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## Moral foundations and criminality: comparing community members to prisoners and violent/non-violent offenders

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### ABSTRACT

Morality is built upon individualizing (i.e. care, fairness) and binding (i.e. loyalty, authority, and purity) moral foundations, which are the systems that help people to make moral decisions and behave accordingly. Past research has found that moral foundations are related to past unethical behaviors, but we are the first to test them among people in prison. Specifically, we investigated individual differences in moral foundations in men and women in prison ( $N = 382$ ) relative to Poles with no criminal record ( $N = 382$ ), who were matched to the prisoner sample by sex and age. We showed that prisoners care about moral foundations, but just with a different intensity than people from the general population. We found that prisoners had lower individualizing moral foundations and higher binding moral foundations than participants from the general population. Violent prisoners had lower levels of care and purity than non-violent prisoners. Regarding sex differences, women scored higher in individualizing moral foundations than men, both among prisoners and non-prisoners. Lastly, women in prison scored higher in binding moral foundations than men in prison. Our study adds to the discussion of individual differences in moral foundations, which might help prevent crimes and enable the resocialization process.

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Individual differences; moral foundations; prison; crime; sex differences

To create and maintain groups or societies, people follow moral rules, like the well-known Ten Commandments. Because of the many advantages of such moral order, people may care not to harm and cheat others and may care to be loyal to their groups, authorities, and sacred values. One well-known theory that tries to capture such rules is the moral foundations theory (Graham et al., 2009, 2013, 2018), which introduces the moral foundations of care, fairness, authority, loyalty, and purity. Although such foundations are needed to build safe societies, and probably most people would agree that all people

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should follow such moral foundations, some individuals end up in prison for violating them. In this case, morals can be equated with the laws society expects to follow. The data unequivocally support the statement, as exemplified by the fact that more than 10 million people are incarcerated worldwide (National Institute of Corrections, 2015; Statista, 2021).

Elucidating the intricate circumstances surrounding this phenomenon proves to be a formidable task, as the factors influencing the prevalence of criminal activity are multifaceted (Jones et al., 2019). Nevertheless, endeavors to shed new light on this issue can be undertaken through an examination of the underlying moral underpinnings that drive individuals to engage in unlawful behavior (Thompson et al., 2021; Silver & Abell, 2016). Our focus revolved around answering the questions of whether people who commit crimes exhibit a specific preference regarding moral foundations, what their thoughts are on rules, such as not harming others or treating people fairly, and their inclination towards following authorities or how loyalty is relevant to them. We aimed to answer these questions in the current research by examining the moral foundations of prisoners convicted of a crime. Specifically, we studied the five moral foundations of men and women characterized by (1) being incarcerated or not (i.e. context effects) and (2) if the crime was violent or not, with matched (by sex and age) community members as a comparison group (i.e. person effects).

## The moral foundations

According to the moral foundations theory (Graham et al., 2009, 2013, 2018; Haidt, 2001), people differ in evaluating the importance of five moral foundations (Graham et al., 2018). The *care* foundation relates to feeling empathy for the pain of others. *Fairness* concerns sensitivity to justice, rights, and equality. *Loyalty* refers to the tendency to form coalitions and feel proud of being a group member. *Authority* relates to a preference for hierarchical social interactions and feeling respect for, or fear of, people in a higher social position. Finally, the *purity* foundation refers to a propensity to exhibit disgust in response to incorrect behavior and reflects individual differences in concerns for the sacredness of values (Koleva et al., 2012). Care and fairness are called *individualizing* foundations because they are person-centered and focus on protecting individuals' rights. In contrast, loyalty, authority, and purity are conceptualized as binding foundations because they focus on preserving one's group with its traditional order, values, and so on (Graham et al., 2009, 2013, 2018).

While there is meaningful variation in what people find moral based on their political and religious beliefs (see the reviews: Kivikangas et al., 2021; Saroglou & Craninx, 2021), there are also sex differences. Women tend to score higher than men on the individualizing moral foundations, whereas men tend to score higher on the binding ones (Atari et al., 2020). This may be because of evolved (e.g. women tend to be smaller and have been so for millennia, and therefore, are at greater risk and thus may prioritize avoiding harm as a self-protective strategy) or conditioned (e.g. men may be encouraged to be more aggressive by society leading them to care less about avoiding harm as a moral foundation) effects but comparing men and women in prison is a relatively untested way to understand sex differences in moral foundations (Haidt, 2012).

