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**EXTENDED  
ABSTRACT**

# Analyzing Mental Toughness Level on Adventure-Based Residential Program Participation Towards FSR Students

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## I. INTRODUCTION

University students often face high levels of stress that negatively affect academic performance and well-being. Mental toughness is a critical attribute for managing adversity. While adventure-based residential programs show promise in enhancing resilience, limited research has examined their impact on students' mental toughness. This study investigates changes in mental toughness among FSR students before and after participating in such a program to evaluate its psychological benefits in academic settings.

## II. METHODS

This study involved 68 FSR students who participated in an adventure-based residential program. The program included outdoor activities such as kayaking, orienteering, campcraft, rope courses, and cycling. Mental toughness levels were measured before and after the program using the Adventure-Based Mental Toughness Inventory (ABMTi). A quantitative approach was employed to assess changes and determine the significance of differences in participants' mental toughness scores.

## III. RESULTS AND DISCUSSION

### A. Overall Mental Toughness Before the Program

Before the program, FSR students had an average mental toughness score of  $M = 3.14$  ( $SD = 0.243$ ), with coping skills and commitment scoring lowest ( $M = 2.99$ ). Males scored higher than females ( $M = 3.27$  vs.  $M = 2.98$ ), but the gender difference was not statistically significant ( $p > 0.05$ ), indicating similar baseline resilience.

TABLE I  
DESCRIPTIVE ANALYSIS BEFORE THE PROGRAM

	N	Mean	Median	SD	Min	Max
Pre_Overall MT	68	3.14	3.3	0.243	2.19	3.50

### B. Overall Mental Toughness After the Program

Post-program scores increased to  $M = 4.49$ ,  $SD = 0.0566$ , with coping skills showing the highest improvement (Mean Difference = 1.53). This indicates substantial enhancement in mental resilience following participation. Though qualitative data was not collected, observed changes strongly suggest that

the program's experiential design contributed meaningfully to building psychological endurance among students.

TABLE II  
DESCRIPTIVE ANALYSIS AFTER THE PROGRAM

	N	Mean	Median	SD	Min	Max
Post_Overall MT	68	4.49	4.44	0.0566	4.44	4.56

### C. Significance Difference in Mental Toughness Before and After the Program

A paired t-test showed a statistically significant increase in mental toughness (Mean Difference = 1.35,  $SE = 0.0343$ ,  $p < 0.001$ ) after program participation. This confirms the effectiveness of adventure-based residential interventions in strengthening mental toughness among students, highlighting their value as co-curricular support for academic and emotional resilience.

TABLE I  
DIFFERENCES IN MENTAL TOUGHNESS BEFORE AND AFTER THE PROGRAM

Statistic	df	p	Mean difference	SE difference
	67.0	<0.001	1.35	0.0343

## IV. CONCLUSIONS

Adventure-based residential programs significantly enhanced FSR students' mental toughness, particularly in coping skills. The findings support their use in fostering resilience in higher education settings. Integrating such programs into student development initiatives may offer effective support for psychological well-being and academic performance.

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