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# Out of the Clinic and into the Woods: The Promising Practice of Nature-Based Therapeutic Mentoring—A Conceptual Review of a California Program that Partnered with the Public Health System of Care

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## Abstract

*The United States is experiencing a youth mental health crisis marked by rising need and persistent inequities in access to effective care. Whole Hearts, Minds & Bodies (WHMB) is a clinically supervised, community-embedded, nature-based therapeutic mentoring program developed in Truckee/North Lake Tahoe, California, to serve adolescents and young adults with serious emotional disturbance. This conceptual article describes the WHMB model, its treatment methods, delivery system, theoretical foundations, and cultural and community context and explores how its approach integrates psychological, ecological, and resilience-based frameworks. WHMB is grounded in Self-Determination Theory, Resilience Theory, and the Broaden-and-Build Theory of Positive Emotions. Practice is organized around four inter-related components (“roots”): authentic relationships, nature connection, embodied peak experience, and helping others. Therapeutic mentors, paraprofessionals working under licensed clinical supervision, meet youth where they live, learn, and play, bringing nature into*

*the therapeutic process through structured outdoor experiences, reflection, and family engagement. The WHMB model illustrates a humane and equity-oriented approach to behavioral health care that reduces barriers to access, builds deep engagement, and reimagines how healing relationships can unfold in community and natural settings.* Key Words: Mental health—Adolescents—Nature-based therapy—Therapeutic mentors

## Introduction

**T**oday, one in five U.S. adolescents have a diagnosed mental or behavioral health condition, with anxiety and depression rising precipitously (Health Resources and Services Administration [HRSA], 2024). According to analyses of the CDC’s National Hospital Ambulatory Medical Care Survey, emergency department visits for mental health conditions among U.S. youth (aged 6–24) increased from 7.7% in 2011 to 13.1% in 2020 (4.8 to 7.5 million visits) and suicide-related visits increased fivefold (0.9% to 4.2%) (Kalb et al., 2023).

Despite this growing prevalence, access to effective mental health care remains profoundly inequitable. Among adolescents who needed treatment or counseling for a diagnosed condition in 2023, 61% reported difficulty obtaining needed care—a 35% increase since 2018 (HRSA, 2023). These gaps are even wider for

youth from socioeconomically disadvantaged, racial and ethnic minority, and immigrant backgrounds, who continue to experience disproportionate barriers and poorer outcomes (American Psychological Association [APA], 2021).

When treatment is accessed, youth and their families often must navigate environments that are not conducive to healing—such as government buildings where behavioral health services are co-located with courts and law enforcement or hospital settings that can be sterile and stigmatizing.

In 2012, a youth-serving nonprofit organization based in Truckee, California, Gateway Mountain Center, launched a pilot program that provided youth with serious mental health issues access to clinically supervised, nature-based therapeutic mentoring. This program was called Whole Hearts, Minds & Bodies (WHMB). This article provides a conceptual description of this program, including its treatment methods, delivery system, theoretical foundations, cultural and community contexts, and some preliminary data from initial pilot studies.

The following section outlines the program overview, the theoretical foundations that inform the WHMB model, and its integration of psychological, ecological, and resilience-based frameworks.

### *Program overview*

WHMB launched in 2012 and employed clinically supervised paraprofessional mentors, designated Medicaid mental health rehabilitation specialists or certified peer support specialists, recruited from the youth's own communities. These therapeutic mentors (TMs) were trained in evidence-based and trauma-informed approaches to build caring, trusting relationships and to support adolescents in engaging meaningfully with their mental health treatment.

WHMB was initially launched with public funds through an innovation grant and developed in partnership with the County Behavioral Health System of Care. Based on early positive outcomes, county leadership sponsored Gateway Mountain Center to become a contracted behavioral health partner and eventually to secure certification for Medicaid (Medi-Cal) reimbursement. The program's primary goal was to provide high-quality, clinically supervised therapeutic services for underserved youth and families at no cost.

### *Rationale and target population*

WHMB was created in response to the urgent need for effective, community-integrated mental health supports for youth with serious emotional disturbance (SED), particularly those facing structural barriers to care. Founder P.M., an experienced mountain guide and

youth program director, was motivated to design a strengths-based, accessible, and nonmedical alternative to conventional behavioral health treatment, grounded in relational connection and nature-based experience.

Referrals came from school psychologists and counselors, county social workers, local therapists, and hospital personnel. These referring partners understood the inclusion criteria to be youth experiencing moderate to severe levels of psychological distress, or, in school-based terms, those qualifying for tier 3 levels of support. Tier 3 services are intensive, individualized interventions for students with severe and persistent social, emotional, or behavioral needs who have not responded to tier 1 and tier 2 supports. Participants ranged in age from 6 to 24 and typically presented with histories of complex trauma, emotional dysregulation, and, in some cases, multiple psychiatric hospitalizations. The intake threshold mirrored that of Wraparound services provided by County Behavioral Health Departments across the United States: youth were considered at imminent risk of home removal due to symptom severity. In the Truckee/Tahoe region, where WHMB was first implemented, approximately 52–56% of participants were youth of color, predominantly from Latino backgrounds.