We have some knowledge about the connections between moral foundations and immoral behaviors, but the results are mixed. On the one hand, researchers did not find a relationship between moral foundations and self-reported past offending (Thompson et al., 2021). On the other hand, less care and fairness and more loyalty, authority, and purity were related to diverse immoral behaviors in the general population (Atran & Gómez, 2018; Böhm et al., 2018; Ginges & Atran, 2009; Graham & Haidt, 2012; Hirschberger & Pyszczynski, 2012; Koleva et al., 2012; Milesi et al., 2020; E. Silver & Abell, 2016; J. R. Silver & Silver, 2021; Skitka & Mullen, 2002; Smith et al., 2014; Vecina, 2014; Vecina et al., 2015). Particularly, low care was related to past self-reported violent behaviors and self-reported probability of future violent behaviors in the sample of men who committed intimate partner violence. At the same time, greater rates of purity were associated with self-reported probability of future violent behaviors (Vecina, 2014). Moreover, similar results were observed in a sample of upper youth (between 16 and 20 years old) in such a way that individualizing foundations were related to, for example, past violence, and the binding ones to, for example, group marijuana use (J. R. Silver & Silver, 2021), consistent with other study showing that individualizing foundations were associated with harming behaviors, while higher binding foundations with more group unethical behaviors (E. Silver & Abell, 2016).

However, few studies focused on the moral foundations important for people who commit crimes (without being apprehended and/or imprisoned) like illegal marijuana use (J. R. Silver & Silver, 2021) or serious violence against a partner (Vecina, 2014), and no study tested moral foundations directly among prisoners (i.e. sentenced for prison as a consequence of committing a crime), so we lack useful knowledge about how prisoners may differ in their moral foundations from people from the general population.

Because committing a crime brings undesirable social, economic, and moral consequences to society (Jones et al., 2019), we need to understand people affected by the justice system to improve their resocialization and prevent crimes. In particular, there is a need to understand not only men but also women in prison because they are rarely studied, and their numbers in prisons are growing (Augsburger et al., 2022; Nuytiens & Christiaens, 2016; Swavola et al., 2016). Moreover, women tend to have different preferences for moral foundations in such a way that they have higher individualizing moral foundations than men, which has been observed worldwide (Atari et al., 2020). Preferences for moral foundations might have broad consequences as they lead people to engage in myriad behaviors. For instance, lower care and fairness and higher loyalty, authority, and purity were related to diverse immoral behaviors in the general population (E. Silver & Abell, 2016; Smith et al., 2014; Vecina, 2014). Understanding the importance of moral foundations for people who commit crimes may help us understand the reasons behind crimes. Considering that most legal systems focus on violations of care and fairness (Cross, 2010; Fijnaut, 2017; Waldron et al., 2009), studying other moral foundations might be especially relevant to achieve this aim. We already know that care dominates everyday morality (Schein & Gray, 2018), and concerns about harm form the basis of laws (Fletcher, 1998; Holmes, 2009; Marmor & Sarch, 2001) and are condemned across cultures (Fassin, 2012; Mikhail, 2007). The role of additional moral foundations in the context of criminal behavior warrants further exploration, as their potential influence and mechanisms remain subjects of inquiry. Our overarching objective entailed the comprehensive and thorough understanding of this complex issue.

