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Moral Orientation Guilt Scale (MOGS): Development and validation of a novel guilt measurement

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ABSTRACT

Guilt emerges as the emotional result of a conflict between our behavior and internalized morality. Since morality is best conceptualized as a multidimensional construct, guilt results in different phenomena depending on the moral values internalized by the "guilty". Indeed, mounting evidence supports the distinction between guilt feelings emerging from deontological morality and guilt feelings emerging from altruistic morality. Most measures fail to consider moral orientation when assessing guilt. Our aim was to develop a reliable and valid tool, able to independently measure different types of guilt feelings. We presented the 17-items Moral Orientation Guilt Scale (MOGS) to a large subclinical sample, along with other questionnaires. Analyses included measures of classical test theory and innovative techniques of network analysis. This cross-validation approach pointed at four factors: "Moral Norm Violation", "Moral Dirtiness", "Empathy" and "Harm". Results suggested MOGS good reliability and a strong construct and convergent validity. Importantly, "Moral Norm Violation" and "Moral Dirtiness" scores were positively correlated with disgust sensitivity, supporting the link between disgust and deontological guilt. Differently, "Harm" scores were negatively correlated with disgust sensitivity scores, in line with the notion that altruism and disgust possibly evolved as part of contrasting motivational systems.

1. Introduction

Morality and guilt feelings can be viewed as two sides of the same coin. According to the "social-intuitionist model approach to moral judgment" (Haidt, 2001), morality is best conceptualized as a multidimensional construct divided into five basic moral foundations: (a) harm/care, which includes sensitivity to suffering and cruelty; (b) fairness/reciprocity, which focuses on concerns about justice; (c) ingroup/loyalty, which involves cooperating with and trusting one's ingroup; (d) authority/ respect, which focuses on valuing obedience and duty; and (e) purity/sanctity, which includes disgust for both biological contaminants and those who cannot overcome their base impulses (Haidt and Graham, 2007). Morality diverges across cultures because different cultures respect these principles differently (Graham et al., 2011). On a more individual level, the more concepts as values, ideals and virtues occupy a central role defining a person's self, the more the individual will be motivated to behave consistently with those notions (Blasi, 1983). Given that negative emotions are thought to signal the perception of a discrepancy between reality and individual beliefs and goals (Castelfranchi and Miceli, 2009), moral emotions might work as feedback signaling a discrepancy between individuals 'internalized morality and current moral self-representation. Guilt, in particular, has been defined as: "the dysphoric feeling associated with the recognition that one has violated a personally relevant moral or social standard" (Kugler and Jones, 1992). However, there can be individual differences with respect to what is "personally relevant". Indeed, different psychological traditions have described guilt feelings referring to different internalized moral values. For instance, the psychoanalytic tradition describes guilt

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as an intrapsychic conflict emerging from the fear of having outraged an authority (Fromm, 1985), which is not necessarily directed to alleviating pain in others (p. 6, Carnì et al., 2013). Differently, the interpersonal approach describes guilt as entirely based on empathy and compassion (Baumeister et al., 1994). Consistently, mounting evidence supports the distinction between deontological and altruistic guilt feelings (Mancini and Gangemi, 2021).

A measure that could independently weigh the propensity to experience different types of guilt feelings, would represent an improvement over existing tool. There are several measures of guilt propensity (i.e., how frequently and strongly one has the tendency to experience guilt; for a review, see Tilghman-Osborne et al., 2010), however the most widely used in both research and clinical settings does not distinguish between different internalized moral values (Prinz and Nichols, 2010, p. 134). On the other hand, the Moral Foundations Questionnaire (MFQ; Graham et al., 2011) which discriminates the importance individually conferred to each moral foundation, is not informative about emotional experience. This is especially relevant in the context of psychopathology, in which some emotional experiences can be abnormally heightened or blunted after accounting for what is considered to be "normal" in a given sociocultural context (Fontenelle et al., 2015). Moreover, empirical findings have shown that deontological guilt is strictly connected with disgust (Basile and Mancini, 2011; Ottaviani et al., 2018). Specifically, neuroscientific findings show that the insula, a brain area involved in the processing of disgust (Rozin et al., 2000), selectively responds to deontological guilt stimuli and not to altruistic guilt ones (Basile and Mancini, 2011).

