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The Influence of Peer Pressure and Climate Change Anxiety on Connectedness to Nature in the Adiwiyata School Program: A Systematic Literature Review

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Abstract

Climate change has increasingly influenced adolescents' psychological well-being and environmental attitudes, highlighting the importance of understanding factors that promote stronger relationships with nature. This study aims to systematically review the influence of peer pressure and climate change anxiety on connectedness to nature within the context of the Adiwiyata School Program. A Systematic Literature Review (SLR) was conducted following the PRISMA 2020 guidelines. Literature published between January 2015 and December 2025 was retrieved from Scopus-indexed databases using predefined inclusion and exclusion criteria. The review identified 1,279 records, of which 32 studies met the eligibility requirements and were included in the final synthesis. The findings indicate that positive peer pressure encourages environmental engagement and strengthens connectedness to nature, while climate change anxiety demonstrates both motivating and inhibiting effects depending on its intensity. Connectedness to nature emerged as a key psychological mechanism linking social influence and environmental concern with pro-environmental behavior. The review highlights the importance of integrating peer-supported environmental activities, nature-based learning, and constructive climate education within the Adiwiyata School Program to foster environmentally responsible and resilient students.

Keywords: Peer Pressure, Climate Change Anxiety, Connectedness To Nature, Environmental Education, Adiwiyata School Program, Systematic Literature Review.

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INTRODUCTION

Climate change has become one of the most significant global challenges of the twenty-first century, affecting not only environmental systems but also human psychological well-being and social behavior. Increasing exposure to climate-related disasters, biodiversity loss, and environmental degradation has heightened public concern regarding the future of the planet, particularly among younger generations. Adolescents are considered one of the most vulnerable groups because they are expected to experience the long-term consequences of climate change throughout their lives. Consequently, climate change has emerged as both an environmental and psychosocial issue that influences young people's perceptions, emotions, and behaviors toward the natural environment (Léger-Goodes et al., 2022; Ojala, 2024; Qin et al., 2024; Romano et al., 2024; Wullenkord et al., 2024).

Recent studies have increasingly focused on the concept of climate change anxiety, also known as eco-anxiety, which refers to feelings of fear, worry, uncertainty, and emotional distress associated with environmental degradation and climate-related threats. Although climate anxiety is often viewed as a negative emotional response, emerging evidence suggests that it may also motivate individuals to engage in pro-environmental behavior when accompanied by a sense of efficacy and environmental responsibility. However, excessive levels of anxiety may lead to helplessness, disengagement, and reduced psychological well-being. These findings indicate that climate anxiety plays a complex role in shaping environmental attitudes and behaviors among adolescents and warrants further investigation within educational contexts (Léger-Goodes et al., 2022; Ojala, 2024; Qin et al., 2024; Romano et al., 2024; Wullenkord et al., 2024).

Alongside emotional factors, social influences also play a crucial role in determining environmental behavior. During adolescence, peer groups become increasingly important sources of socialization, identity formation, and behavioral guidance. Peer pressure can influence how young people perceive environmental issues, participate in sustainability initiatives, and adopt environmentally responsible lifestyles. Positive peer norms have been found to encourage environmental activism, sustainable consumption, and participation in environmental programs, whereas negative peer influences may hinder environmental engagement. The growing influence of social media has further amplified the role of peer interactions in shaping environmental attitudes and behaviors among adolescents (Gonzalez et al., 2023; Romano et al., 2024; Cruz et al., 2019; Palmberg et al., 2021; Madera et al., 2024).

An important construct linking environmental emotions and social influences is connectedness to nature. Connectedness to nature refers to an individual's emotional and

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cognitive sense of belonging to the natural environment and has been widely recognized as a key predictor of environmental concern and pro-environmental behavior. Individuals with stronger connectedness to nature are more likely to demonstrate ecological responsibility, environmental stewardship, and sustainable decision-making. Previous studies have shown that environmental education, outdoor learning experiences, and direct interactions with natural environments can significantly enhance students' connectedness to nature and contribute to long-term environmental engagement (Otto & Pensini, 2017; Palmberg et al., 2021; Keller et al., 2024; Schmäing & Grotjohann, 2024; Madera et al., 2024).

Despite the growing body of literature on climate anxiety, peer influence, and connectedness to nature, several research gaps remain. First, most studies have examined these variables independently rather than investigating their interrelationships within a unified conceptual framework. Second, research exploring how peer pressure and climate change anxiety jointly influence connectedness to nature among students remains limited. Third, existing studies have primarily been conducted in Western countries, resulting in limited evidence from developing countries where environmental education programs may operate within different cultural and institutional contexts. These gaps highlight the need for a more comprehensive understanding of the social and psychological factors that shape students' relationships with nature.