## The current research

We studied men and women in prison and compared them on each of the five moral foundations with a matched sample (by sex and age) of participants from the general population with no criminal record. By studying the moral foundations of incarcerated people, we may better understand prisoners' perceptions of right and wrong in relation to people who have not been convicted of any offense (Jones et al., 2019) and how they may differ from people in the general population. We think there are three potential ways of seeing patterns of moral foundations in incarcerated people. First, the nature of prisons may force people to adopt a different moral framework for survival (Sedikides et al., 2014). Second, the kinds of people that engage in crime may already be morally different from non-criminals, and these differences enable criminality (J. R. Silver & Silver, 2021). And third, being morally compromised on moral foundations may be a matter of degree in that those who engaged in violent crimes, followed by non-violent criminals, and last, community members. Across all three ideas, however, it seems that masculine moral values (i.e. lower individualizing and higher binding) may serve to protect and enable prisoners and their behaviors. It is because masculine moral values, characterized by lower individualizing and higher binding moral foundations, foster a sense of loyalty and camaraderie among prisoners, creating a protective social structure within correctional facilities. We make several predictions that stem from these ideas.

First, considering that higher binding moral foundations are related to problematic outcomes in the general population as a way to survive and gain power in groups (Atran & Gómez, 2018; Graham & Haidt, 2012; Koleva et al., 2012; E. Silver & Abell, 2016; J. R. Silver & Silver, 2021; Skitka & Mullen, 2002; Smith et al., 2014; Vecina, 2014), we hypothesized that the binding moral foundations would be higher in the sample of prisoners (both men and women) than in the matched sample of non-prisoners with no criminal record. Second, taking into account that lower care and fairness were related to diverse immoral behaviors in the general population (e.g. J. R. Silver & Silver, 2021; Vecina, 2014), we hypothesized that the individualizing moral foundations would be lower in the sample of prisoners (both men and women) than in the matched sample of non-prisoners with no criminal record. Third, we hypothesized that violent prisoners would have lower care than non-violent prisoners. It is because the act of violence is itself a violation of the care foundation (care = do not harm) (Haidt, 2012), which would suggest that those who harm others physically should care less about the 'no harm' rule. We also expected to observe a masculinization of moral foundations (i.e. lowering individualizing foundations and increasing binding ones), especially in the sample of women in prison, as the context of being in prison may require more masculine moral and psychological systems to survive (Haidt, 2012).

In this study, we take a rare opportunity to examine the moral foundations of men and women incarcerated for crimes in Poland compared to men and women from the general population with no criminal record. We test two models, one that examines the interaction of sex and population type (i.e. criminal or not) and a second that examines the interaction of sex and crime type (i.e. violent or not) with community members (i.e. non-criminals) as a comparison group. There is already substantial evidence about the morality in community samples (E. Silver & Abell, 2016; Vecina, 2014; Vecina et al., 2015), but studying men in prison and comparing them to women in prison is something

we offer here uniquely to understand the potential moral ramifications of incarcerations of women (relative to men) and how the sexes might differ in their morality as a function of the nature of their crimes.

## Method

### Participants

We sampled 382 (136 women) prisoners aged from 19 to 71 and 1510 community members, from which we created our comparison group (see procedure below), i.e. 382 (136 women) community members who were aged from 19 to 70 but older ( $t[762] = -10.37$ ,  $p < .001$ , Cohen's  $d = -0.75$ ) in the former ( $M = 38.26$  years,  $SD = 10.85$ ) than the latter ( $M = 30.45$  years,  $SD = 9.94$ ). Prisoners reported their crimes; next, we coded them as violent or non-violent.<sup>1</sup> In sum,  $n = 109$  ( $n_{\text{Men}} = 78$ ,  $n_{\text{Women}} = 31$ ) were convicted of violent and  $n = 224$  ( $n_{\text{Men}} = 136$ ,  $n_{\text{Women}} = 88$ ) were convicted of non-violent crimes. Community members for our analyses had not been convicted of a crime and were not accused of any when taking the survey. All participants were Caucasian by race (self-description) and of Polish nationality.

### Power analysis

Estimated sensitivity via G-power for the  $N = 764$  with  $\alpha = 0.05$  yielded statistical power of 0.80 to detect a small-sized effect ( $f = 0.079$ ) and a power of 0.95 to detect an effect on a level of  $f = 0.101$ .

