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Research Paper

Emotional Catharsis Through Nature-Based Walk-and-Talk Therapy: A Quasi-Experimental Study in the Indian Himalayas

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ABSTRACT

In order to ascertain if structured walk-and-talk therapy results in quantifiable emotional release in young adults, this study investigated its effects on high-altitude Himalayan routes. The study suggested that the combination of therapeutic dialogue, rhythmic exercise, and the breathtaking sacred scenery would greatly improve participants' capacity to express feelings and lessen emotional suppression, based on eco-therapy theory and the affect-regulation framework. A 10-item Emotion Regulation Questionnaire-adapted Catharsis Scale ($\alpha = 0.91$) was used to assess 350 persons (ages 20–39; 72.5% male) before and after a guided therapeutic hike in the Uttarakhand Himalayas. Both parametric (Welch's t) and non-parametric (Mann–Whitney U) analyses showed a significant rise in catharsis scores from pre-intervention ($M = 2.45$, $SD = 0.70$) to post-intervention ($M = 5.88$, $SD = 0.37$), $t(697) = 80.72$, $p < .001$, Cohen's $d = 6.10$. There were no discernible gender differences (Hedges' $g = 0.04$, $p = .68$), indicating that the therapeutic advantages were the same for both sexes. Catharsis was found to be a significant predictor of post-intervention insight in hierarchical regression ($\beta = .24$, $p < .001$), and correlation and regression analyses revealed a substantial relationship between catharsis and gains in self-aliveness ($r = .90$) and cognitive insight ($r = .88$). According to theoretical models that see nature as an active co-therapeutic agent, these findings provide strong empirical evidence that Himalayan walk-and-talk therapy encourages extraordinary levels of emotional release.

Keywords: *Emotional Catharsis, Eco-Therapy, Walk-and-Talk therapy, Himalayan Psychology, Nature-Based Intervention, Affect Regulation, Outdoor Psychotherapy*

Emotional catharsis, which involves the therapeutic release and processing of repressed or intense emotions, has been a key concept in psychotherapy since Aristotle's Poetics and was further developed by Freud and Breuer in the late 1800s (Nichols, 1977). Modern affect-regulation theory differentiates between bottom-up strategies (such as physiological settling and discharge) and top-down strategies (like cognitive reappraisal and meaning-making), both of which play a role in cathartic processes (Gross, 2003). Even though catharsis is essential to therapeutic development, empirical research has not clearly identified the precise embodied and contextual circumstances that best support emotional release.

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Walk-and-talk therapy has emerged as an innovative psychotherapeutic approach where counseling sessions occur outdoors with the therapist and client walking side by side, usually in natural settings. This method incorporates three theoretically grounded mechanisms: (a) rhythmic bilateral movement, which aids emotional processing similar to EMDR-related bilateral stimulation; (b) immersion in restorative natural environments, aligning (Kaplan R. a., 1989) Attention Restoration Theory (ART) and (Ulrich, 1991) Stress Reduction Theory (SRT); and (c) reduced confrontational dynamics through side-by-side positioning, which lowers defensive barriers and encourages open communication ((Revell, 2017); (Hinds, 2016)).

The Himalayan region of Uttarakhand, India, offers a uniquely powerful setting for nature-based therapeutic intervention. Unlike urban parks or temperate forests, the Himalayas provide an environment marked by perceptual vastness, altitude-induced physiological arousal, cultural-spiritual significance, and awe—an emotional reaction to stimuli that surpass current mental frameworks (Keltner D. a.). Traditions of pilgrimage dating back centuries (Char Dham Yatra, Panch Kedar Yatra) have established the Himalayas as landscapes of transcendence and inner transformation in Indian cultural consciousness. These traits imply that the Himalayan setting may enhance the cathartic potential of walk-and-talk therapy beyond what is typically observed in Western ecotherapy studies.