In Indonesia, the Adiwiyata School Program has become one of the most prominent environmental education initiatives aimed at developing environmentally responsible school communities. The program promotes environmental awareness through curriculum integration, participatory environmental activities, and sustainable school management practices. Because the Adiwiyata framework emphasizes student participation, collaborative environmental action, and direct engagement with nature, it provides an appropriate context for examining how peer pressure and climate change anxiety may influence students' connectedness to nature. Understanding these relationships is essential for strengthening the effectiveness of environmental education programs and supporting the development of environmentally responsible future generations.

Given the increasing importance of environmental sustainability and the growing psychological impacts of climate change on young people, a comprehensive synthesis of existing evidence is needed. Therefore, this study aims to systematically review the literature on the influence of peer pressure and climate change anxiety on connectedness to nature within the context of the Adiwiyata School Program. By synthesizing findings from studies published between

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2015 and 2025, this review seeks to identify key patterns, theoretical perspectives, and empirical evidence regarding the relationships among these variables. The findings are expected to contribute to the environmental education literature and provide practical implications for educators, policymakers, and school administrators seeking to promote environmental responsibility and sustainability among students.

LITERATURE REVIEW

2.1 Connectedness to Nature

Connectedness to nature refers to an individual's emotional, cognitive, and experiential sense of belonging to the natural environment. The concept has become a central construct in environmental psychology because it explains why some individuals are more likely to engage in pro-environmental behaviors than others. Scholars argue that people who perceive themselves as part of nature tend to demonstrate stronger ecological responsibility, environmental concern, and sustainability-oriented behaviors. In educational settings, connectedness to nature has been associated with higher environmental awareness, greater ecological citizenship, and enhanced psychological well-being among students and adolescents. Furthermore, direct experiences with natural environments, such as outdoor learning, environmental field trips, and nature-based educational programs, have been shown to strengthen students' connection with nature and foster long-term environmental stewardship (Otto & Pensini, 2017; Palmberg et al., 2021; Keller et al., 2024; Schmäing & Grotjohann, 2024; Madera et al., 2024).

2.2 Peer Pressure and Environmental Behavior

Peer pressure refers to the influence exerted by peers that encourages individuals to adopt particular attitudes, values, or behaviors. During adolescence, peer influence becomes especially important because young people seek social acceptance and group belonging. Previous studies have demonstrated that peer groups significantly shape environmental attitudes, sustainability-related behaviors, and environmental engagement. Positive peer norms can encourage participation in environmental campaigns, conservation activities, and sustainable lifestyle practices. Moreover, the increasing use of social media has amplified peer influence by facilitating the rapid dissemination of environmental information and collective environmental action. Adolescents who are exposed to environmentally conscious peers are more likely to adopt pro-environmental values and participate in environmental initiatives (Gonzalez et al., 2023; Romano et al., 2024; Cruz et al., 2019; Madera et al., 2024; Palmberg et al., 2021).

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2.3 Climate Change Anxiety

Climate change anxiety, often referred to as eco-anxiety, is characterized by feelings of fear, worry, uncertainty, and emotional distress associated with climate change and environmental degradation. Recent literature has identified climate anxiety as an increasingly prevalent phenomenon among adolescents due to their heightened awareness of environmental crises and concern for future environmental conditions. Researchers suggest that climate anxiety can function as an adaptive emotional response that motivates environmental action when experienced at moderate levels. However, excessive anxiety may contribute to psychological distress, feelings of helplessness, and disengagement from environmental issues. Studies consistently report that climate anxiety is associated with environmental awareness, environmental concern, and pro-environmental behavior, although the strength and direction of these relationships vary depending on individual and contextual factors (Léger-Goodes et al., 2022; Ojala, 2024; Qin et al., 2024; Romano et al., 2024; Wullenkord et al., 2024).

2.4 The Relationship Between Peer Pressure and Connectedness to Nature

The relationship between peer pressure and connectedness to nature can be understood through social learning and social norm perspectives. Adolescents often model behaviors and attitudes that are accepted within their social groups. When environmental protection and sustainability are valued by peers, students are more likely to engage in environmental activities and develop stronger emotional attachments to natural environments. Peer-supported environmental experiences can reinforce environmental identity and contribute to a greater sense of belonging to nature. Previous studies have shown that social norms, environmental empathy, school adjustment, and peer interactions positively influence environmental attitudes and connectedness to nature among adolescents (Cruz et al., 2019; Gonzalez et al., 2023; Romano et al., 2024; Palmberg et al., 2021; Madera et al., 2024).

