



Article

Is There a “Green Moral”? How Young People’s Moral Attributes Define Engagement with Narratives about Climate Change

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Abstract: This paper discusses the relationship between morality and engagement focused on the narratives about climate change. The goal of our research is to understand whether moral grounds identified in individuals and in narratives can influence youth’s engagement in environmental debate and news consumption on climate change. Recognizing that people’s perceptions of climate change are related to several factors, such as ideas, cultures, and values, we sought to understand whether there is a “green morality” or a prevalence of more responsive moral attributes in individuals when they are exposed to thinking about the environment. We use the Moral Foundations Theory to analyze comments on the environmental news on Twitter and a questionnaire adapted to the environment on moral grounds. The data were collected from Brazil and Portugal between 2021 and 2022. The overall results showed a high incidence of responses with Care/Harm and Fairness/Cheating, and an average incidence of responses related to Loyalty/Betrayal and Authority/Subversion. The results indicate that youngsters show a more prominent moral to care and environmental harm, as well as justice and responsibility, which may influence their interest in the consumption of environmental news and future engagement. In addition, there are factors, such as political issues, that can influence moral values and engagement.

Keywords: morality; engagement; climate change; youth; narratives; news



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1. Introduction

The relationship between moral values and ideology affects how people interpret information, and this relationship is even more latent when dealing with scientific topics. In terms of understanding the climate change issue, the impact of eco-anxiety is already being discussed. Feelings such as fear, anxiety, anger, guilt, powerlessness, and helplessness have been reported by a lot of people globally, as in the study on climate anxiety in children and young people (Hickman et al. 2021). The literature has shown that these negative feelings have a more often paralyzing effect than provoking an engagement reaction (Balbé and Loose 2020).

For Bruno Latour (Neves et al. 2020), climate denialism, along with deregulation and globalization, constitutes one of the three factors in the current historical situation in which we live: a significant segment of people from the dominant classes have concluded that Earth has not enough space for everyone. That is, since the 1980s, the ruling classes have no longer intended to govern but to seek shelter outside the world. Of this escape, of which Donald Trump is only one symbol among others, we suffer the consequences, driven mad by the absence of common world values to share. This affects the relationship between moral values and ideology, particularly with regard to engagement with different themes.

Recent research by Reuters (Newman et al. 2022) revealed that there was a drop in news consumption in the last year after a large growth was recorded during the beginning

of the pandemic. Meanwhile, the number of people who report avoiding consuming news that may have a negative effect on their mood has increased. In the case of Brazil, selective avoidance doubled from 2017 to 2022.

Climate change communication can use moral domains in order to make young people better understand the issue and encourage them to engage in the debate. Roeser (2012) highlights moral emotions as more grounded perceptions and motivators of behavior (Roeser 2012, p. 1038). Thus, we intend to bring concepts and methods from Social Psychology—the Moral Foundations Theory (Graham et al. 2013), the Moral Foundations Questionnaire (Graham et al. 2011), and the Moral Foundations Dictionary (Graham and Haidt 2012) to the field of Communication Sciences in measuring engagement with debate and environmental news.

The Moral Foundations Theory (Graham et al. 2013) aims to express sociopsychological dynamics in five independent domains: Care/Harm, referring to suffering, including the notion of caring for others and compassion; Fairness/Cheating, referring to the overall notion of justice and law, as well as cooperation, competition, and lying; Loyalty/Betrayal, referring to a commitment to the group, to self-sacrifice, to loyalty, and to vigilance against treachery; Authority/Subversion, referring to obligations related to hierarchy, obedience, respect, and the fulfillment of duties; and Purity/Degradation, referring to the physical and spiritual influence on chastity, wholesomeness, and control of desires.

In the research's first stage, we sought to understand what was most debated by young Brazilians and Portuguese about climate change on social networks and what moral grounds could be identified in comments on environmental news. Hence, Twitter publications were captured via a set of computational tools connected to the Twitter API between October 2021 and April 2022. The collected posts used the keywords "mudanças climáticas", "ambiente", "Greta Thunberg", "Liberal", "Esquerda", and "Negacionismo Climático", from Brazil and Portugal, which means climate change, environment, liberals, Left-wing and climate denialism. It was possible to extract the details of authorship, date, the written content of the tweet, and IP provenance. The data were anonymized for analysis.

In the second stage, the Moral Foundations Questionnaire (Graham et al. 2011) was applied to young people from Brazil and Portugal. We used the translated version into Portuguese (Costa et al. 2022a) that adapted the questions about the environmental theme by inserting the terms "environment", "environmental", and "nature" (see Appendix A).

This paper aims to discuss the relationship between moral attributes and engagement in climate change subject and if there would be a prevalent moral from that (a "green moral"). In order to address this, the present paper will present moral analysis details inside tweets from Brazil and Portugal, the Moral Foundations Questionnaire results applied to youngsters from both countries, and the intersection between political ideology and salient moral from the respondents. We discuss these results based on the literature about youth, morality, and engagement.

2. The Moral Foundations

Considering it as individual and socially constructed ethical values, morality is a traditional object of study. Morality was a study topic in different areas as a founding attribute of individuals and societies.

Eurologist and Psicanalista Sigmund Freud (in Rieff 1979) discussed morals and morality in several of his works, exploring their psychological foundations, cultural variations, and historical developments. The zoologist and ethologist Konrad Lorenz explores the evolutionary roots of aggression and social behavior in animals, including humans, in 1963 Lorenz (2021). While the primary focus of his book is on aggression, Lorenz also touches upon related topics such as cooperation, territoriality, and social hierarchy. The philosophers Adam Smith (2010), in 1759, and Immanuel Kant (2013), in 1788, explore the relationship between reason and morality, delving into the nature of human freedom, moral duty, and the concept of goodwill. In Sociology, Émile Durkheim (2016), in 1912,

argues that morality is not merely an individual phenomenon but is deeply rooted in social and cultural practices.

In its interpretation by social psychology, morality is an innate attribute of human beings, of biological origin, and shaped by culture (Stets 2010; Kesebir and Haidt 2010). The research presented by this article is based on the theory of the Righteous Mind (Haidt 2012), which understands the human condition as moralistic, an evolutionary characteristic that allows us to select, evaluate, criticize, and judge individuals so that we can create unrelated cooperative groups. Nomadic, farming, and religious groups are among the many organizations that would have been fostered by universal, innate, biological human morality. In turn, individual morality is shaped by the group and institutions in which people participate.

According to the Righteous Mind theory, our minds have psychological systems, and moral foundations are part of this toolkit. Faster than rational and strategic thinking, moral intuitions arise automatically and instantaneously and then become justifications for actions and decisions made by individuals before their groups (post hoc behavior; Haidt 2012). Moralistic reasoning is a response to intuition (the mental reaction before strategic reasoning) and affections (instantaneous feelings that evaluate a situation and prepare us for it) that individuals feel when faced with new information. Therefore, this approach is more connected to emotions. Damásio (2018) names morality as one of the secondary or social emotions of other scientific fields and domains that study morality.

