ISSN: 1304-4796
Manisa Celal Bayar Üniversitesi Sosyal Bilimler Dergisi
Manisa Celal Bayar University Journal of Social Sciences
2025; 23 (1); 294-312

Climate Change and Intergroup Relations: A Systematic Review[1]

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ABSTRACT

Climate change is one of the most critical and pressing issues of both our time and the future. This systematic review analyzes the association between climate change and intergroup relations, adhering to PRISMA principles. A systematic search in WOS and SCOPUS yielded 27 papers meeting the inclusion criteria. The findings show that research on this topic generally focuses on major dependent variables in climate change, their social psychological antecedents in intergroup processes, and the consequences of climate change on group processes. The results reveal individual differences in climate change trust, support for climate policies, collective action, and environmentalism, which are influenced by various social psychological factors. How the climate crisis affects intergroup relations also depends on different factors, including uncertainty, intergroup inequalities, and commonality perception. This review takes a holistic view of the climate crisis and intergroup relations, offering recommendations to address key gaps in the literature.

Keywords: *Climate Change, Global Warming, Intergroup Relations, Group Processes.*

İklim Değişikliği ve Gruplararası İlişkiler: Sistematik bir Derleme

ÖZET

İklim değişikliği, hem günümüzün hem de geleceğin en kritik ve öncelikli meselelerinden biridir. Mevcut sistematik derleme, iklim değişikliği ile gruplar arası ilişkiler arasındaki bağlantıyı incelemektedir. Çalışma, PRISMA yönergelerine uygun olarak yürütülmüştür. WOS ve SCOPUS veri tabanlarında yapılan sistematik bir tarama sonucunda, dahil edilme kriterlerini karşılayan 27 makale belirlenmiştir. Bulgular, bu konudaki araştırmaların genellikle iklim değişikliğiyle ilgili temel bağımlı değişkenlere, bunların gruplar arası süreçlerdeki sosyal psikolojik öncüllerine ve iklim değişikliğinin grup süreçleri üzerindeki etkilerine odaklandığını göstermektedir. Bulgulara göre, bireyler birçok farklı etmene bağlı olarak, iklim değişikliğine güven, iklim krizi ile ilgili politikaları destekleme, kolektif eylem ve çevrecilik gibi ana bağımlı ölçümlerde bireysel farklılıklar göstermektedir. İklim krizinin gruplar arası ilişkileri nasıl etkilediği ise belirsizlik, gruplar arası eşitsizlikler ve ortaklık algısı gibi çeşitli faktörlere bağlıdır. Bu derleme çalışması iklim krizi ve gruplar arası ilişkileri bütüncül bir perspektifle ele alarak, literatürde belirlenen önemli sınırlılıkların gelecek çalışmalarda giderilmesine yönelik öneriler sunmaktadır.

Anahtar Kelimeler: *İklim Değişikliği, Küresel Isınma, Gruplararası İlişkiler, Grup Süreçleri*

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[1] This study has not been presented, derived from a thesis, or supported by any institution or project.

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(Submission: 11.10.2024 / Published:26.03.2025)
Doi Number: 10.18026/cbayarsos.1565537
Type of Research: Research Article

1. INTRODUCTION

Climate change is showing its impacts in every corner of the globe. As a result of global warming, glaciers are melting at an astonishing rate (Slater et al., 2021). Glaciers melting have caused a dramatic rise in sea level (Sames et al., 2016). At this time, melting glaciers raised mean sea level globally by 34.6 mm (Slater et al., 2021). In addition, extreme weather events such as floods, heat waves, and droughts have become increasingly commonplace owing to the climate problem (Stott, 2016). All these effects are expected to intensify in the decades to come (McMichael et al., 2006).

Given the implication of human behavior in the climate crisis, the critical position of psychology in this issue is clear. Psychology studies have made many contributions to climate change, including understanding attitudes and behaviors related to the environment (Azevedo & Jost, 2021), enabling in-depth examination of climate beliefs and the underpinning psychological factors that may explain these beliefs (Hornsey et al., 2016), uncovering factors that inhibit climate-friendly behavior (Gifford et al., 2018), contributing more sustainable behaviors (Spence & Pidgeon, 2009), and examining the impacts of the climate crisis on individuals (Doherty & Clayton, 2011) and societies (Markkanen & Anger-Kraavi, 2019). Each sub-branch of psychology examines the interaction between climate change and humans from its own perspective, attempting to offer specific explanations for understanding and combating the issue.