Literature Gaps and Study Rationale

Despite increasing evidence supporting outdoor therapy in Western contexts (Bowen, 2016); (Barton, 2010), several significant gaps remain. First, the vast majority of walk-and-talk studies have been conducted in temperate Western ecosystems with small, clinical samples; no large-scale empirical investigation has been conducted in the culturally and ecologically unique Indian Himalayan context. Second, catharsis as a specific outcome variable is rarely measured using standardized instruments in outdoor therapy research, with most studies focusing on generalized mood or depression rather than the specific process of emotional release and suppression reduction. Third, gender differences in cathartic outcomes from nature-based therapy are poorly understood, despite evidence that men and women may access emotional expression modalities differently ((Pennebaker, 1997); (Mayer, 2021)).

This research seeks to fill existing gaps by exploring catharsis as the primary results variable in a substantial sample (N = 350) of young Indian adults participating in structured walk-and-talk therapy in the Uttarakhand Himalayas. Making use of theories of eco-therapy, embodied cognition, and affect regulation, we examine two hypotheses:

- Hypothesis 1 (Hcatharsis-time): Participants will exhibit significantly higher catharsis scores following the walk-and-talk therapy compared to their scores before the intervention.
- Hypothesis 2 (Hcatharsis-gender): There will be no notable difference in catharsis outcomes between male and female participants.

Theoretical Framework

Three overlapping theoretical traditions guide the catharsis-specific predictions of this study. First, eco-therapy theory (Roszak, 2001) suggests that a lack of connection with natural environments can lead to psychological issues, and that being immersed in nature—especially in pristine, biodiverse, and culturally important landscapes—can help restore emotional balance. The Himalayas, with their minimal human impact, sacred cultural

stories, and vast perceptual landscapes, exemplify what Kaplan and Kaplan (1989) described as a high-fascination, high-extent restorative environment.

Second, embodied cognition theory Johnson, M. (1999) proposes that cognitive and emotional procedures are deeply influenced by bodily states and actions. Walking offers rhythmic bilateral stimulation that helps regulate emotional arousal, synchronizes breathing patterns, and reduces cognitive load through motor automaticity, thereby freeing attentional resources for more profound emotional processing. The physical challenges of high-altitude trekking enhance this embodied engagement, linking physical exertion with emotional breakthroughs.

Third, affect-regulation theory (Gross, 2003) distinguishes between expressive suppression (inhibiting emotional expression) and cognitive reappraisal (reinterpreting emotional situations). Walk-and-talk therapy in the Himalayas is hypothesized to promote both bottom-up discharge (through rhythmic movement, exposure to cold air, and awe-induced vagal modulation) and top-down reframing (through therapist-guided dialogue amidst naturally occurring metaphors—such as river crossings, summit approaches, and panoramic views). This dual pathway is anticipated to result in both increased emotional expression and reduced emotional suppression on the catharsis measure.

METHOD

Participants

In this study, 350 young individuals between the ages of 20 and 39 participated (254 males and 96 females). Trekking groups in India's Uttarakhand Himalayas were the source of the participants. Participants had to be willing to undergo psychological testing both before and after the intervention, as well as physically able to complete the guided therapeutic journey. Prior mental health history was not used as an exclusion criterion. The self-selected sample consisted of people who were driven to participate in Himalayan hiking. An effective post-intervention sample of n = 349 was obtained since one participant's post-intervention data was lacking.

Design

A pretest–posttest quasi-experimental design with one group was used. Before beginning the walk-and-talk intervention, each participant finished a psychological evaluation. (Time 1: Before) and after its completion (Time 2: After). This design, although lacking a control group, was chosen due to the ethical and logistical challenges of withholding a therapeutic nature-based intervention from a trekking cohort.

Intervention

A planned therapeutic hike in Uttarakhand's Himalayan region was part of the walk-and-talk therapy session. Three therapeutic stages comprised this trek: (a) an acclimatization and entrainment stage with shorter inclines, breathing exercises, and quiet periods; (b) a catharsis-facilitation stage with moderate ascents and planned reflective breaks at scenic viewpoints; and (c) an integration stage with picturesque traverses at a steady pace with specific prompts for cognitive reappraisal and articulation of values. Trained facilitators led participants in therapeutic dialogues grounded in humanistic and cognitive-behavioral principles throughout the journey.

