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Contents

SPECIAL ISSUE:

Impacts of Climate Change on Human Development: Developmental Risks, Resilience, and Policy Pathways

Page

SPECIAL SECTION

- 1** Introduction to the ISSBD Bulletin Special Section —
Impacts of Climate Change on Human Development:
Developmental Risks, Resilience, and Policy
Pathways *Karina Weichold and Deepali Sharma*

FEATURE ARTICLES

- 2** Spinning in Place: Schools as Developmental Contexts
for African American Students in a Low-Resourced
Urban Community After an Extreme Weather
Shock *Bronwyn Nichols Lodato*
- 9** Climate Efficacy, Future Thinking, and Pro-
Environmental Behavior in Latinx Children
*Hana Qureshi, Alexa Zelaya, Jade S. Sasser, and
Kalina J. Michalska*
- 16** Climate Change and Adverse Mental Health Outcomes:
Is Solitude a Mediating Mechanism of
Influence? *Julie C. Bowker*
- 20** "What Will the Future be Like?" A Study on Climate
Change Perception and Parenthood Perspective in
Young People *Federica Papa, Martina Gallo,
Francesca Cuzzocrea, and Sebastiano Costa*

- 24** Echoes from the Sea: Place Memory, Solastalgia, and
Wellbeing Among Older Adults in Alexandria, Egypt
*Steven Kator Iorfa, Marwa Ibrahim Mahfouz Khalil, and
Mayaar Elnakeeb*

COMMENTARY

- 28** The Climate Crisis as Developmental Context:
Reframing Development Across the Lifespan –
Commentary for the ISSBD Bulletin Special Section on
Climate Change *Ann Sanson and Suman Verma*

SOCIETY

- 31** Note from the ISSBD President *Tina Malti*
- 32** Minutes of the ISSBD Executive Committee (EC)
Meeting in Korea June 2, 2025, 2:00 PM – 5:00 PM and
June 3, 2025, 10:00 AM – 2:00 PM *Luc Goossens*
- 36** Minutes of the ISSBD Executive Committee (EC)
Meeting October 13, 2025, 8:00 AM – 10:00 AM
EST (Eastern Standard Time; i.e., Toronto Time)
(online) *Luc Goossens*

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Introduction to the ISSBD Bulletin Special Section — Impacts of Climate Change on Human Development: Developmental Risks, Resilience, and Policy Pathways

Climate change has become a defining condition of human development in the 21st century. Beyond its environmental and economic consequences, it represents a source of uncertainty, disruption, and transformation that shapes developmental processes across the lifespan. From gradual environmental degradation to extreme weather events, climate change alters the macro-contexts in which individuals grow, form identities, maintain relationships, and imagine their futures. Developmental science offers an important lens for understanding these processes because it emphasises the dynamic interplay between individuals and their socioecological environments over time. Climate change is not experienced uniformly: it is interpreted cognitively, experienced emotionally, and mediated socially in ways that differ across developmental periods and cultural contexts. Moreover, climate-related risks are unequally distributed, often amplifying existing social and structural inequalities.

This special section of the *ISSBD Bulletin* brings together five contributions that conceptualise climate change as a multilevel developmental condition. Spanning childhood, adolescence, emerging adulthood, and later life, the papers examine how climate change operates through structural disruptions, future-oriented cognition, social relationships, individual agency, and place-based experiences.

The first contribution by *Bronwyn Nichols Lodato* situates climate change within the context of structural inequality and environmental disruption. The second contribution by *Qureshi and colleagues* shifts attention to young people's interpretations and responses to climate change. Moving beyond deficit-oriented perspectives, this work foregrounds youth as active agents who engage with climate change through meaning-making, coping, and participation. The third contribution by *Bowker* further elaborates the social dimensions of climate change by examining peer relationships in childhood and adolescence.

The fourth contribution by *Papa and colleagues* focuses on emerging adulthood and examines how climate change shapes future-oriented identity processes. The fifth paper by *Iorfa and colleagues* turns to later life and examines the place-based and experiential dimensions of climate change.

Taken together, the contributions illuminate five interconnected pathways through which climate change shapes development. First, it operates as a structural force that produces

unequal exposure to risk and disrupts key developmental contexts. Second, it is engaged through individual agency as people interpret, cope with, and respond to environmental challenges. Third, it unfolds within social relationships that shape meaning-making and adjustment. Fourth, it functions as a future-oriented cognitive-emotional framework influencing identity development and decision-making. Fifth, it is experienced as a place-based phenomenon affecting wellbeing through changes in meaningful environments.

The commentary by *Ann Sanson and Suman Verma* discusses these perspectives and points to several overarching themes that emerge. Accordingly, this special section aims to advance a more comprehensive developmental understanding of climate change. It highlights the need for theoretical frameworks that bridge individual, relational, and structural levels of analysis, and for empirical research that captures diversity across populations and life stages.

The Editorial Team is thankful for the initiative of the *Developmental Scientists for Climate Action (DevSCA.org)*, a global network of researchers, educators, and practitioners that seeks to support communication and collaboration among developmental scientists, build empirical and theoretical understanding of the issues involved, and use this information to inform advocacy for action on climate change, to call for this special section. It has been a pleasure to work with Ann Sanson and her team. Also, the response from the members of the society to the call for abstracts was great, demonstrating that the topic is timely and addresses an important research topic. If members have further suggestions for future special sections of the *ISSBD Bulletin*, you are invited to get in touch with us!

This issue of the *Bulletin* also contains the recent minutes of the EC Meetings of the society and the notes from our president, Tina Malti. Since Tina's term as president of *ISSBD* ends, we would like to take the opportunity to thank her for the excellent cooperation, engagement, and input not only for the *ISSBD Bulletin* but also for the entire society during the past years! At the same time, we welcome Frosso Motti-Stefanidi (the current president-elect of *ISSBD*) and wish her success and luck in her new position!

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Spinning in Place: Schools as Developmental Contexts for African American Students in a Low-Resourced Urban Community After an Extreme Weather Shock

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Introduction

On May 16, 2025, a tornado with an Enhanced Fujita Scale (EF) rating of “3” (wind speeds between 136 and 165 miles per hour, or 218 and 266 kilometers per hour) ripped through St. Louis, Missouri, a major city in the Midwest region of the United States (US). At its dissipation, the tornado left a 23-mile path of destruction, with the worst devastation impacting under-resourced communities in St. Louis with predominantly African American residents. This tornado was the strongest in the city proper since 1959, contributing to an anticipated record-breaking year for tornadoes in the St. Louis metropolitan region. By its end, the tornado caused four tornado-related casualties, damaged 5,000 buildings, and destroyed approximately 3,000 trees in one city park alone. The tornado’s area of impact included a total of 12 schools across elementary, middle, and high school (secondary) grades, enrolling 2,990 students who had to be relocated as their schools and communities underwent recovery and repair.

Dynamic Ecological Systems Theory of Identity Development (DESTID) and Exacerbated Risk in Developmental Contexts

To fully assess the human toll of the tornado’s impact, it is necessary to apply a human development theoretical lens to understand the implications of the weather shock on the developmental outcomes of African American youth.

DESTID (Lodato, 2024), a shock-sensitive theory of identity development, identifies schools as crucial developmental contexts whose functional capacity during shocks has implications for diverse youths’ and young adults’ psychosocial and intellectual development. Based on results of a study of students enrolled in postsecondary/tertiary education during the COVID-19 pandemic, DESTID asserts that “[h]ow entities, such as postsecondary institutions. . . respond to shocks has implications for the person-context dynamic at the heart of a human development-centered orientation to identity [development]” (Lodato, 2024, p. 108).

This theoretical insight is applicable to public schools in St. Louis, where schools play a significant role as community anchors: a review of the City of St. Louis Board of Education (STL-BoE) meeting agendas and minutes (STL-BoE, June 3; July 14; July 22, 2025) reveals a commitment to prioritizing wraparound services for students and their families at schools. From providing meals to establishing partnerships for free dental services to tutoring partnerships, to adult education classes, to providing support for unhoused students and their families, public schools engage with the needs of individuals across the life span. Considering schools’ importance in supporting the psychosocial and intellectual development of diverse youth, a critical question is how recovery policies prioritize the repair of damaged schools as both centers of learning for enrolled students and stabilizing community anchors that can undergird recovery efforts.

This article presents the tornado event as a case study on the role of schools as anchors in developmental contexts disrupted by an extreme weather event (EWE) that occurred in an under-resourced urban community to address the following questions: when a shock event occurs (i.e., tornado or climate-related event), in what way does the functioning of community anchor institutions —schools—change? Relatedly, how do broader policy interventions in response to the weather shock alter the protective character of these anchor institutions for African American youth residing in low-resourced communities?

Methods

The case study provides insights into tornado preparedness and responses by authorities to ascertain the character of

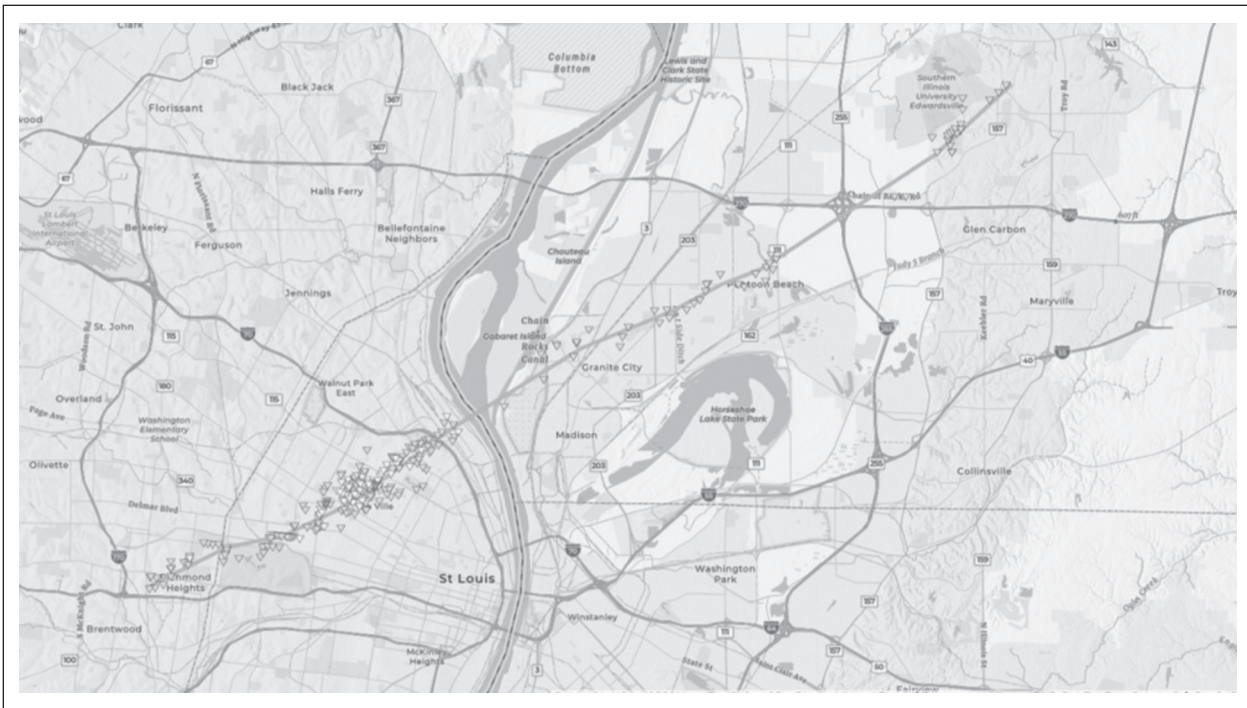


Figure 1. Tornado Path Across Missouri into Illinois.

Source: *The May 16, 2025, St. Louis Tornado*; NOAA/NWS, Retrieved February 2026 from URL <https://storymaps.arcgis.com/stories/df6a15ddfa5e44308750aa22ec175da7>

schools as anchors for recovery. It includes primary and secondary geospatial analyses tracking the tornado's area of impact, presenting schools and community assets (e.g., social service agencies, education organizations, and health care facilities). School characteristics were obtained from the Missouri Department of Elementary and Secondary Education (DESE). The case study also incorporates insights drawn from public meetings (e.g., STL-BoE meetings addressing the tornado's impact; a town hall meeting with community members broadcast by a local public television station), media reports, and a review of disaster planning and response by city officials to discern how school facility repair and education stabilization were prioritized.

Climate Shocks in Under-Resourced Areas

During its 27-minute lifespan, the tornado traveled through St. Louis, then crossed the Mississippi River into southern Illinois before finally dissipating. Figure 1 presents the tornado's path.

Figure 2 shows the geographic dispersal of the damage points, with the most acute effects experienced in an area recording destruction indicative of an EF-2 and EF-3 tornado.

An independent report issued in August 2025 identified a series of "cascading failures" that amplified the tornado's harm (Carmody McDonald Attorneys & Counselors at Law, 2025). These included the failure of the city's emergency alert system to provide adequate notice of the tornado; a lack of compliance with U.S. Federal Emergency Management Agency (FEMA) standards; and an emergency operations

plan that had not been updated since 2003 (Carmody McDonald Attorneys & Counselors at Law, 2025).

Regrettably, compounding the harm of the tornado's destructive effects were pre-existing racial and economic inequalities. The city's poverty rate of 21.7 percent (U.S. Census Bureau, 2026) is almost double the U.S. national average poverty rate of 10.6 percent (Shrider & Bijou, 2025). Furthermore, racial disparities in median income exist, with the median income of White households (\$55,000) almost twice that of African American households (\$28,000) (St. Louis City Government, n.d.). These patterns of inequality emerge in research reporting that African American residents face higher environmental risks than White residents (The Interdisciplinary Environmental Clinic, 2026). The resultant harms include elevated levels of childhood lead poisoning (Randhawa & Richey, 2021) and higher rates of childhood asthma (American Lung Association, 2026). These facts underscore the importance of an equity-based, human development approach in disaster response strategies to avoid exacerbating harm to African American students already experiencing heightened risk caused by endemic inequality.

