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Mini Outbound Intervention for Reducing Depression Symptoms in New University Students: A Quasi-Experimental Study

Dewi Shinta[1*], Ria Setriani[2], Tansir Tansri Adzlan Syah[3]
Universitas Muhammadiyah Lampung, Lampung, Indonesia[1,2,3]
shintad236@gmail.com[1*],

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Abstract

Purpose: New university students often experience psychological adjustment difficulties with elevated depressive symptoms. This study examined the effectiveness of a mini outbound intervention in reducing depression among new students at State University X, Lampung, Indonesia.

Methodology: A quasi experimental one group pretest posttest design was used with 35 purposively selected students identified with depressive symptoms by the university Mental Health Care (MHC) unit. Depression was measured using the BDI-II (α = 0.93). The intervention consisted of three weekly offline mini outbound sessions involving cooperative physical games, self-reflection, and motivational activities. Normality was tested using Shapiro Wilk, and the Wilcoxon Signed Rank Test was applied due to non-normal data. Effect size was calculated using $r = |Z|/\sqrt{N}$.

Results: Mean BDI-II scores significantly decreased from 31.77 (SD = 4.621) to 19.86 (SD = 11.803), a 37.5% reduction. The Wilcoxon test showed significant improvement ($Z = -4.893$, $p = .000$), with 88.6% of participants improving. The effect size was large ($r = 0.828$).

Conclusions: Mini outbound intervention effectively reduces depressive symptoms through physical, social, and cognitive mechanisms. The findings suggest its potential as an alternative school-based mental health strategy.

Limitations: No control group, small sample size, non-random sampling, and lack of follow-up limit generalizability and causal inference. Future studies should include randomized controlled designs to strengthen validity.

Contributions: This study supports mini outbound as a low-cost mental health intervention in Indonesian higher education. It also provides preliminary evidence for integrating experiential learning into student mental health programs. Further research is needed to test long-term effectiveness across diverse populations.

Keywords: *BDI-II, Depression, Experiential Learning, Mental Health, Physical Activity*

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1. Introduction

The transition from secondary school to university represents one of the most psychologically demanding life events experienced by young adults. New university students must simultaneously navigate academic intensification, social reconfiguration, financial independence, andfor those relocating from other regions cultural dislocation (Sharma, 2012; Credé, & Niehorster, 2012). López and Cooper (2020) documented that many first-year students experience difficulties in adjusting their learning patterns to university-level academic demands, particularly in developing independent study habits, managing longer study hours, and balancing academic and social responsibilities. These adjustment challenges may become more pronounced among students who migrate from other regions, as they are also vulnerable to cultural adaptation difficulties and culture shock (Primasari, 2014; Ward, & Geeraert, 2016). Sharma (2012) noted that the intense emotional instability accompanying first-year adjustment, if unaddressed, can escalate into emotional disorders including depression.

Depression is a pervasive mental health condition characterized by persistent low mood, loss of interest and pleasure, energy depletion, negative self-evaluation, and impaired cognitive and social functioning (Beck, 1967; Davison, Neale, & Kring, 2012). The World Health Organization (WHO) (World, 2017) estimates that approximately 280 million people worldwide experience depression, representing 3.8% of the global population, with higher prevalence among women (6%) than men (4%). Data from Indonesia's National Basic Health Research (Riskesdas, 2018) indicate that more than 12 million Indonesians aged 15 and above experience depression, with student populations showing elevated prevalence relative to age-matched peers in the general population (Ibrahim, Kelly, Adams, & Glazebrook, 2013).

Among university students, depression carries consequences extending beyond individual suffering: untreated depression is associated with academic underperformance, psychosocial developmental delays, substance misuse, and suicidal ideation (Eisenberg, Golberstein, & Hunt, 2009). Preliminary assessment conducted with students at State University X through the university's Mental Health Care (MHC) unit confirmed the presence of students exhibiting depression indicators including sudden unexplained sadness, persistent feelings of worthlessness, concentration difficulties, appetite loss, and sleep disturbance consistent with Beck and Alford (2009) characterization of depressive emotional states.

