

EFFECTS OF THE THERAPEUTIC GAME *CRECIENDO EN MINDFULNESS* (CEM) ON EMOTIONAL AND BEHAVIORAL PROBLEMS IN JUVENILE OFFENDERS AT THE “JALTEVA” PEDAGOGICAL INTERNMENT CENTER IN HONDURAS

Efectos del Juego terapéutico creciendo en mindfulness (CEM) sobre los problemas emocionales y de conducta de los menores en conflicto con la ley penal del cpi “Jalteva” en Honduras

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ABSTRACT

Keywords:

Mindfulness, therapeutic game; minors in conflict with criminal law, emotional problems, behavioral problems.

This study evaluated the effectiveness of the therapeutic game *Creciendo en Mindfulness* (Growing in Mindfulness, *CEM*) in reducing emotional and behavioral problems among adolescents confined in the “Jalteva” Pedagogical Internment Center in Honduras. A one-group, pre-experimental pretest-posttest design was employed ($n = 27$; ages 13–18). Before and after four CEM sessions, participants completed the *Cuestionario para la Evaluación de Problemas en Adolescentes* (Questionnaire for the Assessment of Adolescent Problems, Q-PAD) and the Personality Assessment Inventory–Adolescent (PAI-A). Changes were analyzed using the Wilcoxon signed-rank test, and effect sizes were calculated with Hedges’ g . After the intervention, uncertainty about the future decreased from the 86th to the 71st percentile ($p = .011$; $g = -0.46$), and perceived lack of social support declined from $T = 64$ to 58 ($p = .032$; $g = -0.45$). However, aggressive attitude increased from $T = 55$ to 58 ($p = .037$; $g = 0.28$). The correlation pattern among scales became more coherent, suggesting greater emotional awareness. The findings suggest that CEM yielded specific improvements in internal variables related to anticipatory anxiety and perceived support, though its overall impact on emotional and behavioral symptomatology was limited. Institutional constraints, the absence of a control group, and the short follow-up period restrict causal attribution and generalizability. It is recommended to complement the program with individualized interventions and family involvement to enhance adolescents’ social reintegration.

RESUMEN

Palabras clave:

Mindfulness, juego terapéutico; menores en conflicto con la ley penal, problemas emocionales, problemas conductuales.

Este estudio evaluó la eficacia del juego terapéutico *Creciendo en Mindfulness* (CEM) para disminuir los problemas emocionales y de conducta en adolescentes internados en el Centro Pedagógico de Internamiento "Jalteva", Honduras. Se adoptó un diseño preexperimental de preprueba-posprueba con un único grupo ($n = 27$; 13-18 años). Antes y después de cuatro sesiones del CEM, se aplicaron el Cuestionario para la Evaluación de Problemas en Adolescentes (Q-PAD) y el Inventario de Evaluación de la Personalidad para Adolescentes (PAI-A). Los cambios se analizaron mediante la prueba de rangos con signo de Wilcoxon y se estimó el índice g de Hedges. Tras la intervención, la incertidumbre sobre el futuro bajó del percentil 86 al 71 ($p = .011$; $g = -0.46$) y la percepción de falta de apoyo social descendió de $T = 64$ a 58 ($p = .032$; $g = -0.45$). Sin embargo, la actitud agresiva aumentó de $T = 55$ a 58 ($p = .037$; $g = 0.28$). El patrón de correlaciones entre escalas se volvió más coherente, lo que sugiere una mayor conciencia emocional. Los hallazgos indican que el CEM genera mejoras puntuales en variables internas asociadas con la ansiedad anticipatoria y el apoyo percibido, aunque su impacto global sobre la sintomatología emocional y conductual fue limitado. Factores institucionales, la ausencia de un grupo control y el corto seguimiento restringen la atribución causal y la generalización. Se recomienda complementar el programa con intervenciones individualizadas y acompañamiento familiar para potenciar la reinserción social de los adolescentes.

Introduction

Adolescence is a period of intense biological, cognitive and social reorganization in which the search for autonomy, group pressure and impulsivity converge to increase the likelihood of risky behaviors. When these behaviors transgress criminal law, young people enter juvenile justice circuits that often reinforce stigmatization and reproduce violent dynamics. In Latin America -and particularly in Honduras- socio-educational measures are developed in contexts of limited resources, with aging infrastructure and scarce professional staff, which makes it difficult to implement evidence-based programs. Added to this is the high prevalence of emotional and behavioral disorders in minors in conflict with the law: depression, anxiety, substance use, antisocial traits and interpersonal problems that, if not addressed, increase the risk of recidivism and chronification of the crime.