Measures

Catharsis Scale. Emotional catharsis was evaluated utilizing a 10-item scale modified from the Emotion Regulation Questionnaire (ERQ; (Gross, 2003)). The items assessed both emotional expression (e.g., "When I want to feel more positive emotion, I change what I'm thinking about") and emotional suppression (e.g., "I keep my emotions to myself"). Reactions were noted on a 7-point Likert scale (1 = Strongly Disagree to 7 = Strongly Agree). Greater composite scores were associated with cathartic expression and reduced suppression. Internal consistency was excellent ($\alpha = 0.91$).

Correlate measures. For regression and correlation analyses, concurrent measures of Self-Aliveness (15-item Mindful Attention Awareness Scale adaptation; $\alpha = 0.93$), Self-Righteousness (7-item Likert scale; $\alpha = 0.89$), and Cognitive Insight (7-item Beck Cognitive Insight Scale adaptation; $\alpha = 0.90$) were administered. The Overall Index was computed as the composite mean across all subscales ($\alpha = 0.95$).

Statistical Analysis

Analyses were conducted in five stages. First, internal consistency was evaluated using Cronbach's α and McDonald's ω. Second, distributional properties were examined with Shapiro–Wilk tests, skewness, and kurtosis. Third, the primary hypothesis (H1) was tested using Welch's independent-samples t-test, supplemented by the non-parametric Mann–Whitney U test due to mild non-normality. Effect sizes included Cohen's d, Hedges' g, and rank-biserial correlation (rrb). Fourth, gender differences (H2) were tested using independent-samples t-tests and Mann–Whitney U, with equivalence testing via TOST procedures ($\Delta = \pm 0.20$ SD). Fifth, the role of catharsis within the more comprehensive therapeutic outcome profile was examined through Pearson and Spearman correlations, and hierarchical multiple regression predicting cognitive insight from catharsis, self-aliveness, and demographic covariates. All analyses were conducted using SPSS (Version 28) and Python (scipy, scikit-learn, seaborn). Alpha was set at .05, with Benjamini–Hochberg FDR correction applied for multiple comparisons.

RESULTS

Preliminary Analyses

The Catharsis Scale demonstrated excellent internal consistency ($\alpha = 0.91$; $\omega = 0.92$). Average inter-item correlations ranged from .45 to .65, with all item-total correlations exceeding .60. Shapiro–Wilk tests indicated departures from normality for both pre-intervention ($W = 0.97$, $p < .01$) and post-intervention ($W = 0.94$, $p < .01$) distributions, consistent with post-intervention ceiling effects scores. Given the large sample size ($N \approx 700$), parametric tests remain robust under these conditions; nonetheless, all primary analyses were supplemented with non-parametric alternatives.

Pre–Post Catharsis Change (H1)

The main analysis demonstrated a notable rise in catharsis scores from before the intervention ($M = 2.445$, $SD = 0.703$) to after the intervention ($M = 5.881$, $SD = 0.373$). The complete inferential results are detailed in Table 1.

Table 1 Catharsis Scores Before and After Walk-and-Talk Therapy: Descriptive and Inferential Statistics

Test	*n*	*M*	*SD*	Statistic	*p*	*d* / *g*	r_r^b
Before	350	2.445	0.703	—	—	—	—
After	349	5.881	0.373	—	—	—	—
Welch t	—	—	—	80.72	< .001	6.10	—
Mann–Whitney U	—	—	—	121,311	< .001	—	.986

Note. d = Cohen's d; g = Hedges' g (= 6.09 after correction); r^{rb} = rank-biserial correlation from Mann–WhitneyU.

Welch's t-test showed a very important distinction, t(697) = 80.72, p < .001, with an average increase of 3.44 points on the 7-point scale. Cohen's d = 6.10 shows a very large effect size; according to conventional standards (Cohen, 2013), values over 0.8 are deemed "large." The non-parametric Mann–Whitney U test supported these results (U = 121,310.5, p < .001), with a rank-biserial correlation of .986, implying almost total separation between the pre- and post-intervention groups. Thus, Hcatharsis-time is strongly validated.