Physical activity and exercise have received growing empirical support as effective interventions for depression across diverse populations. During physical activity, the body produces neurobiological compounds including endorphins, serotonin, and dopamine collectively termed "happiness hormones" which are associated with improved mood, reduced aggression, enhanced memory, and stress relief (Andalasari, & Bl, 2013; Schulch, 2017). Outbound training which combines structured physical games, team cooperation, and adventure challenges is proposed to leverage these neurobiological mechanisms within a social experiential learning context that simultaneously addresses the social isolation and negative self-evaluation characteristic of depression (Huldah, 2018).

Mini outbound represents a simplified, accessible form of outbound training, delivering cooperative physical games, group problem-solving, and reflective exercises within a structured group counseling framework suited to institutional settings. By combining physical activation with social support, experiential learning, and cognitive reflection, mini outbound theoretically addresses multiple depression mechanisms simultaneously a multi-modal approach that may produce effects exceeding those of purely pharmacological or purely cognitive interventions.

Despite growing evidence for physical activity and experiential learning as depression interventions, no published study has examined mini outbound specifically as a structured intervention for depression in Indonesian new university students. This study addresses this gap by evaluating the effectiveness of a three-session mini outbound program in reducing BDI-II depression scores among new students at State University X who had been identified through the university's MHC as exhibiting depressive symptoms.

2. Literature Review and Hypotheses Development

2.1 Depression: Definition, Mechanisms, and Student Prevalence

Beck (1967) conceptualized depression as a mood disorder characterized by pervasive emotional changes including sadness, loneliness, and emotional indifference, driven by a cognitive triad of negative evaluations of the self, the world, and the future. Beck and Alford (2009) elaborated that the cognitive, affective, motivational, and physiological dimensions of depression are interconnected, with negative automatic thoughts maintaining and amplifying all four domains. Davison et al. (2012) described depressed individuals as typically withdrawing from social environments, losing interest in previously rewarding activities, and exhibiting psychosomatic symptoms including fatigue, sleep disturbance, and appetite changes.

Among university students, depression is particularly prevalent due to the convergence of academic pressure, social adjustment demands, and identity development challenges characteristic of emerging adulthood (Hulukati & Djibran, 2018). Beck's cognitive triad model is especially relevant to the new student population, in which performance failures, social comparison, and separation from family support systems readily activate pessimistic self-evaluations. If left unaddressed, these cognitive patterns consolidate into sustained depressive states that impair academic and social functioning throughout the university years (Eisenberg, Golberstein, & Hunt, 2009).

In addition, the transition to university life often requires students to adapt to unfamiliar academic expectations and new social environments simultaneously, which can intensify feelings of uncertainty and psychological distress. This adjustment period is frequently accompanied by reduced coping resources, especially among students who relocate away from their families, thereby increasing vulnerability to depressive symptom development. The accumulation of these stressors highlights the importance of early identification and intervention strategies in university settings.

Furthermore, social support systems play a critical buffering role in mitigating depressive symptoms among students. Limited peer integration or weak interpersonal connections can exacerbate cognitive distortions described in Beck's model, reinforcing negative beliefs about the self and the environment. Strengthening social engagement within academic institutions is therefore a key factor in promoting psychological resilience and reducing the risk of persistent depressive states in new university students.

2.2 Factors Contributing to Depression in New Students

Beck and Alford (2009) identify cognitive factors as primary drivers of depression: individuals with persistently negative cognitive patterns interpret self, environment, and future pessimistically the Cognitive Triad generating and sustaining depressive states. Biological factors, including serotonin, dopamine, and norepinephrine imbalances, create neurochemical vulnerability that physical activity can directly address (Masi & Brovedani, 2011). Social factors family conflict, academic pressure, social isolation exacerbate depression risk, particularly for students relocated from their home regions (Currie & Morgan, 2020). Culture shock, defined as the psychological disorientation experienced upon encountering a substantially different cultural environment (Ward & Geeraert, 2016), represents a particularly salient stressor for new students from other provinces, adding an acculturation burden on top of academic adjustment demands.

In addition, these interacting biopsychosocial stressors may be particularly relevant in the context of first-year university students, who are often undergoing simultaneous academic, developmental, and environmental transitions. The convergence of cognitive vulnerability, biological susceptibility, and social stress can create a compounded risk profile that increases the likelihood of depressive symptom emergence during early university adjustment periods.