In the present study, we tried to reduce these gaps, though the development and validation of the Moral Orientation Guilt Scale (MOGS). We chose to focus on four out of five moral foundations (i.e. authority/respect; sanctity/purity; fairness/reciprocity and harm/care), excluding the ingroup/loyalty foundation, mainly because the extent to which an individual is loyal to her ingroup seems to be very sensitive to an individual's political orientation (Voelkel and Brandt, 2019), a construct beyond the scope of the present research.

In particular, we aimed to: i) develop a reliable measure weighing different guilt feelings independently, ii) assess the MOGS construct and convergent validity, ii) determine whether a greater propensity to experience a type of guilt linked to deontological values could be associated with higher levels of disgust sensitivity.

In accordance with the framework of Moral Foundation Theory, we expected to find individuals' internalized moral values reflected in different types of guilt feelings. Moreover, in line with previous empirical findings (Basile and Mancini, 2011; Ottaviani et al., 2018), we expected disgust-sensitivity scores to be positively related to guilt feelings reflecting deontological moral values.

2. Methods

2.1. Items development

Scale items (24) were developed by a pool of clinicians, familiar with the moral foundation theoretical framework. A pilot study was conducted to remove confusing/redundant items. The 17 remaining items were presented on a 5-point Likert scale and participants were asked to rate the extent to which they felt described by each statement. Supplementary materials contain a full description of items development and selection.

2.2. Participants sampling procedure

Participants were Italian native speakers enrolled on social media accordingly to a snowball sampling strategy (Goodman, 1961). They were recruited in two different data collections: in the first, they were asked to answer only the MOGS; in the second, they were also asked to answer other scales. Both data collections were conducted online through the platform Question Pro (https://www.questionpro.com) and participants did not receive any form of payment. This strategy allowed to minimize the risk of droputs caused by excessive tools to answer. All participants gave their informed consent prior to participate. Procedures were carried out in accordance with the principles of the Declaration of Helsinki and were approved by the ethical committee of the School of Cognitive Psychotherapy of Rome.

In the first data collection, 927 participants (586 female) completed the 17-item MOGS. The mean age was 35.02 years (SD = 12.01; range = 18–75). 47 participants reported having received a psychiatric diagnosis. Of those, 20 reported anxiety disorders, 9 mood disorders, 6 personality disorders, 2 disorders in the obsessive-compulsive spectrum, 7 eating disorders, 1 attention-deficit/hyperactivity disorder, 1 post-traumatic stress disorder. In the second data collection, 138 participants (81 female) completed the MOGS and other measures. The mean age was 32.97 years (SD = 11.02; range = 18–67). 11 participants reported having received a psychiatric diagnosis. Of those, 2 reported anxiety disorders, 3 mood disorders, 4 personality disorders, 1 disorder in the obsessive-compulsive spectrum, 1 eating disorder. Table 1 displays descriptive statistics for the whole sample.

2.3. Measures

Beyond MOGS, all the measures used in this study were validated in the Italian context. For each measure, Cronbach alpha was estimated.

2.3.1. 1 Moral Foundation Questionnaire (MFQ)

The MFQ (Bobbio et al., 2011) is a self-report measure describing how much a person relies on five moral categories to express their judgment of morally relevant facts. The questionnaire is composed of 30 items, organized into five factors: Harm/Care is about caring and

Table 1
Descriptors of the sample.