Student Dislocation and Assessment of Exacerbated Risk Factors

Three of the four schools that sustained significant tornado damage drew their student enrollment from nearby, long-standing, predominantly African American neighborhoods. Table 1 summarizes the characteristics of the four schools

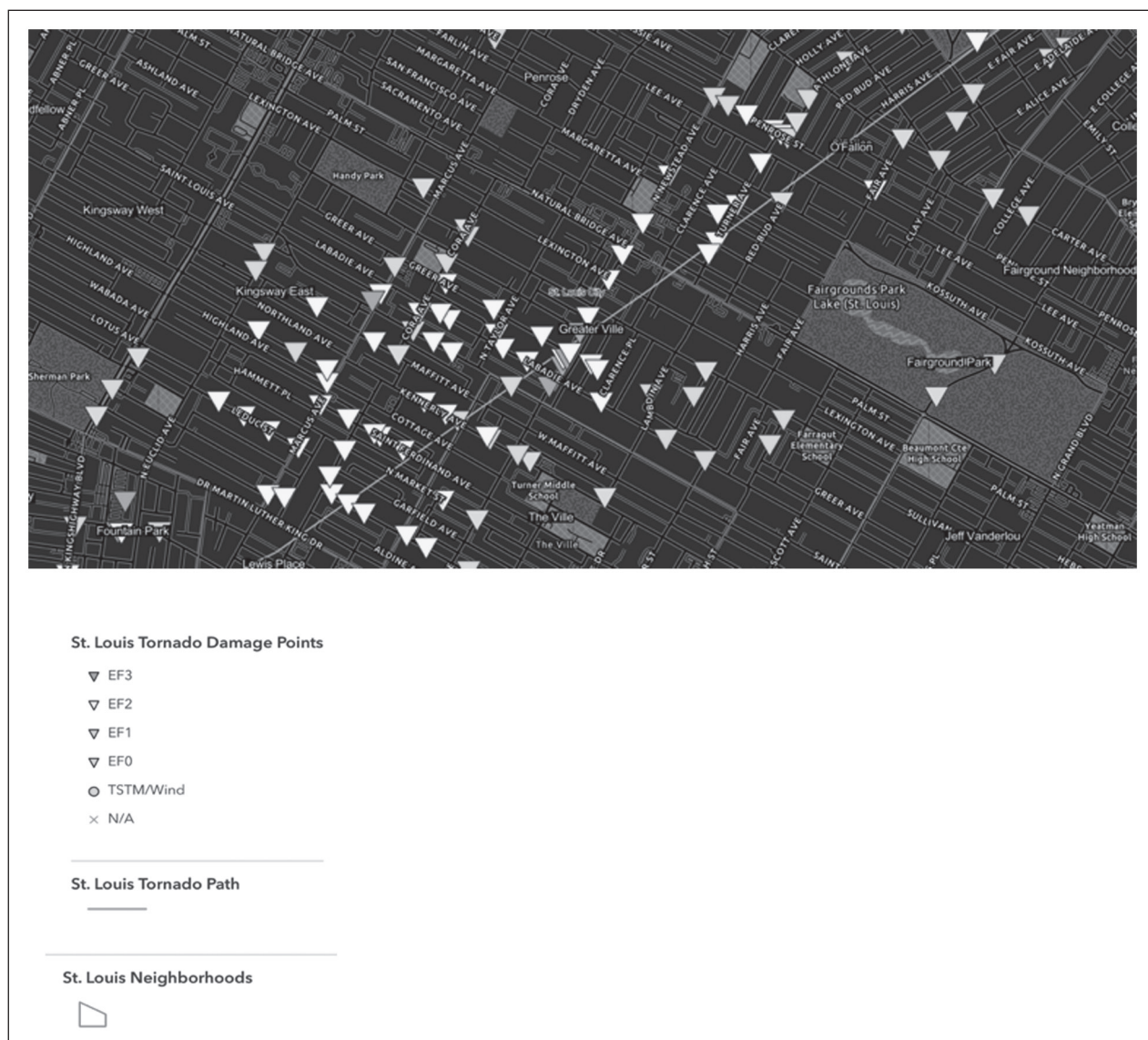


Figure 2. May 16 Geographic Distribution of Tornado Damage Points.
Source: National Weather Service, St. Louis, MO (2025).

Table 1. School Profiles of Schools in Tornado Area of Direct Impact.

School Name	Grades	Total Enrollment	% Black Students	% FRL*	%IEP#
Elementary School 1	PreKindergarten-6 th Grades	267	96.8	76.1	13.3
Elementary School 2	PreKindergarten-6 th Grades	166	97.5	70.6	10.6
Middle School 1	6 th – 8 th Grades	392	95.7	67.3	15.4
High School	9-12	338	89.3	56.1	24.5

Source: Missouri Department of Elementary and Secondary Education *FRL: Free and Reduced Lunch #Individual Education Plan provides accommodation for students with disabilities.

directly in the tornado's path. Figure 3 depicts the locations of the schools in the impacted communities, with the shaded polygons indicating the concentration of the population aged under 18. The figure also presents the arrangement of community assets that prioritize education, health, and human services within a half-mile radius of the schools.

At the July 14, 2025, BoE meeting (STL-BoE, 2025), board members established a school relocation plan for the 2025-26 school year as students' home schools underwent repair. Viewed with concern (Ahmad, 2025), this relocation plan heightened risk factors for youth experiencing displacement from their schools and, for many, their homes. In a



Figure 3. School and Community Assets by Age Range.

Source: U.S. Census Bureau via Esri's Living Atlas; American Community Survey (ACS); Social Explorer (<https://www.socialexplorer.com>); Missouri Department of Elementary and Secondary Education (DESE), Missouri Data Portal. Building Demographic Data file (as of October 10, 2025); Environmental Systems Research Institute (Esri) Business Analyst. Spatial points for businesses and NAICS code tables.

report to the STL-BoE (Cordogan, Clark, & Ittner, 2025), researchers identified the group with the highest likelihood of not returning to SLPS as those who had both their schools and homes damaged by the tornado.

The Tornado's Aftermath: Community Recovery and Developmental Contexts Under Revision

A town hall held in August revealed deep concerns and questions regarding tornado recovery (NinePBS, 2025). To better coordinate and streamline recovery efforts, city officials established a new office for tornado recovery, STL Recovers (St. Louis City, 2025). With the motto “Respond Restore Reimagine”, officials viewed tornado recovery as an opportunity to revitalize under-resourced areas damaged by the tornado. Figure 4 presents the Recovery Office Program Update and Overview. The report notes that recovery was in the “Restore” phase, focused on stabilizing individuals, buildings, and the community.

The report does not provide specific updates or policy priorities to meet the needs of youth as components of the recovery framework, nor does the report articulate school-enrollment or learning-loss recovery focus areas. The SLPS-BoE meeting agenda items that addressed the tornado (St. Louis Public Schools Board of Education, 2025) emphasized repairing damaged facilities, associated budget monitoring, and the general welfare of students. However, the city's Recovery Office update does not indicate how, if at all, coordination between the city and SLPS would occur to develop targeted education interventions.

Discourse on Disaster Recovery and Human Development in Under-Resourced Areas

“I like my old school, and I’m happy it still has my old teachers,” – Xavier, 7th grade student, upon returning to his home school (Ahmad, 2026).

Xavier, celebrating the return to his school, affirms the importance of prioritizing schools in recovery planning. Accounting for schools as community anchors for students and



STLRECOVERS
Respond - Restore - Reimagine

/ Recovery Office Program Overview

Resident Recovery Programs and Funding

TOTAL RECOVERY FUNDING

TOTAL ALLOCATED: \$427M

- Federal (\$200M)
- State (\$123M)

CITY ALLOCATED: \$124M

- \$103M contracted/committed
- \$21M spent

KEY:

- ACTIVE
- LAUNCHING
- INACTIVE / NO NEW APPLICATIONS

HOUSING, \$266M

Shelter, \$3M
Temporary shelter and supports to find stable housing

Housing & Rental Assistance, \$4M
Rental assistance and support finding intermediate housing

FEMA: Housing Assistance, \$25M
Cash individual assistance for housing needs

Home Stabilization & Repair, \$9M
Stabilize and repair homes incl. tarp, board up, utility reconnect, & repairs.

Vacant Unit Turns, \$10M
Make affordable vacant units available for residents

Long-Term Housing, \$18M
Funds for infill and other housing production

DEBRIS & INFRA, \$256M

Public Debris Removal, \$20M
Remove debris from public right-of-way (streets and alleys)

Emergency Demolition, \$2M
Demolish unsafe structures & remove resulting debris from private property

City Infrastructure, \$5M
Repair traffic lights, street signs, and damage to parks and city buildings

Demolition & Debris, \$25M
Demolish unsafe structures and remove debris on private property

Sidewalk & Tree Restoration, \$6M
Repair sidewalks and restore lost tree canopy

Clean Up Our Community, \$1M
Support nonprofits & community orgs with clean up days for neighborhoods and private property

SUPPORTS, \$40M

Disaster Case Management, \$2M
Connecting residents to resources to recover

Resident Support Services, \$11M
Funding non-profits to provide services (e.g., food, supplies, legal aid, mental health, etc.)

Business Supports, \$1M
\$2M available and \$250k awarded in zero-interest rate loans

FEMA: Other Needs Assistance, \$18M
Cash individual assistance for other assessed needs

City Emergency Response, \$1M
Police, fire, and emergency operations center costs

For more information, visit stlrecovers.com

Office of Mayor Spencer - Tornado Recovery Office, City of St. Louis / December 18, 2025

Figure 4. Recovery Office Update (December 18, 2025).
Source: City of St. Louis.



their communities as they recover from a shock can provide much-needed stability. Even if physical access to the facility is not possible, prioritizing sustained connection with school community members can be foundational in supporting student well-being. Additionally, it is critical to have strategies in place to mitigate or minimize learning loss, as research shows that one day of EWE-related absence can translate into an average of 3.6 days of learning loss (Kuhfeld, Soland, & Postell, 2025).

Moving forward, scaffolded, culturally responsive approaches that are deployed to engage the unique needs of African American students who endured the tornado's most severe effects hold promise for minimizing patterns of harm rooted in historic inequalities. Noting the increased risk of mental health stressors (Chique et al., 2021) and the unique attributes of identifying frameworks for recovery that engage the complexity of disaster recovery in areas hampered by structural inequality (Joseph et al., 2021), an approach that centers human developmental needs holds promise for supporting students navigating shocks in under-resourced contexts.

Limitations and Next Steps in Research

Globally, research shows that climate change will continue to cause extreme weather events with devastating impacts on the areas where they occur (IPCC, 2023). While this case study identifies context-dependent factors for recovery, interviews with students and community members can illuminate other sources of support for African American students. Future research should examine the effects of recovery policies in retaining students and helping them stay on track with their education and developmental milestones. Additionally, it is important to ascertain the environmental implications of the tornado's damage to St. Louis's ecosystem. With over 3,000 fallen trees, St. Louis is more susceptible to greater air quality challenges in the years ahead.

Schools serve as critical community anchors. These anchors' ability to weather the storms of EWEs can have positive reverberations for students and community members alike. To strengthen EWE preparation and recovery protocols that advance positive youth development outcomes, a shock-sensitive, human developmental approach holds promise for engaging schools as community anchors undergirding African American students' recovery and resilience as they chart a path forward.

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No human subjects were involved in this research, and therefore informed consent was not required.

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Climate Efficacy, Future Thinking, and Pro-Environmental Behavior in Latinx Children

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Introduction

Children and adolescents today are growing up amid increasing ecological disruption and uncertainty about the future. Human-driven climate change has intensified environmental hazards such as extreme heat, droughts, hurricanes, and wildfires (Huber & Gullede, 2011; Kundzewicz, 2016). Beyond its physical impacts, climate change is increasingly recognized as an emotional stressor for young people as they form their identities and ways of thinking about the future (Doherty & Clayton, 2011; Fritze et al., 2008; González-Hidalgo & Zografos, 2020; Kim et al., 2014). Youth are therefore coming of age in a world of ongoing environmental threats that may impact both emotional well-being and social engagement (Doherty & Clayton, 2011; Kim et al., 2014). Within this context, we examine whether children's future-oriented cognition and their belief that they can respond meaningfully to environmental challenges, referred to here as climate efficacy, are associated with pro-environmental engagement, climate change anxiety, or both (Bandura, 1977; Ojala, 2013).

Climate Change Distress in Youth

Young people often report strong emotional responses to climate change (Ojala et al., 2021; Pihkala, 2020, 2022). In a large global study of 10,000 youth aged 16-25 across ten countries, nearly 60% were very or extremely worried about climate change. Many reported sadness, anxiety, anger, guilt, and helplessness, and nearly half said these feelings adversely affected daily functioning (Hickman et al., 2021).

Negative emotions about climate change should not automatically be viewed as maladaptive. Climate worry and anxiety can reflect normative responses to environmental threats, with links to well-being that vary depending on coping resources and perceived efficacy (Becht et al., 2024; Ojala et al., 2021). Moderate levels of worry may motivate pro-environmental engagement, particularly when youth feel capable of making a difference (Ojala et al., 2021), whereas

high distress coupled with low perceived agency may contribute to disengagement (Becht et al., 2024). A key question, therefore, is when climate-related distress is linked to motivation versus emotional burden.

Youth as Climate Actors

Although youth are often framed as vulnerable victims of climate change, we see ubiquitous examples of young people acting as agents of environmental action in public discourse and civic spaces (Bandura & Cherry, 2020; Chawla, 2009). Pro-environmental engagement develops through socialization, identity development, and opportunities to take meaningful action. Experiences in nature, encouragement from family and teachers, and a sense of efficacy are all linked to sustained action (Bandura & Cherry, 2020; Chawla, 2009). These perspectives shift the focus from youth as passive recipients of climate harm to youth as developing agents, raising the possibility that climate efficacy may relate to whether climate concerns are accompanied by engagement or distress.

Climate Efficacy, Pro-Environmental Engagement, and Climate Change Distress

An important construct in youth climate engagement is efficacy, or the belief that one can take meaningful action and handle future challenges (Bandura, 1977, 1982, 1993). In environmental contexts, climate efficacy reflects the belief that one's actions can help address climate change. Efficacy is often conceptualized as a protective factor that may be associated with lower helplessness, even when youth continue to experience climate-related emotional distress. Research with adolescents and young adults suggests that youth who feel more capable of acting also report greater pro-environmental behavior, even when they continue to experience worry (Ojala, 2013; Ojala et al., 2021; Sarrasin et al., 2022). Other studies observe that higher efficacy is sometimes associated with both greater climate change anxiety and stronger intentions to engage in pro-environmental behavior, suggesting that climate change anxiety may reflect responsibility and concern rather than paralysis (Maran & Begotti, 2021; Sarrasin et al., 2022). Together, these findings suggest that climate efficacy may coexist with both pro-environmental engagement and climate-related distress, rather than functioning as a uniformly protective factor. In other words, perceiving some capacity to respond to climate change does not necessarily reduce concern about the threat itself. Instead, climate efficacy may coexist with distress when children view

climate change as serious, but also believe their actions can matter. Notably, most research has focused on adolescents and young adults, with comparatively little work examining these processes in younger children.

Cultural Context and Collective Efficacy in Latinx Youth

Efficacy beliefs are shaped by culture. In more collectivist contexts, collective efficacy, the belief that a community can act together, may be more motivating than individual self-efficacy (Klassen, 2004). This is especially relevant for Latinx youth, whose cultural values often emphasize interdependence, community resilience, and familismo, a protective factor in which the family unit is emphasized, respected, and relied upon (Valdivieso-Mora et al., 2016). As a result, climate agency among Latinx children may be expressed not only through individual behaviors, but also through family and community-centered action. Understanding these processes is especially important for Latinx children in the United States, who disproportionately face climate-related hazards and systemic inequities that affect both physical and mental health and well-being (Deivanayagam et al., 2023; Espinoza-Kulick & Cerdeña, 2022; Torres et al., 2022; Uppalapati et al., 2023). National survey data show that Latinx individuals report the highest levels of concern about global warming (Ballew et al., 2020) and are more likely to experience elevated levels of climate-related psychological distress (Uppalapati et al., 2023). Yet despite heightened exposure and concern, research on Latinx children's psychological experiences of climate change remains limited.