Social psychologists have been applying a social psychological perspective to the climate change issue for a while (e.g., Benegal & Holman, 2021). A significant portion of social psychology studies is aimed at understanding the relationships between groups. In today's multi-societal structures, studying intergroup relations has great significance in terms of ensuring social tranquillity, preventing intergroup conflicts, and developing comprehensive policies. Examining the relationship between intergroup relations and climate change is critical to understanding global social problems more deeply and offering applicable solutions (Pearson & Schuldt, 2018). A great deal of study on intergroup relations and climate change has focused on identifying the group-related factors that affect pro-environmental attitudes and actions (e.g., Meleady & Crisp, 2017), understanding the results of climate change on intergroup processes, including intergroup cooperation (e.g., Adano et al., 2012) and conflict (e.g., Burke et al., 2015). This body of research demonstrates a bidirectional relationship between environmental processes and group processes (Clayton et al., 2015). Such interplay highlights how group dynamics can shape environmental attitudes and actions, while environmental challenges can, in turn, influence intergroup relations.

One of those intergroup factors that somehow influences attitudes and behaviors about climate change could be social identity (Fielding & Hornsey, 2016). Case in point; once really identified with groups devoted to sustainability -for example the environmental movement- individuals will then conform their acts with group norms and objectives (Barth et al, 2021). High levels of identification with humanity, for example, (Römpke et al.,

2019), or the dissolution of boundaries between of present and future generations (Meleady & Crisp, 2017) are also cited as factors that may enhance pro-environmental attitudes and behaviors. People's ideological tendencies, such as their social dominance orientation (Milfont et a., 2018) or system justification levels (Feygina et al., 2010), also determine how one approaches the problem of climate change.

As stated above, another dimension of research in this area focuses on how climate change impacts intergroup processes. The fact that climate change, as a global threat, can either aggravate intergroup conflicts (Fritsche et al., 2011) or foster collaborative bonds (Pyszczynski et al., 2012) varies with the temporal and psychological conditions. For example, as argued by realistic group conflict theory, the perceived scarcity of resources stemming from environmental degradation may lead to more competition and conflict between groups (De Juan & Hänze, 2021; Fritsche et al., 2011). However, increased awareness of a shared humanity can minimize, and possibly reverse, the effects of this existential threat on intergroup conflict. Under certain conditions, the danger of climate change can incline individuals toward collaboration and peace (Pyszczynski et al., 2012).

Addressing climate change from a social psychology perspective is critical both in developing strategies to cope with the crisis and in promoting cooperation and solidarity across societies (Doherty & Clayton, 2011). We conduct the present systematic review to comprehensively understand the relationship between climate change and intergroup dynamics. Although the number of studies related to the interaction between global warming and intergroup relations is increasing day by day, there is a need for studies examining this interconnection from a broad perspective. This systematic review comprehensively examines the literature to identify gaps in knowledge on climate change and intergroup relations, which allows new areas of research to emerge. Furthermore, this research will help policymakers build more egalitarian and inclusive climate change strategies. Moreover, such studies bring together different theoretical and methodological approaches, revealing the multidimensional and interdisciplinary nature of this field. Thus, this study will provide a more comprehensive framework for addressing climate change and intergroup relations.

2. Method

2.1. Information Sources and Searches

We produced this systematic review article in accordance with the PRISMA principles (Moher et al., 2009). An electronic research technique was applied to find empirical studies related to the effects of climate change on intergroup relations. The literature search was conducted for papers in the Web of Science and SCOPUS databases until January 2022.

The keywords used in the databases during the search were as follows: "climate change" or "global warming" and "intergroup relations" or "intergroup bias" or "intergroup conflict" or "intergroup anxiety" or "intergroup threat" or "intergroup contact" or "intergroup

helping" or "stereotypes" or "prejudices". We searched all publication years without imposing any other limitations.

2.2. Inclusion and Exclusion Criteria

The current study exclusively includes publications written in English concerning relationships and intergroup connections. Both qualitative and quantitative studies were analyzed. Thesis, book chapters, reviews, meta-analyses, and conference papers were excluded from the evaluation.

3. RESULTS

3.1. Study Selection

The first count of studies retrieved from the database searches was 314. Out of 314 studies, 241 were selected for full-text screening. For various reasons, we excluded 214 of these studies (Figure 1). As a result, 27 articles were found eligible for review. Included studies were read in detail and evaluated from various perspectives. Table 1 lists the general information about these studies.

3.2. Notes Regarding Participants and Sources of Data

It was seen that the studies were mostly conducted in Western, developed, and educated countries (Table 1). In 13 of 27 studies, data were collected from participants in the United States. Similarly, 13 of these studies included participants from a European country. Only three of the reviewed articles had participants from an African or Asian country. In short, while a small portion of the sample in the reviewed studies came from developing countries, these studies were generally conducted with participants living in wealthy and developed countries. Additionally, although there were nine cross-cultural studies, the US was generally included in these studies. Specifically, in five of these nine studies, the US is one of the two countries where the study was conducted. Only one of these cross-cultural studies collected data from non-Western countries, and two included participants from more than two countries.