	n1 = 927	n2 = 138
Socio-demographics	Frequency (%)	
Gender		
Missing	1.51%	0%
Females	63.21%	58.70%
Males	35.28%	41.30%
Level of education		
Missing	0.32%	22.46%
Elementary school diploma	1.62%	5.80%
Middle or high school diploma	46.67%	54.35%
Bachelor or Master's degree	37.01%	15.22%
Ph.D. or professional degree	14.02%	2.17%
Reported psychiatric diagnosis	5.07%	7.97%
Measures	M (SD)	
MOGS		
Moral Norm Violation	17.88 (4045)	16.86 (4.38)
Empathy	14.56 (3.67)	14.03 (3.71)
Moral Dirtiness	6.93 (2.59)	6.70 (2.26)
Harm	11.76 (2.09)	11.12 (2.27)
Guilt Inventory		
State guilt	–	28.36 (6.14)
Trait guilt	–	52.96 (9.34)
Moral standards	–	45.67 (6.40)
Fear of Guilt Scale		
Punishment	–	37.24 (10.34)
Harm Prevention	–	24.98 (6.82)
Total score		62.23 (14.77)
Moral Foundation Questionnaire	–	
Harm/Care	–	20.21 (4.88)
Fairness/Reciprocity	–	19.52 (4.04)
Ingroup/Loyalty	–	14.77 (4.45)
Authority/Respect	–	13.34 (5.30)
Purity/Sanctity	–	11.77 (5.43)
Disgust Scale Revised		
Core disgust	–	28.68 (7.04)
Animal disgust	–	18.94 (6.26)
Contamination disgust	–	10.56 (4.14)

protecting others from harm (α = 0.71); Fairness/Reciprociy involves social justice and fariness (α = 0.70); Ingroup/Loyalty describes traits such as self-sacrifice and loyalty to the in-group (α = 0.62); Authority/Respect concerns obedience and respect for leadership (α = 0.73); Purity/Sanctity concerns protecting against contamination and establishing boundaries (α = 0.75).

2.3.2. Guilt Inventory (GI)

The GI (Kugler and Jones, 1992) measures guilt propensity (Cosentino et al., 2020) and is composed of 45 items belonging to three subscales: Trait guilt, (α = 0.89); State guilt, characterizing the different reactions as a transitory state to violating moral values (α = 0.83); Moral standards, measuring adherence to high moral values independently of specific events/behaviors (α = 0.72).

2.3.3. Fear of Guilt Scale (FOGS)

The FOGS measures the effort to actively neutralize guilt feelings and the worry of experiencing guilt. The questionnaire is composed of 17 items organized by two factors: Punishment, describing the tendency to punish oneself for experiencing guilt (α = 0.82); Harm Prevention, describing the drive to prevent harm or other possible causes of guilt (α = 0.81; Cosentino et al., 2020).

2.3.4. The Disgust Scale Revised (DS-R)

The DS-R is composed of 25 items organized by three main factors: Core disgust, reflecting a general sense of threat of contamination (α = 0.74); Animal Reminder, reflecting the revulsion for stimuli recalling the animal evolutionary origin of humans (α = 0.74); Contamination (α = 0.71), concerning the disgust reactions related to contagion transmission (Olatunji et al., 2009).

3. Analytic plan

To test the structure of the MOGS, we applied a cross-validation procedure, consisting of an exploratory graph analysis, followed by a confirmatory analysis on the model found. Moreover, we tested both the criterion and the convergent validity of the MOGS. We decided a priori the size of each subsample based on either power analysis or previous works using the same analyses.

3.1. Cross-validation and reliability

As the first step of the cross-validation, we were interested in understanding whether MOGS items could be organized into high-order latent factors or clusters. In network analysis, such clusters can be found in some communities of interconnected nodes. Such communities are mathematically and conceptually comparable to latent factors obtained through exploratory factory analysis (EFA) and tested through confirmatory factor analysis (CFA; Golino and Demetriou, 2017).

We estimated these node communities by means of the Exploratory Graph Analysis (EGA; Golino and Epskamp, 2017). EGA is an approach that is receiving increasing interest in psychological assessment (Bell and O'Driscoll, 2018; Christensen et al., 2019). We decided to apply EGA since it seems not to underestimate the number of latent highly correlated dimensions, compared to more classical procedures (Golino and Epskamp, 2017). Further details on the parameters we used to set our EGA can be found in the Supplementary materials. We also applied a non-parametric bootstrap with 5000 replications, to reduce the risk of obtaining a network dependent on the sample specificity (Christensen and Golino, 2019). Finally, we extracted the network loadings of each item to its community, a measure that is equivalent to the factor loadings of the CFA (see Christensen et al., 2019). We used the EGA net package (Golino and Christensen, 2020) on R environment (R Core Team, 2020). After extracting the factors/communities, we tested their reliability through the Cronbach Alpha.