Future-Oriented Cognition as a Developmental Moderator

Future-oriented cognition may moderate the association between climate efficacy and children's responses to climate change. Future orientation involves planning and considering possible future outcomes (Nurmi, 1991), and meaning-making is closely tied to this process as children imagine how things might change or improve over time (Märtsin, 2019). Children who are more future-oriented may place greater importance on the long-term consequences of climate change and may be especially likely to engage in pro-environmental behaviors, such as reminding their family to recycle or joining school initiatives, than children who are less future-oriented. At the same time, for children who think more about the future, climate efficacy may be more strongly related to climate change anxiety, because perceiving one's actions as meaningful may intensify feelings of responsibility and concern about future climate outcomes (Maran & Begotti, 2021; Ojala, 2015; Sarrasin et al., 2022). Together, these perspectives suggest that future orientation may play a dual role: anticipating climate dangers may heighten anxiety, but imagining the future can also motivate hope and climate action.

The Present Study

This study examines climate efficacy as a factor associated with both pro-environmental engagement and climate change

anxiety among Latinx children aged 8-13 in Southern California's Inland Empire. We test whether higher climate efficacy is associated with greater pro-environmental engagement as well as higher climate change anxiety, and whether future-oriented cognition moderates any observed associations, controlling for general anxiety symptoms. Focusing on younger Latinx children extends climate efficacy theory to a culturally and developmentally underrepresented population and clarifies how agency and distress may coexist in youth responses to climate change. Specifically, we test the following hypotheses:

H1: Higher climate efficacy will be associated with greater pro-environmental engagement.

H2: Higher climate efficacy will also be associated with greater climate change anxiety.

H3: Future-oriented cognition will moderate these associations, such that efficacy will be more strongly linked to engagement and/or anxiety among children who are more future-oriented.

Methods

Participants were Latinx youth residing in the Inland Empire in Southern California, a majority Latinx center for industry relocation. Parents provided informed consent, and children provided assent. Afterward, researchers conducted the child interview in a private room while parents completed their questionnaires independently in a separate room. Families were compensated in cash for their time for the one-hour visit. Participants could skip questions or withdraw at any time without penalty.

Participants

The sample included 148 Latinx children ages 8 to 13 years ($N = 148$; 71% female; $M_{\text{age}} = 10.8$, $SD = 1.7$). Mean age was 10.8, with 18 eight-year-olds, 20 nine-year-olds, 25 ten-year-olds, 29 eleven-year-olds, 25 twelve-year-olds, 28 thirteen-year-olds, and 3 fourteen-year-olds who were thirteen at the time of recruitment. 97% of participants were born in the United States, 93% were of Mexican heritage, and over 56% of families had an annual household income below the median in California (\$96,334; U.S. Census Bureau, 2024).

Procedures

Prior to the main study, the survey battery was piloted with five children ages 8-10. Adaptations consisted of minor wording and administration changes to improve comprehension for younger children while preserving the original constructs as closely as possible. Participants completed surveys on *Climate Efficacy*, *Climate Engagement Scale for Pro-Environmental Behaviors* (Ojala, 2012), *Climate Change Anxiety* (CCA; Clayton & Karazsia, 2020), and a future-oriented cognition measure, *Preoccupation with Future Events* (Klineberg, 1968). Children and parents also reported child anxiety symptoms via the *Screen for Child Anxiety Related Emotional Disorders*, child and parent forms (SCARED-C & SCARED-P; Birmaher et al., 1997).

**Table 1.** Bivariate Correlations.

	1	2	3	4	5	6
1. Age						
2. PFES	$r = -.014$ $p = .863$					
3. Climate Engagement (Ojala)	$r = .026$ $p = .756$	$r = .029$ $p = .724$				
4. Climate Change Anxiety (CCA)	$r = -.149$ $p = .071$	$r = .011$ $p = .895$	$r = .436$ $p < .001^{**}$			
5. Anxiety (SCARED-T)	$r = .079$ $p = .337$	$r = .068$ $p = .412$	$r = .181$ $p = .028^{*}$	$r = .287$ $p < .001^{**}$		
6. Efficacy	$r = .055$ $p = .505$	$r = .098$ $p = .235$	$r = .341$ $p < .001^{**}$	$r = .267$ $p = .001^{**}$	$r = -.082$ $p = .324$	

Note. Pearson correlation coefficients (r) are shown for key variables of interest; $^{*}p < .05$; $^{**}p < .01$; $N = 148$.

Measures

The *Climate Efficacy* scale was developed by Ojala (2012) to measure individual and collective beliefs in the ability to make a meaningful difference in addressing climate change. Scores were summed, with higher scores indicating greater climate efficacy (5 items; 5-point Likert scale). Cronbach's alpha was $\alpha = .72$.

The *Climate Engagement Scale for Pro-Environmental Behaviors* was developed by Ojala (2012) to measure pro-environmental behaviors. Scores were summed, with higher scores indicate higher levels of climate engagement and pro-environmental behaviors (9 items; 5-point Likert scale). Cronbach's alpha was $\alpha = .69$.

The *Climate Change Anxiety* (CCA; Clayton & Karazsia, 2020) assesses an individual's feelings of anxiety related to climate change. The 20-item measure includes four subscales: cognitive-emotional impairment, functional impairment, experience of climate change, and behavioral engagement. This study used only the cognitive-emotional impairment and functional impairment items (1-11), which were combined to index climate change anxiety; the remaining subscales were excluded. Some items were adapted for younger participants. Scores were summed, with higher values indicating greater climate change anxiety. Internal consistency was strong ($\alpha = .83$).

Preoccupation with Future Events (PFES; Klineberg, 1968; Schuman et al., 2024) assesses future-oriented cognition. Participants list up to ten concerns from the past two weeks and indicate whether each concern pertained to the past, present, or future when they were thinking about it. Preoccupation with future events is calculated as the proportion of future-focused concerns out of the total concerns listed (not all participants listed ten concerns). To address ambiguity in children's reports of temporal orientation, reliability coding was established with at least 80% agreement across coders. Coders reached consensus on all concerns.

Screen for Child Anxiety Related Emotional Disorders (SCARED; Birmaher et al., 1997) is a reliable and validated measure of childhood anxiety symptoms through both child self-report (SCARED-C) and parent report of the child (SCARED-P) (41 items each; 3-point Likert scale). Scores were summed for SCARED-C ($\alpha = .92$) and SCARED-P ($\alpha = .91$) separately, and for the purpose of this

study, were then combined into a combined SCARED total score (SCARED-T), which demonstrated strong internal consistency ($\alpha = .92$).

Results

Bivariate Correlations

Bivariate correlations revealed associations between climate engagement, climate efficacy, climate change anxiety, and anxiety symptoms (Table 1).

Hierarchical Moderated Linear Regressions

We conducted moderated linear regressions with the PROCESS macro in SPSS (version 30) to test whether climate efficacy interacted with Preoccupation with Future Events (the moderator) in its association with climate engagement and climate change anxiety, with SCARED as a covariate (Hayes, 2013). Age was considered preliminarily as a covariate and was not included because it was not significantly correlated with the focal variables. Separate regression models were conducted for each outcome of interest (two total). Bonferroni corrections were applied to adjust for multiple comparisons.

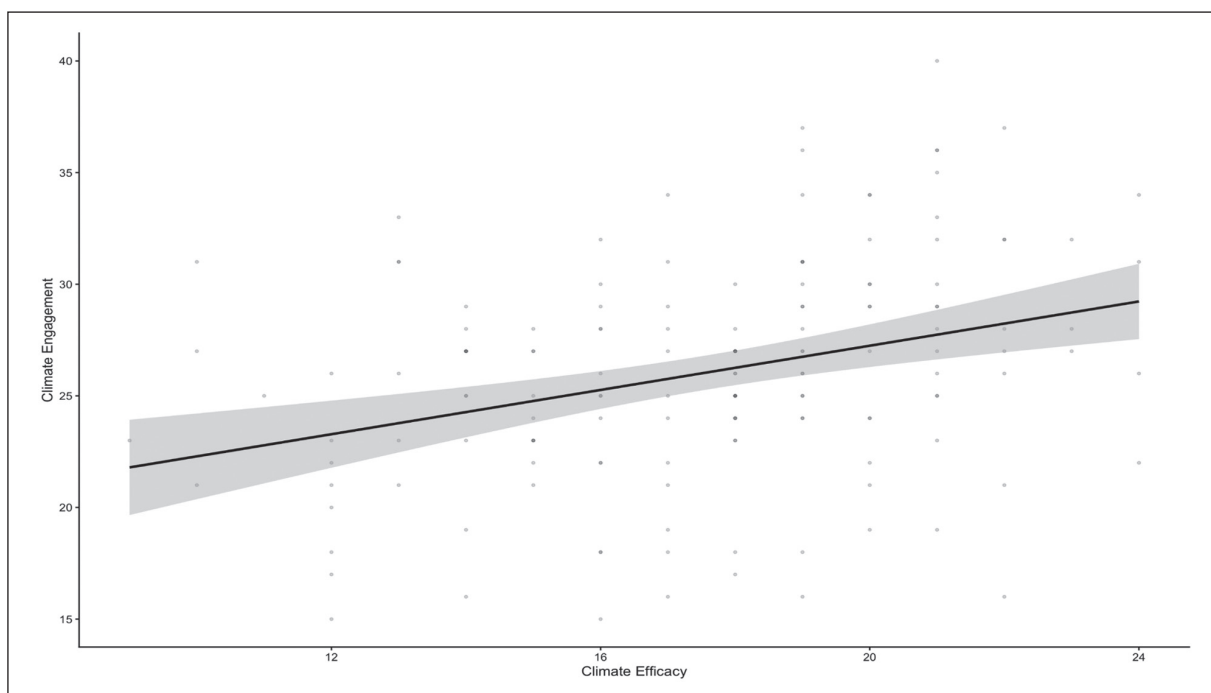
Climate Efficacy x Preoccupation with Future Events on Climate Engagement

The first hierarchical regression analysis examined the associations of climate efficacy with climate engagement, with Preoccupation with Future Events as a moderator and SCARED anxiety as a covariate. Climate efficacy showed a significant main effect on engagement, $F(4, 143) = 6.83$, $p = .0060$, 95% CI [0.1655, 0.9726], indicating that higher efficacy was associated with greater engagement. SCARED anxiety also exhibited a significant main effect on engagement, $p = .0071$, 95% CI [0.0149, 0.0930]. No interaction emerged between climate efficacy and preoccupation with future events ($p > .48$) (Table 2, Figure 1).

Table 2. Results of Hierarchical Moderated Linear Regressions Predicting Climate Engagement and Climate Change Anxiety.

Independent Variable	Dependent Variable	Covariates	Moderator	Model	Main Effects	Interaction Effect
Efficacy	Climate Engagement	SCARED total	PFES	$F(4, 143) = 6.83$ $p < .001$ $R^2 = .160$ $N = 148$	Efficacy $p = .0060^*$, 95% CI [0.1655, 0.9726] $\beta = .5690$, SE = 0.2042, $t = 2.7873$ PFES $p = .9423$, 95% CI [-12.7905, 13.7639] $\beta = .4867$, SE = 6.7169, $t = .0725$ SCARED $p = .0071^*$, 95% CI [0.0149, 0.0930] $\beta = .0539$, SE = 0.0197, $t = 2.7318$	$p = .8989$ 95% CI [-0.7908, 0.6952] $\beta = -.0478$ SE = 0.3759 $t = -.1272$
Efficacy	Climate Change Anxiety	SCARED total	PFES	$F(4, 143) = 7.3975$ $p < .001$ $R^2 = .1714$ $N = 148$	Efficacy $p = .0058^*$, 95% CI [0.2046, 1.1832] $\beta = .6939$, SE = 0.2475, $t = 2.8035$ PFES $p = .5523$, 95% CI [-11.2462, 20.9491] $\beta = 4.8515$ SE = 8.1437, $t = .5957$ SCARED $p = .0001^{**}$, 95% CI [0.0498, 0.1445] $\beta = .0972$, SE = 0.0239, $t = 4.0589$	$p = .4778$ 95% CI [-1.2251, 0.5765] $\beta = -.3243$ SE = 0.4557 $t = -.7116$

Note. Significant effects are reported at $p < .05$, although Bonferroni corrections were applied for an adjusted significance level of $p < .025^*$.


Figure 1. Main Effect ($p = .0060$) of Climate Efficacy (via the Climate Efficacy Scale, (Ojala, 2012) on Climate Engagement (via the Climate Engagement Scale for Pro-Environmental Behaviors, Ojala, 2012).

Climate Efficacy x Preoccupation with Future Events on Climate Change Anxiety. The second hierarchical regression analysis examined the associations of climate efficacy with climate change anxiety, with Preoccupation with Future Events as a moderator and SCARED anxiety as a covariate. Climate efficacy showed a significant main effect on climate change anxiety, $F(4, 143) = 7.3975$, $p = .0058$, 95% CI [0.2046, 1.1832], indicating that higher efficacy was associated with greater climate change anxiety. SCARED anxiety also exhibited a significant main effect on

climate change anxiety, $p = .0001$, 95% CI [0.0498, 0.1445]. No interaction emerged between climate efficacy and preoccupation with future events ($p > .48$) (Table 2, Figure 2).

Discussion

The present study examined climate efficacy in Latinx children aged 8-13 in California's Inland Empire and its associations with pro-environmental engagement and climate

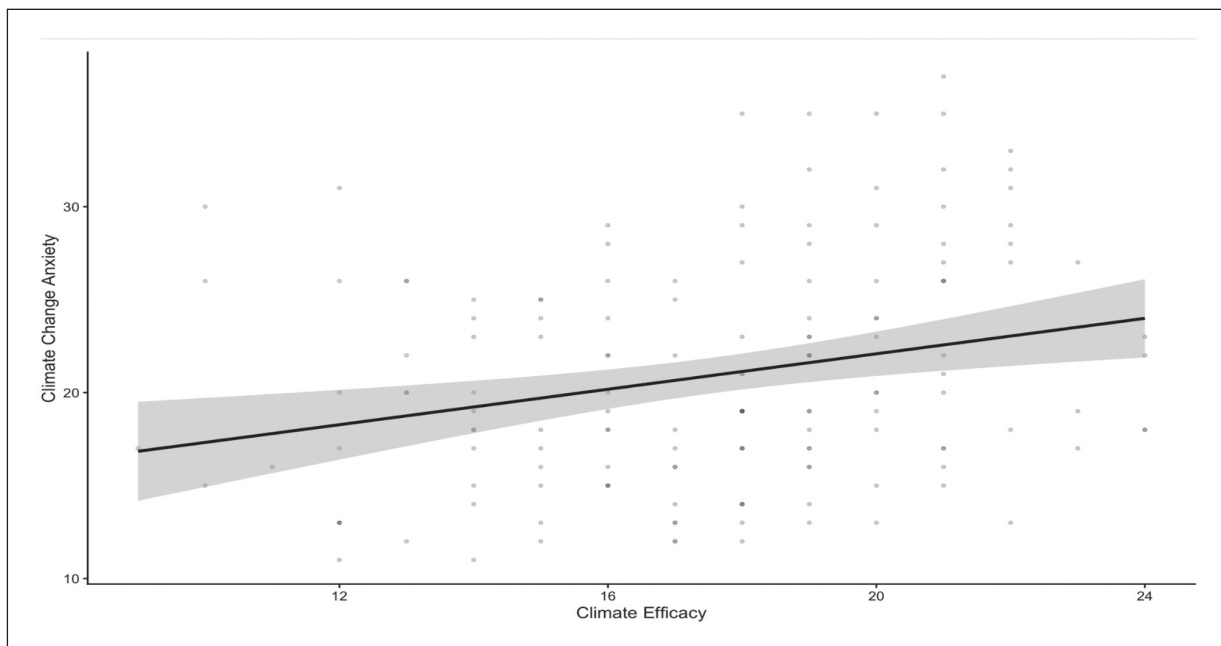


Figure 2. Main Effect ($p = .0058$) of Climate Efficacy (via the Climate Efficacy Scale, Ojala, 2012) on Climate Change Anxiety (via the Climate Change Anxiety Scale, Clayton & Karazsia, 2020).

change anxiety. Higher climate efficacy was associated with both greater climate engagement and greater climate change anxiety, even after accounting for general anxiety symptoms, while future-oriented cognition did not significantly moderate these associations. These findings suggest that efficacy plays a meaningful role in early climate agency, and that feelings of agency may coexist with heightened worry in youth.