### Procedure

The study was approved by the Ethics Committee of the University of Silesia in Katowice. Data is available at [https://osf.io/vnyqt/?view\\_only=None](https://osf.io/vnyqt/?view_only=None). First, we sampled the prisoners. After receiving official acceptance from the prison service director, five prisons with the same level of security in Poland were entered. Every prisoner, despite the type of crime committed, was invited to participate in the study voluntarily with no monetary compensation, and no other incentives were given to the prison population. Their participation did not change any condition of their sentence or their condition in prison, as well as refusing to take part did not have a negative influence on them. The survey response rate was 10% among men (we invited  $N = 2460$  men in prison) and 30% among women (we invited  $N = 453$  women in prison); men and women were in different prisons. Informed consent was obtained from all participants. The participants were informed about the study's aim, anonymity, and the right to decline participation at any moment. Pen and paper questionnaires were used. Prisoners were asked to hide the filled questionnaire in the envelope to maintain anonymity.

Next, we gathered a comparison sample of non-prisoners via a website created for the purpose of the study [blinded link]. The website was popularized during the Silesian Science Festival, which is visited by thousands of people from the whole country. This website gives participants interpretations of their scores but no monetary compensation. Participants were informed about the study's aim and agreed to participate in the study at

the beginning of the online survey. After the survey, participants were thanked and had an opportunity to contact the first author via e-mail in case of questions or concerns. When gathering the comparison sample, we used the total accessible sample after the festival,  $N = 1510$ , which was reduced by matching participants by sex and age with the prison sample we already collected (e.g. have the same number of women in prison, and a comparison sample of women, with similar age).

We used the single nearest-neighbor propensity score (Szekér & Vathy-Fogarassy, 2020; Austin, 2011) method (via Stata 14.2 SE software). This is a common and advanced way of comparing samples (e.g. in clinical experiments; Geldof et al., 2020). This method is a technique used in observational studies, and it helps to create one database with two possibly the most identical groups in the expected parameters (in our case, sex and age). This matching method aims to create comparable groups of treated/experimental and control subjects based on their propensity scores. Each treated individual (in our case, prisoner) was matched with the control individual (in our case, non-prisoner) who had the closest propensity score (in our case, for sex and age). This matching process reduces bias and allows for valid estimation of treatment effects or differences between groups. Overall, the single nearest-neighbor propensity score method provides a way to create comparable groups in observational studies by accounting for potential confounding factors through propensity score matching.

## Measures

Participants' moral foundations were measured using the Polish translation (Jarmakowski-Kostrzanowski & Jarmakowska-Kostrzanowska, 2016) of the Moral Foundations Questionnaire (Graham et al., 2011). It consists of 30 items that measure the five moral foundations using two subscales where participants reported their relevance (1 = *not at all relevant*; 6 = *extremely relevant*) or agreement (1 = *strongly disagree*; 6 = *strongly agree*) with the items measuring care (e.g. 'Compassion for those who are suffering is the most crucial virtue'), fairness (e.g. 'Justice is the most important requirement for a society'), loyalty (e.g. 'It is more important to be a team player than to express oneself'), authority (e.g. 'Respect for authority is something all children need to learn'), and purity (e.g. 'Chastity is an important and valuable virtue'). Responses to items were averaged to give an overall score for each foundation, each returning good rates of internal consistency (Cronbach's  $\alpha_{\text{Care}} = .73$ ;  $\alpha_{\text{Fairness}} = .69$ ;  $\alpha_{\text{Loyalty}} = .67$ ;  $\alpha_{\text{Authority}} = .68$ ;  $\alpha_{\text{Purity}} = .75$ ).

## Statistical analyses

We compared prisoners and community members, testing the mixed model ANOVA with a 2 (sex: men/women)  $\times$  2 (status: prisoner/community member)  $\times$  5 (foundations: care/fairness/loyalty/authority/purity) design. Next, we tested if the type of crime might matter for the moral foundations, so we conducted the mixed model ANOVA with a 2 (sex: men/women)  $\times$  3 (status: violent prisoner/non-violent prisoner/community member)  $\times$  5 (foundations: care/fairness/loyalty/authority/purity) design. We also tested sex differences in moral foundations separately in all groups and differences between the two studied groups in moral foundations (prisoners vs. community members). Lastly, we conducted exploratory correlational analyses for moral foundations and

tested differences in correlations in studied groups to determine if these populations differed in how tightly bound their moral systems were.