Activated by mental models related to primary emotions (happiness, sadness, anger, surprise, and disgust) and secondary emotions (where moral attributes are to be found), individuals generate intuitions that later influence decisions, a so-called rational (Damásio 2018). Environments where decisions must be made quickly, under pressure or with noise (Kahneman 2012; Kahneman et al. 2021), such as social networks, generated a greater profusion of public debates and moral dilemmas (Bloom and Wynn 2016) and the need to understand the influence of moral intuitions on decision-making. In this context, methodological tools that measure the number of moral attributes in written sentences or which are most relevant to individuals can be valuable for Communication Sciences. With the evolution of cognitive sciences and neurosciences, the possibility of verifying this aspect has increased through psychometric tests or physiological examinations.

Some research has already made the connection between moral attributes and environment. The role of moralization could influence polarization on environmental attitudes and suggest that altering environmental discourse to incorporate different moral perspectives could help bridge the gap between liberals and conservatives regarding environmental concerns (Feinberg and Willer 2013). Credibility also plays a crucial role in making moral violation arguments about climate change more effective (Huang et al. 2022). When compared to a pro-environmental message framed with binding moral principles, a message framed with individualizing moral principles makes individuals perceive the message as more credible (Kim et al. 2023).

Some domains would be more relevant than others according to individuals and cultures. People would adhere more to the ideas, groups, and narratives that contain the same morals as their own, in addition to moral standards according to political ideologies and civilizations of the planet. Westerners and left-wing voters (Democrats, Left, and Progressives) tend to consider the Care/Harm and Fairness/Cheating domains more; right-wing voters (Republicans, Conservatives, Liberals of the Global South) tend to consider all five moral domains of Moral Foundations Theory plus the addition of Freedom (Haidt 2012). This article inquires which morals are most salient when applied to environmental questions and in Tweet comments on climate news. We analyzed how people from Brazil and Portugal reacted on Twitter and in a moral questionnaire about environmental issues. Hereon, theoretical foundations, methodology for data collection, and results analysis will be presented.

3. Youth and Engagement

Identifying action-provoking emotions is a critical issue in understanding engagement. In the case of climate change, it is common to use catastrophic images, typically about the future (Balbé 2018; Balbé and Loose 2020), which often draws citizens' understanding away from roles as agents of change. Newman et al. (2022) identified that young people have increasingly avoided reading the news.

The literature on youth engagement in the climate change debate suggests that media should address young people's interests and values through infotainment by the topics of interest or how they will be affected by the phenomenon (Corner et al. 2015). Otherwise, moral disengagement (Bandura 2016) can be generated, in which people selectively disengage their moral self-sanctions from their harmful conduct. Applied to environmental sustainability engagement, young people may be restricted from engaging in the climate change debate by the severity and global reach of the harmful consequences of the phenomenon itself. In other words, they become discouraged and feel futile due to alarming reports about climate change and its effects (Bandura and Cherry 2020).

In a study examining negative emotional responses to climate change in 32 countries, climate anxiety is positively related to pro-environmental behavior and environmental activism, inversely related to mental well-being, and more strongly related to pro-environmental actions in individualistic and wealthier countries (Ogunbode et al. 2022). Another study involving 407 English speakers identified that, in general, the lower the level of engagement on the issue of climate change, the higher the well-being. The participants were aged between 18 and 79 years old (Whelan et al. 2022).

Negative emotional reactions in young people, such as worry, anxiety, hopelessness, and grief, have been the subject of study, but there are few studies that seek to understand how young people react to feeling these emotions in terms of engaging in the topic (Ojala 2022b). Reducing guilt, anxiety, feelings of helplessness, and hopelessness, for instance, may be important in making the climate more interesting to young people (Parry et al. 2022, p. 30). Similarly, a positive moral emotion, such as hope, can have different outcomes on young people, such as engagement or rejection of the topic of climate change (Ojala 2022a).

Ojala (2013, 2020) identified that youth seek diverse coping strategies for emotions triggered by engaging in climate change debate and may have a huge commitment to the issue while also developing negative effects. Strategies range from downplaying the seriousness of the environmental crisis by questioning scientific or media sources to avoiding information or being distracted while being informed (Ojala 2020). Likewise, trust in public actors and science can aid youth engagement because it decreases negative emotions and individual pressures (Ojala 2022b).

Morals and Engagement

Generating communicational engagement implies, above all, that the issue has already been the target of capturing the attention of the masses (Costa et al. 2022b). Furthermore, in the case of environmental issues, it is important that they capture the attention of citizens and make them to cross-reference their ideas, positions, and ideologies with the topic so that they stay in public debate or generate engagement. Consequently, individuals commonly engaged in the topic (civil representatives, environmentalists, politicians, and social communicators, among others) tend to look for common or unifying causes to be used while debating, such as natural resource protection and improvement.

Even so, engaging in a public debate about the environment is a challenge. Studies on the topic in the period of the first climate conference in Stockholm in 1972 have already shown that ecological concern was a sectarian issue, with individuals interested in particular environmental issues that related only to their specific groups (Tognacci et al. 1972).

Several studies have discussed the media's influence as a mediator in such debate (e.g., Carvalho 2008). More recently, questions have been raised about how climate change coverage could mobilize people to cope by avoiding exploiting discourses that caused ex-

cessive fear about the implications of climate risks, resulting in a preventive and mitigation perspective (Balbé and Loose 2020).

In the last 50 years, studies have identified that the profiles of citizens interested in environmental public debate were younger, more educated, and tended to be liberal in their political conception of the concept. People with these features drive the environmental debate in public opinion since “high personal levels of material and symbolic resources are necessary before support for environmental reform assumes a prominent place in the value hierarchies” (Buttel and Flinn 1978, p. 31). This perception indicated, as already stated in this study, that the ecological movement should be attentive to individuals of a conservative mindset, older and poorer, as well as to environmental issues relevant to their lives.

In this same period, a relationship between political orientation and environmental concern was perceived to exist. This could be ambiguous (Dunlap 1975) since environmental issues related to political debate could transcend partisan and ideological divides (Dunlap 1975), or that political ideology and value hierarchies could be above political partisanship for citizens when positioning themselves on environmental issues in public debate (Buttel and Flinn 1978).

Today, it is known that the relationship between political affiliation and environmental concern is altered by age group and education level (Cruz 2017). But historically, in the case of the U.S., for example, individuals who identified themselves as Republicans and Conservatives had lower rates of interest in the environmental debate when compared to Democrats and Liberals, even when concerning younger strata of society, such as college students. In Europe, the relationship between environmental interest and political–ideological values differs due to the rejection of discourses with paternalistic or populist bias, especially when the issue is related to non-democratic social phenomena in the continent’s history (Bomberg and Schlosberg 2008).

In Latin America, the public debate also relies on national elites, with a proportion ratio where there are few trained public interlocutors (such as technical professionals working for NGOs) for many civil society volunteers located both in the cities and within the territory. These interlocutors from popular groups have different levels of education and salary and prioritize immediate issues, such as the living standards of the population (Christen et al. 1998). On the other hand, the population of Latin America has revealed more concern about climate change proportionally by region, with 61% of respondents, with the average concern about the issue being 59% of the regions (Carle 2015).

In terms of topics that can lead to debate in society, it is known that severe environmental problems could increase the interest of groups refractory to public environmental debate in both regions (Dunlap 1975). In Europe, engagement and social mobilization on environmental issues increase through green democracy and ecological citizenship discussions (Hayward 2006; Dobson 2007) or through a focus on mutual cooperation and sharing of environmental responsibilities among the states that form the European Union. In the United States, on the other hand, the public debate about the environment has been distinctly unified, primarily on topics centered on energy, security, global problems, and actions around the climate crisis (Bomberg and Schlosberg 2008).

