcare professionals, investigating MI (additionally, MI-Self/Others) and its relation to moral self-image, and what role centrality of events may play in this relation. Along with the association of these separate variables to PTSD, although it is not the main focus. To answer the research questions: (1) “How does moral injury (MI, MI-Self, MI-Others) associate with one’s moral self-image in a healthcare professional sample?”, (2) “Does centrality of (morally injurious) event moderate the association between MI and moral self-image?” and (3) “Can PTSD be predicted by MI, moral self-image, and centrality of events?”, firstly, it is hypothesized that MI (including all three constructs) will negatively associate with moral self-image ( $H_1$ ). Secondly, it is hypothesized that centrality of event will significantly moderate this relationship ( $H_2$ ). Lastly, it

is hypothesized that MI, moral self-image, and centrality of event will significantly predict PTSD symptoms (H<sub>3</sub>).

## **Method**

### ***Participants***

69 participants were recruited through social media platforms (see Appendix A). Target group was healthcare workers, excluding mental healthcare workers. As the current study was part of a larger survey project on health professionals, data were merged with other datasets from other researchers, creating a larger sample size (N = 141). 33 participants were excluded from merging, not meeting the target group criteria, and missing answers, resulting in a total of 108 participants.

### ***Design***

An online cross-sectional quantitative survey was used. Participants completed an extensive set of questionnaires on moral injury and psychological well-being, taking approximately 25 minutes. The survey was translated into Turkish by the current researcher by ensuring that the translation did not introduce any biases or errors. To check for linguistic validation as well as overall clarity, ease of comprehension, and average time of completion, survey was piloted on 5 Turkish volunteers who were bilinguals. Feedback was received, and no changes needed to have been carried out.

### ***Procedure***

Participants had the option to complete the survey in English or Turkish via Qualtrics. They were first asked to give their consent and were informed that participation was voluntary, and they could stop at any time (See Appendix B). They were also assured that confidentiality would be maintained throughout the research process. If wished, participants could continue with the questionnaire within a week. Then, participants filled out five questionnaires. Questionnaires on MI were introduced by asking participants to think about an event that caused them a



potential moral dilemma or moral injury and to answer the following questions taking these events into account. Upon completion, participants were debriefed on the purpose of the research and were given information on who to contact or reach out to in case of any need.

To be able to qualify for merging, datasets were investigated to see if all five of the questionnaires were administered to participants. Out of the other datasets, only one was qualified for merging, which was a Dutch healthcare professional sample, excluding mental healthcare workers. The merged datasets were identical in terms of all the questionnaires administered and the exclusion criteria. The ethical approval is based on the larger survey project as requested in the form of the ethics committee and filed under number 22-0597.

### ***Instruments***

**Demographics** – General questions were asked about gender, age, education, student status, work, nationality, marital status, religion, and undergoing mental healthcare.

**Memory Recall of Moral Injury (MR-MI)** (Appendix C) – The scale (Mooren, de la Rie & Boelen, 2019) was designed to evaluate the emotions experienced during a stressful or threatening experience. It consists of 23 items, including three qualitative questions about the nature of MI. Participants respond to each item (e.g., “I felt fear during this event”) on a 7-point Likert scale (1= ‘strongly disagree’, 7= ‘strongly agree’). Higher scores on the scale items indicated greater moral injury and distress. The internal consistency of MR-MI in the current study was good ( $\alpha = .78$ ).

**Centrality of Events Scale (CES-R-MI)** (Appendix D) – The scale, consisting of 7 items, measures to what extent a traumatic event is integrated into one’s identity and the importance of the event to their life story (Bernsten & Rubin, 2006). Participants are asked to recall a memory of moral conflict or dilemma that still evokes negative feelings. Responses to

each item (e.g., “I feel that the event has become part of my identity”) are rated on a 5-point Likert scale (1= ‘strongly disagree’, 5= ‘strongly agree’). Higher scores on the scale items indicated higher centrality of the given event(s) to the individual’s identity and life. The internal consistency of CES-R-MI in the current study was very good ( $\alpha = .94$ ).

**PTSD Checklist (PCL-5)** (Appendix E) – The 20-item scale measures PTSD symptoms according to the DSM-5 (Blevins et al., 2015). Participants are asked how much they were bothered by these problems in response to morally injurious events in the past month. A sample item is: “Repeated, disturbing dreams of the stressful experience”, to which participants respond on a 5-point Likert scale (1 = ‘not at all’, 5 = ‘extremely’). Greater self-reported symptoms of PTSD are indicated by higher overall scores. The internal consistency of PCL-5 in the current study was very good ( $\alpha = .94$ ).