2.5 The Relationship Between Climate Change Anxiety and Connectedness to Nature

Recent research suggests that climate change anxiety and connectedness to nature are closely related constructs. Individuals who feel strongly connected to nature are often more aware of environmental degradation and therefore may experience greater concern regarding climate change. At the same time, connectedness to nature can function as a psychological resource that promotes resilience and constructive environmental engagement. Rather than leading to avoidance, a strong connection with nature may help individuals transform climate-related

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concerns into meaningful environmental action. Studies have reported that connectedness to nature is positively associated with environmental concern, environmental efficacy, psychological resilience, and sustainable behavior, making it an important factor in understanding how adolescents respond to climate change challenges (Wullenkord et al., 2024; Léger-Goodes et al., 2022; Ojala, 2024; Keller et al., 2024; Madera et al., 2024).

2.6 The Adiwiyata School Program and Environmental Education

The Adiwiyata School Program represents Indonesia's flagship environmental education initiative aimed at fostering environmentally responsible school communities. The program emphasizes environmental policy integration, environmental curriculum development, participatory environmental activities, and sustainable management of school facilities. Through these components, students are provided with opportunities to develop environmental knowledge, environmental awareness, and direct experiences with nature. Previous studies on environmental education have demonstrated that nature-based learning experiences significantly improve connectedness to nature, environmental responsibility, and pro-environmental behavior. Furthermore, collaborative environmental activities implemented within schools provide opportunities for positive peer influence while simultaneously enhancing environmental awareness and emotional engagement with environmental issues (Otto & Pensini, 2017; Palmberg et al., 2021; Keller et al., 2024; Schmäing & Grotjohann, 2024; Madera et al., 2024).

2.7 Conceptual Framework

Based on the reviewed literature, peer pressure and climate change anxiety emerge as two important psychosocial factors that may influence students' connectedness to nature. Positive peer influence can strengthen environmental norms and encourage participation in environmental activities, whereas climate change anxiety can increase environmental awareness and concern regarding ecological issues. Connectedness to nature serves as a central psychological mechanism that links these social and emotional factors with environmental attitudes and behaviors. Within the context of the Adiwiyata School Program, environmental education provides a supportive environment through which peer interactions, climate-related awareness, and direct experiences with nature can collectively contribute to the development of environmentally responsible students. This conceptual perspective is supported by evidence from environmental psychology, environmental education, and adolescent development literature

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(Otto & Pensini, 2017; Léger-Goodes et al., 2022; Madera et al., 2024; Qin et al., 2024; Wullenkord et al., 2024).

RESEARCH GAP

This study employed a Systematic Literature Review (SLR) approach based on the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA 2020) guidelines to ensure that the processes of identification, selection, evaluation, and synthesis of the literature were conducted systematically, transparently, and reproducibly. The SLR approach was selected because it enables a comprehensive synthesis of scientific evidence regarding the relationships among *peer pressure*, *climate change anxiety*, and *connectedness to nature* within the context of environmental education, particularly in relation to the implementation of the Adiwiyata School Program. The application of PRISMA 2020 provides a rigorous framework for documenting each stage of the review process, thereby enhancing the validity and credibility of the findings.

The literature search was conducted across several internationally recognized databases indexed in Scopus, including Scopus, ScienceDirect, SpringerLink, Taylor & Francis Online, Sage Journals, Wiley Online Library, Frontiers, and MDPI. The publication period was limited to January 2015 through December 2025 to capture contemporary developments in research related to climate change anxiety, peer influence, connectedness to nature, and environmental education. This time restriction was intended to ensure that the review reflected current theoretical and empirical advancements in environmental psychology and sustainability education.

The search strategy was developed using combinations of keywords derived from the main variables of the study. The keywords included *peer pressure*, *peer influence*, *social norms*, *climate anxiety*, *eco-anxiety*, *climate change anxiety*, *connectedness to nature*, *nature connectedness*, *connection to nature*, *environmental education*, *school*, *student*, *adolescent*, and *Adiwiyata*. These terms were combined using Boolean operators (AND and OR) to maximize search coverage while maintaining the relevance of retrieved studies.

The inclusion criteria were established to ensure that only studies directly relevant to the research objectives were included in the final synthesis. Eligible studies were peer-reviewed journal articles indexed in Scopus, published in English, released between 2015 and 2025, available in full-text format, and addressing at least one of the three primary variables, namely *peer pressure*, *climate change anxiety*, or *connectedness to nature*. Particular emphasis was placed on studies involving elementary school students, secondary school students, adolescents, or environmental education contexts, as these populations and settings closely align with the

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characteristics of the Adiwiyata School Program.