### *Community-embedded model of care*

Importantly, WHMB was intentionally designed as a community-embedded alternative to wilderness therapy and other out-of-home interventions. Rather than removing youth from their families, schools, and social environments, WHMB delivered care in the very places young people lived, learned, and played. TMs met participants in familiar community settings and nearby natural areas, providing consistent, relationship-based support that integrated treatment into everyday life. This approach allowed youth to practice emotional regulation and relational skills in real-world contexts while remaining connected to their support networks. By contrast, residential or wilderness programs often disrupted these connections, making reentry into family and community life difficult.

### *Program goals and outcome domains*

The goals of WHMB align closely with the outcome domains defined by County Behavioral Health Wraparound programs for youth with SED. These domains guide the design and evaluation of community-based mental health services nationwide. WHMB's aims emphasize reducing emotional distress and behavioral crises while strengthening emotional regulation, relationships with family and peers, and engagement in school and community life. In this way,

WHMB, using methods that have the aim to strengthen sense of self and build self-awareness and self-efficacy, reflects a systems-of-care approach, one that seeks not only to reduce symptoms but to foster lasting resilience, belonging, and improved functioning across all parts of a young person's life (Painter, 2012; Suter and Bruns, 2009).

### *Session format and core activities*

TMs meet with youth weekly for 3–4 hour one-on-one sessions, often beginning by picking them up from school or home. Each session follows a structured arc that includes:

- 1 **Arrival and connection**—relational check-in and goal setting;
- 2 **Guided nature sensory immersion**—drawing from *Forest Therapy Hub* protocols, where youth explore their surroundings through vision, touch, proprioception, hearing, and eventually smell and taste (<https://foresttherapyhub.com/fthub-certified-forest-therapy-practitioner/>);
- 3 **Embodied challenge or “peak experience”**—with the goal to activate the vestibular, proprioceptive, and sensorimotor systems, the client and mentors walk across logs and rocks, scramble on boulders, rock climb, kayak on a lake or bay, or mountain bike, adapted to each youth's interests and abilities;
- 4 **Reflective integration**—including journaling, nature mandalas, gratitude practices, or expressive arts;
- 5 **Return and family connection**—upon returning home, the TM often greets and engages parents or guardians when possible and appropriate, sharing highlights from the day's adventure and celebrating the youth's accomplishments.

TMs help youth find an optimal balance between challenge and skill, supporting entry into flow states that evoke awe, joy, and curiosity, emotions associated with stress reduction and cognitive flexibility. During inclement weather, protective clothing is provided and sessions may shift indoors to coffee shops, art studios, or museums.

### **Adaptation and Tailoring**

Most youth referred to WHMB have little prior experience in nature and may initially express disinterest or fear. TMs are trained to gently scaffold engagement by integrating existing interests (e.g., art, music, and photography) into outdoor experiences. Activities are personalized to accommodate physical abilities, emotional readiness, and cultural context. Over time, WHMB has adapted to include structured indoor sessions during inclement weather and accessible activity options for youth with mobility limitations.

### **Fidelity, Supervision, and Workforce Structure**

WHMB ensured program safety, fidelity, and quality through consistent clinical supervision, standardized protocols, and a skilled paraprofessional workforce. Each licensed clinician supervised up to 10 TMs, who in turn worked with three to six youth per week. Clinicians reviewed session notes weekly, provided case consultation, and ensured that all practices adhered to individual treatment plans and demonstrated progress toward defined therapeutic goals.

TMs received training in crisis response, mandated reporting, and risk management consistent with professional outdoor education standards. Many came from youth development, outdoor leadership, or recreation fields and were supported by an organization with extensive expertise in outdoor risk management. Monthly mentor meetings offered structured opportunities for reflection, group learning, and mutual support. Together, these systems maintained safety, accountability, and consistency while allowing mentors to respond flexibly to each youth's evolving needs.

In the Truckee/Tahoe program, TMs included seasoned youth workers, environmental educators, and ski coaches; several later pursued graduate studies and became licensed therapists, inspired by their experience with WHMB. WHMB offers a unique opportunity to strengthen the therapeutic workforce by recruiting individuals with demonstrated skill in supporting high-need youth, providing them with rigorous training and clinical supervision, and offering a structured career pathway as paraprofessional therapeutic workers. This workforce design expands the capacity of the mental health system while promoting workforce diversity.

A central goal of WHMB is to recruit and retain more Latino and African American men as TMs, reflecting the demographics of the youth served and addressing the broader shortage of culturally responsive male role models in behavioral health care. As the demand for mental health services continues to grow and the supply of licensed clinicians remains limited, expanding and supporting this paraprofessional tier is essential to building a more equitable and sustainable behavioral health workforce.