As the second step of the cross-validation, we conducted a CFA of the model found. Since the MOGS item scores were skewed, we used a weighted least square means and adjusted variance (WLSMV; Muthén, 1993) estimator. As goodness-of-fit indices, we selected the Comparative Fit Index (CFI ≥ 0.95: good fit; CFI ≥ 0.9: adequate fit), the Root Mean Square Error of Approximation's (RMSEA ≤0.05: good fit; RMSEA between 0.05 and 0.1: adequate fit) and the Standardized Root Mean Square Residual (SRMR ≤0.08: good fit). We used only complete cases. We also tested a single factor model, to understand if it is possible to use a single MOGS score. To perform the cross-validation, we randomly split the first sample into two subsamples: one composed of 618 (i.e., 66.66%) participants, and another of 309 participants (i.e., 33.34%). Such an unequal split is recommended in cross-validation studies (Christensen et al., 2019; Kyriazos, 2018); moreover, the size of each sample is large enough not to underestimate the results (see supplementary materials; Cudeck and Browne, 1983). Finally, such sample sizes are coherent with other studies using EGA (Christensen et al., 2019; Golino and Demetriou, 2017).

3.2. Criterion and convergent validity

We used the Spearman correlation coefficient to test the criterion validity of the MOGS, by using the GI as golden standard measure. We used the same coefficient to test the convergent validity of the MOGS (and its subscales) with the FGS, MFQ and DS-R. Finally, we tested for statistical differences among correlations, though Hittner et al.'s (2003) modification of Dunn and Clark's (1969) z test (more details can be found in the *cocor* package by Diedenhofen and Musch, 2015). Given the large number of correlations, we adjusted the *p* values by applying a false discovery rate correction (Benjamini and Hochberg, 1995). We used G*Power (Faul et al., 2009) to determine the sample size: to detect a correlation coefficient of at least r = 0.3 (two-tailed, alpha = 0.05, 95% power), the software suggested us to include at least 138 participants. We used only complete cases.

4. Results

4.1. Item definition and exploratory graph analysis

On this set of items, we performed the EGA. Fig. 1 displays the final network estimated from the 17 MOGS items through the EGA. Four communities emerged. We named the first one "Moral Norm Violation" (MNV, red nodes of the network). This community consisted of six items capturing guilt caused by: violating interiorized moral norms, disobeying authority, postponing duty and breaking natural order. The second community, called "Empathy" (blue nodes of the network), consisted of five items investigating guilt caused by having more than other people or by not helping other people in difficulty. The third community, called "Moral Dirtiness" (MODI, green nodes of the network), consisted of three items exploring the propensity to feel "dirty", intrinsically bad and in need of cleansing, when feeling guilty. Finally, the last community, called "Harm" (violet nodes of the network) consisted of three item items investigating the guilt caused by harming or not helping someone (Table T2, Supplementary materials).

The non-parametric bootstrap suggested that the network of Fig. 1 was found in 67.52% of replications (i.e., 3376 out of 5000 replications).

The model of assessment proposed by EGA obtained excellent goodness of fit indices, as suggested by the confirmatory analysis (df = 113; CFI: 0.988; RMSEA: 0.035[0.02–0.048]; SRMR: 0.061, see Fig. 2). The single-factor model, on the contrary, obtained less adequate fit indices (df = 119; CFI: 0.954; RMSEA: 0.067[0.02–0.048]; SRMR: 0.084), suggesting that the four-factor model better fits the data **and advising against the use of a global score**. The four subscales and the entire MOGS presented acceptable reliability (α_{MNV} = 0.82; α_{Harm} = 0.81; $\alpha_{Empathy}$ = 0.82; α_{MODI} = 0.70; α_{Total} = 0.87) indices.

Table T3 in the Supplementary material displays both the factor loadings and the correlations among factors of the MOGS subscales.

