

Environmental Loss, Biodiversity Decline, and Youth Suicide in the Arctic

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Abstract

This paper examines the relationship between environmental loss, biodiversity decline, and youth suicide in the Arctic through a multidisciplinary lens. It integrates resilience theory, Indigenous knowledge systems, and clinical research on climate anxiety to argue that mental health outcomes are shaped by environmental, cultural, and historical systems. The paper expands on how climate change has accelerated ecological disruption and cultural loss, while also examining the psychological effects of permafrost thaw, biodiversity decline, and social instability. It further explores community-based suicide prevention programs and the role of social support and land-based practices as protective factors. The findings suggest that effective mental health interventions must center cultural continuity, environmental protection, and community-driven healing approaches.

Introduction

Over the past year and a half, I have researched and reflected on the causes of youth suicide in the Arctic, and this topic is both academic and deeply personal to me. As an Arctic Youth Ambassador, I have come to understand that suicide cannot be explained by individual mental health struggles alone. Instead, it exists within a larger system shaped by environmental loss, biodiversity decline, historical trauma, and policy decisions. Climate change has accelerated these conditions at a rapid pace, intensifying both ecological disruption and emotional distress. When the land changes, the effects are not only physical, they are cultural and psychological. The connection between people and place becomes strained, and that strain is felt most strongly by young people. Understanding this issue requires looking at the full system rather than isolating individual behavior.

Environmental Loss and Cultural Disruption

Climate change has accelerated environmental loss in the Arctic, creating rapid and visible changes in ecosystems that directly affect cultural practices. Sea ice now melts earlier and forms later, which impacts hunting routes, marine life, and access to traditional food sources (IPCC, 2021). Caribou populations have declined in multiple regions due to habitat shifts, limiting opportunities for cultural learning and food security (U.S. Fish & Wildlife Service, 2022). These changes are not gradual, they are happening within a single generation, which disrupts the transfer of knowledge between elders and youth. Cultural practices that once felt stable now feel uncertain or inaccessible. When young people cannot participate in traditions that define identity, they may begin to feel disconnected from both their culture and their purpose. This environmental disruption becomes a direct pathway into emotional and psychological stress.

Permafrost and Structural Instability

Permafrost thaw represents one of the most physically and psychologically destabilizing impacts of climate change in the Arctic. As temperatures rise, previously frozen ground is beginning to thaw, causing homes, roads, and infrastructure to crack, sink, and collapse (National Snow and Ice Data Center, 2023). In some communities, entire buildings have had to be relocated or abandoned due to ground instability. Recent data shows that Arctic regions are warming at nearly four times the global average, accelerating these changes at an unprecedented rate. This creates constant uncertainty about housing, safety, and long-term stability. When the ground beneath you is literally shifting, it becomes difficult to feel secure in your environment. This instability contributes to chronic stress, anxiety about the future, and a sense that nothing is permanent or reliable.

Environmental Loss, Culture, and Mental Health

Environmental loss does not exist separately from culture, it directly impacts it. When biodiversity declines and ecosystems change, cultural practices tied to those systems begin to fade. Hunting, fishing, and gathering are not just survival strategies, they are ways of teaching identity, responsibility, and belonging. When youth lose access to these practices, they lose opportunities to develop a sense of purpose and connection. This creates a gap between generations and weakens cultural continuity. Over time, this disconnection can lead to feelings of isolation, grief, and identity confusion. Mental health challenges begin to emerge not only from individual experiences, but from the breakdown of cultural systems that once provided stability.

Social Support and Resilience

Social support plays a critical role in building psychological resilience, especially in communities facing environmental and cultural disruption. Strong relationships with family, elders, and community members provide emotional grounding and guidance. In Indigenous communities, support systems are often collective rather than individual, emphasizing shared responsibility and connection. These relationships help young people navigate stress, trauma, and uncertainty. When social support systems are strong, they act as protective factors against mental health struggles. However, when communities are disrupted by environmental change or economic stress, these support systems can weaken. Strengthening social support is therefore essential to building resilience and improving long-term mental health outcomes.

Community-Based Suicide Prevention

Community-based suicide prevention programs in the Arctic have shown that culturally grounded approaches are more effective than purely clinical models. Research has found that communities with strong cultural continuity, including language preservation, self-governance, and land-based practices, have significantly lower suicide rates (Chandler and Lalonde, 1998). Programs that focus on youth leadership, elder mentorship, and cultural education help restore identity and purpose. These approaches shift the focus from treating individuals in crisis to strengthening the entire community system. By reconnecting youth with their culture and environment, these programs create a sense of belonging that reduces vulnerability to suicide. This highlights the importance of investing in community-led solutions rather than relying only on external interventions.

Nature, Stress, and Indigenous Knowledge

Scientific research has shown that exposure to natural environments reduces cortisol levels, lowers stress, and improves emotional regulation (Ulrich, 1984; Kaplan and Kaplan, 1989). These findings support the idea that nature itself can act as a protective factor for mental health. However, Indigenous knowledge systems provide a deeper perspective by emphasizing that the relationship with the land is not passive. The land is a teacher, a provider, and a part of identity. Being on the land allows individuals to reconnect with themselves, their culture, and their community. This creates a sense of grounding and balance that is difficult to replicate in other settings. When access to the land is disrupted, these mental health benefits are also reduced.

Climate Anxiety and Future Stress

Climate anxiety is an emerging form of psychological distress that is especially relevant for Arctic youth. It refers to feelings of fear, uncertainty, and grief related to environmental change and the future (Clayton et al., 2017). In the Arctic, these feelings are not abstract, they are based on lived experience. Youth witness melting ice, shifting wildlife patterns, and unstable ground on a daily basis. This creates ongoing stress about what the future will look like and whether their culture will survive. The uncertainty can lead to chronic anxiety, emotional fatigue, and a sense of loss before the loss has fully occurred. Addressing climate anxiety requires acknowledging these experiences and creating pathways for hope and resilience.

Conclusion

Mental health in the Arctic must be understood as part of a larger system that includes environmental, cultural, and social factors. Climate change has accelerated disruptions that affect not only ecosystems but identity and belonging. Strengthening resilience requires supporting social relationships, cultural continuity, and community-led solutions. Suicide prevention efforts must move beyond individual treatment and focus on restoring systems of connection. Protecting the land is also protecting mental health. Long-term healing will only be possible when environmental sustainability and cultural survival are prioritized together.

References

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