Conversely, studies were excluded if they consisted of conference proceedings, editorials, books, book chapters, reports, theses, dissertations, or other non-peer-reviewed publications. Articles without verifiable DOI information, unavailable full texts, studies unrelated to environmental education, or studies that did not address the relationships among the variables under review were also excluded. Duplicate records identified across multiple databases were removed during the initial screening stage.

The methodological quality of all eligible studies was assessed using the Mixed Methods Appraisal Tool (MMAT) 2018. This instrument was selected because it provides a consistent framework for evaluating qualitative, quantitative, and mixed-methods studies. Only studies demonstrating moderate to high methodological quality were retained for the final synthesis to ensure the reliability and robustness of the review findings.

PRISMA 2020 Procedures

The first stage of the PRISMA 2020 process was Identification. During this stage, systematic searches were conducted across all selected databases using the predefined search strategy. The initial search yielded 1,279 records from various sources. This number was considered reasonable given the rapid growth of research on climate anxiety, peer influence, and connectedness to nature over the past decade. After all records were exported to reference management software, 176 duplicate articles were identified and removed before proceeding to the next stage.

Table 1. Literature Identification Results

Database Source	Number of Records
Scopus	482
ScienceDirect	279
SpringerLink	168
Taylor & Francis Online	103
Sage Journals	86
Frontiers	54
Wiley Online Library	43
MDPI	32
Manual reference searching	18
Forward citation searching	14
Total	1,279

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The second stage was Screening, which involved reviewing article titles and abstracts. After duplicate removal, 1,103 records remained for screening. During this phase, studies focusing exclusively on climate change without psychological variables, purely clinical health topics, environmental conservation without educational relevance, and conceptual papers lacking empirical data were excluded. As a result, 113 articles met the criteria for further assessment in the eligibility stage.

Table 2. Title and Abstract Screening Results

Screening Process	Number
Records after duplicate removal	1,103
Irrelevant to the topic	624
Focused on clinical health issues	131
Focused on climate change without psychological variables	118
Focused on conservation without educational context	76
Conceptual papers without empirical evidence	41
Passed screening	113

The third stage was Eligibility, which involved a comprehensive assessment of full-text articles. Each article was carefully evaluated to determine its relevance to the research objectives, variables of interest, participant characteristics, and methodological quality. Several studies were excluded because they did not measure the primary variables, did not involve student or adolescent populations, lacked accessible full-text versions, did not provide verifiable DOI information, or demonstrated low methodological quality based on the MMAT assessment. Following this evaluation process, 32 studies satisfied all inclusion criteria and were retained for the final review.

Table 3. Reasons for Full-Text Exclusion

Reason for Exclusion	Number
Did not measure primary variables	22
Population was not students or adolescents	17
Full text unavailable	8
DOI could not be verified	5
Low methodological quality	14

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Duplicate publication of the same dataset	4
Not relevant to connectedness to nature	11
Total Excluded	81

Table 4. Eligibility Assessment Results

Eligibility Stage	Number
Full-text articles assessed	113
Articles excluded	81
Studies meeting eligibility criteria	32

The final stage was Included, in which all studies that successfully passed the selection process were incorporated into the systematic review. A total of 32 studies formed the basis of the final synthesis. These studies were analyzed to identify patterns in the relationships among peer pressure, climate change anxiety, and connectedness to nature. The studies were subsequently grouped into thematic categories to facilitate thematic synthesis and interpretation of findings.