Consistent with our first hypothesis, climate efficacy was positively associated with pro-environmental engagement. Children who believed their actions could make a difference reported more frequent pro-environmental behaviors. This aligns with prior research identifying efficacy beliefs as an important construct consistently linked to climate action (Bostrom et al., 2019; Geiger et al., 2017). Children's sense of agency may represent a promising target for efforts to support engagement and resilience.

Consistent with our second hypothesis, climate efficacy was also associated with climate change anxiety, indicating that feeling capable of making a difference does not eliminate worry. Rather, efficacy may function as a psychological resource linked to a greater sense of control and supporting active coping when facing threats (Bandura, 1977, 1982; Hart & Feldman, 2014). Together, these findings suggest two possible patterns: efficacy may buffer feelings of hopelessness by promoting agency, but it may also occur alongside greater anxiety when youth feel emotionally invested in the seriousness of climate change. In this sense, efficacy and anxiety may reflect an engaged response rather than dysfunction (Hickman, 2024; Hickman et al., 2021; Ojala et al., 2021). In addition, children with greater efficacy also know more about climate change as they may actively seek out this information, thereby increasing both their engagement and distress. These findings suggest that interventions should focus on helping youth manage distress while strengthening agency

and coping resources, rather than attempting to eliminate climate worry altogether.

For our third hypothesis, future-oriented cognition did not significantly moderate the associations between climate efficacy and either outcome, pro-environmental behavior or climate change anxiety. Although developmental theories suggest that thinking about the future can heighten threat perception while also enabling planning and meaning-making (Märtsin, 2019; Nurmi, 1991; Ojala, 2015), the moderating role of future preoccupation may be less pronounced in middle childhood than in adolescence. Because our sample was relatively young (8-13 years old), children's capacity to integrate long-term future thinking with climate agency might still be emerging. Future research should examine other developmental moderators, such as parental climate change emotional socialization or exposure to climate-related events, which may help explain whether efficacy becomes motivating or overwhelming.

Several limitations should be considered. The cross-sectional design precludes conclusions about causality, and reliance on self-report limits insights into actual behavior. The sample was also drawn from a single geographic region, which may reduce generalizability. Despite these limitations, our findings suggest that climate efficacy is a meaningful psychological resource for youth. For Latinx children in climate-vulnerable contexts, efficacy may be associated with greater engagement but also with emotional distress, underscoring the need to pair empowerment with culturally responsive emotional support. There are many practical implications of the findings for educators and community-based programs, such as the importance of pairing climate education with opportunities for meaningful action, emotional support, and culturally responsive engagement strategies that may help youth build agency without intensifying helplessness.

Ethical Considerations

All procedures were performed in compliance with relevant laws and institutional guidelines and were approved by the appropriate institutional committee. Ethical approval was obtained from the University of California, Riverside, IRB on February 27, 2024 (Reference No. 30205). Informed consent was obtained for experimentation with human subjects, and the privacy rights of human subjects were observed.

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Declaration of conflicting interests

The authors declared no potential conflicts of interest with respect to the research, authorship, and/or publication of this article.

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Climate Change and Adverse Mental Health Outcomes: Is Solitude a Mediating Mechanism of Influence?

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Introduction

It has become increasingly popular to discuss how climate change will influence nearly every aspect of our day-to-day lives and well-being. According to the World Health Organization (2023), climate change has led to, and will continue to drive, shifts in temperature and weather patterns. These shifts will cause more severe storms and natural disasters alongside increased heatwaves and droughts. Oft-discussed consequences for individuals include food shortages, illness, and population displacement to overcrowded urban areas, as well as increased death. In addition, climate change has been implicated in psychological literature as a likely direct risk factor for numerous adverse mental health outcomes, including emotion regulation difficulties, anxiety, substance use, and depression (Burke et al., 2018; Doherty & Clayton, 2011). Significantly, like other hypothesized risks and negative consequences of climate change, the mental health of vulnerable and disadvantaged subpopulations, including youth, ethnic minorities, and displaced individuals, is expected to be the most severely impacted due to their enhanced sensitivity to instability and stressors in their environments and/or weak community infrastructure (Burke et al., 2018; St Louis & Hess, 2008). To mitigate these expected consequences, numerous individual- and societal-level preventive programming and interventions have been discussed, including resiliency, coping, and pro-environmental behavior trainings and community social support strengthening programs (e.g., Burke et al., 2018; Doherty & Clayton, 2011).

While the expected direct effects of climate change on mental health have been well-described, there has been less discussion of potential mediating mechanisms of influence. And yet improved understanding and identification of mediating mechanisms can reveal new, modifiable targets for intervention (O'Rourke & MacKinnon, 2018). This essay explores one possible mediator, *solitude*. The novel argument advanced

is that various aspects of climate change, particularly forced migration and urban overcrowding (which have already begun and will continue to increase), will lead to *reductions* in solitary time, which, in turn, will explain some of the negative impacts of climate change on psychological health and well-being. This essay concludes with a call for research on solitude and climate change and potential intervention implications that could improve the effectiveness of programming, especially for the most vulnerable subpopulations.

Study of Solitude and Its Importance

Although the definition of *solitude* tends to vary across disciplines, it is typically defined by psychologists as a *state* of being alone and not physically interacting with others (e.g., Pauly et al., 2017). In recent years, the definition of solitude has been amended to specify the lack of social interaction in person and *virtually* (Coplan et al., 2021). Spending some time in solitude is a common and universal experience. All individuals spend some of their daily hours alone and not interacting with others. Total time spent in solitude, however, increases with age (Hoppmann & Pauly, 2022). Of note, solitude differs from *loneliness*, which reflects dissatisfaction with one's social relationships, and may or may not be experienced in solitude (e.g., one might feel lonely when surrounded by others).

It has long been argued that social connectedness is necessary for psychological health and well-being (Baumeister & Leary, 1995). More recently, there is a growing consensus that some time in solitude is also essential. For example, solitude is thought to be an important context for emotion regulation and the downregulation of emotion. It has also been theorized to provide a unique context for stress reduction, creative activities, and reflection/contemplation. Significantly, recent psychological findings support these notions and illustrate numerous psychological benefits of spending some time alone (for an overview, see Coplan et al., 2021). It is important to note, however, that too much time in solitude can lead to psychological distress, especially if that time is *unwanted*. For these reasons, a balance between time alone and time with others is thought to be most optimal for psychological health and well-being (Weinstein et al., 2023).

Potential Impacts of Climate Change on Solitude

It is hypothesized herein that various aspects of climate change, such as extreme weather events, will lead to



reductions in solitary time around the globe. Although not yet directly empirically tested, currently available data show that extreme weather events, like hurricanes, earthquakes, and fires, often force individuals and families to leave their homes and residences. Those who are fortunate find alternative housing in overcrowded camps and relief centers with high population density where there is little physical distance between others (Behnke et al., 2020). Overcrowding, which is defined as a condition involving insufficient space to maintain physical and psychological health, is, in part, why infectious disease outbreaks occur in such housing (Kharwadkar et al., 2022). Of course, climate refugees might feel lonely, but they are unlikely to perceive too much solitude in such conditions, and instead, may experience too little solitude, which has been empirically studied as *a loneliness* (i.e., dissatisfaction with the amount of time alone; Coplan et al., 2019). Consistent with these notions, war-displaced refugees report a loss of community relationships and losses of privacy and personal space (e.g., Feldman, 2015).

It has also been documented that increased climate change-related heat and air pollution have started to make some regions uninhabitable and have led to displacement and increased population density in more habitable areas. As this begins to occur more, overcrowding will also occur, and infrastructure and systems in these regions will become strained, and it is likely that opportunities for solitude will further decrease in number. During these events and climate changes, those who remain alone and away from others will not have access to resources and aid, and as a result, will also suffer more. As noted previously, too much solitude is always risky, but too little solitude resulting from climate-related hazards and overcrowding could also prove risky.

In addition to the research on overcrowding and its impacts, research on the recent COVID-19 pandemic has provided initial support for these expectations. During the pandemic, social distancing and lockdown measures were implemented in most regions of the world. These measures typically required individuals to stay in their homes, and if sick, to isolate within their residences. As a result, many individuals were forced to work from home, and youth were forced to adjust to remote schooling. All aspects of life became restricted to the home. These measures separated individuals from friends, co-workers, and extended families, and many experienced increased loneliness as a result (Ernst et al., 2022). However, these “stay-at-home” measures also meant that partnered individuals and families experienced an increased amount of time together and near-constant contact with their living partners, which may have been enjoyed by some but led to increased conflict and domestic violence for others (Kourti et al., 2023). Overcrowded housing and public space environments also led to increased vulnerability for COVID-19 contagion, especially for low-income individuals. During this time, many adolescents and adults also reported a lack of privacy, especially those who were socioeconomically disadvantaged without a room of their own (e.g., Chauhan, 2022). Taken together, the pandemic caused increased separation from non-familial others (and in some cases, also extended family members), and at the same time, decreased *chosen* solitary time for partnered individuals and those in families, which then led to some increased risks. However, those who were able to find opportunities to be alone in nature reported being able to rest, rejuvenate, and

regain a balance between solitude and social connection (Samangooei et al., 2023).

Solitude as Mediator of Climate Change Impacts on Adverse Mental Health Outcomes

Links between climate change-related hazards, overcrowding, and *physical* health outcomes have already been established. As climate change continues and escalates, adverse mental health outcomes are also expected. In this essay, it is suggested that some of these negative mental health outcomes, such as emotion regulation difficulties, anxiety, depression, and substance use, may occur, in part, due to reductions in opportunities for solitary time. This argument pertains to *chosen* solitude - not unwanted solitude or social isolation when social connections are desired but unavailable.

Beginning with emotion regulation difficulties, it has been established that many individuals choose to retreat into solitude to decompress and regulate their emotions. They also find that time alone helps them better regulate because solitude offers a unique context for stress reduction due to the lack of social demands (Nguyen et al., 2018, 2025). However, using solitude as a context for emotion regulation and stress reduction may become increasingly challenging if climate change continues to lead to overcrowding and the hypothesized reductions in solitude. Thus, the increased emotion regulation difficulties expected from climate change may be due in part to a loss of solitude. Consistent with this hypothesis, there is some indication that individuals who report loneliness tend to report high levels of negative affect and low levels of positive affect (Coplan et al., 2019).

Solitude reductions might also explain the expected increased risk for internalizing problems like anxiety and depression as well as substance use. As noted previously, research shows that individuals experience downregulation of affect, including both positive (e.g., excitement) and negative (e.g., anxiety, anger) high arousal affect, when in solitude. Similar effects are not found when in the company of others (Nguyen et al., 2018). Without solitude as a context for affective downregulation, anxiety and depressive symptoms may be more likely to develop alongside substance use-based coping, which can occur in social groups or in solitude, with both contexts enhancing the risk for substance disorders (Creswell, 2021). Additionally, the lack of chosen solitary time and near-constant contact with others may fuel hopelessness, which is fundamental to the development of depression (e.g., Abramson et al., 1989).

Children might be especially vulnerable to the loss of solitude. Children must learn to regulate their emotions from their parents and adults. But they must also be provided with the physical and psychological space to struggle with their emotions and other developmental challenges. This will become increasingly difficult for children in lockdown or alternative and overcrowded housing environments. Although the lack of solitude per se has not been empirically linked to coping difficulties during childhood and adolescence, many youths did struggle with emotion regulation difficulties during the COVID-19 pandemic and lockdown (e.g., Horton et al., 2022). Furthermore, it has been shown that children with over-protective and intrusive parents often fail to develop adequate coping skills as their

parents rarely let them struggle and solve their problems for them. When these children become adolescents and are faced with numerous social, emotional, and physical stressors, including those that come with pubertal development, they struggle in their coping and are at increased risk for internalizing difficulties like anxiety as well as eating pathology (e.g., Spokas & Heimberg, 2009). Finally, in a situation of reduced chosen solitude and alone time, parents may struggle to shield their children from their own anxieties and stressors, including conflict with adult partners, thereby socializing anxiety and other internalizing difficulties in their children (e.g., Chiang, 2025).

Call for Research and Intervention Implications

This essay advances the novel hypothesis that climate change will lead to less time alone, which in turn will fuel mental health difficulties. The importance of this new argument is that it may have significant implications for future research and intervention. In terms of research, the next step is to directly empirically evaluate the new hypotheses in this essay. In this regard, this essay is a call for research. For instance, although theoretically plausible, it needs to be ascertained whether restrictions on solitude per se do in fact lead to increased emotion regulation difficulties. As noted previously, it is established that many individuals seek out solitude when confronted with high-arousal emotions and that solitude provides an important context for stress reduction and emotion regulation (Nguyen et al., 2025). However, it is not known, and yet an easily testable hypothesis (with gold-standard daily self-reports of time spent alone and measures of emotion regulation; for methodology details, see White (2020), whether reductions in chosen solitude or less daily or weekly time than usual in solitude lead to increased regulatory difficulties. Studies with older and younger populations would allow for the testing of the hypothesis that youth may be especially vulnerable to restrictions in chosen solitude, and comparative studies in different cultures would afford opportunities to evaluate whether cultural variability in norms pertaining to solitude alter the impact of too little chosen solitude on emotion regulation difficulties (and other theorized psychological concomitants including anxiety and depression). Moreover, solitary experiences can vary in terms of activity (e.g., passive technology use, exercise, reading), which can be assessed by asking individuals about their most frequent activities when in solitude (and then coding of their responses; see Hipson et al., 2021), and could provide additional nuance to the hypotheses advanced in this essay.

The hypotheses pertaining to climate change will be more difficult to test, but the ever-growing research on the links between overcrowding and physical and mental health difficulties as well as in the aftermath of severe storms will continue to provide important clues regarding their plausibility (e.g., Anisman et al., 2025). Although usually studied by epidemiologists, sociologists, and geographers, the next generation of developmental scientists could also conduct their own research on the psychological impacts of overcrowding in contexts in which it is already an issue (e.g., refugee camps, urban social housing, high-density neighborhoods), which would allow for testing of the hypotheses included herein pertaining to solitude as well as others including the specific conditions in which

overcrowding is most likely to be detrimental for parenting and child and adolescent psychological health and well-being.