Gender Invariance in Catharsis (H2)

Table 2 presents catharsis scores disaggregated by gender.

Table 2 Catharsis Scores by Gender: Descriptive and Inferential Statistics

Gender	*n*	*M*	*SD*	Statistic	*p*	*g*
Male	507	4.18	1.68	—	—	—
Female	192	4.11	1.74	—	—	—
Welch t	—	—	—	0.41	.68	0.04

Note. g = Hedges' g. TOST equivalence bounds: ±0.20 SD.

No significant gender differences were found in catharsis scores, t(697) = 0.41, p = .68, Hedges' g = 0.04. The 90% confidence interval for the difference was entirely within the TOST equivalence bounds (±0.20 SD), confirming practical equivalence. The Mann–Whitney U test also showed no significant difference (p = .71, rrb = .02). Hcatharsis-gender is supported: the cathartic effects of Himalayan walk-and-talk therapy are consistent across genders.

Correlational Structure of Catharsis

Table 3 Pearson and Spearman Correlations Between Catharsis and Other Therapeutic Outcome Variables

Variable	*Pearson r*	*Spearman ρ*	95% CI (r)
Self-Aliveness	.90***	.89***	[.88, .92]
Self-Righteousness	.86***	.85***	[.84, .88]
Insight	.88***	.87***	[.86, .90]
Overall Index	.94***	.93***	[.93, .95]

Note. *** p < .001 (all survive Benjamini–Hochberg FDR correction). CI = Fisher's z-transformed 95% confidence interval.

Catharsis was strongly and positively linked with all other therapeutic outcomes, with Pearson coefficients ranging from .86 to .94. Spearman rank correlations closely matched the Pearson values, confirming robustness to non-normality. The strength of these

associations suggests that catharsis is not an isolated emotional event but part of a cohesive therapeutic growth process.

Catharsis as a Predictor of Insight: Hierarchical Regression

Table 4 Hierarchical Regression Predicting Cognitive Insight from Catharsis, Self-Aliveness, and Covariates

Predictor	*B*	*SE*	*t*	*p*	*β*	R^2	ΔR^2
Step 1						.001	.001
Age (centered)	–0.01	0.01	–1.0	.32	–.03		
Gender	–0.02	0.03	–0.7	.48	–.02		
Step 2						.84	.84***
Catharsis	0.32	0.04	8.0	< .001	.32		
Self-Aliveness	0.62	0.05	12.4	< .001	.62		
Step 3						.89	.05***
Time (0/1)	0.85	0.04	21.3	< .001	.40		

Note. N = 699. *** p < .001. Gender coded: Male = 0, Female = 1.

In hierarchical regression, demographic covariates (Step 1) accounted for negligible variance in Insight ($R^2 = .001$). Including Catharsis and Self-Aliveness (Step 2) significantly increased explained variance ($\Delta R^2 = .84$, $p < .001$), with both predictors being significant: Catharsis ($\beta = .32$, $p < .001$) and Self-Aliveness ($\beta = .62$, $p < .001$). Including the Time variable (Step 3) further enhanced the model ($\Delta R^2 = .05$, $p < .001$; total $R^2 = .89$). These findings indicate that catharsis uniquely contributes to cognitive insight beyond demographic factors, and the connection between emotional release and reflective lucidity is a fundamental mechanism of the intervention.

DISCUSSION

This study provides strong empirical proof that walk-and-talk treatment in the Indian Himalayas produces amazing emotional catharsis in young adults. The observed effect size (Cohen's d = 6.10) considerably exceeds the usual standards in psychotherapy outcome studies, where meta-analytic estimates typically fall between d = 0.3 and 0.8 (Wampold, 2015). The results confirm both main hypotheses: there was a notable rise in catharsis after the intervention, and this improvement was consistent across both male and female participants.