**Moral Injury Appraisals Scale (MIAS)** (Appendix F) – Moral Injury assessed with MIAS is a 9-item scale measuring the distress related to the appraisal of a moral violation (Hoffman et al., 2019), consisting of five items related to the subscale of moral violations committed by others (MI-Other) and four items related to the moral violations committed by self (MI-Self), with sample items of “I am troubled by morally wrong things done by other people” and “I am troubled because I did things that were morally wrong” respectively. Items are rated on a 4-point Likert scale (1 = ‘not at all’, 4 = ‘very much’), with higher scores indicating higher moral injury appraisals. Current study will be investigating the scale as one construct, as well as it is subscales, MIAS-O and MIAS-S, independently. The internal consistency of MIAS in the current study was good ( $\alpha = .88$ ). (MIAS-O,  $\alpha = .93$ ; MIAS-S,  $\alpha = .89$ ).

**Moral Self-Image Scale (MSIS)** (Appendix G) – 9-item scale measures how individuals view their self, own morality (Jordan, Leliveld & Tenbrunsel, 2015). A sample item is:

“Compared to the caring person I want to be, I am”, to which participants respond on a 9-point Likert scale (1 = ‘much less caring than the person I want to be’, 5 = ‘exactly as caring as the person I want to be’, 9 = ‘much more caring than the person I want to be’). Lower scores indicate a lower moral self-image, as opposed to previous constructs. The internal consistency of MSIS in the current study was very good ( $\alpha = .92$ ).

### ***Statistical Analyses***

Additional 13 participants were omitted as they answered ‘no’ to have ever experienced a traumatic or a stressful event, a necessary condition for answering following questionnaires (N = 95). For all questionnaires involved in data analyses, item scores for each respective scale were added together, forming a total score. Regression and moderation analyses were conducted using IBM SPSS 27, and Hayes’ PROCESS for SPSS macro.

For H<sub>1</sub>, a simple linear regression was performed between moral self-image (MSIS), (dependent variable), and moral injury (MIAS), (independent v.). A significant negative value showing a negative association would be expected. Both measures were plotted visually and found to meet assumptions of linearity and homoscedasticity, and normality. Assumptions were also checked and met for MIAS-Self and MIAS-Others as independent factors for individual analysis that may provide further insight.

For H<sub>2</sub>, a moderation analysis Model 1 was performed. The assumptions were checked; including linearity, homoscedasticity, normality, however, only the assumption of multicollinearity was violated. The variance inflation factors (VIF) values of the variables were higher than 10; though, when the interaction variable was excluded from the analysis, VIF values were lower than 3, indicating structural multicollinearity. Therefore, to deal with this, independent variables (CES-R, MIAS) were mean centered. Centering was also done for MIAS-

S and MIAS-O for further individual analyses. The assumptions for regression were all met accordingly for both of the scales.

For H<sub>3</sub>, a multiple regression was performed to examine how much of the variance in the dependent variable (PTSD using PCL-5) can be explained by the independent variables (MIAS, MSIS, CES-R). All the assumptions, mentioned previously for H<sub>2</sub>, were met, except the homoscedasticity assumption that was violated. Using robust standard errors method (Hayes & Cai, 2007), standard errors were adjusted according to the heteroscedasticity problem, allowing for more accurate inference while addressing the violation.

## Results

The demographic variables and descriptive statistics were presented, respectively, in Table 1 and Table 2 below.

**Table 1**

*Participant Demographics (N = 95)*

	<b>Subcategories</b>	<b>M (SD)</b>	<b>n (%)</b>
<b>Age</b>		46.77 (15.07)	
<b>Sex</b>	Female		69 (72.6%)
	Male		26 (27.4%)
<b>Educational Level</b>	Middle/High School		6 (6.3%)
	Bachelor		38 (40.0%)
	Master		33 (34.7%)
	Doctorate		18 (18.9%)
<b>Work Situation</b>	Part-time		25 (26.3%)
	Full-time		52 (54.7%)
	Retired		16 (16.8%)
	Internship(s)		2 (2.1%)
<b>Nationality</b>	Dutch		64 (67.4%)
	Turkish		31 (32.6%)

**Table 2***Descriptive Statistics*

	<b>M</b>	<b>SD</b>
<b>MIAS</b>	18.3	6.4
<b>MIAS-S</b>	8.5	3.9
<b>MIAS-O</b>	9.9	3.8
<b>MSIS</b>	52.1	10.7
<b>CES-R</b>	18.7	7.4
<b>PCL-5</b>	27.6	9.7

*Abbreviations.* MIAS, Moral Injury Appraisals Scale (MIAS-Self and MIAS-Others); MSIS, Moral Self-Image Scale; CES-R, Centrality of Events Scale; PCL-5, PTSD Checklist (N = 95).