Figure 1: PRISMA Diagram

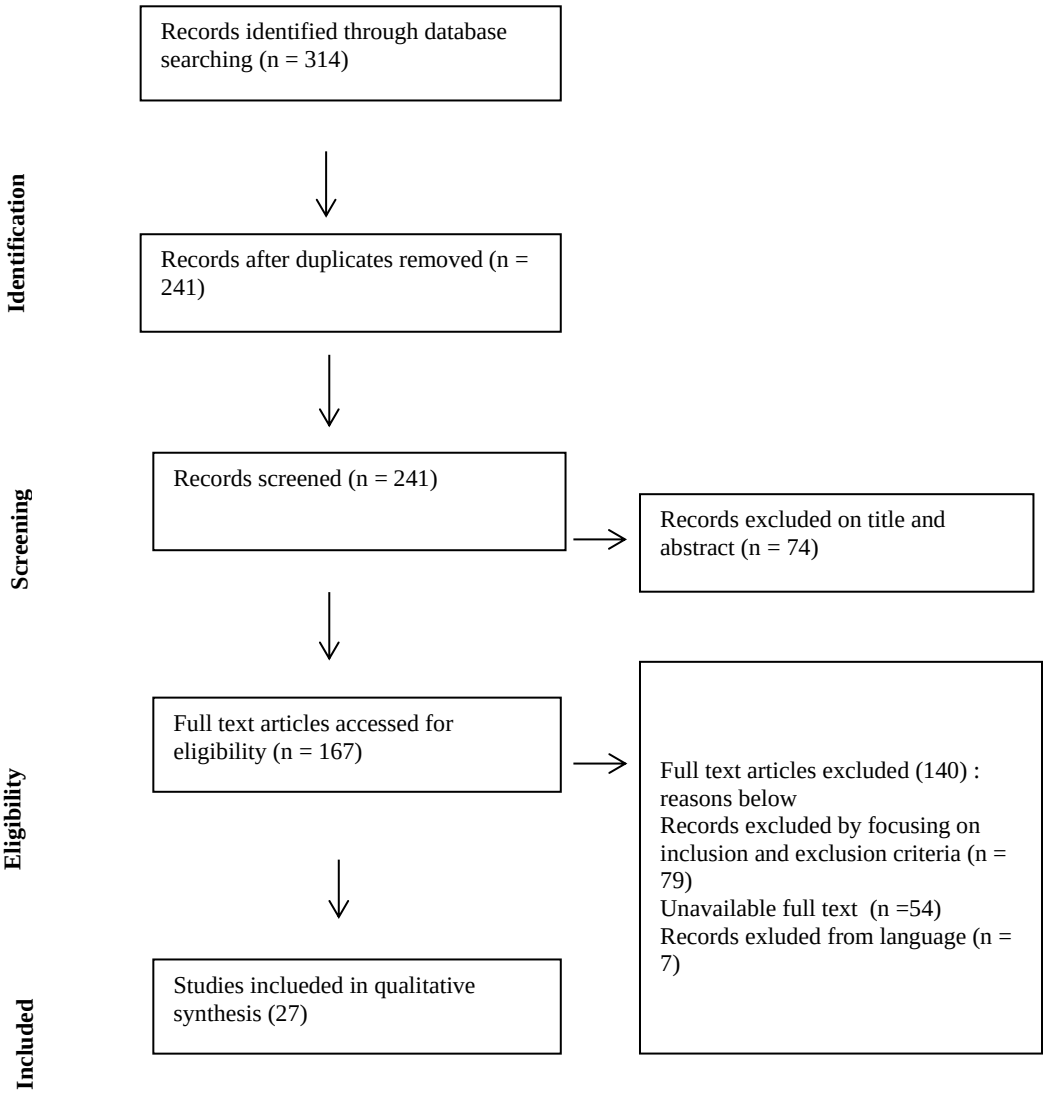

Table 1: Overview of Included Studies: Authors, Sample Information, Origion of the Participant, and Research Designs

Authors	***Number of Studies***	***Sample Information***	***Country of Participants***	***Research Design***
Azevedo & Jost (2021)	1 with 2 datasets	Dataset 1: *N* = 1500; 50.67% women, 49.33% men; Age *M* = NA Dataset 2: *N* = 2119; 21.47% women, 78.53% men; Age *M* = NA	United States	Relational
Bain et al. (2013; Study 1)	1	*N* = 48; 55% women, 45% men; Age *M* = 40.13	Australia	Experimental
Barth et al. (2018)	3	Study 1: *N* = 91; 52.2% women, 47.8% men; Age *M* = 23.08 Study 2: *N* = 159; 61.0% women, 39.0% men; Age *M* = 23.22 Study 3: *N* = 157; 57.3% women, 42.7% men; Age *M* = 22.93	Germany	Study 1: Experimental Study 2: Experimental Study 3: Experimental
Benegal (2018)	1 with 10 datasets	*N* = NA (Between 1000 and 2000 respondents included in each survey); Gender ratio = NA; Age *M* = NA	United States	Relational
Benegal & Holman (2021)	1 with 3 datasets	Database 1: *N* = 4,271; Gender ratio = NA; Age *M* = NA Database 2: *N* = 60,000; Gender ratio = NA; Age *M* = NA Database 3: *N* = NA; Gender ratio = NA; Age *M* = NA	United States	Relational
Bertin et al. (2021)	2	Study 1: *N* = 295; 242 women, 52 men; Age *M* = 20.1 Study 2: *N* = 375; 264 women, 175 men, A*ge M* = 25.9	France	Relational
Bliuc et al. (2015)	1	2 groups: Climate change sceptics *N* = 120, climate change believers *N* = 328; Gender ratio = NA; Age *M* = NA	United States	Relational
Bolsen & Druckman (2018)	1	*N* = 1,329; Gender ratio = NA; Age *M* = NA	United States	Experimental