Several meta-analyses have shown that cognitive-behavioral programs reduce juvenile recidivism, but their effectiveness decreases when they are applied in a brief or merely informative manner. In parallel, the literature of the last two decades has consolidated mindfulness - defined as conscious, deliberate and non-judgmental attention to the present moment (Kabat-Zinn, 1994) - as an effective strategy to improve self-regulation, stress management and mental health in adolescence. Controlled trials in school settings have shown small or moderate decreases in anxiety and depression symptoms (Dunning *et al.*, 2019), while, in correctional facilities, the results are still incipient: studies with small samples report improvements in impulsivity and rumination, but point to difficulties in adherence derived from the low motivation and punitive climate that characterizes many correctional facilities.

Latin American research on mindfulness in juvenile justice is, to date, practically nonexistent. The few studies identified are concentrated in Brazil and Chile, use imported protocols without sociocultural adaptation and lack playful formats, despite the fact that gamification -or gamification, according to the RAE- has shown promise for increasing the participation of reluctant groups. Specifically, mindfulness-based therapeutic games facilitate experiential practice, promote cooperation and translate abstract concepts - such as acceptance or compassion - into concrete dynamics that resonate with adolescents' everyday lives. However, empirical evidence on its effectiveness is limited to school and clinical populations; there are no published studies in juvenile detention centers in the region.

The "Jalteva" Pedagogical Internment Center, under the National Institute for the Care of Juvenile Offenders (INAMI), exemplifies the challenges described above. Located in the municipality of Cedros, department of Francisco Morazán, it houses boys between the ages of 12 and 18 who are serving precautionary measures or sanctions. Inmate turnover, limited financial resources (L 5000 per quarter for materials) and the priority given to the traditional disciplinary regime leave little room for systematic psychotherapeutic interventions. However, the management team has expressed interest in innovative strategies that strengthen resilience and reduce recidivism, provided they are feasible and culturally relevant.

The therapeutic game *Growing in Mindfulness* (CEM), designed *ad hoc* for Latin American juvenile forensic contexts, fits into this void. CEM integrates mindfulness principles - breath awareness, body scanning, observation of thoughts and emotions - with board dynamics, challenge cards and cooperative work that reward impulse regulation and perspective taking. Its development could easily be inspired by evidence linking the playful format to increased intrinsic motivation and adherence, particularly among adolescents with a history of substance use and low tolerance for lengthy verbal

interventions. In addition, CEM relies on a restorative justice perspective, fostering empathy and responsibility for one's own decisions.

Despite the potential of playful mindfulness, crucial questions remain: can a program of four short sessions modify emotional and behavioral problems in a custodial setting, which dimensions are most sensitive to change, are there undesirable effects - e.g., a transient increase in irritability - when emotional awareness is introduced without accompanying intensive behavioral techniques, and are there any undesirable effects when emotional awareness is introduced without accompanying intensive behavioral techniques? Answering these questions is relevant for guiding Honduran public policy on juvenile justice and for expanding the international body of evidence-based interventions in forensic populations.

The present study aims to evaluate the effectiveness of CEM in reducing emotional (anxiety, depression, uncertainty about the future, perceived lack of support) and behavioral (substance use, antisocial traits, aggressiveness) problems in 27 adolescent inmates at "Jalteva". Based on a quasi-experimental pretest-posttest design with a single group - chosen for ethical and logistical reasons - two instruments validated in Spanish were administered: the *Questionnaire for the Assessment of Problems in Adolescents* (Q-PAD) and the *Personality Assessment Inventory for Adolescents* (PAI-A). Semi-structured interviews with the then director of the center and participant observation were added to capture the institutional climate and triangulate the quantitative results.

Exploratory correlations between the homonymous scales of the Q-PAD and the PAI-A were analyzed, with the expectation that the practice of mindfulness would improve consistency in symptomatic self-perception.

The social relevance of the study has at least two sides. First, it offers local evidence of a low-cost, easy-to-replicate intervention that can be incorporated into institutional routine without requiring highly specialized personnel. Second, it contributes to the Sustainable Development Goals agenda, particularly SDG 16 (peace, justice and strong institutions), by promoting non-violent rehabilitation strategies and reducing the likelihood of recidivism. From an academic perspective, the findings are inserted in the debate on the minimum effective dosage of mindfulness programs and on the need for cultural and playful adaptations in juvenile justice contexts.

In summary, we propose a pioneering study that explores the feasibility and preliminary impact of a mindfulness-based therapeutic game in Honduran adolescents deprived of liberty. By integrating international evidence with the institutional reality of "Jalteva", the work aims to bridge the gap between research and practice, offering concrete directions for future quasi-experimental and experimental interventions that deepen the comprehensive rehabilitation of juveniles in conflict with the criminal law.