### *Theoretical framework/program model*

WHMB is grounded in well-established behavior change theories and supported by empirical evidence. The program is primarily informed by Self-Determination Theory, which asserts that the fulfillment of three core psychological needs, autonomy, competence, and relatedness, leads to enhanced mental health (e.g., reduced depression and anxiety and improved quality of life) as well as better physical health outcomes, such as lower substance use, reduced

sexual risk behaviors, and healthier dietary habits with moderate to strong effects on both mental health outcomes and health-promoting behaviors (Ng et al., 2012; Ryan et al., 2008).

WHMB also draws upon Resilience Theory, a strength-based framework that focuses on the internal, social, and contextual protective factors that enable youth to thrive despite adversity (Fergus and Zimmerman, 2005; GARMEZY, 1991). These protective factors mitigate the negative impacts of trauma, chronic stress, and other risk exposures that can lead to poor mental health outcomes. Among the most impactful of these is a positive, caring relationship with a supportive nonparental adult, which has been consistently linked to resilience (Neal, 2017; Werner and Smith, 1992). Another vital protective factor is meaningful opportunities for participation and contribution, which foster engagement, agency, and a sense of belonging (Fenn et al., 2024). These protective factors are associated with improved emotional regulation, a sense of purpose and hope, positive identity, self-efficacy, problem-solving abilities, and social competence—all of which are key indicators of positive mental health (Ryan et al., 2008).

In addition, WHMB integrates insights from the Broaden-and-Build Theory of Positive Emotions, which highlights the role of emotions such as serenity and awe in expanding cognitive and behavioral capacities (Fredrickson, 2001). These emotions, frequently evoked in nature, can lead to a restructuring of worldview and a deepened sense of meaning (Ong et al., 2006; Shiota et al., 2007). Research shows that positive emotions help individuals regulate stress, reframe adversity, buffer against depression, and foster faster recovery from daily challenges (Ong et al., 2006; Tugade and Fredrickson, 2004). Notably, experiences of awe in nature, distinct from other positive emotions, have been shown to directly enhance well-being by reducing stress and increasing happiness (Anderson et al., 2018; Shiota et al., 2007).

Rooted in these theoretical frameworks and supported by growing evidence, WHMB is structured around four primary program components, or “roots,” that support the development of positive mental health. The model also integrates humanistic and trauma-informed approaches to ensure care is holistic, relational, and grounded in respect for each participant’s lived experience. The following are the four “roots” of WHMB.

**Root 1: Authentic relationships.** Research consistently shows that youth who have a stable, caring relationship with a nonparental adult are more likely to develop resilience and thrive, despite past exposure to trauma, mental illness, or substance use challenges (DuBois et al., 2002; Neal, 2017; Werner and Smith, 1992). One of

the key mechanisms behind this protective effect is co-regulation of the emotional stress response, which helps stabilize and strengthen the nervous system (Fisher et al., 2006). Such nurturing and supportive relationships have also been linked to the healthy development of critical neurobiological functions, including decision-making, self- and social awareness, mood regulation, and impulse control (Fisher et al., 2006; Schermerhorn et al., 2013). In practice, TMs form trusting partnerships with youth, rooted not in “fixing” them but in cultivating a safe, consistent, and genuinely caring relationship. These authentic connections provide youth with the psychological safety to express themselves freely and without judgment. The primary goal is to create emotionally and physically safe spaces where young people can deepen their self-awareness. From that awareness comes the capacity to make more empowered, intentional choices.

Over time, authentic relationships with others foster a stronger connection to one’s true self, a critical developmental milestone for adolescents. When young people are grounded in a sense of authenticity, they are more capable of forming meaningful, healthy relationships with others. These consistent, collaborative, and caring relationships also help youth build emotional regulation skills and resilience (Horvath and Luborsky, 1993; Horvath and Symonds, 1991), while remaining connected to their families, schools, and communities.

**Root 2: Nature.** There is robust and growing evidence that exposure to, and immersive experiences in, nature significantly supports mental health, emotional well-being, physical health, and cognitive performance (Anderson et al., 2018; Association APH, 2013; Overbey et al., 2023; Djernis et al., 2019; Jimenez et al., 2021; Nancy Qwynne Lackey, 2021; Razani et al., 2016). Nature-based therapeutic interventions have also been shown to aid youth in substance use recovery, enhance school engagement, and reduce family conflict (Berry et al., 2021). Reflecting the strength of this evidence base, the American Public Health Association recommends that health professionals encourage nature-based play, exercise, and recreation for their patients (Carriot et al., 2014). Furthermore, a recent study found that providers can improve specific health outcomes by incorporating nature prescriptions into care plans (Migl et al., 2024).

In urban environments, access to natural spaces acts as a protective factor against many of the psychological stressors common in overstimulating, high-density settings (Akpınar, 2021; Li, Y., Mao, Y., Mandle, L. et al. 2025).