## Results

We start by focusing on the distinction between prisoners and community members, also considering sex differences. A mixed model ANOVA with a 2 (sex: men/women)  $\times$  2 (status: prisoner/community member)  $\times$  5 (foundations: care/fairness/loyalty/authority/purity) design was tested. We found no three-way interaction ( $F = 0.95$ ,  $\eta_p^2 = .005$ ), but we found two two-way interactions. The first two-way interaction refers to differentiated profiles of moral foundations between prisoners and community members ( $F [4, 757] = 60.39$ ,  $p = .001$ ,  $\eta_p^2 = .24$ ). On average, prisoners had lower individualizing foundations (i.e. care and fairness) and higher binding foundations (i.e. loyalty, authority, and purity) compared to community members (for care:  $F[1, 762] = 44.70$ ,  $p < .001$ ,  $\eta_p^2 < .06$ ; for fairness:  $F[1, 762] = 20.26$ ,  $p < .001$ ,  $\eta_p^2 < .03$ ; for loyalty:  $F[1, 762] = 73.95$ ,  $p < .001$ ,  $\eta_p^2 < .09$ ; for authority:  $F[1, 762] = 83.23$ ,  $p < .001$ ,  $\eta_p^2 < .10$ ; for purity:  $F[1, 762] = 55.62$ ,  $p < .001$ ,  $\eta_p^2 < .07$ ). The second two-way interaction refers to differentiated profiles of moral foundations between men and women ( $F [4, 757] = 12.67$ ,  $p = .001$ ,  $\eta_p^2 = .06$ ). Women scored higher on individualizing moral foundations (i.e. higher care and fairness) and higher purity than men.

Because above we used a binary way of seeing prisoners, failing to consider the nature of the crime, we next tested the mixed model ANOVA with a 2 (sex: men/women)  $\times$  3 (status: violent prisoner/non-violent prisoner/community member)  $\times$  5 (foundations: care/fairness/loyalty/authority/purity) design. We also did not find a three-way interaction ( $F = 0.60$ ,  $\eta_p^2 = .003$ ), but we found a two-way interaction. We summarize the lower-order effects and include the descriptive statistics in [Table 1](#).

The two-way interaction refers to differentiated profiles of moral foundations between violent and non-violent prisoners and community members ( $F [8, 1414] = 23.49$ ,  $p = .001$ ,  $\eta_p^2 = .12$ ). Community members present a typical pattern of moral foundations (i.e. higher care and fairness, lower loyalty, authority, and purity), whereas both violent and non-violent prisoners had lower individualizing (i.e. care and fairness) moral foundations and higher binding (i.e. loyalty, authority, and purity) moral foundations. Specifically, both violent and non-violent prisoners differed in all moral foundations from community members. We also tested possible differences regarding the nature of the crime (violent vs. non-violent), and we found two differences. Violent prisoners had lower care and purity than non-violent prisoners (for care:  $t[331] = -2.69$ ,  $p = .009$ , Cohen's  $d = -0.38$ ; for purity:  $t[331] = -2.08$ ,  $p < .04$ ,  $d = -0.24$ ).

Sex differences were also tested separately in all groups ([Table 1](#)). Regarding community members, we observed the typical pattern where women scored higher in individualizing moral foundations than men. Regarding the violent prisoner sample, we observed that violent women in prison scored higher in care when compared to violent men in prison. Regarding the non-violent prisoner sample, we observed that non-violent women in prison scored higher in all moral foundations when compared to non-violent men in prison.