With further research, several applied implications may become plausible. One illustrative example: If both social time and solitary time are essential, then when climate change reductions in solitary time occur, efforts should be made to provide individuals of all ages, including children who might be particularly vulnerable, not only with opportunities for social connections but also opportunities for solitude. Significantly, those who work with climate-impacted individuals should know that one does not need to be physically alone to feel alone and reap the benefits of solitude. “Quiet time” when in the company of others and even when it is momentary, can still be experienced as aloneness and as beneficial (Campbell & Ross, 2022; Nguyen & Rodriguez, 2024). Many individuals experience this when they go to coffee houses to do work. They may not interact with others, but they still feel a lack of social pressure that creates a feeling of aloneness. And it is this lack of social pressure that is considered one of the most active “ingredients” of solitude that allows benefits to emerge, perhaps even when further climate change-related hazards occur.

Ethical Considerations

No data was collected for this essay, and thus, ethical review was not required.

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“What Will the Future Be Like?” A Study on Climate Change Perception and Parenthood Perspective in Young People

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Introduction

Climate change represents one of the major sources of systemic uncertainty in our time. It is associated with risks to health, social stability, and intergenerational well-being (Rylander et al., 2013). In recent years, climate change has entered public discourse on parenthood, and many young adults report questioning the desirability of having children in a world perceived as unstable or increasingly exposed to risk (Helm et al., 2021; Schneider-Mayerson & Leong, 2020). In culturally pronatalist contexts, such reflections may intersect with social norms and expectations, generating tensions between personal values, social pressures, and perceptions of global risk (Szalma & Júlia Szczuka, 2025). However, most studies have focused on reproductive intentions or the decision to remain childfree, often treating parenthood as a dichotomous outcome, despite differences in underlying motivations.

At the same time, research has begun to differentiate subjective responses to climate change. Not all individuals who acknowledge its seriousness experience the same level of concern or perceive it as equally relevant to their lives. Climate change worry, defined as a recurrent concern about future consequences is more prevalent than anxiety, and represents a common way of processing climate-related risk (Stewart et al., 2024). Moreover, higher levels of worry are associated with a reduced psychological distance from the issue. These considerations suggest that climate change may become more or less salient in future-oriented decision-making, including how individuals approach the possibility of parenthood.

Perception of Climate Change

The perception of climate change is a multidimensional construct encompassing cognitive, affective, and evaluative components. While most young people acknowledge its existence and anthropogenic origins, emotional responses vary considerably (Tapia-Echanove et al., 2025). Among affective responses, worry plays a central role. A related construct is psychological distance, which refers to the extent to which climate change is perceived as temporally, spatially, or socially near or distant (Trope & Liberman, 2010). When perceived as distant, climate change tends to remain abstract; when perceived as proximal, it becomes more personally relevant and may influence future-oriented decisions. In the reproductive domain, psychological distance is particularly relevant because parenthood inherently involves representations of future generations. Consistent with evidence linking lower perceived distance to greater worry (Stewart et al., 2024), it is plausible that perceiving climate change as more proximal increases its salience in the construction of the parental project, including its motivational underpinnings.

Emerging Adulthood and Parenthood as an Identity Project

Emerging adulthood is characterized by identity exploration and future-oriented planning (Arnett, 2007). During this phase, individuals construct representations of the adult self, including decisions about relationships, work, and parenthood. Parenthood can be understood as an identity project, involving a future-oriented representation of the self that integrates values, meanings, and expectations about generational continuity (Markus & Nurius, 1986; McAdams & McLean, 2013). From this perspective, parental identity reflects the extent to which becoming a parent is integrated into one's sense of self and future life narrative. Climate change introduces a form of global and intergenerational uncertainty that may enter these identity processes. By shaping expectations about the future, climate-related concerns may influence how individuals imagine themselves as potential parents and the degree to which this role is coherently integrated into their identity.



Self-Determination Theory and Motivation for Parenthood

Self-Determination Theory (SDT) conceptualizes motivation along a continuum ranging from autonomous motivation to controlled motivation and amotivation (Deci & Ryan, 2000; Ryan & Deci, 2017). Autonomous motivation reflects actions aligned with personal values, whereas controlled motivation is driven by internal or external pressures, and amotivation reflects a lack of intentionality.

Applied to parenthood, this framework moves beyond whether individuals intend to have children, focusing instead on the quality of their motivation. The Motivation to Have a Child Scale differentiates autonomous motivation, controlled motivation, and amotivation (Brenning et al., 2015; Gauthier et al., 2007). Research grounded in Self-Determination Theory suggests that the quality of motivation for parenthood is associated with relevant psychological and relational outcomes. More autonomous motivations have been linked to better adjustment during the transition to parenthood, including higher satisfaction of basic psychological needs, greater relationship satisfaction, and lower levels of stress and depressive symptoms. In contrast, controlled motivations and amotivation are more often associated with psychological distress, internal conflict, and less adaptive engagement with the parenting role (Brenning et al., 2015; Gauthier et al., 2007). These findings highlight the importance of considering not only whether individuals intend to have children, but also how this intention is regulated at the motivational level.

In this context, climate change may function as a source of uncertainty that does not necessarily reduce overall motivation to become a parent, but may affect how this desire is regulated. Specifically, climate-related concern may introduce tension or ambivalence, shaping the motivational quality underlying the parental project. To date, the integration of climate-related perceptions with the quality of motivation for parenthood and parental identity remains relatively underexplored, especially with regard to how climate-related perceptions may be linked to different motivational regulations.

The Present Study

In this context, the present study examines the associations among psychological distance from climate change, climate change worry, motivation for parenthood (autonomous, controlled, and amotivation), and parental identity in a sample of Italian young adults. Given the limited integration of these constructs in previous research, the study adopts an exploratory approach. Specifically, we examine how climate-related perceptions relate to the quality of motivation for parenthood and to the degree to which parenthood is integrated into parental identity. To explore these associations, we employ a structural equation modeling approach.

Method

Participants and Procedure

The study involved 547 young adults aged between 18 and 30 ($M = 22.09$, $SD = 3.23$), recruited mainly from

universities. Data were collected via an online questionnaire. Participation was voluntary and anonymous; before completing the questionnaire, participants received information about the general objectives of the study and provided electronic informed consent.

Measures

Climate Change Worry: The Climate Change Worry Scale (Stewart, 2021; Italian version: Innocenti et al., 2022) was administered. The scale comprises 10 items rated on a 5-point Likert scale (1 = never; 5 = always; e.g., “I worry about how climate change may affect the future”). Internal consistency in the present sample was satisfactory ($\alpha = .90$).

Perceived Distance from Climate Change: Psychological distance from climate change was assessed using the scale developed by Wang et al. (2019), consisting of 18 items rated on a 5-point Likert scale (1 = strongly disagree; 5 = strongly agree; e.g., “The serious effects of climate change will mostly occur in places far from here”). The scale captures perceived geographical, social, and temporal distance from climate change. Internal consistency was satisfactory ($\alpha = .87$).

Motivation to Have a Child: The quality of motivation toward parenthood was measured using the Motivation to Have a Child Scale (Gauthier et al., 2007; adaptation used in Brenning et al., 2015). The instrument includes 20 items rated on a 5-point Likert scale (1 = not at all agree; 5 = strongly agree; e.g., “For the joy and satisfaction that my child could bring me”). The scale assesses autonomous motivation (e.g., personal meaning and fulfillment), controlled motivation (e.g., internal or social pressures), and amotivation (e.g., lack of perceived reasons). Internal consistencies were satisfactory across subscales (Autonomous Motivation $\alpha = .91$; Controlled Motivation $\alpha = .91$; Amotivation $\alpha = .91$).

Parental Identity: The Parental Identity subscale of the U-MICS (Piotrowski, 2018) was used. It comprises 5 items rated on a 5-point Likert scale (1 = completely false; 5 = completely true; e.g., “Being a parent would give me a sense of security in life”). The items assess the extent to which parenthood is integrated into one’s sense of self and future perspective. Internal consistency was satisfactory ($\alpha = .93$).

Data Analysis

Analyses were conducted in two stages. First, descriptive statistics (Table 1) and internal reliability indices were computed. Second, associations among the variables were examined using structural equation modeling (SEM) with latent variables. A robust maximum likelihood estimator (MLR) was employed. Model fit was evaluated using the Comparative Fit Index (CFI), the Root Mean Square Error of Approximation (RMSEA), and the Standardized Root Mean Square Residual (SRMR).

Results

Descriptive statistics for the primary variables are reported in Table 1. Controlled motivation showed a relatively low mean compared to autonomous motivation, suggesting that self-determined reasons for parenthood were generally more

Table 1. Descriptive Statistics.

Variable	M	SD	Skewness	Kurtosis
Climate Change Worry	3.02	0.78	-0.15	-0.22
Distance from Climate Change	2.43	0.39	0.70	1.39
Autonomous Motivation to Have a Child	3.19	0.92	-0.20	-0.10
Controlled Motivation to Have a Child	1.53	0.71	1.89	4.12
Amotivation to Have a Child	2.14	1.12	0.90	0.05
Parental Identity	2.40	0.99	0.30	-0.38

endorsed than externally driven motivations. The structural equation model demonstrated good fit to the data, $\chi^2(194) = 646.05$, $p < .001$; Yuan-Bentler $\chi^2(194) = 574.11$, $p < .001$; R-CFI = .954; R-RMSEA = .063, 90% CI [0.058, 0.070]; SRMR = .054. Psychological distance from climate change was negatively associated with climate worry ($\beta = -.47$, $p < .001$). With regard to motivation to have a child, climate worry was not significantly associated with autonomous motivation, whereas it showed a positive association with controlled motivation ($\beta = .23$, $p < .001$) and with amotivation ($\beta = .17$, $p = .003$). Psychological distance was positively associated with controlled motivation ($\beta = .41$, $p < .001$). Concerning parental identity, climate worry was not significantly associated ($\beta = .07$, $p = .239$), whereas psychological distance showed a positive association with parental identity ($\beta = .29$, $p < .001$).

Discussion

This study examined how perceptions of climate change are associated with the motivational quality of parenthood and parental identity in emerging adulthood. The findings suggest a more nuanced pattern than a simple reduction in the desire to have children. Climate-related perceptions were not associated with autonomous motivation, but were linked to less self-determined forms of motivation, particularly controlled motivation and, to a lesser extent, amotivation. Within the framework of Self-Determination Theory, this distinction is important because motivational quality reflects how individuals regulate their goals, beyond whether they endorse them. In this case, climate change does not seem to reduce the overall motivation to become a parent, but may be associated with a stronger influence of internal and social pressures in the way the parenting project is experienced.

Climate Concern and Motivational Quality

A first finding relates to climate change worry, as a factor associated with how the parenting project is experienced. In the sample examined, worry is not associated with autonomous motivation, suggesting that climate concern does not automatically translate into a weakened motivation to become a parent when this motivation is rooted in personal values and self-determined choices. On the contrary, the positive association with controlled motivation and amotivation indicates that worry may be linked to a less integrated parenting project. In SDT terms, this refers to a motivational

configuration in which the parenting project is less coherently aligned with personal values and more influenced by internal pressures, doubts, or external expectations, resulting in a less stable and more conflicted orientation toward parenthood. This configuration is consistent with the idea that climate change, as an inherently intergenerational threat, may trigger reflections about children's future living conditions (Ekholm & Olofsson, 2017). Rather than reducing motivation directly, these reflections may make the decision more complex and less straightforward, introducing tension between personal desires and perceived risks.

Psychological Distance and Parental Identity

A second finding concerns psychological distance. When climate change is perceived as more distant, parenthood appears to be more clearly integrated into individuals' representations of their future self (i.e., parental identity). In line with Construal Level Theory (Trope & Liberman, 2010), the perceived proximity of a threat tends to increase its concrete and personal salience. If climate change is represented as imminent and directly relevant, it may enter more actively into future-oriented thinking, making it more difficult to coherently integrate the idea of becoming a parent into one's future self. Conversely, a greater perceived distance may allow individuals to consider parenthood with less interference from climate-related concerns. This finding can be interpreted in light of identity development in emerging adulthood, a phase in which individuals are consolidating future-oriented roles (Arnett, 2007; McAdams & McLean, 2013). Climate change may therefore act as an additional layer of uncertainty, influencing how clearly and confidently individuals incorporate parenthood into their future self-representations.

Implications for Research on Parenthood and Climate Change

Emerging adulthood is a phase in which individuals explore and progressively define long-term commitments; a global and intergenerational threat can be integrated in different ways, as a source of tension, as a distant framework, or as a stimulus for broader moral reflection. In line with the life-course perspective, these processes must be interpreted in light of the historical context in which they occur (Elder et al., 2003).

The main contribution of this exploratory study is to shift the focus from a dichotomous view of parenthood to the motivational quality of the parenting project. Rather than simply asking whether young people want to have children in a context of climate crisis, the results suggest the importance of questioning how and why this project is supported. From a broader perspective, these findings also have implications beyond developmental psychology, suggesting that climate-related concerns may shape how individuals approach long-term decisions and evaluate future family projects at both individual and societal levels. At a societal level, rather than directly reducing the intention to have children, climate-related concerns may contribute to a more complex and ambivalent orientation toward parenthood among younger generations. This may influence how parenthood is discussed,



negotiated, and planned, shifting it from a taken-for-granted life step to a more reflective and conditional project within contemporary contexts of uncertainty.

These findings contribute to the literature by showing that climate change may shape not only whether individuals consider parenthood, but also how they regulate this possibility at a motivational level. This distinction is theoretically relevant because motivational quality is known to be associated with well-being and adjustment, suggesting that climate-related concerns may have implications that extend beyond decision-making into the psychological experience of future parenthood.

Conclusions

Climate change does not appear to be associated with a decrease in autonomous motivation for parenthood, but is linked to less self-determined motivational configurations and differences in the integration of parental identity. These findings support a shift from focusing on whether young people want to have children to understanding how this project is constructed and experienced. Considering the quality of motivation offers a useful analytical perspective for grasping these dynamics without reducing them to dichotomous choices.

Ethical Considerations

The study received ethical clearance from the Centre for Research and Intervention of the University of Messina Institutional Review Board (Prot. N. 33007, 09/03)

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Echoes from the Sea: Place Memory, Solastalgia, and Wellbeing Among Older Adults in Alexandria, Egypt

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Background

Like many coastal cities around the world, Alexandria, Egypt, is facing rapid changes due to direct consequences of climate change (such as rising sea levels and coastal erosion) and massive urban development (Zahra, 2026). These combine to alter public access and the everyday experience of the city, particularly the coastal areas (Barakat et al., 2024). For older adults who have spent most of their lifetimes in these regions, these changes may mean they are losing the places familiar to them as well as the psychosocial structure and stability that come with those places. Familiar places serve practical functions as safe walking routes and accessible leisure spaces (Basu et al., 2023; Blokland et al., 2023) and psychological functions, e.g., continuity of self and belonging (Buttazzoni & Irwin, 2025; Gfeller & Grossen, 2026; Sedikides et al., 2016). Therefore, older adults may rely on these places to stay independent (i.e., have some level of autonomy), keep their daily routines, and stay connected with other people. Moreover, familiar places hold personal memories (place memories) that deepen people's attachment to place, and this sense of attachment is linked to wellbeing (Rollero & De Piccoli, 2010; Sun et al., 2024). When those memory-rich places are altered or become less accessible, older adults may experience solastalgia, distress that arises when one's home environment changes in unwanted ways, e.g., sea level rise, biodiversity loss/species extinctions, deforestation, etc. (Albrecht et al., 2007).