Method

The present study evaluated the effectiveness of the therapeutic game * Growing in Mindfulness (CEM) to reduce emotional and behavioral problems in 27 male adolescents aged 13 to 18 years in conflict with criminal law, inmates of the Pedagogical Center of Internment "Jalteva", administered by the National Institute for the Care of Juvenile Offenders (INAMI) and located in the municipality of Cedros, department of Francisco Morazán (Honduras). The choice of a mindfulness-based playful intervention responded, on the one hand, to the empirical support that mindfulness offers for self-regulation and well-being (Kabat-Zinn, 1994; Dunning et al., 2019) and, on the other hand, to the scarcity

of Latin American research combining mindfulness and playful activities in juvenile forensic contexts (Cheang et al., 2019).

A pre-experimental pretest-posttest design with a single group was used, suitable as an initial feasibility approach in a setting with logistical, ethical and resource constraints, even accepting the internal validity limitations inherent to the absence of a control group (Hernández-Sampieri and Mendoza-Torres, 2018). This design was relevant because it avoided the complexity of randomization and parallel groups -which would have exceeded institutional capacity-, contemplated the high turnover of inmates that makes it difficult to create equivalent groups, ensured equity by offering the intervention to all participants, and laid a preliminary foundation for subsequent quasi-experimental or experimental studies.

The work was carried out in three successive stages. First, the Questionnaire for the Assessment of Problems in Adolescents (Q-PAD) and the Personality Assessment Inventory for Adolescents (PAI-A) were administered to establish the baseline. Then, four fifty-minute sessions were given -two per week- in which practices of attention to breathing, body awareness and impulse regulation were integrated within game dynamics adapted to the low motivation characteristic of this population. Finally, the Q-PAD and PAI-A were administered again to measure variations. It was planned to monitor possible dropouts by interviewing caregivers and recording causes; however, there were no dropouts, perhaps due to the brevity of the program. The choice of four sessions balanced previous evidence (Kostova et al., 2019; Sams et al., 2018) with the limitations of the CPI, although future research could extend the intervention or incorporate medium-term follow-ups.

"Jalteva, with more than fifty-eight years of experience, serves adolescents in conflict with the law from a multidisciplinary perspective based on human rights and offers education, health and psychosocial support. For this research, males between 13 and 18 years of age subject to precautionary measures or criminal sanctions were included; minors under thirteen or over eighteen years of age, those with serious psychiatric or medical disorders, and those without informed consent were excluded. Given the small size of the population and its constant rotation, we opted for a census sampling that covered the 27 adolescents available, which reduced bias and improved external validity for the institutional context.

The independent variable was the treatment based on the CEM therapeutic game. The dependent variables were divided into emotional problems-body dissatisfaction, anxiety, depression, uncertainty about the future, self-esteem and well-being, somatic complaints, schizophrenia, borderline traits, suicidal ideation, stress, and lack of social support-and behavioral problems-substance abuse, drug and alcohol problems, interpersonal and family problems, psychosocial risk, antisocial traits, mania, paranoia, aggression, refusal of treatment, anxiety disorders (obsessive-compulsive disorder, phobias, post-traumatic stress disorder), dominance and agreeableness. Following the methodological arguments of Thomas (2020) and the authors he compiles, Likert-type scales were treated as ordinal data.

The intervention was based on six theoretical foundations:

1. The emotional self-regulation offered by mindfulness, reducing anxiety, depression and irritability.
2. The reduction of dysfunctional behaviors thanks to the playful component that encourages reflection and impulsive control.
3. The strengthening of body awareness and self-concept, with the consequent reduction of body dissatisfaction and improvement of self-esteem.
4. Increased resilience and coping with stress and uncertainty.

5. Motivation derived from the game format, which increases adherence and favors prosocial interaction.
6. Complementarity with other institutional psychoeducational programs.

Three tools were used for the evaluation. The Q-PAD-81 items distributed in nine scales, with internal reliability between 0.78 and 0.91 and validation in Spanish-speaking forensic contexts (Borrás et al., 2017)-provided a quick screening of critical areas. The PAI-A -264 items organized into 22 scales, adapted to Spanish with Latin American scales and frequent use in forensic settings (Morey et al., 2018)-delved into clinical features and controlled the validity of the responses. Finally, a structured interview with the director of "Jalteva" made it possible to identify and contrast current institutional strategies with scientific evidence. The combination of these instruments provided a robust and culturally relevant measure: the Q-PAD provided brevity and reliability, the PAI-A offered comprehensive coverage, and the interview added contextual perspective, although each tool presented its own limitations, such as potential self-report bias and reliance on participant motivation and honesty.