Nature supports mental health through multiple mechanisms: it encourages physical activity, reduces cognitive overload, and

fulfills an innate human desire to connect with the natural world and other living species (Jimenez et al., 2021). These benefits are particularly pronounced in children and youth. A recent article published in *Nature* is a systematic review of 449 studies and showed substantial benefits for a broad spectrum of mental health outcomes: “Green spaces such as urban forests and parks emerged as key elements in mitigating negative moods, such as depression and anxiety, and enhancing overall mental well-being. In particular, the benefits of nature exposure are most pronounced among young adults, although consistent positive effects are evident across all age groups” (Li et al., 2025). Nature-based play and physical activity have been associated with improved symptoms of ADHD, enhanced self-reported well-being, attention, cognitive function, and reduced aggression, sadness, anger, and fatigue. Additionally, research shows reductions in clinician-diagnosed anxiety and depression linked to time spent in nature (McCurdy et al., 2010; Nancy Qwynne Lackey, 2021). A meta-analysis of 51 studies on nature-based therapeutic interventions found that 90% reported at least one positive mental health outcome (Nancy Qwynne Lackey, 2021).

Importantly, some studies indicate that the benefits of time spent in nature may be especially strong for individuals from low socioeconomic backgrounds, suggesting a potential to reduce disparities in mental health (Oswald et al., 2020; Razani et al., 2016; Razani et al., 2019).

In WHMB, nature is not simply a setting; it is a core therapeutic medium. The program weaves nature into all aspects of engagement, including nature journaling, creative expression through art, confidence-building activities, and guided reflection. These structured and unstructured experiences in natural environments foster healing, self-discovery, and resilience.

**Root 3: Embodied peak experience.** “Embodied peak experience” refers to vivid, present-moment flow states brought about by the intensity of physical and emotional sensations, often encountered in natural settings (Hongyuan et al., 2020; Naor and Mayseless, 2020; Privette, 2001). While outdoor athletes commonly describe this experience, it is not exclusive to high-performance sports. These states can be evoked through a range of physically and emotionally engaging activities in nature that elicit full-body presence and cognitive focus (Akçakese et al., 2024; Hodge et al., 2023).

Emerging research suggests that engaging the vestibular, proprioceptive, and sensorimotor systems can enhance functional connectivity in brain regions associated with one’s sense of self, particularly in children and youth affected by developmental

trauma disorder (Harricharan et al., 2017; Privette, 2001). Natural environments provide rich opportunities for this type of activation: navigating variable terrain, climbing over rocks, balancing on logs, and other full-body movements stimulate the vestibular system in ways that contribute to neurological integration and emotional regulation (Carriot et al., 2014; Mayfield, 2019). These experiences have been shown to generate broad positive health and behavioral outcomes in children (Barton and Pretty, 2010; Bennett and Teague, 2023).

Additionally, nature and wilderness experiences have long been recognized as potent sources of limbic system engagement and peak emotional states. The limbic system—implicated in emotional regulation and psychiatric disorders—interacts with structures such as the raphe nuclei and locus coeruleus, which are affected by stress and trauma and respond to novel, intense, or awe-inspiring experiences in natural environments (Rajagopalan et al., 2017).

In WHMB, youth are guided through challenging, flow-state-inducing activities that align with their abilities and interests. These may include hiking rugged trails, climbing, kayaking, mountain biking, snowshoeing, and more. Importantly, many WHMB participants begin the program with low levels of physical activity, and a significant number are overweight or obese. For this reason, all activities are adapted to the individual, with an emphasis on safety, accessibility, and personal empowerment. The goal is to create safe, supportive, and appropriately challenging experiences that allow youth to encounter moments of mastery, embodiment, and emotional vitality, regardless of fitness level.

**Root 4: Helping others.** A central element of resilience-building and wellness promotion in WHMB is providing adolescents and young adults (AYAs) with meaningful opportunities to contribute to others and their communities. A growing body of evidence supports the link between such prosocial engagement and the development of resilience strengths (Ballard et al., 2019; Fenn et al., 2024; Yates and Youniss, 1996). However, despite this evidence, few interventions intentionally incorporate community contribution as a core therapeutic strategy, especially for youth with serious mental health challenges.

Improving prosocial behaviors is an explicit component of WHMB’s treatment plans. TMs support youth in practicing positive interpersonal engagement with community partners, such as bike shop staff, kayak rental employees, or café servers, especially during shared meals after adventure-based outings. As youth progress in treatment, TMs guide them in exploring volunteer opportunities, such as assisting at local animal shelters, food banks, park clean-ups, ecological restoration work, or community events.

WHMB also utilizes “Core Gift” interviews, a structured motivational-interviewing-informed approach based on the Core Gift Institute curriculum (Core Gift Institute, n.d.), to help youth identify their unique strengths and discover how those strengths can contribute to others. These gifts might include artistic expression (e.g., writing music that uplifts others), acts of service (e.g., taking a younger sibling to school to improve their life), or small gestures of kindness (e.g., baking treats to share with friends).

Beyond direct service to others, WHMB fosters agency, autonomy, and connectedness by involving AYAs in decision-making and activities that bring purpose to their lives. This intentional support for civic engagement, social contribution, and community belonging has been linked to improved mental health outcomes and the development of protective factors that sustain long-term resilience (Ballard et al., 2019; Fenn et al., 2024; Hjemdal, 2006; Werner and Smith, 1992).