This study examined whether place memory (fond memories of Alexandria's coastal areas) and solastalgia help explain lower mental wellbeing among older adults in Alexandria, and whether solastalgia mediates the association between these memories and wellbeing.

Guided by the Transactional Model of Stress and Coping, which proposes that psychological outcomes depend on individuals' primary appraisals of potential harm or loss and secondary appraisals of coping resources, and the coping processes that follow (Lazarus & Folkman, 1984), we conceptualised coastal change as a place-based stressor in later life. We hypothesised that stronger fond memories may shape appraisals of loss and unwanted change, increasing solastalgia as a stress response, which is then associated with reduced mental wellbeing.

Why Alexandria?

The study focuses on Alexandria, Egypt, because it brings together two conditions that make the links between coastal change, place memory, solastalgia, and older adult wellbeing especially visible. First, it is a long-established coastal city where daily life for many residents, particularly older adults, has historically been organised around the waterfront, making coastal access and familiar seascapes central to routine, social connection, and identity (Barakat et al., 2024). Second, Egypt is undergoing a clear ageing transition: the population aged over 60 is projected to rise substantially in the coming decades, increasing the absolute number of older adults who will be living with age-related vulnerabilities (UNFPA Arab States, 2024). This means that in large urban centres such as Alexandria, the number of older residents whose wellbeing is affected by place change is unlikely to be marginal, and the public health relevance will increase as the age structure shifts.

Methods

Design and Participants

We adopted a cross-sectional survey methodology and recruited older residents of Alexandria (n = 502; mean age = 71 years) using a multi-stage sampling technique. Data were collected over a six-month period, October 2023 to March 2024. To be included, participants had to be older adults aged 60 years and above, who had resided in Alexandria for at least 10 years and had no apparent cognitive or sensory-perceptual impairment. The 10-year residency criterion was used to ensure that participants had lived in the city long enough to have experienced and formed perceptions of the environmental and coastal changes occurring over time.



Measures

Fond memories of Alexandria's coastal places were assessed using a 24-item scale developed for this study, designed to capture place-based fond memories of the city's beaches and waterfront. Items were developed from qualitative insights from conversations held with Alexandria residents and reviewed for face validity by experts and older adults. They were pilot tested for internal reliability with 50 residents prior to the present study. Items were rated on a 7-point Likert-type scale ranging from 1 (Totally disagree) to 7 (Totally agree), with total scores ranging from 24–168, where higher scores indicate stronger fond memories. Sample items include “I have fond memories of Alexandria beach” and “I find myself remembering when the beach was bigger.” The scale demonstrated excellent internal consistency in the present sample (Cronbach's $\alpha = .91$).

Solastalgia was measured using a seven-item Solastalgia Scale rated on a 5-point Likert scale (0 = strongly disagree to 4 = strongly agree), with total scores ranging from 0–28, where higher scores indicate greater solastalgia. The scale is a subscale of the Environmental Distress Scale (EDS) developed for populations experiencing environmental change and degradation (Higginbotham et al., 2006) and has been applied in post-environmental damage contexts (Eisenman et al., 2015). The original 10-item version was reduced to seven items after three items fell below the 0.60 factor-loading cutoff. Higginbotham et al. (2006) report good reliability (Cronbach's $\alpha = .93$), and internal consistency in the present study was acceptable (Cronbach's $\alpha = .87$).

Mental wellbeing was assessed with the WHO-5 Well-Being Index, a brief measure of general wellbeing covering interest, engagement, and mood (Topp et al., 2015), which is derived from Bech et al. (1996). The WHO-5 is available in 30+ languages and includes five items rated over the past two weeks on a 0–5 scale (0 = at no time to 5 = all of the time). Raw scores range from 0–25 and are multiplied by 4 to yield a 0–100 score, where higher scores indicate better wellbeing. Cross-national research indicates satisfactory reliability across countries, including at key cutoff points used for screening (Sischka et al., 2026), and internal consistency in the present study was acceptable (Cronbach's $\alpha = .88$).

Analytic Approach

We used the Hayes PROCESS macro for SPSS (Hayes, 2017, 2022) to estimate the mediation model and obtain path coefficients. PROCESS provides estimates of the total and direct effects, the indirect effect, associated standard errors (SEs), and bias-corrected bootstrap confidence intervals (CIs) based on the bootstrap sampling distribution. We applied Model 4, which specifies a single-mediator model. Evidence for mediation was evaluated using the bootstrapped CI for the indirect effect: mediation is supported when the CI does not include zero (Fritz & MacKinnon, 2008). This bootstrapping approach is widely recommended over older methods such as the Sobel test (Preacher & Hayes, 2008; Preacher & Leonardelli, 2001). In the present analyses, fond memories of Alexandria served as the predictor, solastalgia as the mediator, and wellbeing as the outcome.

Table 1. Hayes PROCESS Macro Results of the Total Effects of Fond Memories of Alexandria and Solastalgia on Wellbeing.

Predictor Variables	B	SE	t	p	95% CI
Fond Memories of Alexandria	-0.25	0.02	-11.32	< .001	[-0.30, -0.21]
Solastalgia	-0.28	0.03	-8.92	< .001	[-0.34, -0.22]

Note. B = unstandardized coefficient; SE = standard error; CI = confidence interval.

Table 2. Completely Standardised Bootstrap Tests of Mediating Effects of Solastalgia on the Association between Fond Memories of Alexandria and Wellbeing.

Predictor Variables	B	SE	95% CI
Fond memories --> Solastalgia	0.29	0.03	[0.23, 0.34]
Fond memories --> Solastalgia --> Wellbeing	-0.14	0.03	[-0.19, -0.09]

Note. B = unstandardized coefficient; SE = standard error; CI = confidence interval.

Results

As seen in Table 1, having fond memories of Alexandria was a significant negative predictor of wellbeing. A unit increase in fond memories was associated with a .25-unit decrease in well-being. Solastalgia also negatively predicted wellbeing, in that every unit rise in solastalgia was associated with a .28-unit decrease in wellbeing. The overall model accounted for a significant 41% of the variation observed in wellbeing, $F(2,499) = 174.64, p < .001$.

Bias-corrected bootstrapped confidence intervals (CI) for the mediation effects of solastalgia on the link between fond memories of Alexandria and wellbeing are shown in Table 2. Solastalgia mediated the association between fond memories of Alexandria and wellbeing, suggesting that solastalgia is a mechanism through which having fond memories of Alexandria negatively impacts wellbeing.

In summary, fond memories of Alexandria and solastalgia were each independently linked to lower wellbeing: stronger fond memories predicted lower wellbeing ($B = -0.25, p < .001$) and higher solastalgia predicted lower wellbeing ($B = -0.28, p < .001$). Mediation analyses also supported an indirect pathway in which fond memories of Alexandria were associated with higher solastalgia ($B = 0.29, 95\%CI [0.23, 0.34]$), and solastalgia was associated with lower wellbeing, producing a significant indirect effect ($B = -0.14, 95\% CI [-0.19, -0.09]$).

Discussion

This study examined whether place memory (fond memories of Alexandria) and solastalgia help explain reduced mental wellbeing among older adults living in a rapidly changing coastal city, and whether solastalgia functions as a pathway linking memory to wellbeing. Fond memories of Alexandria and solastalgia were each independently associated with lower wellbeing, and fond memories were positively associated with solastalgia. Mediation analyses supported an indirect pathway in which fond memories of Alexandria were linked to lower

wellbeing through higher solastalgia. Together, these results suggest that coastal change may affect older adults' wellbeing not only through practical disruption (e.g., altered access and routines), but also through a place-based emotional response, i.e., distress arising when home environments change in unwanted ways (Albrecht et al., 2007; Rafa et al., 2025). The model explained a substantial proportion of variance in wellbeing, indicating that these place-based factors are meaningful correlates of mental wellbeing in this population.

A central contribution of the study is the finding that stronger fond memories of Alexandria were associated with lower wellbeing. Place memory and attachment are commonly linked to continuity and meaning in later life (Lomas et al., 2021; Scannell & Gifford, 2017; Sedikides et al., 2016; Sun et al., 2024), which are typically understood as supportive of wellbeing. However, the present results indicate that when valued coastal environments are undergoing unwanted transformation, stronger fond memories may relate to poorer wellbeing. This pattern may seem counterintuitive, given that fond memories are typically associated with positive affect. However, when a cherished place is visibly deteriorating, those same memories may heighten awareness of what has been lost, functioning less as a resource and more as a painful point of contrast between a valued past and an unwanted present. The mediation pattern suggests a plausible appraisal-based account consistent with the Transactional Model of Stress and Coping, in that fond memories may shape how coastal change is appraised (e.g., as harm/loss), increasing solastalgia as a stress response and contributing to reduced wellbeing (Lazarus & Folkman, 1984). This should not be read as suggesting that remembering is inherently maladaptive; rather, it points to a boundary condition in which emotionally rich place memories may increase sensitivity to environmental loss when the setting itself is changing.

The results also refine how place-based remembering is understood in relation to wellbeing. While place (especially nostalgia-related) research often reports benefits for meaning and social connection (Abeyta & Pillarisetty, 2023; Sedikides & Wildschut, 2018; Wildschut & Sedikides, 2023), the present findings suggest that place-based memories may operate differently when the remembered object is changing in unwanted ways. In this setting, fond memories appear less like a protective resource and more like a context-sensitive factor that can intensify place-loss distress.

Importantly, solastalgia functioned as the mechanism linking place-based memory to wellbeing. This is consistent with the original definition of solastalgia as distress caused by unwanted change in one's home environment (Albrecht, 2005; Albrecht et al., 2007). Notably, the direct association between fond memories and wellbeing remained negative after accounting for solastalgia, suggesting partial mediation and leaving open the possibility that additional pathways may also be involved (e.g., disruption of routines, reduced restorative experiences, frustration with access constraints). From the Transactional Model's perspective, partial mediation is also expected because appraisals and coping processes are determined by multiple factors (Sacchi & Dan-Glauser, 2026). Solastalgia may represent one prominent emotional pathway, while other appraisal routes (e.g., perceived loss of control, reduced coping options, or daily stress from disrupted routines) may also contribute to wellbeing outcomes. However, given the cross-sectional design, the mediation pathway should be interpreted as consistent with the proposed mechanism rather than conclusive evidence of temporal ordering.

Implications of the Findings

Within the limits of this design, two implications follow from the pattern observed. First, solastalgia appears clinically relevant in contexts of rapid place change. Pairing brief wellbeing assessments (e.g., WHO-5) with a short assessment of solastalgia-related distress may help identify older adults whose reduced wellbeing is linked to unwanted change in their home environment. Second, the findings suggest that memory-informed support should not assume that reminiscence is uniformly protective. For some older adults, strong place memories may intensify distress through solastalgia, particularly when environmental change is difficult to reverse, and continuity of access to familiar places cannot be restored. In such cases, support may need to help older adults acknowledge and work through place-based grief, while also helping them relate to valued memories in ways that reduce distress and orient attention toward remaining or alternative restorative coastal settings. At a broader level, the findings carry relevance for urban planning and community design in rapidly changing coastal cities. Preserving access to familiar coastal spaces and co-designing change processes with long-term residents may help buffer the solastalgia-related distress that older adults appear particularly vulnerable to when valued environments are transformed.

Limitations

The study is not without limitations, as cross-sectional designs limit causal inference. Longitudinal research is needed to test temporal ordering and to determine whether changes in coastal conditions and related perceptions precede changes in solastalgia and wellbeing. Although the Transactional Model of Stress and Coping offers a useful interpretive framework, the present study did not directly measure primary and secondary appraisals or coping strategies; consequently, the appraisal-based account should be viewed as theoretically consistent with the findings rather than empirically tested within this dataset. In addition, the fond memories measure was developed for this study, and, despite excellent internal consistency, further psychometric validation is warranted, including examination of factor structure, convergent validity with established constructs (e.g., place attachment), and measurement invariance across relevant subgroups.

Conclusions

This study provides evidence that solastalgia is a key mechanism linking fond place memories to reduced mental wellbeing among older adults living with rapid coastal transformation. Stronger fond memories were associated with higher solastalgia, solastalgia was associated with lower wellbeing, and the indirect effect was statistically supported. These findings clarify how coastal change may become psychologically significant in later life and identify solastalgia as an important target for assessment and support in older populations experiencing unwanted environmental change.

Ethical Considerations

The study received ethical clearance from the Faculty of Medicine, Alexandria University, Egypt, IRB No: 00012098



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The Climate Crisis as Developmental Context: Reframing Development Across the Lifespan – Commentary for the ISSBD Bulletin Special Section on Climate Change

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Climate change is no longer a distal environmental concern; it is an ongoing, escalating, and global phenomenon shaping human development, with impacts that are cumulative and deeply unequal across regions and communities. It operates as a *meta-context* that permeates all ecological levels—from families and schools to broader socio-political and environmental systems. The papers in this collection demonstrate that development is increasingly occurring under conditions of planetary instability. Across childhood, adolescence, emerging adulthood, and later life, climate change is not merely an external stressor but an embedded force restructuring developmental processes, life trajectories, and systems of meaning.

A critical starting point in considering the human development implications of climate change is the scale and severity of disruption. Climate-related disasters not only cause immense environmental destruction but also many forms of human suffering, ranging from physical insults (deaths, injuries, and illnesses) to scarcity of the basic essentials for life (food, water, and shelter) and mental health impacts.

Forced relocation is amongst the most significant of these impacts. Estimates of the number of people experiencing climate-related displacement within their own countries by 2050 vary from at least 216 million people (World Bank, 2021) to up to 1.2 billion people (Institute for Economics & Peace, 2020). This internal displacement is already significant. Between 2008 and 2016, an average of 21.5 million people were forcibly displaced each year by climate-related events such as floods, storms, wildfires, and droughts, according to the International Displacement Monitoring Centre

(2016) — a figure which increased to 32.6 million in 2022. Besides internal (within-country) displacement, many are forced to leave their countries permanently; for example, the World Meteorological Organization (2024) estimates that each year, at least 50,000 Pacific islanders face the risk of displacement due to rising seas inundating their islands and other adverse effects of climate change.

Displacement entails more than geographic relocation; it represents a rupture in place-based belonging, social networks, and identity continuity. Iorfa and colleagues' study of older adults in Alexandria offers a nuanced account of this disruption through the concept of *solastalgia*—distress arising from detrimental changes in one's local environment (Albrecht et al., 2007). Their findings challenge the assumption that place attachment is uniformly protective. Instead, strong place-based memories may intensify distress when environments degrade, suggesting that developmental resources accumulated across the lifespan can become vulnerabilities under ecological change. This highlights how retrospective processes—memory, attachment, and continuity—are destabilized in climate-altered contexts.