In the quantitative analysis, direct scores, percentiles and T-scores of the Q-PAD and PAI-A were compared before and after the intervention, applying appropriate statistics for ordinal data. For the qualitative analysis, the institutional interview was subjected to a thematic analysis that categorized the existing strategies and their empirical support. The innovation of validating mindfulness gamification as a way to develop self-awareness, self-regulation and prosociality was contemplated, although the limitation of generalizing the findings to other contexts was recognized due to the uniqueness of the CPI "Jalteva", the predominance of male participants and the forensic nature of the sample.

In summary, the methodology managed to balance feasibility and conceptual rigor: the pre-experimental design allowed us to assess the feasibility of CEM without transgressing ethical principles or overloading the system; the triangulation of psychometric instruments and qualitative data enriched the comprehensive understanding of the participants and their environment; and, although threats to internal validity -history or maturation- remain, the initial findings provide a basis for future quasi-experimental or experimental studies with control groups, larger sample sizes and longitudinal follow-ups.

Results

Overview

This section systematically presents the findings derived from the application of the therapeutic game *Growing in Mindfulness* (CEM) in 27 adolescent inmates of the Pedagogical Internment Center "Jalteva". The quantitative results - descriptive analysis, contrast tests and magnitude of change - are organized first, followed by the qualitative results from the semi-structured interview and participant observation. All numerical references are expressed according to the original scale of each instrument (*PAI-A*: T-scores; *Q-PAD*: percentiles).

Quantitative Results

Emotional Problems

- Body dissatisfaction. The distribution shifted toward higher values: the median went from p 79 to p 87, Q1 from 58 to 61 and Q3 from 92 to 94. However, the

interquartile range decreased from 34 to 33 and the Wilcoxon test was not significant ($p = 0.110$).

- Anxiety (PAI-A). There was a slight increase in the median (T 55 → 58) and Q3 (58 → 63), with widening of the upper range (72 → 75). The comparison did not reach significance ($p = 0.384$).
- Cognitive anxiety. Median stable (T 53), although the maximum value increased from 79 to 88 and the interquartile range from 12.5 to 15.5. Internal heterogeneity increased; however, $p = 0.819$ indicates no systematic change.
- Emotional anxiety. Median fixed at T 52; interquartile range narrowed (12 → 10.5), despite the minimum and maximum values moving away. $p = 0.244$.
- Physiological anxiety. The median (T 60) was maintained. The central range widened (interquartile range 10 → 12) and the quartiles moved up (53 → 55; 63 → 67). $p = 0.270$.
- Anxiety (Q-PAD). The median decreased from p 80 to p 74 and the interquartile range contracted (34 → 25.5). However, the change was not significant ($p = 0.796$).
- Depression (PAI-A). A reduction in the median (T 64 → 61) was observed. The interquartile range increased (9.5 → 12.5) due to the widening of the extremes (+10 and -9 T). $p = 0.706$.
- The cognitive, emotional and physiological subscales replicated this pattern: minor shifts in the central tendency and moderate expansion of the dispersion; $p > 0.50$ in all cases.
- Depression (Q-PAD). The median fell from p 90 to p 83 and the interquartile range increased from 20 to 27. The contrast was not significant ($p = 0.204$).
- Uncertainty about the future. There was a statistically significant improvement: median decreased from p 86 to p 71, interquartile range 20 → 27, $p = 0.011$, $g = -0.459$ (moderate magnitude). Sign test showed a concordant trend (17 ↓, 8 ↑; $p = 0.108$).
- Self-esteem and well-being. The median decreased from 26 to 19 and the dispersion contracted; however, $p = 0.098$ remained above the threshold.
- Somatic complaints. The median increased from 62 to 64, with an increase in the interquartile range (16.5 → 23.5); $p = 0.980$. The conversion, somatization and hypochondriasis subscales remained stable ($p > 0.30$).
- Schizophrenia. The global scale increased its median (T 67 → 70) and widened the interquartile range to 23; all subscales showed greater dispersions, with no significant differences ($p \geq 0.737$).
- Borderline features. Only "emotional instability" evidenced a median increase (T 52 → 56); "self-harm" regressed slightly. No subscale reached significance ($p \geq 0.271$).
- Suicidal ideations. The median decreased from 63 to 57; the upper whisker was extended (80 → 106). $p = 0.061$ (trend).
- Stress. Median reduction (62 → 56), with overall increase in dispersion; $p = 0.829$.
- Lack of social support. Second significant difference: median increased from 64 to 58; $p = 0.032$, $g = -0.454$. Sign test indicated a parallel pattern (17 ↓, 7 ↑; $p = 0.064$).

Behavioral Problems

- Problems with drugs (PAI-A) and Problems with alcohol (PAI-A). Both medians declined (Drug problems T 71 → 65; Alcohol problems 63 → 53), although only Drug problems showed a trend ($p = 0.066$). The Q-PAD "substance abuse" reflected a proportional regression ($p = 0.264$).