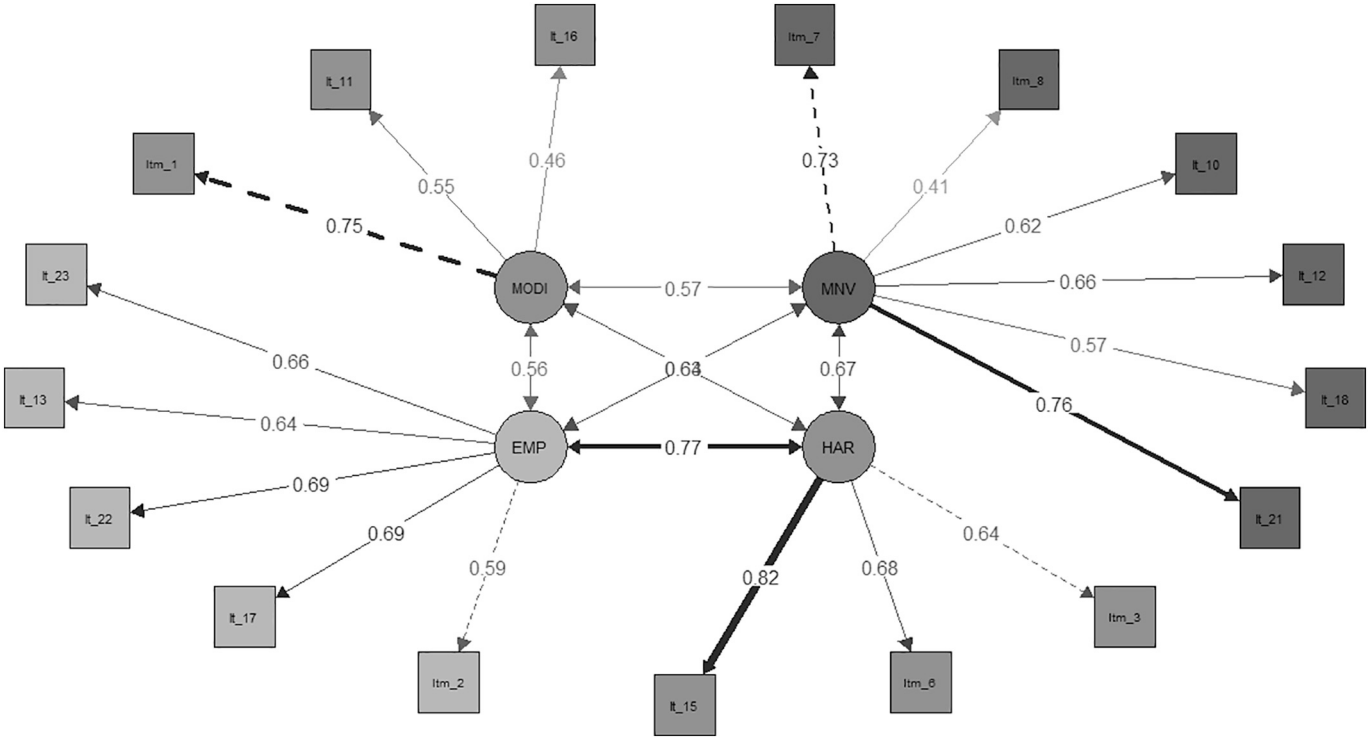

Fig. 1. Note. Nodes I_7, I_8, I_10, I_12, I_18 and I_21 belongs to the community of nodes representing the Moral Norm Violation subscale (MNV). Nodes I_1, I_11, I_16 belongs to the community of nodes representing the Moral Dirtiness (MODI) subscale. Nodes I_2, I_13, I_17, I_22 and I_23 belongs to the community of nodes representing the Empathy subscale. Nodes I_3, I_16, I_15 belongs to the community of nodes representing the Harm subscale. Thicker edges represent the item with the highest correlation (saturation) with the latent scale. Dashed edges represent the first item saturated to the latent scale.