Table 5. Studies Included in the Systematic Review

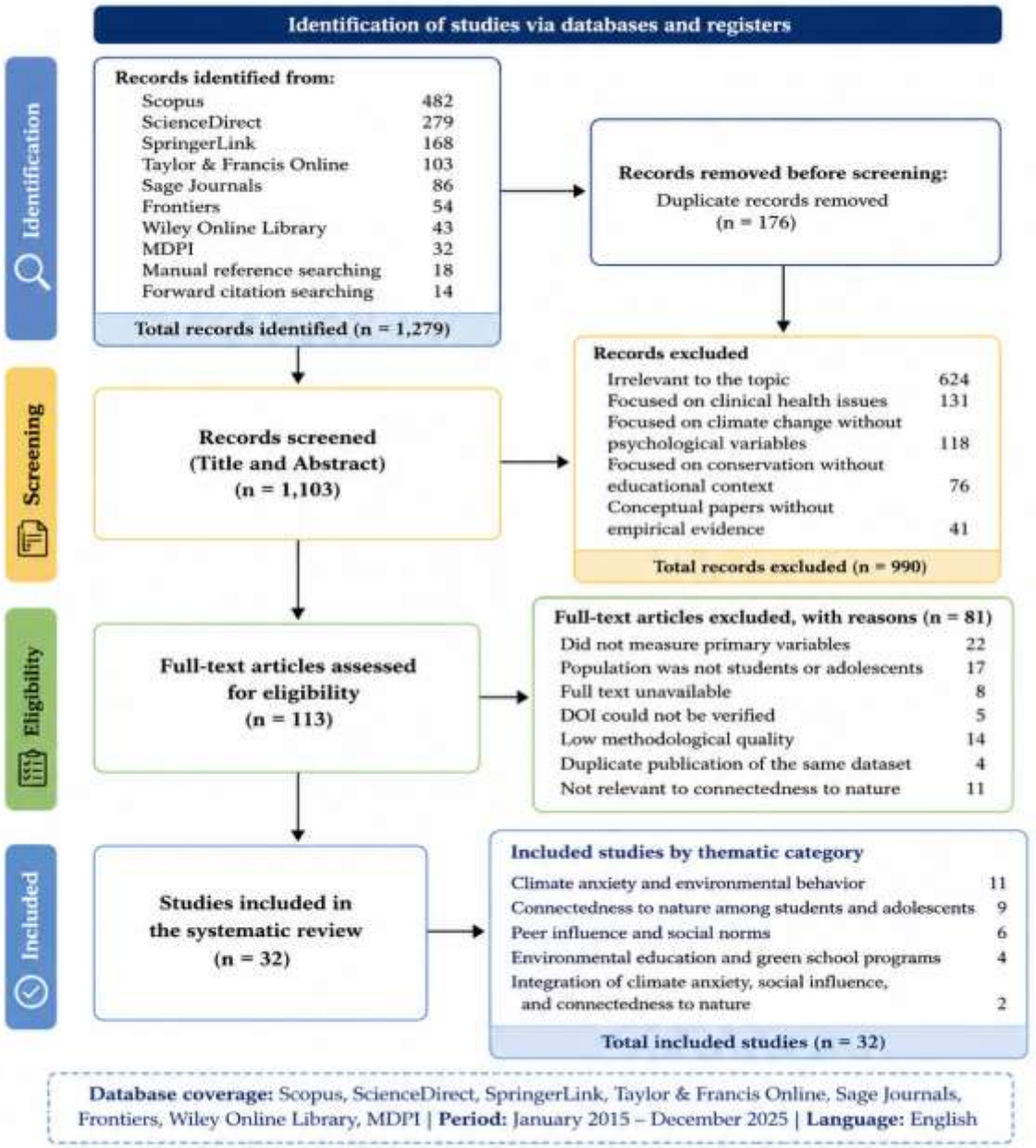
Thematic Category	Number of Studies
Climate anxiety and environmental behavior	11
Connectedness to nature among students and adolescents	9
Peer influence and social norms	6
Environmental education and green school programs	4
Integration of climate anxiety, social influence, and connectedness to nature	2
Total Studies	32

Through these PRISMA 2020 procedures, the article selection process was conducted rigorously and systematically, resulting in a collection of relevant, high-quality, and academically defensible studies. This approach enabled a robust synthesis of evidence regarding how peer pressure and climate change anxiety influence students' connectedness to nature within environmental education settings, particularly those sharing characteristics with the Adiwiyata School Program.

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Figure 1. PRISMA 2020 Flow Diagram for the *The Influence of Peer Pressure and Climate Change Anxiety on Connectedness to Nature in the Adiwiyata School Program: A Systematic Literature Review*, 2015 to 2025



Adapted from: Page MJ, et al. The PRISMA 2020 statement: An updated guideline for reporting systematic reviews. PLoS Med. 2021;18(3):e1003583. https://doi.org/10.1371/journal.pmed.1003583

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Figure 1. PRISMA 2020 Flow Diagram of Study Selection for the Systematic Literature Review on the Influence of Peer Pressure and Climate Change Anxiety on Connectedness to Nature in the Adiwiyata School Program.

RESULTS AND DISCUSSION

The systematic review identified 32 eligible studies published between 2015 and 2025 that examined the relationships among peer influence, climate change anxiety, connectedness to nature, and environmental education. The selected studies originated from diverse geographical contexts, including Europe, North America, Asia, and Oceania, reflecting the growing international interest in understanding psychological and social determinants of environmental engagement among children and adolescents. Most studies employed quantitative methodologies, while several utilized mixed-methods and qualitative approaches to provide a more comprehensive understanding of environmental attitudes and behaviors among young people. The synthesis revealed that connectedness to nature functions as a central psychological construct linking environmental awareness, emotional responses to climate change, and environmentally responsible behaviors.