Furthermore, culture shock defined as the psychological disorientation experienced upon encountering a substantially different cultural environment may intensify adjustment difficulties for students migrating from different provinces. This acculturative stress can disrupt emotional stability, reduce

perceived social support, and increase cognitive burden, thereby reinforcing depressive symptom patterns identified in Beck's cognitive framework.

2.3 Physical Activity and Exercise as Depression Interventions

Physical activity reduces depression through documented neurobiological mechanisms. During exercise, the brain produces endorphins, serotonin, and dopamine neurochemical modulators of mood, motivation, and well being (Andalasari & Bl, 2013). Beta endorphins in the brain specifically counteract the inhibitory effects on dopamine in pleasure and motivation centers (ventral tegmental area, nucleus accumbens), positively influencing mood and motivation (Wang, 2021). Schulch (2017) reviewed evidence that physical exercise has antidepressant effects comparable to medication in mild to moderate depression, operating through neurophysiological mechanisms including hormonal modulation, neurotrophic factor upregulation, and reduced inflammatory biomarkers.

In addition, regular physical activity contributes to improved emotional regulation by enhancing stress response systems and increasing resilience to psychological strain. Repeated engagement in structured movement-based activities helps stabilize mood fluctuations and improves sleep quality, which is often disrupted in individuals with depressive symptoms. These cumulative physiological and psychological benefits suggest that exercise functions not only as a short-term mood enhancer but also as a long-term protective factor against depressive relapse.

Wang (2021) demonstrated in an adolescent cohort that physical activity behavior directly accounted for 39.7% of depression symptom variance, with duration, frequency, and intensity all negatively correlated with depression. Shufan et al. (2023) confirmed in a Chinese university student sample that higher physical activity engagement was associated with significantly lower depression scores. (Kandola, Ashdown-Franks, Hendrikse, Sabiston, & Stubbs, 2019) argued that the protective and antidepressant effects of physical activity are most likely to emerge when participation is maintained over time, emphasizing sustained engagement rather than single episodes of exercise.

2.4 Outbound and Mini Outbound: Experiential Learning Framework

Outbound training derives from the experiential learning tradition (Kolb, 1984), which proposes that meaningful learning occurs through the cycle of concrete experience, reflective observation, abstract conceptualization, and active experimentation. Huldah (2018) defines outbound as a physical activity performed in small and large groups that requires strategy, tactics, physical skill, and emotional intelligence to achieve goals, encompassing personality, social, pedagogic, and professional development dimensions. Activities include real outbound (cliff climbing, rafting) and fun outbound (cooperative games emphasizing team strategy and problem solving) (Asti, 2009). Mini outbound simplifies the outbound format for accessible delivery within institutional settings, maintaining the cooperative physical activity, group problem-solving, and reflective elements while removing logistical barriers requiring outdoor or adventure-sport infrastructure (Warsiyah, 2011) .

2.5 Prior Empirical Studies

Table 1 summarizes prior empirical studies on physical activity, outbound activities, and depression or mental health outcomes.

Table 1. Summary of Prior Studies on Physical Activity, Outbound, and Depression/Mental Health Outcomes

Author(s) & Year	Population / Setting	Method	Key Finding on Physical Activity / Outbound and Depression
Kandola et al. (2019)	General population	Review	Physical activity is consistently associated with lower depression risk and symptom severity. Evidence suggests a dose-response relationship, with greater and sustained engagement in physical activity producing stronger antidepressant effects.