At the same time, climate change profoundly reshapes *future-oriented developmental processes*. Decisions about having children have become problematic for many young adults (Sanson et al., 2018; Sasser, 2024). Papa and colleagues show that climate-related perceptions do not simply reduce intentions toward parenthood but alter the quality of motivation, increasing controlled motivation (driven by internal or external pressures) and ambivalence. Parenthood, as an inherently intergenerational project, becomes a site where global uncertainty is negotiated within the self.

One growing area of climate-related research concerns how people (particularly adolescents) navigate climate distress, which encompasses a range of emotions including anxiety, fear, anger, and hopelessness, and how this relates to taking action on climate change (see, for example, Thomaes, 2026). Qureshi and colleagues contribute to this literature by demonstrating that among 8–13-year-old Latinx children, climate efficacy (the belief that they can make a meaningful difference in addressing climate change) is associated with both increased pro-environmental engagement and heightened anxiety.



The findings of both Papa et al. and Qureshi et al. converge to suggest that prospective processes—future imaginaries, anticipation, and agency—are central to climate-related development. Taken together, the papers indicate that both retrospective (place-based memory) and prospective (future-oriented cognition) processes may amplify climate-related distress as well as climate action, albeit through distinct developmental pathways (Clayton, 2020; Hickman et al., 2021, both cited in Papa et al.).

A developmental lens further clarifies how these processes unfold across the lifespan (Sanson et al., 2022). In childhood and adolescence, key challenges include emotion regulation and the development of agency, as seen in Qureshi et al.'s work. In youth, identity formation unfolds under conditions of disruption, as illustrated by Lodato's shock-sensitive framework. In emerging adulthood, long-term planning and identity commitments—such as parenthood—are renegotiated in light of perceived global risk (Papa et al., this issue). In later life, processes of meaning-making and continuity are threatened by environmental loss (Iorfa et al., this issue). Climate change thus intersects with age-graded developmental tasks, shaping both vulnerabilities and adaptive capacities.

Mental health emerges as a central domain of impact, but one that is complex and multi-determined. Direct exposure to extreme weather events is associated with increased risk for anxiety, depression, and post-traumatic stress, particularly when compounded by repeated shocks (Chique et al., 2021; Intergovernmental Panel on Climate Change (IPCC), 2022). At the same time, indirect pathways, including the anticipatory anxiety caused by simply knowing about climate change, also shape wellbeing. Importantly, Qureshi et al.'s findings challenge deficit-oriented interpretations by showing that anxiety and engagement may co-occur, reflecting an “engaged response” rather than dysfunction. Emerging research suggests that moderate climate concern can motivate adaptive action when paired with perceived efficacy and supportive contexts (Ojala et al., 2021, cited in Qureshi et al., this issue).

Extending this focus on mechanisms, Bowker's conceptual contribution introduces a novel potential mediator: the loss of solitude. As climate change drives displacement and urban overcrowding, opportunities for restorative “alone time” may diminish. Given the role of solitude in emotion regulation (Nguyen et al., 2018), its erosion may contribute to anxiety, depression, and dysregulation. This perspective shifts attention toward less visible, everyday processes through which climate change affects wellbeing. It also suggests that interventions should consider not only social connection—widely recognized as protective—but also the preservation of psychological space for reflection and regulation.

Despite these advances, a notable gap across the papers is the limited attention to interventions. There is an urgent need for multi-level, developmentally informed responses. At the individual level, interventions should integrate emotional regulation with the cultivation of agency, particularly for children and adolescents navigating climate-related distress. At the relational and community levels, schools and community organizations can function as hubs for stability, culturally responsive care, and coordinated recovery. At the structural level, policies must address the root causes of vulnerability, including housing insecurity, environmental injustice, and

unequal access to resources. Emerging directions also include designing environments—such as temporary housing or shelters—that preserve both opportunities for social connection and moments of solitude. Further, unless there is urgent global action to halt greenhouse gas emissions and draw down the excess already in the atmosphere, climate instability and associated environmental damage will become far worse. Hence, interventions to support people of all ages and in all contexts to influence decision-makers through engaging in active citizenship (active participation in communities and society to promote positive change) are vitally important. Developmental scientists can play an integral role in all such efforts.

Developmental science theory must evolve to meet the challenge of the climate crisis. Climate change disrupts assumptions of stable contexts, requiring frameworks that account for chronic, large-scale, and intergenerational stressors. Concepts such as solastalgia, climate efficacy, and shock-sensitive identity development represent important advances, but further integration is needed. A unifying perspective of *climate-embedded development* foregrounds the inseparability of developmental processes from ecological conditions.

Finally, advancing this agenda requires collaboration beyond academia. Partnerships with schools, community organizations, policymakers, and practitioners are essential for translating research into action (Sanson et al., 2026). ISSBD's mission statement on climate change (<https://issbd.org/wp-content/uploads/2026/04/ISSBD-Mission-Statement-on-Climate-Action.pdf>) lays out the ambition to raise awareness of the profound implications of climate change for human development, and hence of the urgency of action to address it. The papers in this special issue/section reflect the diversity of ISSBD's membership and interests across both geography and age, situating the organization well for tackling the human development implications of the global phenomenon of climate change. This special issue/section is a result of the close collaboration between ISSBD and Developmental Scientists for Climate Action (DevSCA.org). Initiatives such as DevSCA provide critical platforms for interdisciplinary dialogue and global collaboration. The question is no longer whether climate change is relevant to developmental science, but whether the field will rise to the challenge of seeking to protect current and future generations through advocating for the mitigation of climate change and working for climate justice for all while also meeting the demands of a climate-altered world. We are very grateful to ISSBD, especially President Tina Malti, for their support, and also to Bulletin Editors Karina Weichold and Deepali Sharma for their support throughout the production of this special section/issue.

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Note from the ISSBD President

Dear ISSBD Members,

I hope you are well and have stayed safe amid the ongoing conflicts and wars that continue to challenge the well-being and fundamental rights of children, families, and all human beings around the world.

In the face of such adversities, the ISSBD continues to embrace its responsibility to foster a caring developmental science and a caring community.

In this letter, I wish to update you on ISSBD developments.

I am delighted to announce that we have identified the third round of the ISSBD 2x2 grantees. Please visit our [website](#) to learn more about the 2026 awardees and their outstanding research projects. I am also pleased to share that the ISSBD Care Everywhere Awardees, supported by the Templeton World Charity Foundation, are making great progress with their research and will present their findings at our upcoming Biennial Meeting. In addition, the webinar series through our new partnership with Child and Family Global Outreach (CF-GO) is now underway, and I encourage you to visit our website to view the recordings and learn more about upcoming [webinars](#).

It is also my pleasure to announce that we have held our elections successfully, and I wish to thank our Secretary-General, Luc Goossens, for his tremendous efforts in organizing them, as well as all candidates for their interest in assuming a leadership position within the ISSBD. The results will be announced during the business meeting at this year's Biennial.

We have much to look forward to at the 2026 Biennial Meeting in Incheon, South Korea. I encourage members to visit the [conference website](#) to learn more about the program. A special thank you to the local and international organizing teams for preparing a stellar environment for the meeting!

This Biennial marks the end of my presidency, and I wish to thank you wholeheartedly for the trust you have bestowed on me, as well as for your unwavering commitment, remarkable contributions, and collaborative spirit. Words cannot possibly express what this role has meant to me. Let me simply say that it has been one of the most meaningful journeys in my professional career, and I am proud to say that together we have accomplished what I set out to achieve at the very beginning: to unite us in a science that cares. Today, the society has grown, forged new connections, strengthened existing networks, gained continued support, and expanded its research-practice-policy partnerships. For all of this, I am truly grateful and deeply indebted to all Executive Committee Members, all Committee Members, our Staff, and all scholars who contribute to our publications as editors, reviewers, and authors for their exceptional work. My deep gratitude also extends to all our members for your engagement, commitment, and wonderful research.

It is my hope to see many of you soon in South Korea, and I wish you all well.

Warmest wishes,



Tina Malti
ISSBD President

Minutes of the ISSBD Executive Committee (EC) Meeting in Korea

Monday, June 2, 2025, 2:00 PM — 5:00 PM and Tuesday, June 3, 2025, 10:00 AM — 2:00 PM - Conference Room, Orakai Songdo Hotel, Incheon, Republic of Korea

Luc Goossens
ISSBD Secretary General

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Present at the Meeting:

Tina Malti	President
Frosso Motti	President-Elect
Luc Goossens	Secretary General
Melanie Zimmer-Gembeck	Treasurer
Silvia Koller	EC member
Manuela Verissimo	EC member
Cinzia Di Dio	EC member
Pamela Wadende	EC member
Rita Zukauskienė	EC member
Liqi Zhu	EC member (online)
René Veenstra	EC member (online)
Marvin Kapenda	ECS representative
Tripti Kathuria	ECS representative

Opening by the President Tina Malti

Tina Malti opens the meeting and welcomes the members of the Executive Committee who are present at the in-person meeting on-site in Korea and the members who attend the meeting online.

Approval of the Minutes of the EC Meeting (Online) of February 17, 2025

The minutes are approved unanimously.

Report of the President Tina Malti

The President summarizes the major achievements in terms of events, collaborations, and internal organization of the Society since the most recent in-person EC meeting in June

2024 at the Biennial Meeting in Lisbon, Portugal. These achievements, which are all in line with her vision to unite developmentalists in a science that cares, are described in full in the report that she submitted to the EC prior to the meeting. The President thanks everyone involved, including the EC members, staff members Karen Castillo and Patrick Njoroge, and the members of the Global Policy Committee, and expresses her gratitude for all the support she received.

The ISSBD has created a new partnership with *Child and Family Global Outreach* (CF-GO) (formerly known as the Child and Family Blog). Together, we will hold seminars on disseminating developmental science, and CF-GO will work with the Society's journal, the *International Journal of Behavioral Development* (IJBD), to publish blog posts based on their published articles.

Three new grants, rather than the customary two, were awarded for the second round of the ISSBD 2 x 2 Grants for Early Career Scholars because there were many strong applications. Two ISSBD Care Everywhere Grants for research on character strengths and their development across the lifespan were also awarded, with funding provided by the Templeton World Charity Foundation. The ISSBD – Jacobs Foundation grant is still in the planning stage. A proposal for this grant program will be presented to the EC in the near future. The EC thanks President Tina Malti for her inspiring vision and for all her tireless efforts to strengthen the inner workings of the Society, its global outreach, and its links with external funding bodies.

Secretary General's Report – Nominations 2025 Elections

The Executive Committee members discuss the nominations for the vacancies in the EC as summarized in a brief report submitted prior to the meeting by Secretary General Luc Goossens. Based on criteria such as the balance across geographical regions and types of research expertise, the EC decides on the final slate of candidates: two each for the positions of Secretary General, Treasurer, and Membership Secretary, and eight for the three available positions as regular EC members. The Secretary General will contact these candidates and will present a brief state-of-affairs of the



ongoing election process at the next EC (online) meeting. The President thanks the Secretary General, on behalf of the entire EC, for his work related to the elections.

As new people will be elected for the three key officer positions of Secretary General, Treasurer, and Membership Secretary, the EC recommends that the current holders of these offices will act as advisors for the newly elected officers during the initial phase of their 6-year term. The EC further thinks that it is advisable that the IJBD Editor and the organizer of the next biennial meeting should attend the EC meetings. Hyoun Kim, organizer and host of the 2026 Biennial Meeting in Korea, will be invited to attend EC meetings in the year preceding this event.

Treasurer's Report

Treasurer Melanie Zimmer-Gembeck briefly summarizes the main points of the report on the financial situation of the Society for the fiscal year 2024 that she submitted to the EC prior to the meeting. ISSBD's finances are in good shape, including solid interest and investment returns and continued income from Sage for our flagship journal, IJBD. We also saw some increase in membership in 2024, probably due to the popular conference in Lisbon. On December 31, 2024, the financial assets of the Society (i.e., the two investment accounts, the checking and savings accounts, and the Certificates of Deposit) totaled \$5,104,092.27.

The Treasurer emphasizes that the Society has to decide how to spend some of its substantial financial resources on new initiatives. These new projects could include, for instance, organizing workshops or training for incoming officers or hiring staff for our social media to market ISSBD in novel ways. At a more general level, we need to find ways to recruit and retain additional members – as our membership typically drops in the off-years when we do not have our conferences – and to offer them sizeable membership benefits. There is also a need to find new people for the Finance Committee. President Tina Malti thanks the Treasurer, on behalf of the entire EC, for all her hard work for the Society.

Membership Secretary's Report

The EC briefly discusses a report submitted by the Membership Secretary, Julie Bowker, who could not attend the EC meeting due to a family emergency. Membership has increased significantly, likely driven by the 2024 Biennial Meeting, and surged to 930 members across 73 countries at the end of 2024. Current membership is somewhat lower ($N = 354$), as expected in an off-year (i.e., when we do not have our conference). New regional coordinators have been recruited for several countries in South America and are being sought for other countries (e.g., the UK, Mexico, and Poland). President Tina Malti thanks the Membership Secretary for all her hard work for the Society.

Publications and Communication

Report on IJBD (including Report of Publisher SAGE)

Jennifer Lansford, IJBD Editor, joins the EC meeting online. She summarizes the main points of her report on our flagship

journal, the *International Journal of Behavioral Development* (IJBD), and also briefly refers to the report of our publisher, SAGE, submitted by Livia Melandri. The submission numbers are good, the time to first decision is O.K., and the acceptance rate (at 25%) is also good. Several special sections are currently in progress, and IJBD has recently started a partnership with the Child and Family Blog – Global Outreach (CF-GO) to bring some of our journal's content to a lay audience. President Tina Malti states once again that we are very grateful to SAGE, and she thanks IJBD Editor Jennifer Lansford and her editorial team for all their hard work for the Society.

Report on the ISSBD Bulletin

President Tina Malti summarizes the report submitted by Karina Weichold, Editor of the ISSBD Bulletin. Two special sections are planned for the Bulletin, one on poverty and the other on interventions related to poverty. A special issue on "Recent advances in developmental psychopathology in IJBD" is also in the making. An obituary for our esteemed colleague Katariina Salmela-Aro, who served as ISSBD Secretary General some time ago and passed away recently, will also be published in the Bulletin. President Tina Malti thanks Karina Weichold for all her hard work for the Society.

Report of the Publications Committee

The EC discusses the report submitted by Noah Webster and Denis Gerstorff, co-chairs of the Publications Committee. This report describes the current situation and challenges for all of the Society's publications, that is, IJBD, the ISSBD Bulletin, and the ISSBD e-Newsletter. The co-chairs propose to offer Stephen Asatsa the opportunity to transition from serving as interim Editor of the e-Newsletter to become the new e-Newsletter Editor. The EC takes a formal vote on this proposal, and it is approved unanimously. As both co-chairs will reach the end of their term next year, a new chair or co-chairs will have to be appointed. The EC thanks both co-chairs for all their hard work during the last few years.