Choma et al. (2020)	1 from 3 sample	Sample 1: *N* = 338; 80.2% women, 19.8% men; Age *M* = 20.53 Sample 2: *N* = 565; 54.2% women, 45.8% men; Age *M* = 37.48 Sample 3: *N* = 566; 53.5% women, 45.9% men; Age *M* = 35.61	Sample 1: Canada Sample 2 United States Sample 3: United States	Relational
De Juan & Hänze (2021)	1	*N* = 8,500; Gender ratio = NA; Age *M* = NA	Kenya, Tanzania, Mozambique, Malawi, Zambia, and Uganda	Relational
Fasce et al. (2021; Study 2)	1	*N* = 1,054; 36.1% women, 63.9% men; Age *M* = 35.56	Spain	Relational
Fritsche et al. (2012)	2 from 3 samples	Study 1a: *N* = 95; 55 women, 39 men; Age *M* = 21.66 Study 1b: *N* = 56; 41 women, 15 men; Age *M* = 21.12 Study 2: *N* = 155; 131 women, 24 men; Age *M* = 19.50	Study 1a: Germany Study 1b: Germany Study 2: UK	Experimental
Geiger & Swim (2018)	2	Study 1: *N* = 305; 180 women, 124 men; Age *M* = 20.00 Study 2: *N* = 194; 88 women, 105 men; Age *M* = NA	United States	Study 1: Relational Study 2: Experimental
Graça (2021)	2	Study 1: *N* = 1,270; 53.3% women, 46.7% men; Age *M* = 49.1 Study 2: *N* = 38,830; 51.5% women, 48.5% men; Age *M* = 47.51	Study 1: Portugal Study 2: 20 other countries in Europe	Relational
Helbling (2020)	1	*N* = 1,102; Gender ratio = NA; Age *M* = NA	Germany	Experimental
Kerry & Wilson (2021)	3	Study 1: *N* = 547; 415 women, 128 men; Age *M* = 19.19 Study 2: *N* = 663; 325 women, 316 men; Age *M* = NA Study 3: *N* = 8,101; 46.8% women, 53.2% men; Age *M* = NA	Study 1: New Zealand Study 2: United States Study 3: New Zealand	Relational
Lalot et al., 2018	3	Study 1: *N* = 210; 139 women, 71 men; Age *M* = 34.5	Study 1: United States	Experimental

		Study 2: *N* = 165; 129 women, 36 men; Age *M* = 24.3	Study 2: Switzerland	
		Study 3: *N* = 125; 86 women, 39 men; Age *M* = 24.94	Study 3: Switzerland	
Meleady & Crisp (2017)	2	Study 1: *N* = 80; 72 women, 8 men; Age *M* = 19.44 Study 2: *N* = 183; 110 women, 73 men; Age *M* = 30.15	United Kingdom	Experimental
Milfont et al. (2018)	1	*N* = 1,237; Gender ratio = NA; Age *M* = NA	25 countries	Relational
Pearson et al. (2018)	1	*N* = 1,212; Gender ratio = NA; Age *M* = NA	United States	Relational
Pyszczynski et al. (2012)	3	Study 1: *N* = 109; 61 women, 48 men; Age *M* = 21.85 Study 2: *N* = 56; 31 women, 25 men; Age *M* = 18.54 Study 1: *N* = 100; 54 women, 46 men; Age *M* = NA	Study 1: United States Study 2: United States Study 3: Muslim Palestinian citizens of Israel	Experimental
Römpke et al., (2019)	2	Study 1: *N* = 100; 72 women, 27 men; Age *M* = 24.86 Study 2: *N* = 242; 179 women, 59 men; Age *M* = 20.16	Study 1: Germany Study 2: Germany	Study 1: Experimental Study 2: Relational/ Longitudinal
Safarzynska (2018)	1	*N* = 288 (102 Austrian, 186 Polish); Gender ratio = NA; Age *M* = NA	Austria Poland	Experimental
Uenal et al., (2022)	2	Study 1: *N* = 398; 44.5% women, 55.5% men; Age *M* = 38.31 Study 2: *N* = 317; 45.1% women, 54.9% men; Age *M* = 37.86	Study 1: United States Study 2: Germany	Relational
Vainio et al. (2014; Study 2)	1	*N* = 350; 80% women, 20% men; Age *M* = 24.00	Finland	Relational
Vazquez et al. (2021)	3	Study 1: *N* = 416; 60.8% women, 39.2% men; Age *M* = 33.72 Study 2: *N* = 287; 62.7% women, 37.3% men; Age *M* = 33.43 Study 3: *N* = 438; 62.8% women, 37.2% men; Age *M* = 33.62	Spain	Experimental