**Case story.** *When we launched WHMB we did not anticipate that our school psychologists would refer the highest need youth in our region as first clients. One of our first referrals was for a 15-year-old Latina young woman, we will call her Luisa. Luisa had suffered 5 suicide attempts and 10 psychiatric hospitalizations in the past 3 years. The referring school psychologist said, “nothing seems to work, let’s try something different.”*

*Our first meeting was to take a short walk near her school. The aim was simple: connect and see if we could find any common ground. She was into art and drawing. My goal that day was to build enough rapport to earn her trust—and, ideally, a second meeting. She agreed. For our next outing, we went bigger. We stopped at a stationery store where she picked out a new journal and a good set of pencils. Then we drove to Martis Valley, a wide, open wetland meadow nearby. We walked for a while before settling beside a quiet stream. There, we drew wildflowers and plants and listened with focused attention to the sounds of the gurgling water, birdsong, and rustling leaves. She was enjoying it, then got tense, realizing she had forgotten her appointment that afternoon with her Wraparound behavioral specialist. “No worries”, I told her, “I think we can save time if we walk straight across the valley, though we might get our feet a little wet.”*

*We were soon up to our knees in water, then fully wading mid-thigh. As we waded through the swamp, she processed through mental and relational barriers: “my mom will kill me, I’m getting my clothes all muddy, my shoes might be ruined.” I reassured her that all could be washed. Once she relaxed, she really dropped into the intense, fluid, present moment. We came to a small river that needed*

*crossing. “Where is the bridge?”, she said. “Oh wait, we can’t get any wetter”. With this sudden realization, she now guided me across the current, stopping to admire the ducks whose home we had joined for a brief time. She made it on time (including a clothing change) to her appointment. Over the next year we went on to many more adventures and nature-sensory immersions. I once bought her slip-on chains for her big, black, Goth boots and we went on an “ice hike,” traversing the ice flows that covered the trail in the days before the first winter snows softened the landscape.*

*I began realizing that the skills I built from my many years as a rock climbing and mountaineering guide were even more meaningful when applied to supporting Luisa as she pushed her own boundaries expanding her comfort zone through rough, off trail landscapes. While our outings did not require ropes or involve anything very steep, these transformative adventures were huge for the both of us.*

*Her evolution was remarkably observable. Her embodied confidence was noticeably improved over the first six months of our weekly outings, and her own window of tolerance grew wider. As reported by her family, teachers, and county social workers, Luisa was able to regulate her emotions more effectively, bounce back from setbacks, and her relationships with family and school personnel improved. Another key aspect was that the depth and richness of our therapeutic alliance led to her accepting support and advice around other lifestyle changes that she grew to appreciate. We shopped for healthy smoothie ingredients for her to start her school day, and she asked for and received coaching on how to land her first job.*

*After a year, the County Psychiatrist called me to say if I were able to continue these sessions for another year, he was willing to support her desire to come off the antipsychotic medications she had been on since the age of ten. I agreed and within two months, she came off the meds, continued to be free of self-harm behaviors, and kept up the outings for another year until she graduated high school. She also safely lost 80 pounds to obtain her healthy weight goal, and for the past couple of years, she has enjoyed full time employment at a daycare-preschool. She stays in touch with us and still uses time in nature as a resource.*

#### **Cultural humility, context, and equitable access to care**

WHMB was launched in the rural mountain community of Truckee and North Lake Tahoe, California, an area driven by tourism and dependent on a diverse labor force that includes a large Latino population. In the local school district, approximately 36% of students identify as Latino, and these youth are disproportionately represented

in alternative education and special education programs serving students with emotional disturbance.

From its inception, WHMB sought to reach families who historically had not engaged with traditional clinical services. This included both Latino families and white rural families who were Medicaid-eligible but reluctant to seek help through government systems. In many of these households, parents or guardians had past involvement with substance use, the justice system, or child protective services and were understandably wary of clinical or county-based settings.

One early mentor, a native Spanish speaker from Puerto Rico, played a pivotal role in building trust with Latino families who were hesitant to participate in county-based behavioral health programs. His leadership demonstrated how shared language and cultural familiarity could open pathways to engagement. At the same time, white mentors from the Truckee region were able to reach local rural families who felt more comfortable with providers familiar with their community culture and outdoor lifestyle.

As the program grew, mentors from different backgrounds—including those who did not share a client's language or ethnicity—were welcomed and trusted by families. This appeared to stem not from demographic matching alone but from the program's guiding principles of respect, reliability, and authentic relationship. WHMB's structure, meeting youth in their communities and emphasizing shared activity rather than formal therapy, helped bridge relational gaps that often discourage participation in traditional services.

TMs were encouraged to connect with caregivers at the end of sessions, sharing highlights of the day's nature-based experiences (with the youth's consent). These informal conversations helped families feel connected to the process and affirmed their child's strengths and growth. Over time, many families described the experience of care as shifting from clinical to communal—less about treatment and more about transformation.