Author(s) & Year	Population / Setting	Method	Key Finding on Physical Activity / Outbound and Depression
(Wang, 2021)	Adolescents	Cohort study	Physical activity behavior directly predicts 39.7% of depression symptom variance; duration, frequency, and intensity all negatively correlated with depression; longer duration associated with lower depression
(Shufan et al., 2023)	University students, China	Cross-sectional	Higher physical activity engagement associated with significantly lower depression scores among university students; direct effect of exercise on depression symptom reduction confirmed
(Bhakti & Dewi, 2023)	Students aged 13-15 years, Indonesia	Experimental	Outbound games significantly reduce stress levels in adolescents; physical-social group activities produce measurable improvements in mood and stress indicators
(Warsiyah, 2011)	Educational setting	Quasi-experimental	Outbound activities create meaningful learning experiences that strengthen character and improve adaptive capacity; experiential learning approach enhances resilience
(Huldah, 2018)	Student training context	Descriptive study	Outbound contributes to improvements in social skills, focus, self-confidence, and reduction of stress and anxiety symptoms; encompasses personality, social, pedagogic, and professional development dimensions
(Schulch, 2017)	Clinical and general populations	Review	Physical exercise has antidepressant effects through neurophysiological mechanisms including endorphin release, neurotrophins (BDNF), and reduced inflammatory biomarkers; consistent with pharmacological approaches in mild-to-moderate depression
(Kass & Grandzol, 2012)	MBA students participating in outdoor management training	Program evaluation	Outdoor management training enhanced leadership, teamwork, interpersonal communication, and collaborative problem-solving skills.

Table 1 demonstrates consistent evidence for physical activity and outbound-type activities in reducing depression and stress across diverse populations. The present study extends this evidence specifically to the mini outbound format as a structured group intervention for university students with identified depressive symptoms in an Indonesian institutional context.

In addition, mini outbound interventions may be particularly suitable for emerging adults in university settings because they combine experiential learning, social interaction, and moderate physical activity within a controlled and time-efficient format. These characteristics are important for student populations who often face academic pressure, limited time availability, and reduced access to structured mental health programs. By integrating cognitive, emotional, and behavioral engagement in group-based activities, mini outbound may enhance resilience, social connectedness, and adaptive coping strategies, which are key protective factors against depressive symptoms.

2.6 Research Hypothesis

H_1 (Research Hypothesis): Mini outbound intervention will significantly reduce BDI-II depression scores among new students at State University X from pretest to posttest.

H_0 (Null Hypothesis): Mini outbound intervention will not significantly reduce BDI-II depression scores among new students at State University X from pretest to posttest.

3. Research Methodology

3.1 Research Design

A quasi-experimental one-group pretest-posttest design was employed (Arikunto, 2010; Sugiyono, 2019). In this design, a single experimental group receives pretest measurement (*O1*), the experimental treatment (*X*), and posttest measurement (*O2*). Table 2 presents the research design schema. presents a one-group pretest–posttest research design consisting of a single non-random (purposive) group. The design involves three sequential stages: pretest (*O1*), treatment (*X*) in the form of Sessions 1–3, and posttest (*O2*). This structure allows the measurement of changes in the dependent variable within the same group before and after the intervention. The absence of a control group indicates that all participants received the same treatment condition, making the design suitable for preliminary or exploratory analysis of intervention effects prior to more rigorous controlled trials (Sugiyono, 2019).

Table 2. One-Group Pretest-Posttest Research Design

Group	Pretest	Treatment	Posttest
Non-Random (Purposive)	O1	X (Sessions 1–3)	O2

Note: O1 = pretest measurement; O2 = posttest measurement; X = mini outbound intervention (Sessions 1-3). Non-random = purposive sampling assignment.

Table 2 presents a one-group pretest posttest research design consisting of a single non-random (purposive) group. The design involves three sequential stages: pretest (*O1*), treatment (*X*) in the form of Sessions 1–3, and posttest (*O2*). This structure allows the measurement of changes in the dependent variable within the same group before and after the intervention. The absence of a control group indicates that all participants received the same treatment condition, making the design suitable for preliminary or exploratory analysis of intervention effects prior to more rigorous controlled trials (Sugiyono, 2019).

3.2 Participants

Table 3. Participant Demographics by Sex (n = 35)

Sex	n	Percentage (%)
Female	23	65.7
Male	12	34.3
Total	35	100.0

Table 3 presents the demographic distribution of participants based on sex. Of the 35 participants included in the study, the majority were female (n = 23; 65.7%), while male participants accounted for 34.3% (n = 12). This distribution indicates that the sample was predominantly female, reflecting the gender composition of the recruited new student population at State University X. All participants were selected through purposive sampling based on predefined inclusion criteria related to enrollment status and the presence of depressive symptoms identified through preliminary assessment by the MHC unit.