- Interpersonal problems (Q-PAD) and Family problems (Q-PAD). There were decreases in the median ($p = 0.375$ and 0.367 , respectively), accompanied by an increase in the interquartile range, without significance.
- Psychosocial risk. The median went from p 92 to p 84; $p = 0.687$.
- Antisocial traits. The main scale decreased (T 62 \rightarrow 58), with increasing interquartile range (12 \rightarrow 19); $p = 0.424$. None of the subscales reached significant values.
- Mania. Heterogeneous changes in dispersion were observed, with practically stable medians; $p \geq 0.503$.
- Paranoia. Slight increase in overall median (T 62 \rightarrow 65), with disparate results in the subscales; no comparison was significant ($p \geq 0.073$).
- Aggression. Only subscale with significant difference: aggressive attitude (AGR-A) rose from T 55 to 58; $p = 0.037$, $g = 0.280$ (small effect). Sign test revealed 16 \uparrow , 9 \downarrow ; $p = 0.690$.
- Refusal of treatment. The median decreased from T 52 to 47; $p = 0.187$, $g = -0.387$ (small-moderate effect).
- Disorders related to anxiety (PAI-A), dominance (PAI-A) and agreeableness (PAI-A). Minimal variations, no statistical significance ($p \geq 0.316$).

Spearman's Rank Correlations

Before the intervention, homonymous scales showed weak associations: anxiety, $r = 0.297$; depression, $r = -0.053$. After the application of Growing in Mindfulness (CEM), these correlations increased to $r = 0.495$ and $r = 0.326$, respectively, suggesting greater convergence of the instruments in symptomatic appreciation. The synonymous scales "drug problems/substance abuse" went from $r = 0.555$ to 0.609 . A clear increase was observed between "alcohol problems" and "substance abuse" ($r = 0.781$ post-intervention). In the case of anxiety, the cognitive subscale of the PAI-A raised its correlation with the Q-PAD from 0.305 to 0.593 . In depression, the emotional dimension rose from 0.123 to 0.517 . Taken together, these correlations suggest that, following the CEM intervention, adolescents' self-perceptions became more consistent between the two questionnaires.

Quantitative Synthesis

The results can be summarized in three central findings:

1. **Statistically significant improvements** in *uncertainty about the future* ($p = 0.011$; $g = -0.459$) and *lack of social support* ($p = 0.032$; $g = -0.454$), both with moderate magnitude and in a favorable direction (decrease). These improvements in both scales are shown in *Figures 1 and 2*, respectively.

Figure 1

Box-and-whisker plot for levels of uncertainty about the future as assessed by the Q-PAD before and after treatment

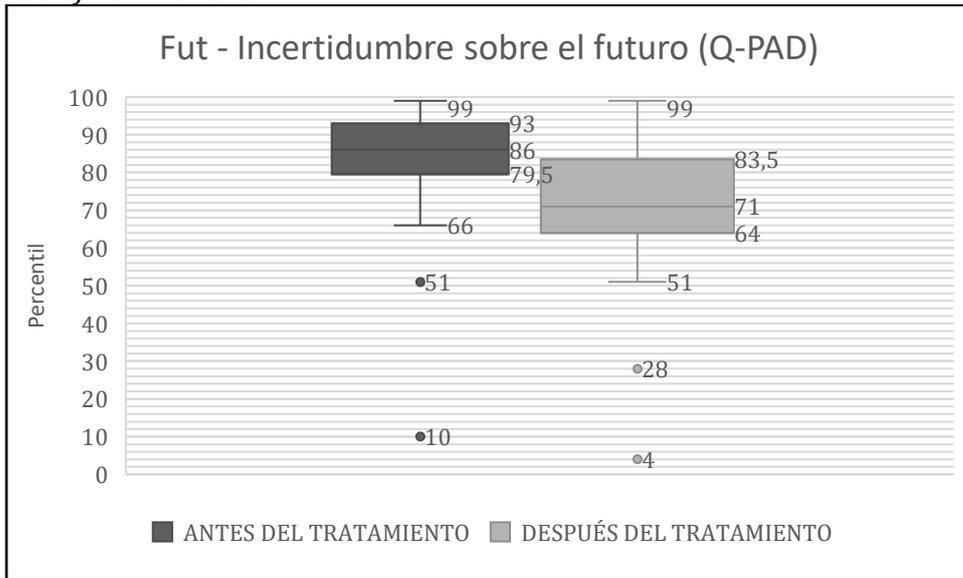
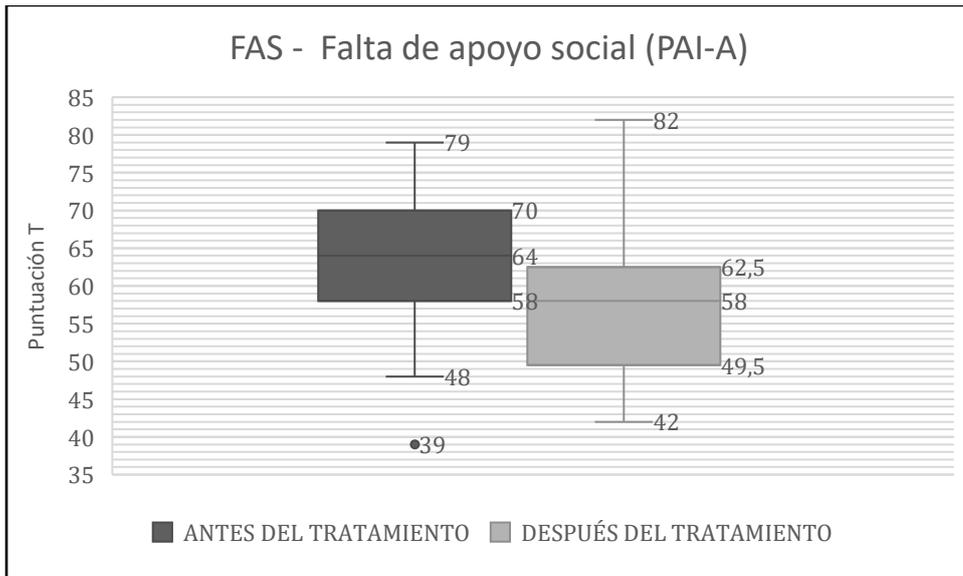