In the local behavioral health system, services are often delivered in government or hospital buildings co-located with law enforcement and child welfare. These environments can feel intimidating and stigmatizing for families from immigrant backgrounds as well as for white rural families with a history of system involvement or distrust of government institutions. By contrast, WHMB provided Medicaid-reimbursed services in noninstitutional, natural settings, reducing stigma and logistical barriers to participation. Parents did not need to miss work, and youth could engage in treatment that felt safe, active, and empowering.

Many immigrant families also face fears related to documentation and system involvement, which further limit access to public

behavioral health care. In this context, WHMB offered a culturally responsive, community-integrated alternative. While the program's staffing diversity did not fully reflect the demographics of the youth served, it consistently prioritized training in cultural humility, implicit bias, and family-centered engagement. This emphasis, combined with individualized care and consistent mentorship, helped establish trust and connection across cultural and socioeconomic differences.

Cultural humility in mental-health practice emphasizes lifelong learning, self-reflection, and accountability in addressing power imbalances between providers and clients (Tervalon & Murray-García, 1998; Fisher-Borne, Cain, and Martin, 2015). WHMB's approach reflects these principles by embedding therapeutic relationships in the real-world contexts where young people and families live, learn, and belong, including both immigrant and white rural communities often overlooked in mental-health equity efforts (Monnat, 2020).

### *Pilot study evaluation methods*

To illustrate preliminary outcomes associated with participation in WHMB, a small pilot evaluation was conducted using two complementary data sources: (1) standardized self-report outcome data from youth participants and (2) observational ratings from referring professionals familiar with the youth's functioning. The study was reviewed and determined to be exempt from Institutional Review Board oversight.

### *Part 1: Youth Outcome Questionnaire Self-Report*

A program staff member, blind to the study aims, extracted Youth Outcome Questionnaire Self-Report (YOQ-SR) scores from 40 clients who had participated in WHMB for at least 6 months. The YOQ-SR is a 64-item self-report instrument designed to assess psychosocial distress and treatment progress among children and adolescents receiving mental-health services. It yields a total distress score and six domain scores—Intrapersonal Distress, Somatic Distress, Interpersonal Relations, Critical Items, Social Problems, and Behavioral Dysfunction—and is sensitive to clinical change over time (Wells, Burlingame, and Rose, 2003). Scores were extracted at program intake and again after approximately 6 months of participation.

### *Part 2: Referrer ratings questionnaire*

In addition, a total of 41 teachers, counselors, and therapists who had referred AYAs to WHMB were invited to complete a brief progress-rating questionnaire developed by K.P.T. Respondents rated the extent to which each youth had shown improvement over

the past year across multiple functional and relational domains, including the ability to calm down when upset, handle frustration, persist through challenges, ask for help, show empathy, and improve relationships with family members and teachers. Items were rated on a 5-point Likert scale (1 = has gotten worse, 2 = no improvement, 3 = a little improvement, 4 = quite a bit of improvement, 5 = a great deal of improvement). Retention data—the proportion of clients remaining engaged in weekly sessions for at least 6 months—were also calculated as an additional indicator of program engagement.

#### *Preliminary results*

Findings from this pilot evaluation suggest meaningful improvements in youth functioning following participation in WHMB.

#### *Youth Outcome Questionnaire Self-Report*

Analysis of YOQ-SR scores from 40 youth at intake and 6 months later showed consistent reductions across multiple domains of psychosocial distress. Mean total distress scores decreased by 30.8% (from 57.4 to 29.7), indicating an overall improvement in functioning. Subscale analyses revealed reductions of 45.0% in intrapersonal distress (e.g., anxiety, depression, hopelessness, and self-harm), 42.3% in somatic complaints, and 45.6% in interpersonal distress