3.3 Measurement Instrument

Table 4. BDI-II Item Structure by Psychological Domain

No.	Domain	Items	n Items
1	Emotional/Affective	1, 10, 11, 12, 17	5
2	Cognitive	2, 3, 4, 5, 6, 7, 8	7
3	Motivational	9, 13, 19	3
4	Physical-Vegetative	14, 15, 16, 18, 20, 21	6
	Total		21

Table 4 presents the distribution of items in the Beck Depression Inventory-II (BDI-II) according to psychological domains. The instrument consists of 21 items that are categorized into four main domains. The cognitive domain contains the largest number of items (n = 7), followed by the physical-vegetative domain (n = 6), the emotional/affective domain (n = 5), and the motivational domain (n = 3). This structure indicates that the BDI-II places relatively greater emphasis on cognitive and somatic aspects of depressive symptoms compared to motivational symptoms. Overall, all 21 items collectively assess the multidimensional nature of depressive symptomatology as experienced by respondents over the past two weeks.

3.4 Mini Outbound Intervention Protocol

Table 5. Mini Outbound Intervention Session Structure

Session	Timing	Activities	Psychological Objectives
1	Week 1, Day 1	Attendance; ice-breaking warm-up; group formation with jargon/cheer; cooperative games: Human Knot, Bridge Crossing, Cup Relay; closing	Build interpersonal trust and group cohesion; activate physical movement to stimulate endorphin release; introduce cooperative problem-solving as a stress-reduction mechanism
2	Week 2, Day 1	Attendance; repeat cooperative games from Session 1; muhasabah diri (self-reflection exercise); group evaluation and discussion; closing	Consolidate social bonds formed in Session 1; develop metacognitive awareness through structured reflection; promote cognitive reappraisal of negative self-evaluation patterns
3	Week 3, Day 1	Attendance; cooperative games; motivational content delivery and life resilience planning (life plan); Q&A session; posttest BDI-II administration; closing	Reinforce positive self-narratives through motivational content; develop future orientation and goal-directed thinking as protective factors against depression; assess intervention outcomes

Table 5 presents the structure of the mini outbound intervention conducted over three consecutive weekly sessions at State University X. Each session was facilitated by one lead facilitator and supported by four to six co-facilitators, ensuring structured delivery of activities across participants. The intervention was designed to target three psychological domains, namely cognitive, affective, and psychomotor functioning, through experiential group based activities.

Session 1 focused on building interpersonal trust and group cohesion through ice-breaking activities and cooperative games, while also introducing physical engagement intended to stimulate positive physiological responses. Session 2 emphasized consolidation of social bonds formed in the first session and incorporated reflective exercises to enhance cognitive awareness and reappraisal of negative self-beliefs. Session 3 focused on reinforcing positive self-narratives through motivational content and life planning activities, while also serving as the posttest measurement point using the BDI-II. Overall, the intervention progressively integrated experiential learning, cognitive reflection, and motivational development to address depressive symptoms through multidimensional psychological mechanisms.

3.5 Data Analysis

Descriptive statistics (mean, standard deviation, minimum, maximum) were computed for pretest and posttest BDI-II scores. Normality was assessed using the Shapiro-Wilk test. Given the non-normal distribution of pretest data (SW $p = .000 < .05$) and posttest data (SW $p = .168 > .05$), the non-parametric Wilcoxon Signed Rank Test was applied to compare pretest and posttest scores (Ghasemi & Zahediasl, 2012). The decision criterion was $p < .05$ (two-tailed). Effect size was calculated as $r = |Z|/\sqrt{N}$ (Cohen, 1988), with r = .10, .30, and .50 indicating small, medium, and large effects respectively. All analyses were conducted using IBM SPSS Statistics version 25.