Our analyses of community members compared to prisoners are presented in [Table 2](#). We found differences in all moral foundations. Specifically, prisoners had lower care and fairness and higher loyalty, authority, and purity than community members, which confirms our hypothesis. Moreover, women in prison had higher scores in care, fairness,

**Table 1.** Moral foundation effect overall, by sex, and across sample types.

Care	Mean (SD)				F	$\eta_p^2$
	Overall	Community member	Violent prisoners	Non-violent prisoners		
Overall	4.66 (0.86)	4.86 (0.73)	4.27 (0.92)	4.55 (0.91)	25.37**	0.07
Men	4.46 (0.88)	4.66 (0.75)	4.16 (0.98)	4.29 (0.99)	14.00**	0.06
Women	5.00 (0.68)	5.21 (0.56)	4.55 (0.67)	4.95 (0.57)	18.20**	0.13
t	8.80**	7.53**	2.05*	5.64**		
d	0.67	0.80	0.44	0.77		
<b>Fairness</b>						
Overall	4.48 (0.78)	4.61 (0.69)	4.24 (0.89)	4.43 (0.82)	11.15**	0.03
Men	4.34 (0.80)	4.48 (0.70)	4.18 (0.95)	4.22 (0.86)	6.74**	0.03
Women	4.73 (0.68)	4.84 (0.63)	4.39 (0.70)	4.74 (0.63)	6.49**	0.05
t	6.76**	5.11**	1.11	4.89**		
d	0.51	0.55	0.24	0.67		
<b>Loyalty</b>						
Overall	3.82 (0.86)	3.56 (0.88)	3.97 (0.81)	4.13 (0.75)	35.91**	0.09
Men	3.77 (0.88)	3.52 (0.88)	3.97 (0.84)	4.04 (0.83)	19.16**	0.08
Women	3.90 (0.83)	3.64 (0.89)	3.97 (0.73)	4.28 (0.58)	18.32**	0.13
t	1.99*	1.24	-0.01	2.39*		
d	0.15	0.13	-0.01	0.33		
<b>Authority</b>						
Overall	3.66 (0.90)	3.38 (0.91)	3.86 (0.85)	3.99 (0.79)	39.20**	0.10
Men	3.65 (0.90)	3.39 (0.88)	3.89 (0.92)	3.89 (0.83)	18.41**	0.08
Women	3.69 (0.90)	3.36 (0.96)	3.80 (0.64)	4.15 (0.68)	23.94**	0.16
t	0.64	-0.30	-0.53	2.46*		
d	0.05	-0.03	-0.11	0.34		
<b>Purity</b>						
Overall	3.95 (1.00)	3.69 (1.10)	4.08 (0.80)	4.27 (0.80)	26.32**	0.07
Men	3.85 (1.03)	3.58 (1.12)	4.06 (0.84)	4.14 (0.87)	16.10**	0.07
Women	4.13 (0.92)	3.89 (1.05)	4.12 (0.69)	4.47 (0.63)	11.29**	0.08
t	3.70**	2.69**	0.36	3.07**		
d	0.28	0.29	0.08	0.42		

Note. *d* is Cohen's *d* for effect size.

\*  $p < .05$ , \*\*  $p < .01$

loyalty, and purity than men in prison (for care:  $t[380] = 5.64$ ,  $p < .001$ ,  $d = 0.60$ ; for fairness:  $t[380] = 4.67$ ,  $p < .001$ ,  $d = 0.50$ ; for loyalty:  $t[380] = 1.76$ ,  $p = .08$ ,  $d = 0.19$ ; for purity:  $t[380] = 2.82$ ,  $p = .005$ ,  $d = 0.30$ ).

And last, as an exploratory analysis, we wanted to determine if these populations differed in how tightly bound their moral systems were. The moral foundations correlated with each other overall between 0.18 and 0.71 ( $M = 0.45$ ,  $SD = 0.19$ ), in men between 0.21 and 0.67 ( $M = 0.44$ ,  $SD = 0.18$ ), in women between 0.14 and 0.75 ( $M = 0.45$ ,  $SD = 0.23$ ), in prisoners between 0.41 and 0.73 ( $M = 0.54$ ,  $SD = 0.08$ ), in community members between 0.14 and 0.70 ( $M = 0.44$ ,  $SD = 0.21$ ), in men in prison between 0.44 and 0.68 ( $M = 0.52$ ,  $SD = 0.08$ ), in women in prison between 0.46 and 0.81 ( $M = 0.59$ ,  $SD = 0.10$ ), in men in

**Table 2.** Moral foundation effect by sample types (prisoners vs. community members).

	Mean (SD)					F	$\eta_p^2$
	Care	Fairness	Loyalty	Authority	Purity		
Prisoners	4.45 (0.92)	4.36 (0.84)	4.08 (0.76)	3.95 (0.80)	4.21 (0.81)	67.16*	0.33
Community	4.86 (0.73)	4.61 (0.69)	3.56 (0.88)	3.38 (0.91)	3.69 (1.10)	223.95*	0.62
t	6.69*	4.50*	-8.60*	-9.12*	-7.46*		
d	0.48	0.33	-0.62	-0.66	-0.54		

Note. *d* is Cohen's *d* for effect size.