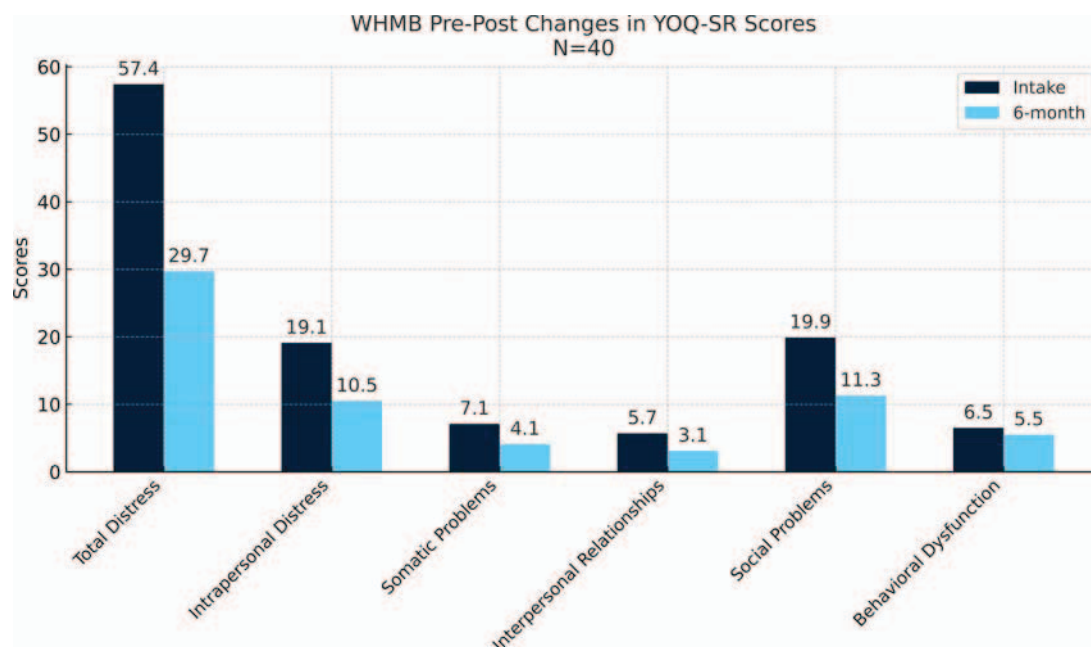
(e.g., relationship conflicts with parents, adults, or peers). Smaller but notable decreases were observed in social problems (18.7%; e.g., aggression and delinquency) and behavioral dysfunction (15.4%; e.g., attention, organization, and impulse control). These results reflect broad improvement across emotional, behavioral, and relational domains over the course of the program (see Fig. 1 for pre-post raw scores). Outcome domains synthesized by the authors from established Wraparound and systems-of-care literature for youth with serious emotional disturbance (Table 1).

#### *Referrer ratings questionnaire*

Complementary data from 41 referring professionals (teachers, therapists, and counselors) provided further evidence of positive change. The majority of respondents reported that participating youth demonstrated significant progress in key functional areas: 92% showed improved emotional regulation, 93% increased ability to face challenges and persist through difficulties, and 87% improved in relationships with family members.

#### *Engagement and retention*

Program retention was high, with 91% of youth remaining actively engaged in weekly sessions for more than 6 months and



**Fig. 1.** Pre-post raw scores of Youth Outcome Questionnaire Self-Report

**Table 1. Core Outcome Domains for Youth with Serious Emotional Disturbance**

| OUTCOME DOMAIN                                | DESCRIPTION/INDICATORS                                                                                          | REPRESENTATIVE SOURCES                 |
|-----------------------------------------------|-----------------------------------------------------------------------------------------------------------------|----------------------------------------|
| Symptom reduction                             | Decrease in psychiatric or behavioral symptoms; reduction in emotional distress, self-harm, or crisis behaviors | Painter (2012)                         |
| Improved emotional regulation                 | Increased coping skills and stress tolerance; ability to manage affect and impulses                             | Bruns et al. (2009)                    |
| Improved family and peer relationships        | Greater family stability and caregiver involvement; positive peer engagement                                    | Suter and Bruns (2009)                 |
| Improved school functioning                   | Better school attendance and performance; reduction in suspensions or expulsions                                | Painter (2012); Suter and Bruns (2009) |
| Reduced system involvement/Critical incidents | Increased participation in community and recreational activities; greater sense of belonging and purpose        | Painter (2012); Bruns et al. (2009)    |
| Enhanced overall well-being                   | Improvements in youth self-efficacy and quality of life; hopefulness about the future                           | Suter and Bruns (2009); Painter (2012) |

69% participating in weekly sessions for at least 12 months. These engagement rates are notable given that referred participants typically represented high-need, treatment-resistant populations with histories of service disengagement.

## Discussion

It is important to note that outdoor risk management is a core competency required of both TM and program leadership as the program prioritizes vivid, embodied experiences in nature. This often involves venturing off-trail into challenging terrain and heading out in inclement weather—conditions that require a high level of judgment and preparedness. A more complex aspect of risk management within WHMB is its challenge to a deeply ingrained paradigm found across most youth-serving programs in the United States: the standard that “an adult is never alone with a child.” While this policy has emerged from legitimate concerns about misconduct, it can unintentionally undermine the close, trust-based relationships that are essential for healing, especially for youth who have experienced early developmental trauma. WHMB takes the responsibility of one-on-one engagement outside of traditional clinical settings with utmost seriousness. Staff are trained far beyond the minimum standards typically required in schools or other youth programs. All personnel complete a 7-hour mandated reporter training approved by the State of California—double the length of the more common 3.5-hour training completed by many schoolteachers. TMs receive additional training focused on trauma-informed care, including how to assess and respond to emotional

dysregulation and crisis states. They are equipped with the tools to recognize when adjustments need to be made—for instance, choosing to walk rather than drive alone with a youth if the emotional tone or safety dynamics of the situation warrant it. This thoughtful, responsive approach to risk management allows WHMB to safely maintain the deep relational work that is often necessary for real healing—especially for youth who have learned not to trust easily.

### *Reciprocity individual and family*

WHMB nature-based therapeutic mentoring program fosters reciprocity across multiple levels—individual, family, community, and society. At the individual level, youth clients engage directly with nature and come to understand it as a personal resource for play, exploration, calming, healing, skill-building, and adventure.