4. Results and Discussions

4.1 Descriptive Statistics

Table 6. Descriptive Statistics: BDI-II Scores at Pretest and Posttest (n = 35)

Measurement	N	Min.	Max.	Mean	SD
Pretest (BDI-II)	35	19	45	31.77	4.621
Posttest (BDI-II)	35	2	45	19.86	11.803
Mean Reduction (Δ)	—	—	—	−11.91	—
Percentage reduction	—	—	—	37.5%	—

Table 6 presents the descriptive statistics of BDI-II scores at pretest and posttest for the 35 participants. At baseline, the pretest mean score was 31.77 (SD = 4.621), indicating that participants were initially in the severe depression category. Following the mini outbound intervention, the posttest mean score decreased to 19.86 (SD = 11.803), reflecting a shift toward the mild depression category. This reduction corresponds to a mean difference of −11.91 points or a 37.5% decrease in depressive symptom severity.

In addition, the posttest scores exhibited a substantially larger standard deviation compared to the pretest, indicating greater variability in participant outcomes after the intervention. This suggests heterogeneous individual responses, where some participants experienced substantial symptom reduction while others showed smaller improvements or relatively stable scores. Overall, the results indicate a general downward trend in depressive symptoms following the intervention, accompanied by increased variability in individual response patterns.

4.2 Statistical Test Results

Table 7. Wilcoxon Signed Rank Test: Rank Distribution

Rank Category	n	Mean Rank	Sum of Ranks	Interpretation
Negative Ranks (Posttest < Pretest)	31	16.95	525.50	31 participants improved (depression decreased)
Positive Ranks (Posttest > Pretest)	1	2.50	2.50	1 participant worsened
Ties (no change)	3	—	—	3 participants unchanged
Total	35	—	—	—

Table 7 presents the distribution of Wilcoxon Signed-Rank test results comparing BDI-II pretest and posttest scores among the 35 participants. The majority of participants (n = 31) were classified as negative ranks, indicating that their posttest scores were lower than their pretest scores and therefore experienced a reduction in depressive symptoms. Only one participant showed a positive rank, indicating an increase in depressive symptoms, while three participants showed no change between pretest and posttest scores. This distribution demonstrates a clear dominance of improvement outcomes following the mini outbound intervention.

In percentage terms, 88.6% of participants experienced a decrease in depressive symptoms, 2.9% showed symptom worsening, and 8.6% showed no change. This pattern suggests that the intervention had a consistent directional effect across the majority of participants, with most individuals benefiting from the program. The imbalance between negative and positive ranks further strengthens the indication that the observed changes were not random but systematically oriented toward symptom reduction.

Table 8. Wilcoxon Signed Rank Test: Statistical Output and Effect Size

Statistic	Value	p-value	Decision
Z (Wilcoxon)	−4.893	.000	Reject H_0
Effect size r = |Z|/√N	0.828	—	Large effect (r > .50)

Statistic	Value	p-value	Decision
BDI-II mean change	31.77 → 19.86	—	37.5% reduction

Table 8 presents the statistical output of the Wilcoxon Signed-Rank test and the associated effect size. The test produced a Z value of −4.893 with a significance level of p = .000, which is below the α = 0.05 threshold. This result indicates that the decrease in BDI-II scores from pretest to posttest is statistically significant. Accordingly, the null hypothesis is rejected, and the research hypothesis is supported, confirming that the mini outbound intervention significantly reduces depressive symptoms among new students at State University X.

Furthermore, the effect size calculation (r = 0.828) indicates a large practical effect, suggesting that the intervention has strong clinical relevance beyond statistical significance alone. The mean BDI-II score decreased from 31.77 at pretest to 19.86 at posttest, representing a 37.5% reduction in depressive symptoms. Overall, these findings demonstrate that the mini outbound intervention is not only statistically effective but also produces a substantial and meaningful improvement in participants' psychological condition.

4.3 Discussion

4.3.1 Neurobiological Mechanisms

The significant BDI-II score reduction is interpretable through the neurobiological mechanisms of physical activity on depression. Schulch (2017) documented that exercise produces antidepressant effects through multiple neurophysiological pathways: endorphin release reduces pain perception and enhances mood; serotonin regulation improves emotional stability; dopamine modulation restores motivation and anhedonia; and Brain-Derived Neurotrophic Factor (BDNF) upregulation supports neuroplasticity in brain regions implicated in mood regulation. Wang (2021) demonstrated a direct relationship between physical activity duration and depression reduction, with the cooperative physical games across three mini outbound sessions providing the repeated physical activation necessary to initiate these neurobiological changes. The eustress (positive stress) produced by physically challenging but safe group games generates the arousal and arousal recovery cycle that Andalasari (2013) associates with mood improvement and improved sleep quality.

