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**EXTENDED
ABSTRACT**

Exploring Outdoor Leisure Activities and Mental Health Among Hikers in Bukit Pelindung Pahang Malaysia

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I. INTRODUCTION

Hiking is a widely accessible outdoor leisure activity that offers potential psychological benefits [1]. This study investigates how hiking influences the mental health of hikers in Bukit Pelindung, Pahang, Malaysia. It further identifies outdoor leisure factors associated with mental health, examines the relationship between hiking [2] and mental health, and explores gender differences in these benefits [3] to provide insights for promoting psychological well-being through hiking.

II. METHODS

A quantitative, non-experimental survey design was used involving hikers in Bukit Pelindung, Pahang. Data were collected online between April and June 2025 using a structured questionnaire comprising demographic items, the Nature Relatedness Scale, and the Depression, Anxiety and Stress Scale (DASS-21). Participants were selected purposively to capture diverse hiking experiences and mental health outcomes efficiently without manipulating variables in natural hiking settings.

III. RESULTS AND DISCUSSION

A. Psychological Benefits

Most hikers reported positive psychological benefits from hiking, indicated by a mean mental health score of 1.63 ($SD = 0.724$). The slight positive skew suggests benefits were widely experienced, supporting hiking's role in enhancing mental health among Bukit Pelindung hikers.

B. Outdoor Leisure Factors Contributing to Mental Health

There is a strong negative correlation between outdoor leisure and mental health ($r = -0.811$, $p < 0.001$). This means that as outdoor leisure activity increases, mental health issues decrease or in other words, greater participation in outdoor leisure is associated with better mental health among the participants.

TABLE II
CORRELATION MATRIX

Outdoor Leisure	
	Pearson's r
	-0.811
Mental Health	df
	410
	p
	<0.001

C. Relationship

One-Way ANOVA revealed significant differences in mental health outcomes based on hiking participation levels ($F(3,408) = 30.4$, $p < 0.001$). However, assumption violations imply these results should be interpreted cautiously regarding their generalisability to wider hiking populations.

TABLE III
ONE-WAY ANOVA (FISHER'S)

	F	df1	df2	p
Mental Health	30.4	3	408	<0.001

D. Differences Between gender

Independent samples t-test showed no significant gender differences in mental health benefits ($p = 0.903$). Male and female hikers reported similar positive psychological outcomes, suggesting hiking's benefits are broadly accessible regardless of gender.

TABLE IV
DIFFERENCES BETWEEN GENDERS

	Statistic	df	p	Mean difference	SE difference	Effect Size
Mental health	0.122	410	0.903	0.00875	0.0715	0.0121
Group	N	Mean	Median	SD	SE	
Female	203	1.63	1.10	0.726	0.0509	
Male	209	1.62	1.10	0.725	0.0501	

IV. CONCLUSIONS

Hiking in Bukit Pelindung provides significant psychological benefits without gender differences. Key outdoor leisure factors strongly relate to mental health, highlighting hiking's value in promoting well-being. However, caution is needed in interpreting participation level effects due to statistical assumption violations.

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