Overview of Included Studies

The thematic classification of the included studies demonstrated that climate anxiety and environmental behavior constituted the most frequently investigated topic, followed by connectedness to nature among students and adolescents. Studies examining peer influence and social norms represented a smaller but increasingly important body of literature. Research focusing specifically on environmental education programs and green school initiatives also showed substantial growth, particularly after 2020. Although only a limited number of studies directly integrated peer pressure, climate anxiety, and connectedness to nature into a single analytical framework, the available evidence suggested significant conceptual and empirical interconnections among these constructs.

Table 6. Distribution of Included Studies by Research Theme

Research Theme	Number of Studies	Percentage (%)
Climate anxiety and environmental behavior	11	34.4
Connectedness to nature among students and adolescents	9	28.1

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Peer influence and social norms	6	18.8
Environmental education and green school programs	4	12.5
Integration of all three constructs	2	6.2
Total	32	100.0

The findings indicate that research on climate anxiety has expanded rapidly in recent years, largely due to increasing public concern regarding climate change and its psychological consequences for younger generations. Simultaneously, scholars have increasingly recognized connectedness to nature as a protective factor that may promote environmental responsibility while enhancing psychological well-being.

The Influence of Peer Pressure on Connectedness to Nature

The review revealed that peer pressure plays a significant role in shaping environmental attitudes and behaviors among adolescents. Positive peer influence often encourages participation in environmental activities, adoption of sustainable lifestyles, and engagement in collective environmental actions. Adolescents tend to conform to the norms established within their social groups, making peer networks a powerful mechanism for promoting environmental values and nature-related experiences.

Several studies reported that social norms communicated through friendship networks and social media interactions positively influenced pro-environmental attitudes and behaviors. Adolescents who perceived environmental protection as socially valued within their peer groups demonstrated higher levels of environmental engagement and stronger emotional connections with nature. These findings are consistent with social learning theory, which suggests that behaviors and attitudes are acquired through observation, imitation, and reinforcement within social environments.

In school settings, peer-supported environmental activities such as ecological clubs, outdoor learning programs, and collaborative sustainability projects were found to strengthen students' sense of belonging to the natural environment. Such findings are particularly relevant to the Adiwiyata School Program, where collective environmental practices and student participation constitute essential components of implementation. Positive peer norms may therefore function as an important pathway through which schools cultivate stronger connectedness to nature among students.

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The Influence of Climate Change Anxiety on Connectedness to Nature

The review demonstrated that climate change anxiety has a complex relationship with connectedness to nature. Climate anxiety refers to emotional distress, worry, fear, and concern arising from awareness of climate change and its consequences. Among adolescents, climate anxiety has become increasingly prevalent due to extensive exposure to climate-related information through educational systems, social media, and news coverage.

Evidence from the reviewed studies suggested that moderate levels of climate anxiety may stimulate environmental awareness and motivate engagement in pro-environmental behaviors. Adolescents who expressed concern about environmental degradation often reported stronger feelings of responsibility toward nature and greater willingness to participate in environmental conservation activities. This relationship indicates that climate anxiety can function as an adaptive emotional response that promotes environmental action when accompanied by coping resources and opportunities for engagement.

However, excessively high levels of climate anxiety may generate feelings of helplessness, hopelessness, and emotional exhaustion. In such circumstances, anxiety may reduce environmental engagement and weaken individuals' perceived ability to contribute to environmental solutions. This phenomenon has been described as the "paralyzing effect" of climate anxiety, where overwhelming concern discourages constructive action. Therefore, the relationship between climate anxiety and environmental engagement appears to be nonlinear, with moderate anxiety producing beneficial outcomes while excessive anxiety may generate adverse psychological consequences.

Connectedness to Nature as a Mediating Mechanism

A recurring finding across the reviewed literature was the role of connectedness to nature as a psychological mechanism linking environmental knowledge, emotional responses, and pro-environmental behavior. Connectedness to nature refers to an individual's subjective sense of belonging to and identification with the natural world. Students who reported stronger connections with nature consistently demonstrated higher levels of environmental concern, ecological responsibility, and sustainable behavior.

Environmental education interventions that provided direct experiences in natural settings were particularly effective in strengthening connectedness to nature. Outdoor learning programs, forest bathing activities, ecosystem exploration projects, and nature-based educational experiences consistently produced positive outcomes in students' emotional attachment to the

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environment. Increased connectedness to nature was associated not only with greater environmental awareness but also with improved psychological well-being and social responsibility.