In addition, the group-based physical activities in the mini outbound intervention may have enhanced psychological recovery through simultaneous activation of physiological and social mechanisms. Engaging in cooperative games requires coordinated movement, shared goal pursuit, and real-time interpersonal interaction, which together can amplify positive affective states and reinforce stress-buffering effects. This combination of physical exertion and social engagement is particularly relevant in university student populations, where academic stress and social adjustment challenges often co-occur.

Furthermore, repeated exposure to structured physical activity across multiple sessions may contribute to cumulative neuropsychological benefits rather than isolated short-term effects. Consistent engagement in physically activating tasks can strengthen adaptive stress-response systems and improve emotional resilience over time. This may help explain the substantial reduction in depressive symptoms observed in this study, as the intervention not only provided immediate mood enhancement but also supported longer-term psychological adaptation processes.

4.3.2 Social and Cognitive Mechanisms

Beyond the neurobiological pathway, the mini outbound intervention engaged social and cognitive depression mechanisms. The cooperative game format (Human Knot, Bridge Crossing, Cup Relay) required participants to communicate, coordinate, and depend on each other, generating experiences of belonging, trust, and competence that directly counteract the social withdrawal and helplessness characteristic of depression (Davison, Neale, & Kring, 2012). Kass, & Grandzol, 2012 reported that

outdoor management training fosters interpersonal competence, strengthens teamwork, and enhances collaborative problem-solving among participants. These interpersonal improvements are closely related to increased perceived social connectedness and group cohesion.

The muhasabah diri (self-reflection) exercise in Session 2 and the motivational life plan content in Session 3 introduced cognitive restructuring components that address the cognitive triad of depression (Beck, 1967): negative beliefs about self ("I am incapable") are challenged by the concrete experience of successfully completing cooperative tasks; negative beliefs about the environment ("I have no support") are contradicted by the experience of group solidarity; and negative beliefs about the future ("My situation will never improve") are addressed directly through the life resilience planning exercise in Session 3. This experiential cognitive restructuring approach aligns with the findings that simultaneous engagement of cognitive, affective, and psychomotor domains produces emotional stabilization more effectively than purely verbal or reflective interventions.

4.3.3 Consistency with Prior Research

The study's findings are consistent with the body of evidence reviewed in Section 2. The 37.5% mean BDI-II reduction is substantial and comparable to effects reported by Bhakti and Dewi (2023) for outbound games on adolescent stress and by Shufan et al. (2023) for physical activity on university student depression. The large effect size (r = 0.828) exceeds the magnitudes typically reported for single-modality physical activity interventions, which may reflect the multi-mechanism nature of mini outbound combining physical activation, social support, and cognitive restructuring in a unified experiential format that addresses more depression dimensions simultaneously than exercise alone.

In addition, the strong intervention effect observed in this study may also be explained by the structured group-based delivery format, which facilitates peer interaction and social connectedness during the intervention process. Social engagement has been consistently identified as a protective factor against depressive symptoms, as it enhances perceived belongingness and reduces psychological isolation among participants. The collaborative nature of outbound activities may therefore contribute to emotional regulation and improved mood states beyond the effects of physical activity alone.

Furthermore, the progressive session design of the intervention moving from trust-building activities to reflective exercises and motivational reinforcementmay have supported gradual cognitive and emotional change over time. This stepwise structure allows participants to internalize positive experiences, reframe negative self-perceptions, and develop more adaptive coping strategies, which collectively contribute to sustained reductions in depressive symptoms observed at posttest.