\*  $p < .001$

the community between 0.17 and 0.67 ( $M = 0.43$ ,  $SD = 0.20$ ), in women in the community between 0.13 and 0.75 ( $M = 0.44$ ,  $SD = 0.23$ ). We tested differences between those correlations and found differences between the general sample of men compared to women in prison ( $t[18] = -2.24$ ,  $p = .038$ ,  $d = 0.16$ ) and differences between men in the community compared to women in prison ( $t[18] = -2.25$ ,  $p = .037$ ,  $d = 0.16$ ). In both cases, women had higher mean correlations between the moral foundations than men.

## Discussion

Although we have complex knowledge about psychological factors in prisoners, for example, about personality differences between prisoners and those not incarcerated (see the review: Međedović & Vujičić, 2022), we know less about their moral concerns despite the assumption that those concerns may be especially relevant in such a sample (J. R. Silver & Silver, 2021). One potential theory that may help understand what prisoners think about right and wrong is the moral foundations theory (Haidt, 2012). Some studies (e.g. E. Silver & Abell, 2016; J. R. Silver & Silver, 2021; Vecina, 2014) have already found that moral foundations were related to past immoral behaviors but only in the general population. In short, we have little information about the moral foundations among people in prison for violating some of them. In this context, we aimed to study prisoners and compare them to a matched sample from the general population.

We found that men and women in prison had lower individualizing and higher binding moral foundations than people outside prison, confirming our hypothesis. We showed that prisoners care about moral foundations, but just with a different intensity than participants from our comparative sample. First, prisoners need to adjust to survive in the prison context. Higher binding moral foundations may help them to do it (Sedikides et al., 2014). For example, incarcerated people may be related to criminal groups with their hierarchy, expected obedience to their leaders and loyalty to members, and professing some specific sacred values (e.g. White Power) to defend them. Second, as prisoners probably hurt or cheated someone to end up in prison, we observed lower care and fairness in prisoners than in community members. Of course, despite observing such differences, it is hard to conclude that prisoners were morally different from non-criminals before committing a crime, as our study is not longitudinal. However, we suspect that lower individualizing moral foundations in prisoners might also be observed before committing the crime, as care is especially related to empathy, and less empathy may be a reason why people hurt others (Decety & Cowell, 2014). Third, we confirmed our hypothesis that violent prisoners had lower care than non-violent ones. We additionally observed that they also scored lower in purity. This might be connected to the fact that people who care about purity care about sacred values (and the value of life may be one of them). Simply put, people who committed violent crimes violated (even unintentionally) sacred values related to life or the human body.

Lastly, we confirmed our hypothesis that masculine moral values (i.e. lower individualizing and higher binding) might serve to protect and enable prisoners and their behaviors. This was especially seen in the sample of women in prison, as women in prison scored higher in binding moral foundations than men in prison. It means that women in prison valued care, fairness, and purity, just like women outside prison do worldwide (Atari et al., 2020), but at the same time, women in prison valued loyalty and authority,

which is more typical of men (Atari et al., 2020). On the one hand, caring about all moral foundations paradoxically may be problematic because if someone cares a lot about all of them, they may experience a conflict between them (Vecina & Chacón, 2021). For instance, between fairness and loyalty: when distributing some resources, we may want to treat all people fairly, but at the same time, we want to be loyal to our ingroup and treat those from it as more privileged. On the other hand, higher binding moral foundations may help women to survive in potentially dangerous prisons.