In general, tackling the climate crisis and engaging in the cause depends on their understanding of the issue, their emotion (their feelings related to the issue), and their behavior (Lorenzoni et al. 2007). A recent Pew Research Center research set forth that “Most citizens say they are willing to change how they live and work at least some to combat the effects of global warming, but whether their efforts will make an impact is unclear” (Bell et al. 2021). In this process, understanding the representations of climate change on social media (e.g., Balbé 2018), as well as young people’s relationships and feelings about climate change and information gaps, can be key factors in identifying what motivates engagement and how to communicate better.

4. Methodology and Methods

This research used three different data collection methods. In the first stage, search engines from the most important news websites in Brazil and Portugal were used. They generated a selection of climate news, with words and terms, which were used to program a digital tool to collect comments on Twitter news posts. The second phase was the Twitter post collection based on those keywords and geographic distribution to identify which moral attributes people from Brazil and Portugal chose to use in public and collective sentences—the tweets about the news. The third stage was an online survey to identify which moral attributes were more salient in private and individual responses about environmental issues.

An automated collection tool connected to the Twitter API was used for data collection. This tool allowed for the collection of comments about environmental news through keywords, utilizing filters to adapt the collection only to the focus of climate change, looking for the perception of the debate about this topic in the digital ecosystem.

Data capture and processing were possible through a set of automated tools by the company AP.Exata, from Portugal. Data extraction from Twitter was possible through the communication of an algorithm programmed in GeoNET¹ with the platform's API.

Using these search filters, 21,338 tweets were collected during six months (from 1 October 2021 to 1 April 2022). Brazil, with 203 million inhabitants in 2021, had 20,608 tweets analyzed, equivalent to 0.010% of the country's total population. Portugal, with 10 million inhabitants in the same year, had 714 tweets analyzed, equivalent to 0.007% of the country's total population.

We selected a set of keywords related to the environmental debate to identify Twitter profiles interested in this topic after collecting the first results from IP addresses in Brazil. To select the terms and words to be used in this study, we used the search engines inside the websites "Correio da Manhã" and "Jornal de Notícias" in Portugal and "G1" and "UOL" in Brazil, the most important news portals in both countries. Using only the "climate change" term in this first search, we have found plenty of expressions on those news websites that included "climate change", "environmental change", "environment", and "nature". We then included these expressions in the Twitter filter tool developed to collect the tweets for our study.

The labeling of the climatic terms and the most common expressions used in the news was carried out with human coders. To reduce the margin of error, three-coder checking (the re-evaluation of the collection and classification of one coder by the other two) was adopted.

Manual labeling was performed with human coders to classify the news texts. With this procedure, we programmed the collection of news comments on Twitter with the most popular terms and words in news articles and debates about climate change in Portuguese equivalent: approximately three out of four tweets, or more than 15,000 cases out of 21,338 tweets collected, contained those expressions. Tweets and retweets were considered in our analysis, not removing potential repetitions and considering around 10% of bots and false profiles (by the tool programmers). As the selected terms were in Portuguese language, other idioms were not identified in the tweet collection.

The last corpus collected by the Twitter tool was processed, excluding propositions, adverbs, linguistic ticks, and programmed keywords that led to data collection. By crossing the results of this collection with moral terms by the Moral Foundations Dictionary ([Graham and Haidt 2012](#); [Carvalho et al. 2020](#)), we also found strong associations between climate change terms, moral foundations words, and such topics as "climate denialism", "Greta Thunberg", "liberal", "capitalism", "progressive", "conservative", "right", and "left".

The collected tweets were classified by two codings, according to the relevance of the terms for the users' profiles, the number of terms used, and applications of primary and secondary emotions ([Plutchik 1984](#)) and morals ([Damásio 2018](#)) in the comments. If the profiles reached 10% of the published tweets with such definitions, their messages composed a second database, which allowed for the identification of the average primary

emotions used and the extraction of the moral terms in CSV format for analysis according to the Moral Foundations Dictionary. In relation to the tweet analysis, the texts were analyzed based on the Dictionary of Moral Terms (Graham and Haidt 2012; Carvalho et al. 2020) using NVIVO (version 12) software features. The posts were then classified according to the moral terms associated with the five Moral Foundations Theory.

Figure 1 presents the term classification from tweets by the Dictionary of Moral Terms.