The results of simple linear regression analysis found no evidence for the H<sub>1</sub> that MIAS would be negatively associated with MSIS. Although the overall regression model was statistically significant and MIAS explained a significant proportion of variance in MSIS scores,  $R^2 = .16$ ,  $F(1, 93) = 17.17$ ,  $p < .05$ , particularly interesting was that results show MIAS significantly predicted and was positively associated with MSIS,  $b = .67$ ,  $p < .05$ . This means, increases in moral injury are associated with increases in moral self-image, contradicting the primary hypothesis.

Additionally, to look further into moral injury and its subscales individually as the independent variable in the regression model, results show that MIAS-Others significantly predict MSIS,  $F(1, 93) = 24.51$ ,  $p < .05$ , while explaining a slightly increased proportion of variance in MSIS scores compared to MIAS (Total),  $R^2 = .21$ . Though, there is again a positive association between MIAS-Others and MSIS,  $b = 1.28$ ,  $p < .05$ , opposing the H<sub>1</sub>. MIAS-Self, on the other hand, did not significantly predict MSIS,  $F(1, 93) = 3.66$ ,  $p > .05$ , indicating that it

cannot be concluded that MIAS-Self, independently, affects MSIS (see Table 3). The contradicting outcome between MIAS and MSIS regarding H<sub>1</sub>, the X and Y variables for the following moderation analysis, suggest that moderation results may also contradict the second hypothesis, although results may differ due to the bootstrapping that occurs in PROCESS.

**Table 3**

*Regression Coefficients for the associations between MIAS, MIAS-S, MIAS-O (independently) and MSIS*

<b>Variable</b>	<b>B</b>	<b>SE</b>	<b>β</b>	<b>p</b>	<b>95 % CI</b>
<b>MIAS</b>	.67	.16	.40	.000	[.35, .99]
<b>MIAS-S</b>	.53	.28	.20	.059	[-.02, 1.08]
<b>MIAS-O</b>	1.28	.26	.46	.000	[.77, 1.80]

*Note.* Dependent Variable MSIS

Abbreviations: MIAS, Moral Injury Appraisals Scale (MIAS-Self and MIAS-Others); MSIS, Moral Self-Image Scale

$R^2_{\text{MIAS}} = .16$ ,  $R^2_{\text{MIAS-S}} = .04$ ,  $R^2_{\text{MIAS-O}} = .21$

(N = 95)

\*  $p < .05$ .

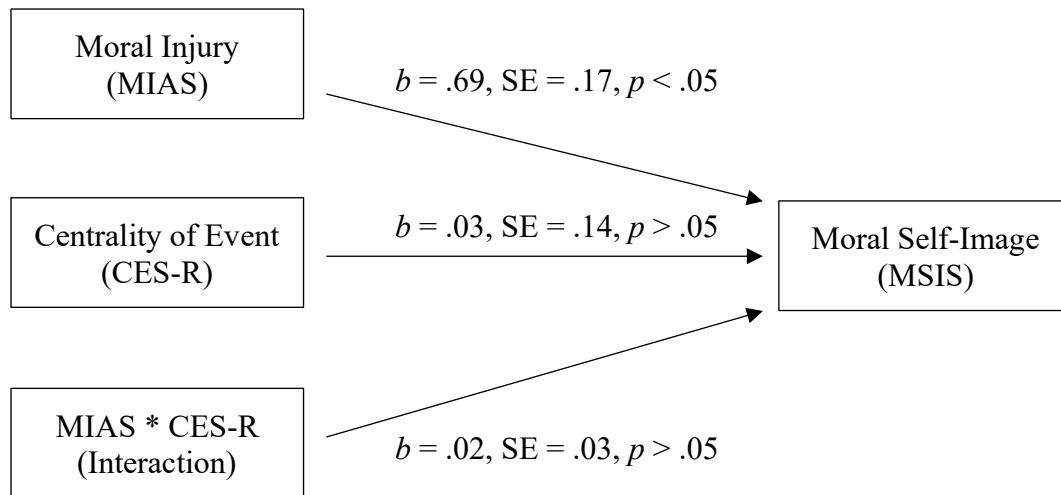
For the second hypothesis, moderation analysis included centered MIAS (X), MSIS (Y), and centered CES-R (W) and results can be seen in Figure 1. The overall model was found significant,  $F(3, 91) = 5.81$ ,  $p < .05$ , with  $R^2 = .16$ . Only significant effect found was the main effect of the MIAS scores on the MSIS scores,  $b = .69$ ,  $t(91) = 4.14$ ,  $p < .05$ , whereas the main effect of CES-R on MSIS, and the interaction effect between MIAS and the moderator CES-R returned nonsignificant. The results of the moderation analysis were found to be in line with the

results of the simple regression analysis, however, since H<sub>2</sub> expected CES-R to moderate the relationship between MIAS and MSIS, the hypothesis is rejected.