3.3. Results Regarding Research Topics

We determined two topics commonly involved in studies on climate change and intergroup relations: major dependent variables in climate change and their social psychological antecedents in intergroup processes, and the consequences of climate change on group processes. We included variables that are either directly or indirectly related to the interaction between climate change and intergroup relations to provide a comprehensive understanding of the processes and outcomes within this limited research area.

1. Major dependent variables in climate change and their social psychological antecedents in intergroup processes: The majority of analyzed studies on climate change and intergroup relations focused on the primary dependent variables associated with climate change and its social psychological indicators in intergroup dynamics.The main outcome variables and their social psychological antecedents are given below.

a. Trust or Distrust in Climate Science/Climate Change Skepticism and Their Social Psychological Antecedents: There are significant differences between people's belief in the existence of the climate crisis and their confidence in climate science (e.g., Vazquez et al., 2021). A cluster of the studies has dealt with to what extent people trust climate change science or how sceptical they are about climate change as the outcome variable. These studies generally aim to reveal the social psychological antecedent factors associated with climate trust. These factors include a variety of variables, from sex to political ideologies.

Among predictors of climate change beliefs, the most studied social psychological factors are ideological variables. Azevedo and Jost (2021) investigated the impacts of specific ideological concerns on anti-scientific attitudes. This study found political conservatism as the strongest predictor of climate science distrust. Also, social dominance orientation (SDO) predicted distrust of climate science. In another study, Kerry and Wilson (2021) have found that SDO and right-wing authoritarianism (RWA) significantly predicted climate change denial.

Vainio and colleagues (2014) explored the relationship between political orientation, food system justification trends, and individuals' perceptions about climate change as a national threat. A right-wing political orientation was positively correlated with the assessment of the climate catastrophe as a national threat. Additionally, it was positively associated with climate change denial. Furthermore, evaluating global warming as a national threat is related to food system justification and refusal of climate crisis.

Partisanship and politicization are among the variables affecting individuals' perceptions of climate change. Bolsen & Druckman (2018) assessed these variables' roles in reducing a scientific agreement's effects on anthropogenic climate change and found that partisan identity—particularly politicization— has reduced the effects of scientific agreement about climate change (Bolsen & Druckman, 2018). In another study, Benegal (2018) investigated the link between racial attitudes and public belief about the climate crisis and demonstrated

that higher levels of racial prejudice and resentment were associated with lower belief that climate change exists and is anthropogenic.

Another factor affecting climate science trust is collective narcissism. Bertin and colleagues (2021) demonstrated that national collective narcissism was negatively related to climate science acceptance. Furthermore, conspiracy beliefs about global warming mediated this relationship. Vazquez et al. (2021), with two studies, investigated the effects of sex and situational materialism on climate scepticism. According to the findings, the prevalence of materialism increased climate change scepticism more among men than women (Study 1), and acceptance of male roles was found to be positively connected with climate change scepticism, which was further enhanced by situational materialism (Study 2).

Bliuc et al. (2015) asserted that the perspectives of believers and skeptics regarding the origins of climate change underpin their social identities. They found that believers and sceptics differed in their social identities, beliefs, and emotional responses, and those differences between the two groups systematically predicted their collective action participation. Consequently, researchers suggested that people's beliefs and scepticism about climate change should be evaluated as a component of self that determines who they are, rather than simply an opinion on a subject. From a similar point to Bliuc et al., Fasce and colleagues (2021) defined believers and non-believers in science, including climate change issues, as two opposing groups and examined the relationship between intergroup threat theory-related variables and climate change denial. The dynamics of group belongingness and intergroup danger significantly contribute to the understanding of climate change denial. Also, climate change denial has pointed to clear indications of politicized, anti-scientific group identity.

b. Support for Climate Mitigation Policies and Their Social Psychological Antecedents: Studies have generally focused on understanding the factors associated with supporting climate change mitigation policies. Education and racism are among the factors shaping individuals' support for policies to combat the climate crisis. For instance, Benegal and Holman (2021) demonstrated that people with higher education exhibited reduced levels of racism and were more supportive of policies related to climate change mitigation. On the other hand, racist individuals with bachelor's or postgraduate degrees were more likely to oppose climate mitigation plans than racist individuals with lower levels of education.