Figure 2

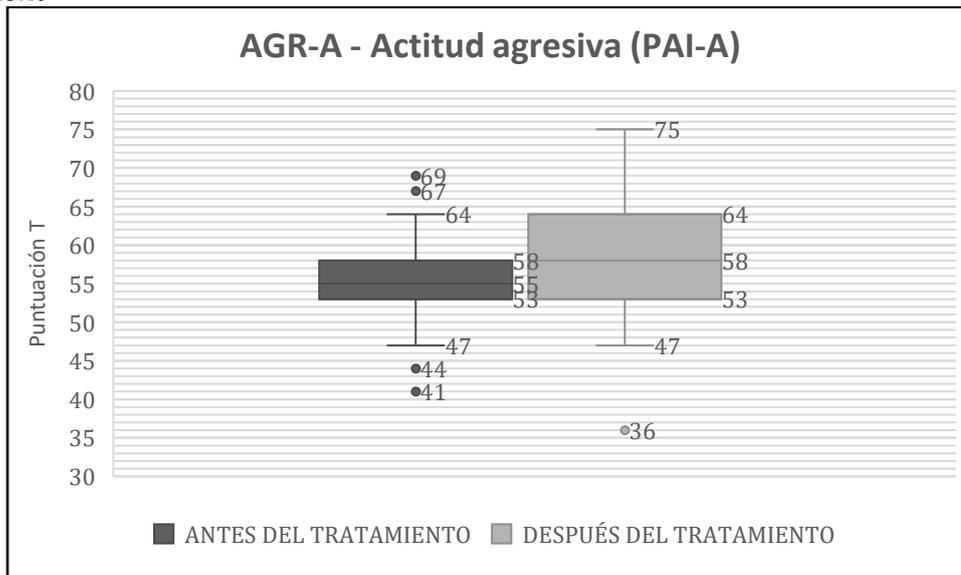
Box-and-whisker plot for levels of lack of social support assessed using the PAI-A before and after treatment.



2. **Significant worsening** in *aggressive attitude* ($p = 0.037$; $g = 0.280$), although with a small effect size. This increase in *aggressive attitude* is depicted in *Figure 3*.

Figure 3

Box-and-whisker plot for aggressive attitude levels assessed by the PAI-A before and after treatment



3. **Stability** in the rest of the dimensions, with non-significant fluctuations, despite slight decreases in *depression, stress* and *refusal of treatment*.

Qualitative Results

Strategies in the CPI "Jalteva"

Participant observation revealed the coexistence of two programmatic blocks:

- **Formal education** and **vocational workshops** (carpentry, welding, barbering, agriculture), aimed at job reinsertion.
- **Spiritual and leadership training**, provided by *Counteract International* through the *Success Academy*, which includes daily devotionals and baptism ceremonies.

These activities form an environment of rigid discipline, with a predominance of extrinsic reinforcers (rewards, penalty reduction) over intrinsic self-regulation strategies.

Director Interview (Essential Excerpts)

- The institutional objective is "reintegration with rigor"; young people are perceived as "resilient" in the initial phases.
- Quarterly L 5000 is available for materials, forcing staff to fund shortfalls.
- The technical team (psychologists, social workers, teachers) is "insufficient" to meet the demand.
- Mindfulness is recognized as "theoretically useful," although the director fears that it "gets confused with a game" and erodes discipline.
- Family intervention is limited: some households belong to criminal structures.
- Post-release follow-up lacks stable resources.