Care/harm				Fairness/cheating				Loyalty/ betrayal				Authority/subversion				Sanctity/ degradation				Gen Morality												
HarmVirtue 1		HarmVice 2		FairnessVirtue 3		FairnessVice 4		IngroupVirtue 5		IngroupVice 6		AuthorityVirtue 7		AuthorityVice 8		PurityVirtue 9		PurityVice 10		MoralityGeneral 11												
Words	BR	PT	Words	BR	PT	Words	BR	PT	Words	BR	PT	Words	BR	PT	Words	BR	PT	Words	BR	PT	Words	BR	PT									
abriga	301	0	abandon	47	1	constante	22	2	desigua	17	0	aliada	9	0	apostasia	8	0	adiad	6	0	agitado	1	0	decente	17	0	adulter	1	0	boa	270	36
abrigo	8	0	abus	24	1	direitos	366	4	deseonest	19	0	comuna	4	0	canalha	46	0	adiar	7	1	agitar	4	0	contagios	2	0	contagios	1	0	bom	479	10
amizade	6	0	aniquil	6	1	equidade	4	0	despropor	14	0	conjunto	46	1	enganad	16	2	atende	44	1	alberad	4	0	agrega	25	0	contaminac	56	0	bondade	3	0
benefici	86	5	arruin	5	0	equilibrio	49	1	discrimina	19	0	grupo	177	8	enganar	13	1	atender	23	0	desencarar	19	0	imaculad	1	0	corromp	11	0	correa	28	1
carinhos	1	0	assassin	56	0	equilibrio	0	0	dissoci	8	1	iniciada	4	0	estrangera	8	0	atendeu	1	0	desafiador	5	0	incorrupt	2	0	devasa	3	0	correto	46	0
cautel	4	0	assol	17	0	equitativo	0	0	excluem	0	0	alia	265	5	estrangere	22	0	atendi	17	0	desafante	1	0	incoerente	24	2	doente	26	0	doctrina	6	1
compaix	3	0	atac	128	1	equivalente	9	0	exclui	21	0	alio	16	0	imigra	5	0	atendo	29	0	desafiar	2	0	doenti	3	0	errad	139	4			
conserv	154	5	ataq	120	2	fairplay	0	0	inescrup	1	0	camarada	7	0	individuo	23	1	autoridade	51	0	desrespet	0	2	intocad	2	0	exereca	2	1	eticamente	3	0
custodio	119	3	brutais	1	0	homologos	0	0	injuri	34	2	coletiv	74	8	intimig	156	2	burguesa	4	0	linguis	45	2	limpa	81	5	monoladi	1	0	exemplar	6	1
defender	218	6	brutal	3	1	honest	23	0	intoler	4	0	solidarid	69	1	negand	1	0	casta	14	0	legal	40	0	impur	2	0	impur	2	0	ideais	6	0
empati	17	0	combat	288	25	igualdade	153	5	preconceit	25	0	omnisim	17	0	squestrar	1	0	classe	58	7	infel	1	0	limpo	33	0	imund	9	0	ideal	11	1
escudo	1	0	cruel	19	0	impaciár	0	0	segrega	5	1	comunida	52	0	terroris	20	0	comando	65	0	opor	159	10	piiedade	2	0	interpestis	1	0	imoral	3	1
guarda	89	0	danifi	12	0	impaciár	1	0	TOTAL	#REF!	#REF!	dedic	46	5	traem	2	0	controla	44	6	protest	99	4	piados	1	1	lixos	31	0	imorais	1	0
guerra	443	31	deserto	12	0	justa	57	2	familiar	55	0	tran	81	12	controla	0	3	rebelde	8	4	pur	32	3	manchad	1	0	moral	1879	84			
guerra	1	0	desprez	45	0	justific	37	6	fiel	12	0	TOTAL	#REF!	#REF!	sumir	19	0	recusa	8	5	pureza	2	0	noiera	18	0	nohe	25	1			
luta	549	20	destruir	288	0	justo	26	1	iniciado	7	0	enviar	9	2	dever	265	3	subvers	3	0	piro	18	0	sojo	13	0	ofend	12	0			
paz	202	13	detriment	12	0	leal	23	0	justa	90	11	enviar	9	2	tumult	2	0	refinad	1	0	obscen	2	0	ofensivo	9	0						
preserva	755	7	devast	144	3	neutra	15	11	juntos	93	0	hierarquia	2	0	TOTAL	354	20	sagrado	9	1	pecado	3	0	personage	19	0						
proteg	309	6	doer	4	0	neutralidad	0	0	membro	37	1	hora	26	1	santa	70	2	pervers	14	1	rebo	14	1	rebo	361	8						
proteji	26	1	estrang	2	0	neurais	0	2	parede	2	0	legal	306	2	santo	86	4	pervertet	1	0	raim	130	3									
segura	364	6	estrang	46	0	neutro	12	0	patriota	37	0	lei	1913	42	virtuos	2	0	picarha	2	0	raim	18	0									
seguro	45	1	explora	213	3	tolerante	1	0	solidariedad	63	1	materna	1	0	TOTAL	453	18	profan	1	0	valor	152	8									
simpati	6	0	fece	426	19	uniforme	5	0	une	185	0	maternidad	2	0	promiscuic	1	0	TOTAL	#REF!	#REF!												
sofre	150	4	feri	161	6	TOTAL	#REF!	#REF!	unem	0	6	obedece	16	1	prostitui	2	0															
sonseg	4	0	firo	29	1	unem	0	6	unem	0	6	obedecei	1	0	prostitui	1	0															
tranquil	19	1	machac	7	0	unem	1339	8	unem	121	8	ordem	55	4	pata	393	6															
TOTAL	3880	109	magoar	1	0	TOTAL	2857	96	unem	121	8	pai	1224	48	rebaivar	1	0															
			mata	728	6				permite	45	2	permite	45	2	relaxad	1	0															
			materi	7	1				permitti	81	0	permitti	81	0	repugnanc	2	0															
			mato	87	9				permisso	2	0	permisso	2	0	sujeta	9	3															
			prejudic	219	4				quessa	5	0	quessa	5	0	varabunde	10	0															
			repeit	20	0				respetia	120	1	respetia	120	1	TOTAL	621	11															
			sofra	3	0				respeito	241	0	respeito	241	0																		
			sofrir	28	0				servir	20	1	servir	20	1																		
			subjug	1	0				status	10	0	status	10	0																		
			violenta	5	1				supremacia	2	0	supremacia	2	0																		
			violento	9	0				tradicion	36	1	tradicion	36	1																		
			TOTAL	#REF!	#REF!				TOTAL	#REF!	#REF!																					

Figure 1. Spreadsheet with five moral foundations and their respective words (NVIVO). The third phase of data collection was carried out by applying an online survey (via Google Forms), available on the Engage for SDG project website². A total of 205 responses were validated during the eight months of collection, namely, between February and September 2022. The Moral Foundations Questionnaire survey was distributed through the institutional email list of the University of Minho and partner universities and through the social networks of the project and researchers and answered by young people aged 18–25 from Brazil and Portugal. We also invited profile owners from Twitter during the previous stage. Despite the small sample, the results are in line with the theory of the Righteous Mind (Haidt 2012), which attests that the Care/Harm and Fairness/Cheating morals are the most salient in different studies.

The five moral attributes proposed by Jonathan Haidt (2012) reflect aspects of moral psychology that influence our beliefs, values, and behaviors. These attributes, established by theory as antinomies, can shape our attitudes and behaviors in the face of cultural content and social contexts, as well as the climate debate and our reactions to climate news, which is the hypothesis of our work. The moral attribute of Care/Harm is rooted in concern for the well-being of others and an aversion to suffering and pain. It reflects the human capacity for empathy and compassion. People who value this attribute tend to go out of their way to avoid causing harm to others and to protect the most vulnerable. It is the foundation of the ethics of care and social responsibility.

The moral value of Justice/Cheating involves respect for fairness, reciprocity, and impartiality in social interactions. People value justice as a principle that ensures that everyone is treated fairly and that cheaters are punished. Cheating, on the other hand, is seen as a violation of this principle and is widely condemned in morally developed societies. The moral characteristic of Loyalty/Betrayal is a moral attribute that emphasizes commitment to specific groups, communities, or institutions. It reflects the value of cooperation, solidarity, and group identity. People who value loyalty are willing to sacrifice individual interests for the well-being of the group. Betrayal, on the other hand, is seen as a breach of that trust and can be deeply damaging to social bonds.

The Authority/Subversion moral duality concerns hierarchy and social order. It reflects deference to legitimate authority and respect for established norms and traditions. People who value authority tend to value the stability and security provided by recognized institutions and authorities. Subversion, in turn, challenges this established order and can be seen as a threat to social cohesion. Finally, the Sanctity/Degradation moral antinomy focuses on purity, sacredness, and the distinction between the sacred and the profane. It reflects aversion to behaviors or practices considered impure, profane, or degrading. People who value holiness often strive to maintain high standards of behavior and moral conduct. Degradation, in turn, is seen as contamination that compromises purity and moral integrity.

Among the respondents, 39.5% were male, 60% female, and 0.5% were other. Regarding the nationality of the respondents, 75.1% were Brazilian and 24.9% Portuguese. The average age of the respondents was 20.63 years (standard deviation = 2.07), and the modal response was 19 years. More than half of the respondents had a high school/secondary/12th-grade education (56.6%), followed by a technical, technological, bachelor's, or graduate degree (38.1%). The remaining 5.4% had a master's, doctorate, or postgraduate degree. Among the respondents' professions/occupations, more than half were students (63.3%), followed by journalists (5%) and teachers (3%). The remaining 28.7% were distributed among several professions.

The analysis of the collected results was carried out based on [Graham et al. \(2011\)](#) and the five moral foundations of the Moral Foundations Theory for adaptation of the Moral Foundations Questionnaire. For this purpose, adaptations of [Graham et al.'s \(2013\)](#) Moral Foundations Questionnaire-30 (32-question version) were made to the environmental topic, which we call Moral Foundations Questionnaire/E, from Environmental ([Costa et al. 2022a](#)). This meant that the terms environment/environmental, nature, sustainable, and climate were inserted into each of the five moral attributes of the questionnaire, totaling 16 of the 32 questions. The different number of questions changed in relation to their moral attributes (four for Care/Harm, four for Fairness/Cheating, three for Loyalty/Betrayal, three for Authority/Subversion, and one for Purity/Degradation), devised by the higher incidence of the first two moral attributes in the previous methodological tests equated by considering the response mean and median, as presented below.