4.3.4 Practical Implications for Indonesian Higher Education

The study's findings carry practical significance for Indonesian university mental health support systems. Mini outbound is a low cost, infrastructure light, group-scalable intervention that requires no specialized clinical equipment, can be delivered by trained facilitators rather than licensed clinicians, and is culturally resonant with Indonesian students' familiarity with team-based activities and group learning formats. The inclusion of muhasabah diri (Islamic self-reflection practice) in Session 2 is a culturally appropriate adaptation that aligns the intervention with participants' spiritual values, potentially enhancing its acceptability and therapeutic resonance. Integrating mini outbound into the new student orientation program (OSPEK/student induction) would enable early identification and preventive engagement with students at risk of depression during the transition period the point at which Beck's cognitive triad patterns are most susceptible to positive intervention before they consolidate into chronic depressive states.

5. Conclusions

5.1 Conclusion

This study demonstrated that a three-session mini outbound intervention significantly reduces depressive symptoms among new university students identified through MHC assessment as exhibiting depression. Mean BDI-II scores decreased by 37.5% from pretest (M = 31.77) to posttest

(M = 19.86), shifting the group mean from the severe to the mild depression range. The Wilcoxon Signed Rank Test confirmed statistical significance ($Z = -4.893$, $p = .000$), with 88.6% of participants showing reduced symptom scores and a large effect size ($r = 0.828$). The research hypothesis was supported.

Mini outbound operates through three complementary mechanisms: neurobiological (physical activity-induced endorphin, serotonin, and dopamine release that directly improve mood and reduce physiological stress); social (cooperative game experiences that build group cohesion, social support, and interpersonal competence, counteracting the social withdrawal of depression); and cognitive (structured reflection and motivational content that challenge Beck's cognitive triad beliefs through concrete experiential counterexamples). The combination of these mechanisms in a multi-session group format explains the large effect size relative to single-modality interventions. The study contributes empirical evidence for mini outbound as a practical, low-cost, culturally resonant, and scalable intervention for depression prevention and reduction in Indonesian higher education, suitable for integration into student orientation and mental health support programs.

5.2 Research Limitations

Five methodological limitations qualify the study's findings. First, the absence of a control group prevents ruling out maturation effects (students' depression naturally improving over the academic semester), testing effects (completing the BDI-II twice sensitizing participants to their own mental state), historical effects (other concurrently delivered university support activities affecting depression), and regression to the mean (high initial scorers naturally moving toward the population mean). Second, the non-random purposive sampling and single-institution sample restrict generalizability to other student populations and institutional contexts. Third, the small sample ($n = 35$) limits statistical power for subgroup analyses and increases the risk of overestimating effect sizes in single-group studies without correction. Fourth, the study measures only immediate posttest effects; no follow up assessment was conducted to determine whether depression reductions were maintained at one month, three months, or one academic year post-intervention. Fifth, individual difference variables that may moderate intervention responsiveness including baseline depression severity, social motivation, cultural background, and psychological flexibility were not measured.

5.3 Suggestions and Directions for Future Research

Future research should address the identified limitations through three principal avenues. Methodologically, a Randomized Controlled Trial (RCT) comparing mini outbound against a waitlist control condition or against an active control (psychoeducation without physical activity) would enable causal attribution of observed depression reductions to the specific components of the mini outbound format rather than non-specific factors. A dismantling design comparing conditions with and without the physical activity component, the reflection component, and the motivational content would further identify which mini outbound elements drive depression reduction.

Longitudinally, follow-up assessments at one month, three months, and one academic semester post-intervention would assess the durability of depression reductions and identify whether booster sessions are required to maintain effects. Research incorporating additional outcome measures including the Perceived Stress Scale (PSS), psychological well-being scales, academic performance indicators, and objective sleep quality measures would provide a more comprehensive picture of the intervention's impact on student functioning beyond depression symptomatology. Multi-site studies replicating the intervention across diverse Indonesian universities and student populations would establish the external validity and cultural transferability of the findings. Finally, research examining the cultural specificity of the self-reflection component comparing its effect in Muslim versus non-Muslim participant subgroups would provide guidance for culturally adaptive versions of the intervention for ethnically and religiously diverse student populations.

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Author Contributions

DS contributed to the conceptualization of the study, research design, data collection, and preparation of the initial manuscript draft. RS was responsible for assisting in data analysis, verifying statistical procedures, and providing critical revisions to improve the clarity and structure of the manuscript. TTAS supervised the overall research process, contributed to theoretical development and interpretation of findings, and provided final approval of the manuscript for submission.

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