Moreover, to further test the moderation analysis with MIAS-Self and MIAS-Others, independently, the same process was applied. While the overall model with MIAS-Self was found to be nonsignificant, the overall model with MIAS-Others was found significant,  $F(3, 91) = 9.45, p < .05$ , with  $R^2 = .24$ , similar to the results from the simple regression, returning slightly higher and stronger compared to the MIAS (Total). Again, there was no significant main effect found of the CES-R on MSIS nor the interaction effect between MIAS-Others and CES-R.

**Figure 1**

*Regression coefficients for the association between MIAS and MSIS moderated by CES-R*



Lastly, to see if and how well the independent variables (MIAS, MSIS, CES-R) predict PTSD symptoms (PCL-5), a multiple regression analysis was performed. The results show that the overall regression model was statistically significant, and independent variables accounted for a significant proportion of variance in PCL-5 scores,  $R^2 = .38, F(3, 91) = 20.10, p < .05$ .



MSIS was not significantly associated with PCL-5. However, MIAS and CES-R were significantly associated with and predicted higher PCL-5 scores, partially supporting H<sub>3</sub> (see Table 4).

**Table 4**

*Regression Coefficients for Predicting PCL-5*

<b>Variable</b>	<b><i>B</i></b>	<b><i>SE</i></b>	<b><math>\beta</math></b>	<b><i>p</i></b>	<b>95% CI</b>
<b>MIAS</b>	.36	.15	.24	.014	[.08, .65]
<b>MSIS</b>	.20	.12	.22	.087	[-.03, .44]
<b>CES-R</b>	.62	.14	.47	.000	[.34, .90]

*Note.* Dependent Variable PCL-5

Abbreviations: MIAS, Moral Injury Appraisals Scale; MSIS, Moral Self-Image Scale; CES-R, Centrality of Events Scale; PCL-5, PTSD Checklist

$R^2_{Adj} = .38$

(N = 95)

\*  $p < .05$ .

## Discussion

The present study sought to investigate MI among healthcare workers and explore potential associations with different variables. The results show that there was a significant positive association between MI and moral self-image, counter to the expectation. Moreover, no moderating effect of the centrality of event between MI and moral self-image was found. Further statistical analyses were run investigating MI subscales, and only MI-Others significantly and positively predicted moral self-image. Lastly, while moral self-image was not significantly associated with PTSD symptoms, MI and centrality of event were significant predictors.

Moral injury positively associated with moral self-image is counter to our first hypothesis. One explanation for this could be that healthcare workers who have experienced moral violations might engage in a process of self-forgiveness. Wilt and colleagues (2019) argued that morally injurious experiences and their consequences might potentially be growth-motivating responses to perceived transgressions, leading individuals to engage in a process of self-forgiveness or interpersonal forgiveness, accepting the past as it is and moving forward stronger and much more resilient. Particularly, the act of forgiving others and self, seems to help individuals to adapt and recover from various ways of harm, in our case, may also lead to positive changes in self-image after moral transgressions (Exline et al., 2017). Therefore, healthcare workers may have gone through a process of forgiveness, in which they were able to acknowledge the event, accept the negative emotions, and heal while learning, and growing for the better.

Another construct similar to self-forgiveness is self-compassion, which is seen as an important resilience factor for high-risk populations facing traumatic events (Smith et al., 2011). For instance, higher self-compassion has been found to moderate the relationship between

exposure to morally injurious events and PTSD, depression, and suicidality (Forkus et al., 2019; Zerach & Levi-Belz, 2021), also highlighting a possible influence in coping with MI and its consequences. In the current study, self-compassion, similar to the process of self-forgiveness, may have had an impact on the relationship between MI and moral self-image, leading individuals to experience greater resilience, psychological flexibility, and well-being, subsequently leading to positive changes in moral self-image. Rushton et al. (2022) argue that moral resilience, in particular, buffers against MI and its negative consequences, allowing healthcare professionals to sustain or restore their integrity in response to moral adversities. Self-forgiveness, self-compassion, and moral resilience seem to be important constructs to further investigate, as they may have a buffering effect on the relationship between MI and moral self-image, which might give a clear answer to why a positive association was explored.