Theoretical Integration

The findings align with all three theoretical frameworks that informed this study. From an eco-therapy viewpoint, the Himalayan setting seems to act as an active co-therapist rather than merely a passive setting. The almost complete separation between pre- and post-intervention scores (rank-biserial r = .986) indicates that the environment's restorative qualities—such as perceptual vastness, awe induction, and biophilic engagement—were universally activated among participants. This supports (Ulrich, 1991) prediction that untouched natural environments lead to widespread stress reduction and emotional recalibration. From the perspective of embodied cognition, the data back the hypothesis that rhythmic bilateral movement aids emotional processing. The catharsis measure reflects a transition from suppressive to expressive emotion regulation strategies, which is exactly the pattern expected when walking attentional resources are released by automaticity from motor control, allowing for deeper emotional engagement. The physical requirements of

high-altitude trekking likely enhanced this embodied facilitation, as participants increased physiological arousal (breathing, heart rate, muscle exertion) provided a continuous interoceptive stream that aided affect labeling and emotional release. The affect-regulation framework is supported by the correlational and regression analyses. Catharsis was not only elevated on its own but was also strongly linked with increases in self-aliveness ($r = .90$) and cognitive insight ($r = .88$). In the hierarchical regression, catharsis and self-aliveness together explained 84% of the variation in insight, with catharsis offering unique predictive power ($\beta = .32$). This pattern supports a sequential regulation model: bottom-up discharge (catharsis) and energetic vitality (self-aliveness) together facilitate top-down reflective clarity (insight). The intervention seems to activate a complete affective processing cycle rather than producing isolated improvements.

Gender Invariance

The absence of gender disparities in catharsis outcomes (Hedges' $g = 0.04$) is significant given the longstanding theoretical assumption that women more readily access emotional expression than men (Pennebaker, 1997). In the context of Himalayan walk-and-talk therapy, the side-by-side walking arrangement, physical challenge, and immersive natural environment may have equalized emotional accessibility across genders. The cultural legitimacy of the Himalayan setting as a pilgrimage and spiritual landscape may have also provided male participants with a culturally sanctioned framework for emotional expression that is typically less available in conventional therapeutic settings.

Limitations and Future Directions

There are several limitations that need to be addressed. Firstly, the lack of a control group makes it difficult to definitively attribute causality; the changes observed might be partially due to natural development, demand characteristics, or general group bonding effects. Future studies should utilize randomized controlled trials to compare nature-based urban walking combined with walk-and-talk therapy combined with dialogue, nature walking without dialogue, and indoor dialogue-only scenarios. Secondly, the self-selected sample may not be representative of clinical populations or those not inclined to embark on Himalayan treks. Thirdly, the ceiling effects observed post-intervention ($M = 5.88$ on a 7-point scale) indicate that the current scale might not fully capture the range of cathartic experiences; future research should consider using extended-range response formats or item response theory modeling. Fourthly, self-report measurements have the potential to introduce social desirability bias; future research would benefit from incorporating physiological indicators of emotional release, such as cortisol assays and heart rate variability.

Longitudinal follow-up studies are crucial to assess whether the significant cathartic benefits observed here endure beyond the immediate post-trek period. Additionally, qualitative phenomenological research—gathering participant diaries, reflective narratives, and therapist observations—would offer a deeper contextual understanding of how catharsis is personally experienced during Himalayan walks.

CONCLUSION

This study reveals that In the Indian Himalayas, walk-and-talk therapy elicits a level of emotional catharsis that is uncommon in psychological intervention research. The impact is psychometrically sound and constant across genders, and theoretically supported by eco-therapy, embodied cognition, and affect-regulation frameworks. Catharsis is not just an isolated outcome but a fundamental mechanism that, along with vitality and self-aliveness,

fosters cognitive insight and reflective clarity. These findings highlight the Himalayas as a distinctive therapeutic environment and provide evidence-based support for incorporating Walk-and-talk therapy in the natural world into mental health practice, community wellness initiatives, mental health policy in India and beyond.

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Conflict of Interest

The author(s) declared no conflict of interest.

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