Ideological beliefs are also related to policy support on this issue. For example, SDO was a significant negative predictor of environmentally-relevant outcomes. Compared with those with low SDO levels, individuals with a high level of SDO were less likely to participate in environmental citizenship actions, environmentally-friendly behaviors, and grants to an environmental organization (Milfont et al., 2018). Similarly, Uenal and colleagues (2022) examined the role of SDO and EDO on climate mitigation policies. Their results indicated that high SDO and EDO levels were related to diminished support for pro-environmental policies.

Another factor affecting climate change mitigation actions is the belief about future society. Bain et al. (2013; Study 1) found that when participants believed that the future would be characterized by benevolence, they were more likely to exhibit attitudes and behaviors focused on the reducing climate crisis. Conversely, if people felt that low levels of benevolence would characterize the future, they were less likely to exhibit attitudes and behaviors focused on mitigating climate change.

c. Collective Actions on Climate Change and Their Social Psychological Antecedents: Research on this issue investigated the factors associated with collective action intention and its antecedents. Choma et al. (2020) assessed the relationship between right-wing ideologies and collective action intention in four dimensions, including climate change. In the results of this study, individuals with elevated levels of RWA and SDO were found less willing to engage in collective action to tackle climate change. Furthermore, greater SDO and RWA were found to affect collective action intention in climate change negatively. Specifically, the indirect effects of RWA and SDO through fear-based threat or empathy were significant in the collective action to combat the climate crisis.

In another study, Römpke et al. (2019) searched the influences of international contact on identification with humanity and, consequently, on globally responsible actions. They found that international contact increased identification with humanity. Furthermore, positive indirect impacts of international contact on intentions to act in line with global responsibility through identification with humanity were also determined.

Individuals' propensity to take action is also related to their perceptions of groups associated with their collective actions, as well as ideological variables and their intergroup contact levels. Geiger and Swim (2018) examined the effects of ascribing gendered positive and negative attributions to a public issue like climate change on the individuals' level of activism on that issue. Results demonstrated that people tend to associate different climate opinion groups with disparate stereotypes, and individuals' pro-climate activism levels are associated with their gender-related impressions on this issue. Specifically, less positive masculine stereotypes one attributes to those who despise the climate crisis lead to a greater level of pro-climate activism. However, attributing feminine traits to a public issue did not predict the pro-activism level.

d. Environmentalism and Its Social Psychological Antecedents: In studies related to environmentalism, the factors associated with this variable were examined. Milfont et al. (2018) focused on the association between environmentally friendly behaviors across 25 countries and found SDO as a significant negative predictor of environmentally-relevant outcomes and SDO. Individuals exhibiting elevated degrees of SDO were less inclined to engage in environmental citizenship activities, adopt eco-friendly behaviors, or contribute to environmental organizations. Moreover, SDO, the ecology association, wields significant influence in cultures characterized by pronounced social inequality, insufficient societal growth, and inadequate environmental standards. In another study, Graça (2021) searched the relationship between opposition to migration, SDO, and environmental values

in two different survey studies. SDO and anti-immigrant attitudes were found to be associated with environmentalism in the result of Study 1. In Study 2, the relationship between anti-immigration attitudes and environmentalism was replicated in a larger sample from different countries. In addition, in the second study, differences were found in the direction and severity of these associations according to the social development levels of the countries.

The perception of commonality is another crucial factor. Meleady & Crisp (2017) examined the effects of reducing intergroup bias by blurring intergroup boundaries between future and current generations on pro-environmental behaviors and found that changing the perception between groups by strengthening the similarities between the future and present generations increased environmentally sensitive behaviors. Participants in the experimental condition, in which similarities between the present and future generations were highlighted, selected more sustainable products (Study 1) and exhibited more pro-environmental behavioral intention (Study 2) than those in the control condition.

Social influence significantly impacts pro-environmental behaviors. Lalot et al. (2018) investigated the moderating effect of numerical support on pro-environmental behaviors (majority versus minority) within the context of the link between past and future behaviors. Results demonstrated that minority support resulted in a behavioral consistency effect: Past pro-environmental behaviors predicted future actions. On the other hand, majority support resulted in balancing dynamics: While inadequate past behavior raised motivation for future behaviors (i.e., compensation), sufficient past experiences diminished future behaviors (i.e., self-licensing).

Besides the different impacts of minority and majority support on pro-climate behavior, people have schemas about the minority and majority groups' eco-friendly behavior. Pearson et al. (2018) investigated people's perceptions about the environmental concerns of minority and disadvantaged groups. According to the results, the environmental concerns of minority and disadvantaged groups were underestimated. The findings pointed to a belief that non-white and low-income Americans had lower levels of environmental concerns than those of whites and wealthier Americans.

e. Attitudes Towards Climate Change Migrants and Their Social Psychological Antecedents: Only one of the reviewed studies examined the attitudes towards those who had to migrate due to climate change as an outcome variable. Helbling (2020) demonstrated that climate change migrants received higher levels of acceptance and support from participants –just like political refugees– than economic migrants. On the other hand, support weakened as the number of immigrants amplified. Relative sensitivity in environmental migration issues is proportional to environmental awareness and education level. These factors determine one's attitude and behavior towards climate change migrants.