Integration of Qualitative Findings

The directive discourse helps to shed light on the poor improvement in internalized variables (anxiety, depression) and resistance to change in antisocial traits: attention is focused on obedience and productive occupation, while emotional exploration receives a lower priority. The reduction of *uncertainty about the future* coincides with the institutional emphasis on work and religious planning of the "life project". In turn, the increase in *aggressive attitudes* could be explained by the tension between the punitive model and the partial introduction of introspective techniques that, without adequate behavioral accompaniment, would have increased emotional awareness without providing effective regulatory strategies.

Table 1

Significant changes in Fut, FAS and AGR-A after intervention with CEM therapeutic game

Variable	Address	Median pre	Median post	wilcoxon's p	g of Hedges
Uncertainty about the future (Fut)	↓ significant	p 86	p 71	0.011	-0.459
Lack of social support (FAS)	↓ significant	T 64	T 58	0.032	-0.454
Aggressive attitude (AGR-A)	↑ significant	T 55	T 58	0.037	0.280

Based on quantitative data, the *Growing in Mindfulness* (CEM) therapeutic game produced statistically significant decreases in *uncertainty about the future* ($p = .011$; $g = -0.46$) and *lack of social support* ($p = .032$; $g = -0.45$), both with effect sizes of medium magnitude supporting clinically relevant improvement in these protective factors of adolescent resilience. In contrast, *aggressive attitude* showed a small but significant increase ($p = .037$; $g = 0.28$), suggesting a slight deterioration in this indicator. The rest of the internalized symptoms did not reach significant variations or clinical relevance. Qualitative evidence suggests that the disciplinary organization of the center, the scarcity of resources and the absence of specific therapeutic protocols limited the potential effectiveness of the playful-mindfulness component of the program.

Discussion and Conclusions

This section analyzes, integrates and contrasts the quantitative and qualitative findings of the study with previous literature, as well as the conclusions, limitations and implications derived from them. The main focus is to assess the extent to which the therapeutic game *Growing in Mindfulness* (CEM) succeeded in modifying the emotional and behavioral problems of adolescents at the "Jalteva" Pedagogical Internment Center, considering the institutional and sociocultural context in which it was implemented.

Interpretation of Quantitative Findings

Emotional Problems

The Q-PAD and PAI-A analyses show a selective impact of EMF. The *Uncertainty about the future* (86th percentile → 71; $p = .011$; $g = -0.459$) and *Lack of social support* (T 64 → 58; $p = .032$; $g = -0.454$) scales showed improvements of moderate magnitude. These declines suggest that mindfulness practices, even in a brief playful format, may promote goal clarification and perceived interpersonal support, critical factors for resilience and reintegration.

The rest of the emotional indicators remained stable. *Anxiety* (PAI-A: T 55; $p = .840$; Q-PAD: 80th percentile → 74; $p = .796$) and *Depression* (PAI-A: T 64 → 61; $p = .706$; Q-PAD: 90th percentile → 83; $p = .204$) did not experience clinically relevant declines. Similarly, *Body dissatisfaction*, *Self-esteem and well-being*, *Somatic complaints*, *Stress*, *Suicidal ideation* and psychotic symptoms grouped under *Schizophrenia* did not show significant variations. Everything indicates that four 50-minute sessions are insufficient to modulate highly complex and deep-rooted emotional constructs, which usually require intensive, multimodal and longer interventions.

As for *Borderline Traits*, none of the subscales (*Emotional Instability*, *Identity Disturbance*, *Problematic Relationships*, *Self-Aggressions*) showed improvements. The deeply relational nature of these traits limits the effectiveness of a brief group program that is neither explicitly oriented to interpersonal regulation nor endowed with dialectical-behavioral components.

Behavioral Problems

The behavioral results replicate the previous pattern: stabilities predominate and, in one particular case, a change contrary to expectations. On the *Substance Abuse/Drug Problems* scales (PAI-A: T 71 → 65; $p = .066$) and *Problems with alcohol* (T 63 → 53; $p = .317$) showed a downward trend that did not reach statistical significance. *Interpersonal problems*, *Family problems*, *Psychosocial risk* and *Antisocial traits* remain virtually unchanged.

The only statistically significant variation is detected in *Aggressive attitude* (T 55 → 58; $p = .037$; $g = 0.280$), with a slight increase. This finding suggests that the heightened emotional awareness induced by mindfulness may have amplified the expression of irritability in the absence of sufficient regulatory tools, especially in a strict disciplinary environment that does not facilitate positive catharsis of frustration. Neither *Verbal Aggressions* nor *Physical Aggressions* changed, so the increase appears to focus on internal disposition rather than observable behavior.