Report of the Communications Committee

President Tina Malti summarizes the report submitted by Dawn England, Chair of the Communications Committee. Several types of activities are being planned by the committee, and the resources and results of these efforts will be disseminated through all of the ISSBD channels available (e.g., the Global Insights hub and the Child and Family Blog – Global Outreach (CF-GO)). Three virtual workshops will aim to engage underrepresented groups in terms of geographical origin (e.g., the Middle East and Asia) or professional background (e.g., practitioners and local community workers). A preconference workshop at the 2026 Biennial Meeting in Incheon will also be devoted to this theme. It is clear, however, that more concerted efforts are needed to create more synergies and to further increase the overall quality of communication both within our Society and with the world at large.

The EC members engage in an extensive and lively discussion on ways in which the overall communication strategy of our Society can be developed in full so that our broader goals related to our unique objective to create a

developmental science that cares can be translated into more tangible action points. This discussion leads to the proposal to organize a Strategic Working Day (or brainstorm session) for both the current and the newly elected members (and the permanent staff members Karen Castillo and Patrick Njoroge; for a total of 20 to 25 people) on the Saturday that precedes the first EC meeting (on Sunday) at the 2026 Biennial Meeting in Incheon (South Korea; i.e., Saturday, June 20, 2026). The EC takes a formal vote on this proposal, and it is accepted unanimously.

ISSBD Biennial Meetings

Report on the 2026 Biennial Meeting (Incheon, South Korea)

Hyouon Kim, organizer and host of the 2026 Biennial Meeting in Incheon, joins the in-person EC meeting. She presents some slides on the preparations for the 2026 Biennial Meeting. A more extensive overview will be presented when the ISSBD Conference Committee meets with the Local Organizing Committee (LOC) and the Professional Conference Organizer (PCO) on Wednesday, June 4, 2025 (i.e., the day after the EC meeting). The conference rates will be comparable to the ones that applied to the Biennial Meeting in Lisbon in 2024. The experienced conference organizers within the EC offer a flurry of suggestions regarding the organization of both the scientific and the social programs. President Tina Malti thanks conference organizer Hyouon Kim for her preparations for the 2026 Biennial Meeting, which seems to proceed according to plan.

Planning for the 2028 Biennial Meeting

The EC discusses potential venues for the 2028 Biennial Meeting, preferably outside of Europe (where both the 2024 and 2026 conferences were held) or Asia (where the 2026 conference will be held). Suggestions offered include Canada (in North America), Chile (in South America), and Kenya (in Africa).

Committees

Developing Country Fellowships (DFC) Committee

The EC discusses an extensive report submitted by Peter Smith and Muthanna Samara, co-chairs of the Developing Country Fellowships (DFC) Committee. Due to the exceptionally high number of applications received for the current round of the program and the unusually high quality of many of these applications, the co-chairs propose that five applicants be funded rather than the usual number of four. The EC takes a formal vote on this proposal, and it is approved unanimously. The EC recommends that a list of the DFC Fellows is transmitted to the host of the 2026 Biennial Meeting and extends its gratitude to the co-chairs who did a lot of work in evaluating the numerous applications received.

Regional Workshops Committee

The EC briefly discusses a report submitted by Astrid Poorthuis, Chair of the Regional Workshops Committee. More extensive discussions are devoted to a revised version of a proposal for a regional workshop in China and two proposals for workshops in Ghana and Cuba. Some organizational issues related to the workshop in South Africa are also discussed briefly.

The EC appreciates the revisions and updates made to the China proposal by EC member Liqi Zhu and particularly appreciates the efforts to make it more diverse. The EC takes a formal vote on this issue and approves the revised proposal unanimously. The EC also takes a formal vote on the Ghana workshop and approves this proposal unanimously. Due to limited resources available for the Regional Workshops Program, the EC decides, with one abstention, not to approve the Cuba proposal. President Tina Malti thanks Astrid Poorthuis, Chair of the Regional Workshops Committee, for all her hard work for the Society.

Early Career Scholars (ECS) Committee

The EC discusses the report submitted by Federico Manzi, Chair of the Early Career Scholars (ECS) Committee. Cinzia Di Dio, who has acted as chair of this committee for a long time, summarizes the main points of the document. The main achievements of the committee in recent times are the creation of a webinar program on topics directly relevant for young scholars and the launch of an advisership program for these scholars. Cinzia briefly demonstrates the use of the advisership program pages on the ISSBD website. Staff member Karen Castillo will pair young scholars and their advisers. This pilot project will be evaluated at the next EC meeting. President Tina Malti thanks Cinzia and the entire ECS Committee for their relentless efforts to support the young researchers within our Society.

Early Career Scholars (ECS) Travel Grants Committee

The EC discusses a brief report submitted by Julie Bowker, Chair of the Early Career Scholars (ECS) Travel Grants Committee, who could not attend the meeting due to personal reasons. The committee is most active between December and February, prior to the Biennial Meeting, as it handles applications for travel grants by young researchers within our Society who want to attend that meeting. The electronic application form for the travel grants is currently being revised, and a new member will have to be recruited for the committee. President Tina Malti explicitly thanks Julie Bowker, as the entire EC is well aware that it is a huge job to handle the numerous applications for ECS travel grants.

Global Policy Committee

The EC discusses the report of this new committee, submitted by its Chair, Ingrid Schoon. The aim of the committee is to utilize scientific evidence to inform policies related to human development and well-being globally. The committee currently



works on two special sections in the ISSBD Bulletin that are related to poverty and has created informal links with UNICEF. It will also create an ISSBD knowledge translation hub, it will publish global policy briefs, and will use our regional workshops to link up with local organizations.

Collaborations and Strategic Alliances

ISSBD Mission Statement on Climate Action – DevSCA

The EC briefly discusses the ISSBD Mission Statement on Climate Action drafted by President Tina Malti. This statement comprises a list of actions that will be undertaken in collaboration with Developmental Scientists for Climate Action (DevSCA). The EC decides that the statement can be put on the Society's website. Some additional discussion is needed on the organization of online meetings. Some EC members state that we need to be more creative when formulating suggestions regarding climate actions.

Collaboration with Jan Boom

Jan Boom has devised a membership system for the ISSBD website that functions well and has proposed to expand this system into a conference submission/registration system. The Conference Committee has discussed this proposal and has advised against this extension, as there are still unresolved questions about its actual functioning, and it is unclear how much work it would entail. Two proposals are put forward to the effect that (a) we do not support the expansion of the current membership system into a conference submission/registration system and (b) we pay Jan Boom an annual stipend of US\$2,000 for his work on the expanded system. The EC formally votes separately on each of these proposals, and they are both approved

unanimously. President Tina Malti will take this up further with Jan Boom.

ISSBD Formal link with the Netherlands

Utrecht University (UU) in the Netherlands has informed ISSBD that our Society was registered with the Dutch Chamber of Commerce from 1987 to 1991. As a result, the Society has a visiting address at the UU campus in Utrecht. This arrangement reflects the early history of ISSBD, as the Society was founded in the Netherlands back in 1969. Utrecht University would like to know whether ISSBD wants to keep this formal link with the Netherlands or not. The EC thinks that the country where the Society is formally registered can have potential financial implications and that there are some potential benefits associated with our being registered in the Netherlands. Several EC members also emphasize that we need to seek legal advice on this issue. A proposal is put forward that we keep the link with the Netherlands and seek legal advice. The EC formally votes on this proposal, which is approved unanimously.

Next Meeting, Varia, and Adjournment

The next EC meeting will be held on Monday, October 13, 2025, from 8:00 AM to 10:00 AM Eastern Standard Time (EST) (i.e., Toronto, Canada time), which translates into 2:00 PM to 4:00 PM Central European Time (CET) (i.e., Brussels, Belgium time).

The preparations for the LGBTQ workshop, which will be held in the Netherlands, are well underway. Announcements will be distributed at SRCO. In the future, we will need a written agreement for similar joint events.

President Tina Malti thanks all EC members for their attendance at the two half-days of the meeting, either in person or online, and closes the meeting.

Minutes of the ISSBD Executive Committee (EC) Meeting

**Monday, October 13, 2025, 8:00 AM - 10:00 AM EST
(Eastern Standard Time; i.e., Toronto time) (online)**

Luc Goossens
ISSBD Secretary General
Email: luc.goossens@kuleuven.be

Corresponding author:
Luc Goossens, ISSBD Secretary General

Present at the Meeting:

Tina Malti	President
Frosso Motti	President-Elect
Luc Goossens	Secretary General
Melanie Zimmer-Gembeck	Treasurer
Julie Bowker	Membership Secretary
Liqi Zhu	EC member
Marc Bornstein	EC member
Manuela Verissimo	EC member
Cinzia di Dio	EC member
René Veenstra	EC member
Pamela Wadende	EC member
Hyoun Kim	2026 Conference organizer and EC member
Marvin Kapenda	ECS representative
Tripti Kathuria	ECS representative

Welcome and Approval of the Minutes of the In-Person EC meetings of June 2-3, 2025, in Incheon (South Korea)

President Tina Malti welcomes everyone to the meeting. The minutes of the in-person meetings of the Executive Committee (EC) on June 2 and June 3, 2025, in Incheon (South Korea) are approved unanimously.

Presidential Report and Update

President Tina Malti gives an update on the recent activities of the Society. The recently held Regional Workshop in South Africa was a great success. The Regional Workshop scheduled to take place in Lebanon will be held in Egypt in February 2026. This seems a good compromise in terms of safety and ease of travel. The Regional Workshop in China (Jinan) will

take place in October 2025. A total of seven keynote speakers and participants from 17 countries (including China and other countries from Asia and Africa) will attend the event.

The President has initial contacts with colleagues who are willing to organize the ISSBD 2028 Biennial Meeting in Quebec City, Canada.

The different programs that offer grants and research opportunities (including the Care Everywhere Grants supported by the Templeton World Charity Foundation and the Jacobs grants) are proceeding smoothly. A total of 21 applications were submitted for the ISSBD 2 X 2 Grant for Early Career Scholars, and these applications are being reviewed. A great webinar series is being launched through the Child and Family Blog – Global Outreach channel, and additional webinars are being planned in collaboration with Anne Petersen.

A small conference will be held in Mexico with the LEARN scholars. An update on this event will follow later on. The Regional Workshop in Ghana will be held in late 2026 or early 2027. An update on this workshop will also follow later on.

ISSBD 2025 Elections

The EC briefly discusses a document prepared by Secretary General Luc Goossens that describes a slightly revised slate of candidates for the elections. The revisions are based on preferences expressed by some of the candidates in their contacts with the Secretary. Dr. Hyoun Kim, the 2026 conference organizer who was appointed as EC member by the President earlier on, still figured erroneously on the list of candidates, and her name was removed from that list. The revised list now counts two candidates for the position of Secretary General, just a single candidate for the position of Treasurer, two candidates for the position of Membership Secretary, and eight candidates for three positions of regular EC member. The EC formally approves this final slate of candidates for the ISSBD 2025 elections. These elections will be held through the Society's website from November 15, 2025 to February 15, 2026.

ISSBD 2026 Biennial Meetings in Incheon (South Korea)

Conference organizer Hyoun Kim gives an overview of the preparations for the 2026 Biennial Meeting in South Korea. The preparatory work seems to be proceeding according to plan. The abstract submission portal is already working, and



the registration system will be opened on October 20, 2025. The reviewers for the abstracts and five keynote speakers have been confirmed, and substantial funding and sponsorship have been secured.

The EC discusses promotional activities around the Biennial Meeting and the announcements to be made. A lively discussion ensues about affordable housing for students (including room sharing and roommate matching schemes).

President Tina Malti thanks conference organizer Hyoun Kim for all her hard work, for being so well-prepared, and for being so successful in attracting funds for the meeting. The entire EC is excited already about the Incheon meeting.

ISSBD Archive in the Netherlands

The EC briefly discusses a document prepared by Secretary General Luc Goossens about the ISSBD paper archive 1969-2011 at the North-Holland Archive (Haarlem, the Netherlands). These materials were deposited in several batches starting in 1995 when Wolfgang Schneider (Germany) acted as President of ISSBD and Marcel van Aken (The Netherlands) served as IJBD editor. Mieke Schaap, collaborator at the North-Holland Archive (2011), has informed the Secretary General in September 2025 that the inventory of the ISSBD archive 1969-2011 has finally been completed. This inventory (1 Mb) contains brief descriptions of 1814 items (i.e., paper documents), for a total of 171 pages neatly organized into clear categories (e.g., History and Scope of the Society, Executive Committee, and Awards). Mieke Schaap has two questions for the EC: (a) whether duplicates can be destroyed, and (b) whether the ISSBD archive can be consulted by interested researchers upon a simple request to the North-Holland Archive. (The current contract stipulates that the ISSBD archive can only be consulted with the permission of ISSBD).

The EC is surprised to hear about this archive project. However, there is general agreement that it is important to have a record of our Society's history and that other developmental societies do not have such a paper archive. (SRCD had an oral history project at one point in time). The EC has a lively discussion about the general strategy to pursue regarding our archiving efforts. The general agreement is (a) to add other paper materials available (e.g., from the personal archives of past presidents) and (b) to link up with the electronic materials related to our more recent past that can be stored in the cloud to arrive at a complete record of our Society's history.

Regarding the first question (i.e., the duplicates), the EC takes a formal vote and decides unanimously to allow the North-Holland Archive to destroy all duplicates. Regarding the second question (i.e., access to the ISSBD archive upon simple request to the Archive, not to ISSBD), the EC has a number of finance-related questions of their own. The EC

wants to know (a) whether ISSBD pays a stipend to the North-Holland Archive and (b) how much does the Archive charge interested researchers who want to consult the ISSBD archives. Secretary General Luc Goossens will take up these questions with the Archive and will get back to the EC at a later date.

Report ISSBD Membership Argentina Event

The EC briefly discusses a report prepared by Carolina Greco, ISSBD national coordinator for Argentina, about an ISSBD membership event organized at a local conference in Cordoba (Argentina). This event was a great success, and the EC thanks Carolina Greco for this initiative. An additional initiative could be to connect all regional representatives in South America.

Child and Family Blog – Global Outreach and Varia

Julie Bowker, Vice-President of the Child and Family Blog – Global Outreach, announces the launch of a series of webinars aimed at the dissemination of scientific findings on the Child and Family Blog – Global Outreach website. One of these webinars deals with search machine optimization.

Some members have enquired into the possibility of an institutional membership. (This means that their department pays their membership fees, and it represents an extant arrangement in some African countries for their local scientific societies). If we adopt this plan, we would have to find a way to transfer the money to the Society, and we should try it out on a trial basis, that is, with a trial institution. The EC takes a formal vote on this issue and decides unanimously to start with the process of the Institutional Membership scheme with a trial institution.

The EC discusses different ways to celebrate our own people in appropriate ways. Commemorative events will be organized at the 2026 Biennial Meetings for Katariina Salmela-Aro and Peter Smith. A special issue about Ken Rubin just came out in our flagship journal, the *International Journal of Behavioral Development* (IJBD). We should also explore the possibility to offer Staff Awards to our managers, Karen Castillo and Patrick Njoroge, at the Business Meeting in Incheon.

Next Meeting and Adjournment

The next EC meeting will be held online on March 2, 2026, from 8:00 AM to 10:00 AM Eastern Standard Time (EST), that is, Toronto time. President Tina Malti thanks all EC members for a great meeting and closes the meeting.