Considering that some subscales were composed by a few items and the high correlations among subscales, we also performed an additional exploratory factor analysis (EFA), setting a priori 4 factors. Results allowed us to replicate the network loadings and the items' division among the subscales. Only Item 13 ("When I see someone suffering, I feel pain for him/her."), showed a double correlation with two factors (MODI and Empathy) above 0.3. A qualitative check by experts on the construct of sense of guilt confirmed the attribution of Item 13 to the Empathy subscale (for EFA results, see Table T4 in Supplementary material).

4.2. Validity testing

The MNV subscale did not present a statistically significant association with the State ($\rho = 0.060$, $p = .534$) and Trait ($\rho = 0.175$, $p = .054$) subscales of the GI, and the Animal Reminder of the DS-R ($\rho = 0.155$, $p = .091$). The Empathy subscale did not present a statistically significant association with all the subscale of the DS-R and the Authority subscale of the MFQ ($\rho = 0.093$, $p = .331$). The Harm subscale did not correlate with the following MFQ subscales: Ingroup ($\rho = 0.077$, $p = .422$), Authority ($\rho = -0.019$, $p = .842$) and Purity ($\rho = 0.060$, $p = .534$) and with all the subscales of the DS-R. Finally, the MODI subscale did not correlate with any of the MFQ's subscales but the Purity one ($\rho = 0.192$, $p = .034$; Table 2). Concerning the statistical differences among correlation coefficients, we did not find statistically significant differences among most of the comparisons. For the Authority subscale of MFQ, the MNV subscale showed a stronger positive correlation that the other subscales. Finally, the negative correlation among the Harm subscales and the Contamination subscale of the DS-R emerged as negative and, in general, lower than the associations with MNV and MODI. All the statistical comparisons among correlation can be found in Table T5, Supplementary materials.

Table 2
Correlation between MOGS subscales and other measures.

	MNV	Empathy	Harm	MODI
GI_State	0.060	0.279**	0.360****	0.393****
GI_Trait	0.175	0.406****	0.384****	0.556****
GI_MoralRigidity	0.444****	0.452****	0.290**	0.404****
FOGS_Prevent	0.362****	0.319***	0.201*	0.227*
FOGS_Punishment	0.475****	0.496****	0.435****	0.573****
FOGS_Tot	0.496****	0.513****	0.400****	0.501****
MFQ_Harm/Care	0.288**	0.519****	0.421****	0.175
MFQ_Fairness	0.224*	0.397****	0.304***	0.142
MFQ_Ingroup	0.311***	0.193*	0.077	0.134
MFQ_Authority	0.479****	0.093	−0.019	0.027
MFQ_Purity	0.499****	0.237**	0.060	0.192*
DS_Core	0.203*	0.025	0.049	0.251**
DS_Animal	0.155	0.084	0.138	0.258**
DS_Contamination	0.218*	0.006	−0.180*	0.217*

Left column presents the following measures: Guilt Inventory (GI), Fear of Guilt Scale (FOGS); Moral Foundation Questionnaire (MFQ); Disgust Scale (DS). * = p value < .05; ** = p value < .01; *** = p value < .001; **** = p value < .0001.

5. Discussion

The main goal of the present study was to develop and validate a tool capable of independently measuring the propensity to experience different types of guilt feelings according to different interiorized moral values. The model that best fit the data was a four-factor model, reflecting different moral foundations. The "Moral Norm Violation" subscale possibly reflects the fear of having outraged an authority and the attempt to prevent guilt by conforming to moral norms. Consistently, the MNV subscale showed the strongest association among all the MOGS subscales with the respect/authority pillar of the MFQ. Consistently, some findings suggest that inducing deontological, but not altruistic guilt, leads to deontological (i.e. omissive choices) in the switch version