The last adaptation of the Moral Foundations Questionnaire/E refers to the political-ideological orientation of the respondents. Therefore, at the end of the questionnaire, the volunteers were requested to self-assess between Far-Right, Right, Conservative, Neutral, Central, Liberal, Progressive, Left, and Far-Left. As this version of the Moral Foundations Questionnaire was designed to be applied in Brazil and Portugal, we decided to group those different degrees in Left, Right, and Center in the results presented next.

5. Results

This section presents the results obtained by analyzing tweets and the Moral Foundations Questionnaire from Brazil and Portugal.

5.1. Twitter Analysis

In total, 21,338 tweets were collected (Table 1). The collection generated the following geographic distribution of tweet origin: 20,609 tweets coming from Brazil (96.6%), and 716 tweets coming from Portugal (3.35%).

Regarding the total of responses, there are three stronger moralities in Brazil compared to Portugal (purity, harm and authority) and three stronger moralities in Portugal compared to Brazil (terms of general morality, such as "moral", "good" and non-specific "good" (4.2% > Average at 0.9%), justice and belonging).

The moral grounds most used to support the conversations on Twitter were Care/Harm (for the lack of preservation or destructive human and political behaviors) and Authority/Subversion (who are responsible for the climate crisis) in both countries. In Brazil, the damaging narrative refers to its environmental heritage, emphasizing the Amazon and Pantanal forests, which suffered deforestation and wildfires during the tweet collection

period. In Portugal, the authority narrative refers to the question of which leaders should lead the confrontation of the climate crisis, and, especially in opposition to Portuguese and European politicians and influencers, the name of the activist Greta Thunberg comes up.

Table 1. Geographic Distribution and Moralities Comparison between Brazil and Portugal in Twitter Data.

Country	Care/Harm		Fairness/Cheating		Loyalty/Betrayal		Authority/Subversion		Sanctity/Degradation		General Morality	
	BR	PT	BR	PT	BR	PT	BR	PT	BR	PT	BR	PT
Total words (including repetition)	7103	196	970	38	3262	114	5142	146	1074	29	3619	159
% by morality	97.3	2.7	96.2	3.8	96.6	3.4	97.2	2.8	97.4	2.6	95.8	4.2

The perception of climate change with moral fairness has a strong relationship with justice, which is often associated with political criticism in the case of Brazil. A well-known Brazilian journalist and environmentalist highlights the gravity of the situation:

@andretrig TOTAL MADNESS! President defends thugs. Secr. of Culture against artists. Min. of Health against the use of masks. Min. Justice defends illegalities. The one Environment supports land grabbing and deforestation. The Ministry of Education does not want education for all. Is this a madhouse or not? [Tweet from Brazil]³

Besides the national context, “climate justice” was also mentioned, “The richest countries in the world are responsible for 86% of greenhouse gas emissions. Yet, the poorest countries tend to suffer the most from climate change. Those who understand this ask for climate justice”. [Tweet from Brazil]. The urgency of the climate agenda also appears in posts by political parties. “@LIVREpt will do everything to ensure that the agenda of ecological justice and social justice is present in the country’s discussions. We will fight for what the PEV comrades, unfortunately, cannot do in parliament. The climate crisis cannot be left behind”. [Tweet from Portugal]

Related to moral Care/Harm, we highlight two posts as an example. Both bring the context of emotional appeal, the urgent call for action and, somehow, the need to care for Earth:

Climate change and environmental damage are among the most serious threats to humanity, and if nothing is done in a few centuries Earth, as we know it, could cease to exist. Simple attitudes in everyday life can help minimize the environmental damage caused. [Tweet from Brazil]

This is the time to fight against the climate crisis and destruction. And it starts with the immediate divestment of Russian fossil energies and an anti-capitalist decarbonization plan in the EU. [Tweet from Portugal]

Related to moral Authority/Subversion, we found some examples that call for actions with concrete impact. In this case, the author asks why environmental actions are not taken instead of consuming electric cars, “Clean beaches? Waste reduction? More trash cans? Does this solve anything? The climate emergency can be solved by subsidizing the purchase of Teslas, naturally!” (Tweet from Portugal). This message mocks the situation of the controversy involving incentives to buy electric cars instead of fighting the climate emergency with actions related to waste treatment. In this case, the author criticizes the government of the Prime Minister of Portugal, António Costa, including his name and citing a specific brand of electric cars.

In this following case, while criticizing the government, the author accuses the government of being shameless and having no sense of responsibility, “Blaming the sky is

comfortable (sic) when we see luxurious buildings and condos. The government is killing for sheer lack of responsibility. It has money and laws, but no shame!" (Tweet from Brazil). The author comments on news about disasters caused by heavy rains and criticizes the government's lack of preventive action.

The moralities in Brazil and Portugal were the same in tweets collected, differing only in the scale of Twitter users. The most identified moral domain refers to Care/Harm, mostly about natural resources, such as water, forests, and national territory; Authority/Subversion in second place, especially the tension between national politicians, capitalism's responsibility for the climate crisis, and UE policies (in Portugal); and/or the polarization of the environmental debate in Brazil.

We observed different patterns in the use of Haidt's five moral foundations. In both contexts, debates about the environment are enriched by moral arguments that reflect concerns about justice, harm, belonging, authority, and purity, but the emphases and perspectives vary according to the political and social realities of each country.

In Brazil, the most frequently mentioned moral foundations were Justice and Harm, with 450 and 206 references, respectively. In contrast, the grounds of Authority, Purity, and Belonging were less frequently used, with 51, 17, and 14 mentions, respectively. In Portugal, the most common grounds were Justice and Belonging, with 55 and 18 references, respectively. Harm, Purity, and Authority were less commonly used, with 11, 3, and 1 mentions, respectively. In the Figure 2, the collection of comments on environmental news in Portuguese, from Brazil and Portugal, indicates that the most utilized moral foundations are the pairs of harm and care, and authority and subversion, in both countries.