Moreover, investigating the subscales of MI, only MI-Other was found to be positively associated with moral self-image. This is also an interesting point that needs to be understood in the current study. In line with previously discussed explanations, the process of forgiveness is often found to be easier to implement for others compared to self-forgiveness (McCullough et al., 2013). Thus, engaging in a process of interpersonal forgiveness might lead to experiences of positive change after adversity. Furthermore, Held et al. (2017) found that perceived transgressions by others were not associated with negative posttrauma cognitions, meaning that, witnessing moral transgressions carried out by others becomes problematic for individuals only if they assume responsibility or blame, which may cause them to view themselves negatively. It could be the case that healthcare workers, who had experienced MI-Others and got confronted with the wrongdoings of others, did not necessarily feel responsible, then, preserved, and even induced positive changes in their self-image, for instance, as they become more aware of their

values. Moral disengagement, for example, is a psychological mechanism that allows an individual to reframe one's behaviors and dissociate from them, which might be an important way to preserve a positive self-image when faced with moral stressors or dilemmas (Bandura, 1999; Higgins et al., 1986). Displacement or diffusion of responsibility plays a significant role in moral disengagement (Bandura, 1999). By participating in a process of moral disengagement, healthcare workers might have experienced protection or even encouragement of positive changes in their moral self-image.

While there has been no moderating effect of the centrality of event between MI and moral self-image found as the results appeared nonsignificant contradicting previous literature, there is also some evidence that suggests that individuals tend to believe overall moral traits and qualities are more central to personal identity and self-image than other features of our mental lives, including memories (De Freitas et al., 2017; Strohminger et al., 2017). Stanley et al. (2020) even showed in their study that participants rated their morally right acts as more central than their morally wrong acts, reflecting a potential self-enhancement or self-protection bias. Having morally right experiences as more central to personal identity than immoral experiences may influence an individual to have a favorable view of moral self, helping them to self-enhance or self-protect.

Although it was not the main focus of this study, MI and centrality of event were significant predictors of PTSD symptoms, while moral self-image was not. Since our main hypothesis yielded contradicting results regarding moral self-image as well, it is possible to not have this construct as a significant predictor for PTSD. For MI and centrality, however, the results were in line with previous research, as both of them were associated with adverse mental health outcomes, including PTSD (Griffin et al., 2019; Berntsen & Rubin, 2006).

These conclusions are drawn based on self-reported questionnaires, for which our findings are subject to general limitations associated with this method, including compliance, social desirability, and limitations to self-knowledge (Paulhus & Vazire, 2007). These potential biases might have also influenced the contradictory and non-significant findings. In addition, although the validity of the overall survey was increased as participants were instructed, at the beginning of the questionnaires, to think about an event that caused them a potential moral dilemma or moral injury with given examples and to answer the following questions taking these events into account, these introductions could have been improved. More precisely, they could have been further detailed, specifically for healthcare workers, to better serve the purpose of this research. Some of the answers given to the qualitative MI recall questions suggested this response to a potential research limitation. While many answers were moral dilemmas fitting the concept of MI in healthcare workers, some did indicate moral distress in other aspects, therefore did not relate to our research. For instance, one participant responded, “not being able to call or message a friend, whom I had a turbulent relationship with, as I learned they were terminally ill”. While it is clearly a stressful, and morally injuring situation, it is not related to MI in healthcare context which was the true purpose of this study. Furthermore, other critical notes are that the sample consisted only of Dutch and Turkish participants, most of them being women, which could affect the generalizability of the research. Lastly, there were no attention checks or validation questions within the survey which could have been employed to enhance the accuracy and reliability of the data in future studies.

Despite these limitations, this research had a relatively good sample size. Besides, MI is quite a new field of study, and MI in healthcare is even less researched, therefore, current study will still add empirical data to the growing body of knowledge and show the need for further

research based on the contradictory results. Further methodological changes according to the current study limitations are recommended for future studies. Future research might further investigate the processes and mechanisms that, on the one hand, reflect on the negative outcomes of MI, and the other hand, reflect on the sustaining and restoring outcomes of MI, such as positive association with moral self-image.

To conclude, it is important to note that healthcare workers are at risk to encounter increased morally injurious events and moral dilemmas. Moral injury should be considered in the context of healthcare, highlighting the importance of further investigation to better understand the constructs, relationships, and effects, developing interventions to support healthcare workers and encourage the well-being of the entire healthcare system.