of the trolley moral dilemma (in which omitting to push a lever leads to the death of five people instead of one, Foot, 1967) and reduces self-attributed moral authority (Mancini and Mancini, 2015; Gangemi and Mancini, 2013). Scores on the "Moral Dirtiness" subscale of the MOGS were selectively associated with the purity/sanctity pillar of the MFQ. Thus, MODI possibly measures the tendency to feel morally degraded when feeling guilty. For instance, one can feel guilty for acts such as masturbation, sex before marriage (for Roman Catholics) or consensual incest (Haidt and Hersh, 2001). Even with no risk of procreation, psychological or social harm, the intuition that these acts are "sinful" and somehow degrading is widespread (Haidt, 2001). Interestingly, the moral disgust function is to protect moral dignity, motivating avoidance of moral threats and facilitating attribution of lower social value to persons or groups (Brandt and Reyna, 2011). Therefore, it seems likely that MODI weigh the tendency to experience moral disgust towards oneself. Within the altruistic domain, the "Empathy" subscale, measured specifically the tendency to feel guilty for the misfortune of others. Consistently, scores in this subscale are highly associated with both *individualizing* foundations (i.e. harm/care and fairness/reciprocity) (Graham and Haidt, 2012), confirming that this scale is linked with fairness and care values. Finally, the "Harm" subscale, seems to measure the propensity to feel and prevent guilt resulting from harming others and the tendency to comfort the victim. Importantly, this scale was only associated to the individualizing foundation of the MFQ.

The MOGS showed good convergent validity and correlated well with other guilt propensity and sensitivity measures. Specifically, all MOGS subscales were highly correlated with the GI measurements, with the exception of the MNV subscale, which did not correlate with the State and Trait Guilt subscale. It is worth noting that some items in this subscale describe preventive measures taken in order to avoid guilt, such as: *"I am careful not to violate moral norms"* or rules, such as: "*First comes duty and then pleasure*". Perhaps adhering to a strict moral conduct code is partially effective in minimizing guilt. Consistently, this subscale presents a high association with the Guilt Inventory Moral Rigidity subscale.

As hypothesized, scores in the MNV subscale and in the MODI subscale showed positive correlations with contamination and core disgust sensitivity measurements. This might imply that being sensitive to moral norm violations and to self-loathing is associated with a lower tolerance for the emotion of disgust. Accordingly, body odor disgust sensitivity predicts authoritarian attitudes (Liuzza et al., 2018). Moreover, neuroscientific findings have shown that the insula, a brain area involved in the processing of disgust (Rozin et al., 2000) selectively responds to deontological guilt stimuli and not to altruistic guilt stimuli (Basile and Mancini, 2011). Additionally, inducing deontological but not altruistic guilt involves the physiological activation typical of disgust, observed by means of heart rate variability (Ottaviani et al., 2018). These results possibly reflect the substantial overlap between the neurophysiological basis of core disgust and moral disgust (Vicario et al., 2017) and might suggest that moral disgust and deontological guilt evolved from core disgust.

Importantly, current results expand previous observations, showing that those who have a higher propensity to altruistic guilt feelings are also less sensitive towards contamination disgust. This is in line with the notion that although altruism and disgust possibly evolved as part of contrasting motivational systems, they are susceptible of mutual modulation (Steinkopf, 2017).

The present study is not exempt from limitations. For instance, the sample is unbalanced on gender. Future studies should collect more data from male respondents, maybe assessing if responses to MOGS are affected by gender. Finally, it could be useful test MOGS test-retest reliability and to investigate its relations with clinical measures.

6. Conclusions

Despite these limitations, our measure provides psychologically meaningful information not already available from existing guilt measures. Taken together, our results suggest that MOGS is a valid and reliable tool that permits the independent assessment of different types of guilt.

CRediT authorship contribution statement

Mancini Alessandra: Conceptualization, Methodology, Data curation, Formal analysis, Writing - original draft. Granziol Umberto: Formal analysis, Writing - original draft. Migliorati Daniele: Data curation, Writing - original draft. Gragnani Andrea: Conceptualization, Data curation. Femia Guseppe: Data curation, Cosentino Teresa: Conceptualization, Pilot study data collection. Saliani Angelo: Conceptualization, Data curation, Tenore Katia: Conceptualization, Data Curation, Writing-original draft. Luppino Olga: Conceptualization, Data Curation. Perdighe Claudia: Conceptualization, Data Curation, Mancini Francesco: Conceptualization, Supervision.

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Supplementary data

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