2. Consequences of climate change on group processes: The effects of the climate crisis on intragroup and intergroup processes on different issues were examined in the studies. For instance, Barth et al. (2018) investigated the influence of climate change threat on

ingroup norm conformity in three different experimental studies. In Study 1, people in the high climate change threat condition evaluated ingroup members whose behaviors contradicted ingroup norms more negatively than those of the control condition. When a specific ingroup norm became salient, participants who were perceiving high climate change threats adhered more strongly to ingroup norms compared to those perceiving low threats (Study 2). Participants in the high climate change threat condition had higher ingroup norm conformity when proradical norms were salient than participants for whom antiradical group norms were salient (Study 3). In short, participants evaluated conformity to ingroup norms as more critical when they perceived a high threat of global warming; they paid more attention to rules and expectations and, therefore, acted more in line with ingroup norms.

Climate change threat affects not only intragroup processes but also intergroup relations. De Juan & Hänze (2021) searched the impacts of environmental scarcity on ingroup/outgroup perception and interethnic relations. Exposure to drought hazards was positively associated with social trust in one's ethnic group and outgroup. However, the relationship between exposure to drought hazards and outgroup trust depends on horizontal inequality of environmental threats across ethnic groups. The more uneven the distribution of environmental threats between groups, the less strong the relationship between exposure to threat and intergroup trust.

Safarzynska (2018) investigated the effects of resource uncertainty and intergroup conflict on group processes. The potential threat of abrupt resource depletion heightened participants' inclination to conserve resources within the groups. However, the impacts of resource uncertainty on resource conservation disappeared when the intergroup conflict was included. Specifically, intergroup conflict under uncertainty reduced intragroup cooperation. Among the experimental groups, the group with the highest resource depletion probability was the condition where there was an intergroup conflict in the uncertainty state.

In another study, Fritsche et al. (2012) investigated the impacts of climate change threat on authoritarian responses of individuals. Results have shown that salience of climate hazards causes an augmentation in authoritarian attitudes of participants. The clarity of climate change hazards also resulted in the devaluation of the outgroup. Furthermore, system justification ideologies and endorsement of groups supporting the system increased under salience climate change conditions.

Findings generally indicate that intergroup relations may deteriorate during a climate change threat. However, it is not inevitable. Pyszczynski et al. (2012) used three experimental investigations to evaluate how the prospect of climate crisis affects peaceful coexistence and support for conflict. In study 1, mortality salience increased the support of the participants for structural peacebuilding and international diplomacy related to international conflicts after imagining the results of global climate change. In study 2, mortality salience augmented Americans' support for war against Iran after imagining a

territorial disaster. However, picturing global climate change removed this impact. Study 3, which involved Palestinian individuals living in Israel during the Israeli occupation of Gaza, revealed that contemplating the collective impacts of global climate hazards heightens the yearning for peace, even amidst the most intense conflict between the groups. The salience of mortality for Palestinians, who have a strong sense of shared humanity, has increased their approval of peaceful coexistence with Israeli Jews after considering climate issues.

4. CONCLUSION

Human behaviors both cause and respond to global climate change. There has been an expansion in studies on climate change and intergroup relations in recent years. However, there is a need for research that comprehensively analyzes the relationship between the climate problem and intergroup relations. This systematic examination revealed that climate change shapes intergroup relations and influences individuals' perceptions, attitudes, and actions towards the climate change problem.

Notwithstanding the broad consensus within the scientific world over the presence of human-induced climate problems, people differ in their beliefs about the presence of a climate crisis and their trust in climate science. We understand from the reviewed studies that various factors shape people's perception of the climate crisis. These studies examined individual factors like sex (Vazquez et al., 2021), ideological factors like SDO or RWA (Azevedo & Jost, 2021), and situational factors like the salience of materialism (Vazquez et al., 2021).

Individual differences also exist in the intention to support policies for reducing climate change (Benegal & Holman, 2021), environmentalism (Milfont et al., 2018), and collective action (Choma et al., 2020). Studies generally examine why people differ from each other on these outcome variables and try to reveal the social psychological factors playing a role at this point. The most studied factor under each topic is ideological factors. Scholars have recognized SDO as a significant element that influences individuals' belief in climate change (Azevedo & Jost, 2021), the degree of endorsement for climate mitigation policies (Milfont et al., 2018), intention to collective action (Choma et al., 2020), and environmentalism (Milfont et al., 2018). It seems clear that individuals' worldviews, political, and ideological beliefs have a crucial impact in shaping their climate change perception and tendency to take action against it. Specifically, an increase in SDO (Graça, 2021), RWA (Choma et al., 2020), and conservatism levels (Azevedo & Jost, 2021) were related to a rise in distrust about climate science, and a reduction in collective action and environmental values regarding climate change. Furthermore, individuals with more education (Benegal & Holman, 2021), international personal contact, and identification with human identity (Römpke et al., 2019) do better on environmental outcome variables like caring about the environment and supporting policies to help the climate crisis. Individuals with less racial prejudice (Benegal, 2018), anti-immigrant attitudes (Graça, 2021), and identification with racial identity (Benegal, 2018) also do better.