Practitioners may use these results to implement effective resocialization programs, knowing that people involved in the justice system have diverse moral considerations with different intensities. First, we need to understand that prisoners are morally sensitive, but just in a different way than community members (as we observed a different pattern of preferred moral foundations between prisoners and non-prisoners). Second, we need to consider the fact that men differ from women, not only outside prison but also inside prison. That is why sex differences should also be considered when working with prisoners. Third, we must also understand that prison may require a facultative moral response in men and especially women that enables their survival within the system, but it may pose problems when released. That is, the moral systems required for survival in such harsh places may conflict with those required or at least preferred by so-called civilized society. This poses an especially challenging adjustment problem, not unlike the readjustment of soldiers returning from war.

## Limitations & conclusions

Despite the use of a large sample of prisoners and matched group of non-prisoners, our study is not free from limitations. First, because it was conducted in just one Western(ish) country (i.e. Poland), we cannot generalize the results to other prison populations, especially those from different cultural backgrounds (Henrich et al., 2010). Future studies should include more culturally diverse samples. Second, our sample was voluntary, and volunteer bias (Kho et al., 2009) might be related to morality and other criminally relevant traits like psychopathy. However, this is a common and inevitable limitation of all studies because written consent is required. Third, we asked participants about their declarative values, which may not be free from self-deception or other biases. Although it may be interesting to know the biases of this population, this limitation is common to many studies that use self-reported measures. Future research could also test preferences for moral foundations experimentally or indirectly, like via moral scenarios (Clifford et al., 2015) or by testing which moral foundation is more relevant than another (Jach et al., 2023). It is also worth testing a person's perception of prisoners (Paruzel-Czachura & Białek, 2022) on the background of moral foundations theory, as such impressions might be crucial to understand the nature of punishment. Fifth, we focused only on the prisoner's moral beliefs, so we cannot make any conclusions about their morality in general, as morality is a broader concept than moral beliefs: 'Morality is an attitude whose constituents are: our behavior (Do I help others? Have I ever stolen anything?), our view of the world (Which values do I subscribe to? What do I think about my friend's affair?), and our emotions (What do I feel when I tell a lie? What do I feel when I help someone?)' (Paruzel-Czachura, 2016, p. 184). We focused only on moral beliefs (not behaviors, beliefs, and emotions), and we claim that including this complexity of

morality (beliefs, behaviors, and emotions) would benefit future research (Dahl, 2023; Paruzel-Czachura, 2023). Sixth, we focused only on moral judgments, and we already know that they might be related to internal and external factors like psychopathy personality traits (see the review: Paruzel-Czachura & Farny, 2023). We need more studies to understand what factors might shape prisoners' moral foundations. Lastly, prisoners filled out the surveys with pen and paper and community members via the online survey. Although this limitation could not be avoided, as studies in prison require such sampling for safety, future research could also use a comparison sample using a similar method.

Despite these limitations, we revealed novel effects in an understudied population of men and women in prison, which may be a good starting point to better understand the relationships between moral foundations and immoral behaviors. We not only found that prisoners care about moral foundations, just with a different intensity than community members, but we also observed a masculinization of moral foundations (i.e. higher preference for binding moral foundations), especially in the sample of women in prison. This way, we showed that the idea that offenders do not care about moral issues at all as they are, for example, disconnected from moral values (Paciello et al., 2008; Marsh, 2006) is inaccurate as prisoners are morally sensitive, but they just put more attention to different moral foundations than people from the general population.

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## Note

1. On our OSF page ([https://osf.io/vnyqt/?view\\_only=None](https://osf.io/vnyqt/?view_only=None)) we provide a Table S1 breaking down individual crimes overall and, in each sex, and our data. Our reduction to two groups was, in part, motivated by unequal cells across the various crimes. When prisoner committed at least one violent crime, he or she was coded as violent prisoner. We followed common practices in such coding (e.g., stealing was treated as non-violent, but robbery as violent). Our database (see OSF) includes types of crimes and their coding.

## Author contributions

Conceptualization: MPC; Data curation: MPC; Formal analysis: MPC, MB, PJ; Funding acquisition: MPC; Methodology: MPC, MB, PJ; Writing – original draft: MPC, MLV, PJ; Writing – review & editing: MPC, MLV, MB, PJ.

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