The evidence further suggested that connectedness to nature may buffer some of the negative psychological effects associated with climate anxiety. Individuals with stronger relationships with nature often reported greater resilience, hope, and motivation to engage in environmental action despite concerns about climate change. Consequently, connectedness to nature can be understood as both an outcome of environmental education and a protective factor against maladaptive emotional responses to environmental crises.

Implications for the Adiwiyata School Program

The findings of this review provide important implications for the implementation of the Adiwiyata School Program. First, environmental education initiatives should emphasize collaborative learning activities that leverage positive peer influence to foster environmental values and sustainable behaviors. Since adolescents are strongly influenced by social norms and peer expectations, environmental programs that encourage teamwork and collective participation are likely to be more effective than individual-based approaches.

Second, educators should recognize climate anxiety as a meaningful emotional response rather than merely a psychological problem. Educational strategies should provide students with opportunities to transform environmental concern into constructive action through participation in environmental projects, school sustainability initiatives, and community-based conservation activities. Such approaches may prevent climate anxiety from becoming overwhelming while simultaneously strengthening students' sense of efficacy and environmental responsibility.

Third, direct experiences with nature should remain a core component of environmental education. Activities such as school gardening, biodiversity monitoring, ecological restoration projects, outdoor learning, and environmental field trips can strengthen connectedness to nature and contribute to long-term pro-environmental attitudes. These practices align closely with the objectives of the Adiwiyata School Program and support the development of environmentally responsible school communities.

Proposed Conceptual Framework

Based on the synthesis of evidence, a conceptual relationship can be proposed in which positive peer pressure contributes to stronger connectedness to nature through social norms that

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encourage environmental engagement. Climate change anxiety influences connectedness to nature both directly and indirectly, depending on the intensity of anxiety and the availability of coping resources. Connectedness to nature subsequently enhances pro-environmental behavior and psychological resilience. Within the Adiwiyata context, environmental education serves as a facilitating mechanism that strengthens all three relationships.

Overall, the findings suggest that connectedness to nature represents a critical psychological pathway through which peer influence and climate change anxiety shape environmental attitudes and behaviors among students. Consequently, strengthening students' relationships with nature should be considered a strategic objective for environmental education programs seeking to cultivate environmentally responsible and psychologically resilient future generations.

DISCUSSION

The findings of this systematic literature review demonstrate that peer pressure and climate change anxiety are important psychosocial factors influencing students' connectedness to nature. Although relatively few studies have simultaneously examined these three constructs, the synthesized evidence indicates that social influences and emotional responses to environmental problems play substantial roles in shaping young people's relationships with nature. Within the context of the Adiwiyata School Program, these findings suggest that fostering environmental responsibility is not solely dependent on environmental knowledge acquisition but also on social and psychological processes that strengthen students' emotional bonds with the natural environment (Léger-Goodes et al., 2022; Otto & Pensini, 2017; Madera et al., 2024; Palmberg et al., 2021; Wullenkord et al., 2024).

One of the most significant findings of this review is the positive role of peer influence in promoting environmental engagement and nature connectedness. The reviewed studies consistently indicate that adolescents are highly sensitive to social norms established within their friendship networks, classrooms, and online communities. When pro-environmental values are supported by peers, students are more likely to participate in environmental activities, adopt sustainable behaviors, and develop stronger emotional connections with nature. These findings are consistent with Social Learning Theory, which emphasizes that attitudes and behaviors are learned through observation and interaction with significant social groups. Previous studies have similarly demonstrated that social media interactions, peer norms, and environmental movements can significantly shape adolescents' environmental attitudes and participation in

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sustainability initiatives (Gonzalez et al., 2023; Romano et al., 2024; Cruz et al., 2019; Madera et al., 2024; Otto & Pensini, 2017).

The findings further suggest that the influence of peer pressure extends beyond behavioral conformity and contributes to the development of environmental identity. Students who are surrounded by peers who value environmental protection often perceive pro-environmental behaviors as socially desirable and personally meaningful. This process encourages students to internalize environmental values, which subsequently strengthens their sense of belonging to the natural world. Similar conclusions have been reported in studies showing that school adjustment, environmental empathy, social norms, and environmental education collectively contribute to stronger connectedness to nature among adolescents (Cruz et al., 2019; Gonzalez et al., 2023; Palmberg et al., 2021; Schmäing & Grotjohann, 2024; Keller et al., 2024).

The review also reveals the complex role of climate change anxiety in shaping students' relationships with nature. Climate anxiety has emerged as a growing psychological phenomenon among adolescents due to increasing exposure to information regarding climate change, biodiversity loss, and environmental degradation. The evidence indicates that moderate levels of climate anxiety may serve as an adaptive emotional response that increases environmental awareness and motivates environmental action. Students who express concern about climate change often demonstrate greater willingness to engage in pro-environmental behavior and environmental activism. These findings support previous studies that identify climate anxiety as a motivational force capable of stimulating environmental engagement and sustainability-related actions among young people (Léger-Goodes et al., 2022; Ojala, 2024; Qin et al., 2024; Romano et al., 2024; Wullenkord et al., 2024).