Emerging research on the “equigenic effect,” the phenomenon in which natural environments can help reduce health disparities, suggests that access to nature may offer especially strong health benefits, especially for youth from socioeconomically disadvantaged backgrounds (Browning et al., 2022; Schinasi et al., 2023). WHMB responds to this by intentionally transporting youth from neighborhoods that often lack green spaces and parks to some of the region’s most natural and awe-inspiring landscapes, places more typically accessible to affluent communities. For many participants, this is their first opportunity to form a meaningful, personal relationship with the natural world.

This relationship is deepened through *Root #4* activities, which focus on helping others, including environmental stewardship and service projects aimed at supporting and restoring local ecosystems. As youth grow in their appreciation for and connection to nature, these shifts often ripple outward. It is common for youth to later guide their own family members on hikes they once took with their mentors. This kind of sharing is not incidental; it is a core intention of the program. The weekly outings are designed not only for personal growth but to build skills that naturally extend to family and community engagement.

Through these experiences, WHMB nurtures a cycle of reciprocity: nature supports the youth, and in turn, youth are inspired to care for nature and share their experiences with others, amplifying the healing benefits across wider social circles.

*When all seems hopeless, when the societal chaos engulfs us and it seems there's nowhere to run- I remind myself of the ever present wonder of nature.*

*The vast beauty of what the world is, without the constant expectations, the worries, the way humanity steals our souls.*

*I remember where my soul is, unbound in the forest, thriving bright on a cosmic blue water, awakened by a wind that guides me.*

*I listen to the heartbeat of the universe.*

*My feet will always have momentum, a free will to turn to the glimmering landscapes that never forsake me, for they tell stories of what freedom should feel like, and once I embark, I become my surroundings.*

*Choose wisely where you plant your feet, because your heart will always follow.*

*Steven Bonavita—former youth client*

### **Reciprocity—neighborhood, municipality, and beyond**

WHMB is the first, and remains the only, nature-based therapeutic program certified by Medi-Cal (California's Medicaid program). It stands as a pioneer in the growing "Nature as Medicine" movement, which initially gained traction through support from organizations such as the Sierra Club and The Nature Conservancy as part of broader conservation strategies.

As health care spending accounts for approximately 18% of the U.S. GDP, building robust evidence for the health benefits of time spent in nature could shift societal priorities. Access to nature may increasingly be recognized as a vital social determinant of health. Such a shift could drive greater investment in preserving and enhancing parks, greening schoolyards, and restoring urban waterways.

Expanding green space and tree canopy in urban areas can also trigger a cascade of public health benefits, mitigating urban heat islands, improving air quality, and even reducing crime and social unrest (Liang et al., 2025). In this way, nature-based interventions serve not only as therapeutic tools but as powerful, multilayered public health strategies (Mancus et al., 2022). As nature-based therapeutic programs expand to new regions and generate more published research, public and policy-maker awareness of nature's health benefits is likely to increase, contributing to broader support for nature conservation.

## **Conclusions**

WHMB is a program in which nature serves as both the setting and the context for shared exploration that fosters a strong therapeutic bond. The authors acknowledge a common critique of nature-based therapies: that there is insufficient research to date identifying and isolating the specific mechanisms responsible for therapeutic improvement in clients. For example, is the olfactory absorption of monoterpenes and negative ions more impactful than the activation of the vestibular and proprioceptive systems? Or is the most significant effect the joyful, shared experience of overcoming a physical challenge, such as balancing on logs while crossing a brush-covered wetland, with a trusted adult? From our perspective, it is the combination of nature-based sensory input, physical balance challenges, and shared exploration that most powerfully strengthens the therapeutic bond between youth and mentor. This integrated approach maximizes engagement, deepens appreciation, supports long-term retention, and ultimately leads to healing outcomes that often exceed those typically found in traditional clinical care.

WHMB is a novel treatment intervention that takes place entirely outside of traditional clinical settings. By meeting youth where they are and exploring the world alongside them, with the flexibility to enter spaces they may not typically visit or feel welcomed in, WHMB offers a program structure that can help reduce disparities faced by socioeconomically challenged youth in need of behavioral health support. This inherently nonclinical context also reduces stigma and makes effective treatment more accessible for diverse youth.

There is growing interest in alternatives to the dominant medicalized model of behavioral health care, which often relies heavily on medication and is delivered in institutional settings such as government offices and hospitals. WHMB represents one of many needed alternatives to help improve the current system of care. With increased research, societal support, and funding for such models, there is hope

that behavioral health care for high-need youth will evolve to become more humane, more accessible, and more effective.

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## Authors' Contributions

P.M. is the founder and program designer/developer of WHMB and served as the initial and then one of the growing TM team as the program launched and evolved. K.P.T. is a developmental psychologist and professor at the University of California, San Francisco, who has provided mentorship to program leaders and supported preliminary research and pilot evaluation efforts. Both authors contributed to the writing of this article. The authors propose that WHMB represents a promising model for further research and potential implementation in larger urban centers, as one of many needed innovations to address the youth mental health crisis.

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