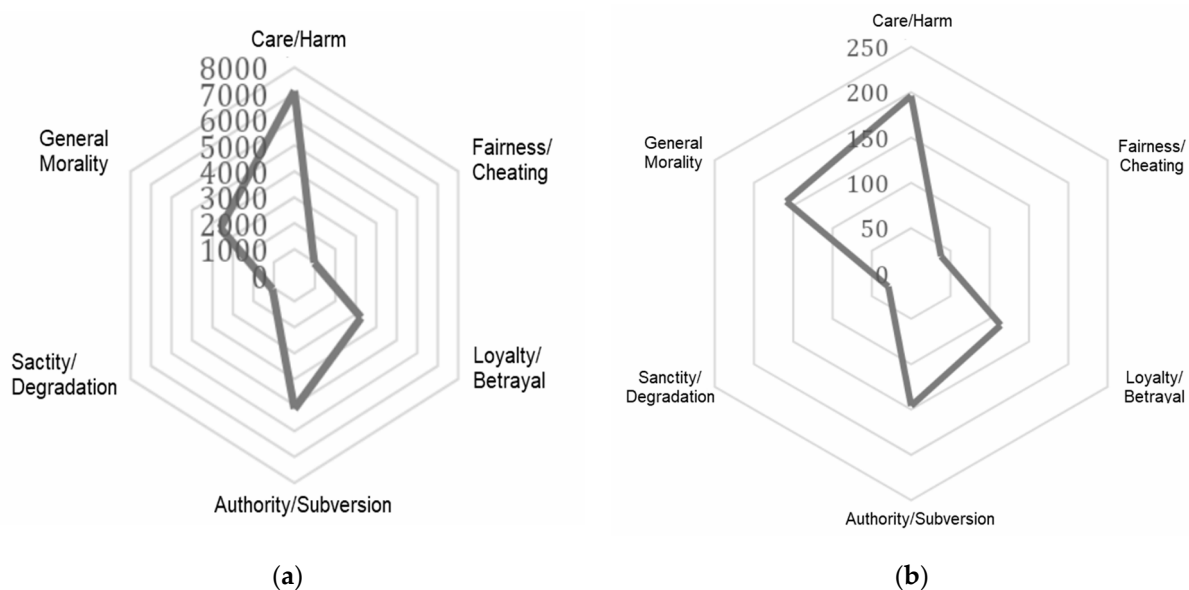


Figure 2. Moral positions in tweets from Brazil (a) and from Portugal (b).

Regarding Harm/Environment in Brazil, the discourse on environmental harm is centred on climate change and attacks on nature, while in Portugal, there is an association between harm and fossil fuels and capitalism. As for Justice/Environment, both in Brazil and Portugal, there is a discourse on climate and social justice, emphasizing a critical view of the political right in both countries. Belonging/Environment, in turn, shows that in Brazil, there is a strong connection between the Brazilian people and nature, especially the Amazon, while in Portugal, belonging is linked to Europeanism and the fight against climate change. Authority/Environment posts criticize the government of Jair M. Bolsonaro (2019–2022) for not acting responsibly in relation to environmental protection, while in Portugal, there is a call for rebellion against lobbying and corporate profits that are harmful to the environment. Finally, Purity/Environment posts are linked in the posts from Brazil by the narrative of environmental protection, highlighted as a central issue, with criticism of

Bolsonaro's government, while in Portugal, there is an association of purity with renewable energies and criticism of the electricity lobby.

5.2. Questionnaire Analysis

In the case of the Moral Foundations Questionnaire/E survey, the average responses on a scale of six options from not relevant at all to very relevant on environmental issues are distributed in the Figure 3: the overall average of responses according to the five moralities was obtained using a Likert scale ranging from 1 (Not relevant at all) to 6 (Extremely relevant) across a six-option scale.

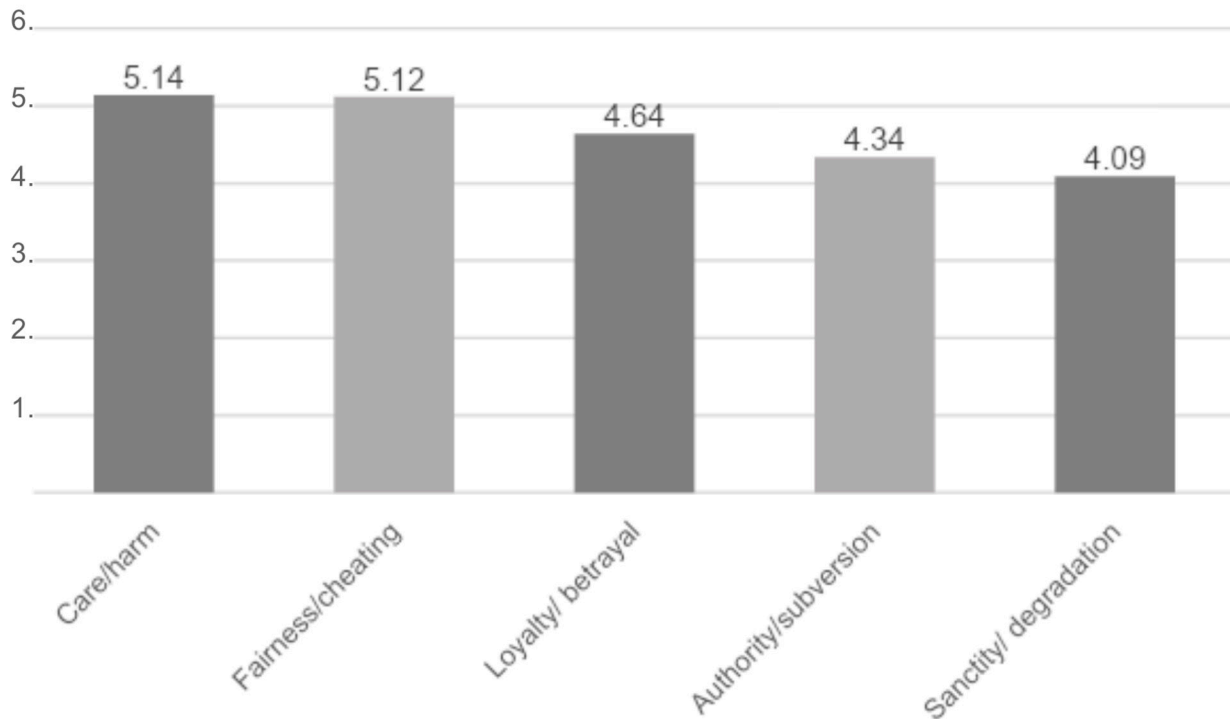


Figure 3. Overall average of responses (among 6-option scale) according to the five moralities. The results were obtained by a Likert scale (1 = Not relevant at all; 2 = Not very relevant; 3 = Slightly relevant; 4 = Somewhat relevant; 5 = Very relevant; 6 = Extremely relevant).

Based on the environmental questions, a difference was noticed between the average of the maximum answers of these with the remaining non-environmental (see questions in Appendix A): it was determined that the average of the maximum answer (extremely relevant or very relevant) to the questions with the words nature and environment/environmental was higher than the average of the remaining answers by 37.29% (52.09% average among environmental questions against 37.94% of the non-environmental). Other interesting results recorded that the questions with the highest scores referred to the dichotomy of “good and evil” (question 22, with 79.7%), moral Care/Harm (question 23, about “hurting defenseless animal”, with 70.1%), and moral Fairness (question 18, about “treating defenseless animal unfairly”, with 68.4%).

The most noticeable results of the valid responses (N = 265) of the Moral Foundations Questionnaire/E were Care/Harm (5.13) and Fairness/Cheating (5.09). This means, regarding Care/Harm, that among the respondents, there is a need to care for the younger ones and bond with others. The answers focus on the importance of the virtues of kindness and being devoted to others, relating to emotions such as compassion and protective instinct. Regarding morality Fairness/Cheating, it is important to consider that its values show that respondents desire cooperative and mutually beneficial relationships based on virtues such as honesty, fairness, and trust and relating to the emotions of gratitude, anger, and guilt.

Regarding Loyalty/Betrayal morality, a more moderate, albeit considerable, value is registered. This moral foundation is related to the need to form cohesive communities, revealing moderate patriotism, bravery, and sacrifice for the group. As for the moral foundation's Authority/Subversion (4.3) and Purity/Degradation (4.08), these are closer to the value 4 (not very relevant/slightly relevant with the Moral Foundations Questionnaire/E). That is, values related to respect for tradition and legitimate authority or emotions such as fear, respect, and reverence are low. Incidentally, this is due to a low percentage presence of conservatives since they usually show higher values on this dimension than left-leaning liberals and libertarians.