However, the review also highlights the potential risks associated with excessive climate anxiety. Several studies indicate that intense feelings of fear, helplessness, and uncertainty may diminish individuals' perceived ability to contribute to environmental solutions. When anxiety becomes overwhelming, students may disengage from environmental issues as a coping strategy, resulting in lower participation in environmental activities and reduced psychological well-being. Similar findings have been reported by Wullenkord et al. (2024), Ojala (2024), Léger-Goodes et al. (2022), Qin et al. (2024), and Romano et al. (2024), who emphasized that climate anxiety can either facilitate or hinder environmental engagement depending on the availability of coping resources, environmental efficacy, and social support.

A central finding emerging from this review is the critical role of connectedness to nature as an intermediary mechanism linking social influences, emotional responses, and environmental

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behavior. Across the reviewed studies, students who reported stronger emotional connections with nature consistently demonstrated higher levels of environmental concern, ecological responsibility, and sustainable behavior. These findings align with previous research indicating that connectedness to nature represents a key psychological determinant of environmental stewardship and ecological citizenship (Otto & Pensini, 2017; Madera et al., 2024; Palmberg et al., 2021; Keller et al., 2024; Schmäing & Grotjohann, 2024).

The evidence further suggests that connectedness to nature may function as a protective factor against the negative psychological consequences of climate change anxiety. Students who maintain strong emotional relationships with nature often report greater resilience, hope, environmental efficacy, and psychological well-being despite concerns about environmental degradation. Rather than experiencing climate anxiety as a debilitating condition, these individuals are more likely to transform environmental concern into constructive action. Similar conclusions have been reported by Wullenkord et al. (2024), Keller et al. (2024), Palmberg et al. (2021), Madera et al. (2024), and Léger-Goodes et al. (2022).

The findings regarding environmental education interventions provide strong support for the objectives of the Adiwiyata School Program. Studies examining outdoor learning, ecosystem exploration, environmental field experiences, and forest bathing consistently demonstrate positive effects on students' connectedness to nature. Direct interactions with natural environments appear more effective than classroom instruction alone in fostering emotional attachment to nature and promoting sustainable behaviors. These findings reinforce previous research suggesting that environmental knowledge alone is insufficient to produce long-term behavioral change without meaningful emotional and experiential engagement with nature (Otto & Pensini, 2017; Palmberg et al., 2021; Keller et al., 2024; Schmäing & Grotjohann, 2024; Madera et al., 2024).

Overall, the findings indicate that positive peer influence and adaptive levels of climate change anxiety can strengthen students' connectedness to nature, which subsequently promotes environmental responsibility and sustainable behavior. Within the Adiwiyata School Program, connectedness to nature appears to represent a key psychological outcome that links environmental education, social influence, and emotional engagement with environmental issues. Strengthening this connection may therefore serve as an effective strategy for developing future generations who are environmentally responsible, socially engaged, and psychologically resilient in addressing contemporary environmental challenges (Otto & Pensini, 2017; Léger-Goodes et al., 2022; Madera et al., 2024; Qin et al., 2024; Wullenkord et al., 2024).

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CONCLUSION

This systematic literature review demonstrates that peer pressure and climate change anxiety are significant factors influencing students' connectedness to nature within environmental education contexts. The findings indicate that positive peer influence can strengthen environmental values, encourage participation in sustainability-related activities, and foster stronger emotional bonds with the natural environment. At the same time, climate change anxiety appears to have a dual role. Moderate levels of anxiety can increase environmental awareness and motivate pro-environmental behavior, whereas excessive anxiety may generate feelings of helplessness and reduce engagement. The review further highlights that connectedness to nature serves as an important psychological mechanism linking social influences and emotional responses to environmental attitudes and behaviors among students.

The findings also suggest that environmental education initiatives, particularly those emphasizing direct experiences with nature and collaborative learning, can effectively strengthen students' connectedness to nature and environmental responsibility. In the context of the Adiwiyata School Program, integrating positive peer interactions, nature-based learning experiences, and constructive approaches to addressing climate-related concerns may contribute to the development of environmentally responsible, socially engaged, and psychologically resilient students. Future research is encouraged to investigate these relationships through longitudinal and mixed-methods approaches, particularly within Indonesian educational settings, to provide a deeper understanding of how social and psychological factors shape environmental engagement among young people.

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