Explanation of these specific relations has often guided future research in building theoretical frameworks and interventions to reduce resistance among ideologically driven groups toward climate action. Such studies can combine integration of these constructs into empirical models, allowing scholars to unravel more thoroughly the mechanisms by which intergroup relations and ideological variables impact climate-related outcomes. Future research should look for possible mediator and moderator variables that would help explain the association between intergroup dynamics and climate-specific beliefs and behaviors. Consider, for example, that social identity processes may provide an explanation. That is, alignment with certain social groups would affect an individual's openness to climate science and mitigation policies. These effects may be seen, along with others, by using constructs of psychological mechanisms such as empathy or perceived group threat as moderators that amplify or diminish the effect of ideological variables such as SDO and RWA on environmental outcomes.

Studies related to the interaction between climate change and intergroup relations are pretty limited. Few studies in the reviewed literature have examined the impact of the climate crisis on intragroup (Fritsche et al., 2012) and intergroup processes (De Juan & Hänze, 2021). The findings of these studies picture that the threat of climate crisis increases the adherence to ingroup norms (Barth et al., 2018), devaluation of the outgroup, and authoritarian responses (Fritsche et al., 2012). Various factors shape the results of the climate crisis in terms of intergroup relations. For example, pre-existing inequalities and the uneven distribution of environmental threats between groups play significant roles in the impacts of the climate crisis on outgroup trust (De Juan & Hänze, 2021). Some reviewed studies demonstrated that intergroup relations deteriorate with the climate threat (Safarzynska, 2018). However, increased intergroup conflict is not inevitable due to the climate threat. An increased sense of shared humanity can reduce and even reverse the influence of the existential climate change threat on intergroup conflict (Pyszczynski et al., 2012). In other words, the climate change threat can, under certain conditions, increase the desire for cooperation and peace. It seems that the effects of the climate crisis on intergroup relations display quite complex patterns. Future studies should focus on unraveling these complex patterns. Thus, an insight can be gained into the conditions under which the climate crisis has increased individuals' tendency to take action or intergroup cooperation. Consequently, policies to combat global warming can be structured in a way that boosts environmentally friendly behaviors and intergroup peace.

The research on the relationship between the climate crisis and intergroup relations is still in its early stages and has certain limitations. Primarily, Western and wealthy nations have undertaken the majority of research on this topic.There may be several reasons why studies on the climate crisis are mostly carried out in these regions of the world. Among the factors for the dominance of the developed countries in studies on the climate crisis and intergroup relations can be listed as the fact that the research resources are larger in developed countries, and the climate crisis is a more controversial issue in these regions (Tam et al., 2021). Conversely, there are substantial disparities in countries' contributions to the climate

issue and their vulnerability to its effects. Less affluent nations are expected to endure far greater impacts from the climate issue compared to their wealthier counterparts (Posner & Weisbach, 2013). There is a need for studies and theories that reveal how sociocultural contexts affect climate change and intergroup relations. Future studies should examine how the climate crisis affects intergroup relations in developing countries.

It is worth mentioning that studies discovering the impacts of the climate crisis on intergroup relations were mainly experimental. These articles generally examined the immediate effects of manipulation on climate threat (e.g., Fritsche et al., 2012), but found no studies addressing the long-term effects. Future studies should reveal the long-term effects of the climate crisis. The limited number of studies on this subject shows that the association between climate change and its consequences on intergroup relations remains far from reaching a clear conclusion. Therefore, there is a need for studies that will contribute to a more comprehensive understanding of the effects of climate change on intergroup relations in the future.

Psychological research contributes to the solution of environmental problems by examining the primary individual and contextual factors that encourage eco-friendly attitudes and actions. These studies also provide valuable data on the impacts of the climate crisis on individual and social life. Awareness of the ramifications of climate change is essential, as comprehending its unique repercussions facilitates a deeper comprehension of the phenomenon itself. Furthermore, understanding the possible short- and long-term effects of climate change can encourage people to prepare for its consequences and even take action to mitigate it. As people learn about environmental threats and risks, their pro-environmental behavior increases. This article will contribute to the literature and future studies by providing a framework for the association between climate change and intergroup relations.

Statement of Research and Publication Ethics
In all processes of the article, the principles of research and publication ethics of the Manisa Celal Bayar University Journal of Social Sciences were followed.

Contribution Rate of Authors to the Article

The entire manuscript was written by the author.

Declaration of Interest
Author has no conflict of interest with any person or organization.

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