Regarding political leaning, almost one-third of the Moral Foundations Questionnaire/E respondents considered themselves left-wing (29.1%), as did those who considered themselves politically neutral (26.8%). The remaining respondents classified themselves politically as progressive (12.5%), centralist (10.6%), right-wing (7.9%), liberal (7.2%), or conservative and far-left (both with 2.6%). In the Figure 4, the distribution of respondents' political leanings is represented with the Y-axis denoting the percentage of respondents and the X-axis referring to their self-declared ideological position.

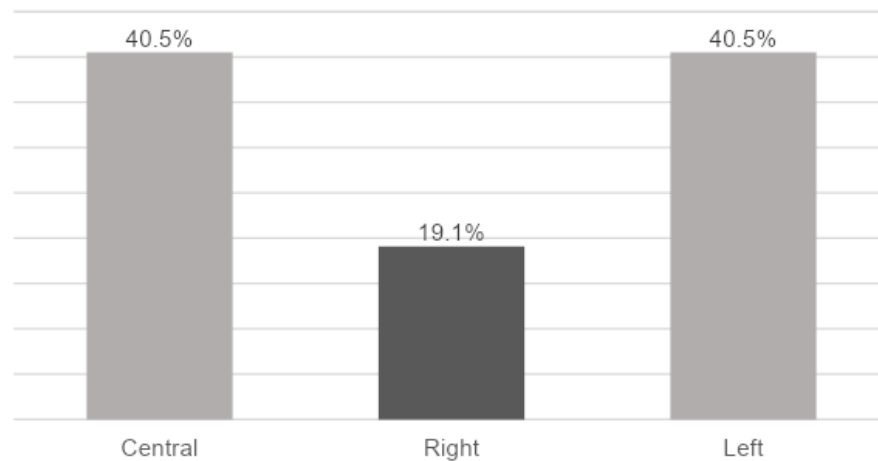


Figure 4. Distribution of respondents' political leanings. The Y-axis refers to the percentage of respondents. The X-axis refers to the self-declared ideologic position.

When we cross-reference ideological positioning against the morals that are associated with the issue of the environment, there are considerable changes in the results, both in the Care/Harm and the Fairness/Cheating moralities.

As for the moral foundation Care/Harm, the far left attains the greatest dimension in valuing the issue, even though the trend is above 5, oscillating between average values below 4 (somewhat relevant) and a value close to 5.5 (very relevant). The standard deviation is 0.87. It is interesting to note that the highest standard deviation value is for those who consider themselves to be right-wing (0.96), with responses ranging from 2.67 to 5.83, on average. Progressives, in turn, have the highest average on the importance of the moral foundation of Care/Harm (5.4), followed by neutrals, left-wing, and central.

Regarding the moral foundation of Fairness/Cheating, it is found that conservatives are the ones who most disperse their evaluative load on this foundation over the environment (standard deviation greater than 1), followed very closely by the extreme right. It is noteworthy that it is those who classify themselves as right-wing and liberal who obtain a lower valuation on the Fairness/Cheating foundation (minimum = 2.83).

As the main result of the relationship between political ideology and moral attributes, the highest mean value was recorded in those who consider themselves far-right (equivalent to Conservative in the US) in moral purity (5.4). The progressive (equivalent to Liberals in the US), through moral Care/Harm, recorded the second highest average (5.38); moral Fairness/Cheating finds the highest average value in the left-wing (5.37), progressive and central; among the lowest averages is moral purity, especially among those who

consider themselves far-left (equivalent to Liberals in the US) (2.9), followed by moral Authority/Subversion. The moral attributes Loyalty/Betrayal and Authority/Subversion reached medium results (average of 4.56 and 4.21) in comparison with the other moral ones. Table 2 presents the summary results.

Table 2. Relationship of values between political ideology and moral values of Moral Foundations Questionnaire/E respondents.

	Care/Harm	Justice/Cheating	Loyalty/Betrayal	Authority/Subversion	Sanctity/Degradation
Central	5.13	5.11	4.71	4.41	4.2
Right	4.87	4.89	4.62	4.48	4.2
Left	5.27	5.24	4.57	4.2	3.9

When we relate the political inclination with the average of the moral attributes, we realize that the right, in a combined way, is located in lower values in the attributes Care/Harm and Justice/Cheating than those who consider themselves of the left or center. These two moralities reveal a lesser sense of care and justice among those on the right of the political spectrum.

6. Discussion

Looking at the results of the analyses of Twitter posts and the questionnaire (MFQ), we identified that Care/Harm is the fundamental morality for youth people asked in our study because it was the most salient attribute. This means that both in the individual method applied and in the collective method, the Care/Harm moral related to the issue of “protection” was more associated. Studies on opinion articles have also found the same result (Feinberg and Willer 2013). On the other hand, the second most important moral identified was distinguished by the methods mentioned before: while the attribute MFQ/E was Fairness/Cheating, the second most important attribute in tweets was Authority/Subversion. Hereafter, some considerations about these results.

It should be noted that the Care/Harm morality is linked to the idea of caring for the younger ones and creating bonds with others. These assumptions focus on the importance of the virtues of kindness and caring for others, relating to emotions such as compassion and protective instinct. These results correlate with a strong commitment to sustainable development, where the use of natural resources is provided for, but care is taken to maintain their existence for future generations and a political ecology that challenges the coldness developed by modern, industrial life and overpopulated cities, considering the capitalist system and the lifestyle based on consumption as factors of environmental risk.

Fairness/Cheating morality considers cooperative and mutually beneficial relationships based on virtues such as honesty, Fairness/Cheating, and trust and relating to the emotions of gratitude, anger, and guilt. Moreover, the value of Fairness/Cheating registered by the collected sample points to an affinity with social environmentalism, that is, a change in the paradigm of being human and nature, in which one should have an ethical posture with nature and with the traditional communities that depend on it and with ecological realism, a current that perceives nature in relation to society, believing in social self-management and cooperativism and envisioning environmentalism (especially an environmentalism applied to reality through concrete projects).

The moral foundation of Environmental Fairness/Cheating finds, among Brazilians and Portuguese, greater strength in those who consider themselves left-wing, progressives, and centrists, corroborating, in a sense, what happens in the US, where individuals who identify themselves as Republicans and conservatives have lower rates of interest toward the environmental debate when compared to Democrats and Liberals (Cruz 2017). In the global South, represented by Brazilian and Portuguese youth of our study, the left-wing respondents care about the environment mostly via Care/Harm and Fairness/Cheating

attributes. On the other hand, the left-wing respondents were also engaged in the climate debate but shared other morals, such as Justice/Cheating and Loyalty/Betrayal.

Nevertheless, the “green morals” of Portugal and Brazil inside the collected tweets differ in their relationship with the foundation of Authority/Subversion. Portugal is more focused on the tension between national policies and the demands of the European Union or even the tension between sustainable goals and the demands of the liberal economy. Brazil is more centered on the country, in which there is a strong feeling of belonging between the “Brazilian people” and the natural elements (where the matter of Amazon stands out). Despite a strong tendency toward climate denialism, distributed by supporters of the direct and extreme right who, as Latour argues (Neves et al. 2020), are part of the group of people who want an “exit from the planet”, Brazilian respondents demonstrated a strong relationship with environmental and natural issues.

7. Final Considerations

In our article, we analyze how there can be engagement in the environmental debate and the consumption of news about climate change through the activation of moral attributes in young Lusophone people from Brazil and Portugal.

We noticed that Care/Harm and Authority/Subversion were the Moral Foundations Theory attributes with more effectiveness in the debate promoted on Twitter when young people comment on environmental news. Therefore, we conclude that young people’s moral and ideological biases are reiterated in posts commenting on environmental news on Twitter.

Regarding individualized answers, the most collected answers to the Moral Foundations Questionnaire were Care/Harm and Fairness/Cheating. Thus, we can perceive a tendency to engage in specific moral attributes in the interest of young Lusophone people in our study, both in the collective debate on digital networks and in personal opinions.

Furthermore, the domains Care/Harm and Fairness/Cheating are strong interest mobilizers as they align with most respondents. In addition, the Authority/Subversion domains used by young people (such as the iconic sentence about responsibilities from adults, “How Dare You?” by Greta Thunberg) are more effective than the professional press (political forums coverage). Due to the results of the previous steps, it is perceived that sentences with moral attributes of Purity/Degradation do not work as engagement triggers for environmental news. There is still much to be explored on how to communicate better. According to Balbé and Loose (2020), there is no single formula for communicating the climate crisis and promoting engagement, especially how to communicate with young people.

It is also important to consider that political bias has an influence on moral values and the perception of environmental issues. Studies on moral foundations and moral violations can contribute to bringing clues to the area of communication and persuasion, which can generate action. Huang et al. (2022) point out that credibility in policy support mediated the effects of moral violation on climate engagement and for effective arguments of moral violations of climate change, with differences between liberals and conservatives. Liberal-leaning individuals were more likely to perceive an individualizing frame as more credible than a binding frame.

Furthermore, Feinberg and Willer’s (2013) research identified that not only does political ideology between conservatives and liberals influence morality, but there are also religious factors. For example, in one phase of the analysis of opinion articles, they concluded that contemporary environmental discourse is primarily based on moral concerns related to harm and care, which liberals most deeply defend, but reframing pro-environmental rhetoric in terms of purity instead of harm and care essentially eliminated the difference between the environmental attitudes of liberals and conservatives.

In summary, morality and environmental attitudes depend on a series of factors. In addition to politics and religion, which may be the most prevalent, there are also factors such as age and geographic location since proximity to nature or physical distance from

the most direct consequences of environmental problems can also cause more significant concern and sensitivity.

Studies in social psychology on moral motivation and climate action point out that there are many challenges to involving people in response to climate challenges, similar to those in journalism. On the other hand, they emphasize the importance of involving people with diverse opinions and backgrounds in this debate and action, from citizens' assemblies to broad social welfare policies (Bain and Bongiorno 2020).

So many variations suggest that there is no one "green morality". Still, we can take advantage of the political-ideological attitudes of individuals to modulate environmental narratives according to each target audience's most salient moral attributes. Our study contributes to the field of communication and studies on morality and the relationship between morality and environmental attitudes.

8. Limitations

This study faces certain limitations. The volume of Twitter posts analyzed (21,322 tweets) may seem low compared to the volume of daily posts coming from Brazil or even Portugal, but several filters were applied to select posts related to the topic, especially as they were news comments and not simple posts. The same limitation for the Moral Foundation Questionnaire (MFQ) corpus can be pointed out. The answers were obtained by publicizing the questionnaire at universities and on social networks, focusing on young people aged between 19 and 25 in Brazil and Portugal. Despite this, we believe that both the comments on Twitter and the MFQ provided relevant clues about individual responses to moral narratives in both countries.

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Informed Consent Statement: Informed consent was obtained from all subjects involved in the study.

Data Availability Statement: The original contributions presented in the study are included in the article, further inquiries can be directed to the corresponding author.

Conflicts of Interest: The authors declare no conflict of interest.

Appendix A

Table A1. Moral Foundations Questionnaire/E.

	Moral Foundation	Questions from Moral Foundations Questionnaire Adapted with the Terms Nature, Environmental in Green
1	Care/Harm	Whether or not the environment suffered from human action
2	Fairness/Cheating	Whether or not the environment was treated differently than other topics
3	Loyalty/Betrayal	Whether or not someone's action showed love for nature
4	Authority/Subversion	Whether or not someone showed a lack of respect for environmental problems
5	Purity/Degradation	Whether or not someone violated standards of purity and decency
6	-	Whether or not someone was good at math

Table A1. Cont.

	Moral Foundation	Questions from Moral Foundations Questionnaire Adapted with the Terms Nature, Environmental in Green
7	Care/Harm	Whether or not someone cared for someone weak or vulnerable
8	Fairness/Cheating	Whether or not someone acted unfairly
9	Loyalty/Betrayal	Whether or not someone did something to betray his or her group
10	Authority/Subversion	Whether or not someone conformed to the traditions of society
11	Purity/Degradation	Whether or not someone did something disgusting
12	Care/Harm	Whether or not someone was cruel to nature
13	Fairness/Cheating	Whether or not animals were denied them rights
14	Loyalty/Betrayal	Whether or not someone showed a lack of loyalty
15	Authority/Subversion	Whether or not an action caused chaos or environmental disorder
16	Purity/Degradation	Whether or not someone acted in a way that God would approve of
17	Care/Harm	Compassion for those who are suffering from climate change is the most crucial virtue
18	Fairness/Cheating	When the government makes laws, the number one principle should be ensuring that the environment is treated fairly
19	Loyalty/Betrayal	If someone's actions show or do not love for the environment
20	Authority/Subversion	Respect for nature is something all children need to learn
21	Purity/Degradation	People should not do things that are disgusting, even if no one is harmed
22	-	It is better to do good than to do bad
23	Care/Harm	One of the worst things a person could do is hurt a defenseless animal
24	Fairness/Cheating	Justice is the most important requirement for a society
25	Loyalty/Betrayal	People should be loyal to their family members, even when they have done something wrong
26	Authority/Subversion	Men and women each have different roles to play in society
27	Purity/Degradation	I would judge some acts as wrong, claiming that they do not respect the environment
28	Care/Harm	It can never be right to kill a human being
29	Fairness/Cheating	I think it's morally wrong that rich children inherit a clean environment while poor children inherit a polluted environment
30	Loyalty/Betrayal	It is more important to think about the good of the environment than to do my will
31	Authority/Subversion	If I were a soldier and disagreed with my commanding officer's orders, I would obey anyway because that is my duty
32	Purity/Degradation	A sustainable environment is an important and valuable virtue

Notes

- ¹ *GeoNET (. . .) is a Convolutional Neural Network, which uses publication information to identify the real location of a Twitter profile. GeoNET makes it possible to identify up to a thousand times more geolocated users than the GPS location system. GeoNET is also used by the other modules to generate geographically grouped results. That is, after identifying the real location, the GeoNET module allows for the grouping of opinions, tweets and retweets, profiles, and trends in different interactive geographic views (Gravato and Denicoli 2021).
- ² Engage for SDG: www.escolhaverde.com/en (accessed on 1 November 2023).
- ³ All these examples were originally posted in Portuguese.

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