Interpretation of Qualitative Findings

The interview with the management of CPI "Jalteva" reveals five contextual factors that help explain the limited magnitude of the changes:

1. Predominance of disciplinary rigor. The institutional fear of "seeing everything as a game" restricts the flexible application of playful methodologies. Such rigidity hinders the internalization of mindfulness as an autonomous and self-regulating practice.
2. Priority use of religious and occupational resources. Although spiritual and craft activities provide containment, they do not address anxiety, depression or

aggression in a focused way, which is consistent with the low quantitative variation in these scales.

3. Financial constraint and overload of the technical team. Minimal budgets and reduced staffing levels impede prolonged implementation, ongoing clinical supervision and post-internment follow-up, recognized pillars for consolidating behavioral change.
4. Distrust towards mindfulness. Skepticism about its "seriousness" creates a cultural gap between the philosophy of mindfulness and the prevailing culture of control, hindering the adherence of facilitators and participants.
5. Adverse family environments. Reincorporation into violent and poor communities threatens the sustainability of progress, especially in variables such as *family problems* and *psychosocial risk*, which did not improve after the intervention.

Comparison with Previous Literature

In international evidence, mindfulness-based programs show small-moderate effects on anxiety and depression when they exceed six weeks and are complemented with cognitive-behavioral therapy. The absence of changes in the present investigation supports this premise: brevity and lack of cognitive components limit the scope. On the other hand, the decrease in *Uncertainty about the future* is consistent with studies linking mindfulness with tolerance for ambiguity and acceptance (Korte et al., 2022). Similarly, the improvement in *Perceived social support* replicates findings describing the buffering effect of mindfulness on isolation (Huang et al., 2022).

Increased *Aggressive Attitude* is less frequent in the literature, but has been documented in trauma populations when emotional awareness practice is not accompanied by training in impulse regulation skills (Ribeiro da Silva et al., 2020). This phenomenon underscores the need to integrate mindfulness with behavioral techniques.

Conclusions, Limitations and Implications

Conclusions

1. Partial effectiveness of CEM. The program reduced *uncertainty about the future* and *perceived lack of social support*, but did not modify *anxiety*, *depression*, *stress*, *antisocial traits* or *substance use*, and was associated with a slight increase in *aggressiveness*.
2. Insufficient duration and depth. Four brief group sessions are inadequate for complex emotional and behavioral disturbances; more extensive and multimodal programs are required.
3. Need for contextual adaptation. The effectiveness of mindfulness depends on its integration with the disciplinary culture of the CPI, the precariousness of resources and the socio-cultural reality of Honduras.
4. Centrality of social support and life project. The two significant improvements underscore the relevance of strengthening support networks and guiding future plans as the cornerstones of rehabilitation.
5. Methodological limitations. The pre-experimental design with no control group, small sample size and lack of follow-up restrict external validity and causal attribution.
6. Potential for institutional synergy. Integrating CEM into existing religious, educational and psychosocial routines could enhance its impact and promote restorative justice.

Limitations

- Absence of a control group that prevents isolation of the effect of EMF.
- Short duration and exclusively group format that reduce the therapeutic dose.
- Small and homogeneous sample (27 men), which limits generalization.
- Lack of longitudinal follow-up that prevents assessment of the permanence of the changes.
- Lack of standardized protocol that hinders replication.
- Shortage of resources and staff overload affecting the quality of implementation.

Implications

Future lines of research

- Quasi-experimental or experimental designs with control group.
- Longer interventions (≥ 8 weeks) and 6-12 month follow-up.
- Combine group and individual sessions to address trauma cases.
- Diversify the sample (gender, regions, community contexts).
- Develop a standardized and culturally validated EMF manual.
- Integrating mindfulness with CBT, DBT, family therapy and sport.
- Develop Latin American cross-cultural studies and in-depth qualitative analysis.

Practical Recommendations

1. Protocol the CEM with objectives, activities and evaluation criteria.
2. Extend the duration and frequency of sessions to consolidate skills.
3. Continuously train staff in mindfulness and trauma.
4. Culturally adapt materials and dynamics to the Honduran context.
5. Link the program with mental health services and community networks.
6. Involve families to reinforce extramural advances.
7. Evaluate periodically to adjust the plan in real time.
8. Manage alliances with NGOs and government agencies to sustain the intervention.

Social Relevance

- Humanizes juvenile justice by prioritizing self-regulation over punishment.
- Reduces recidivism by improving self-awareness and sense of support.
- It is accessible and low-cost, suitable for contexts with limited resources.
- Strengthens institutions such as INAMI by offering evidence-based programs.

Final Considerations

CEM demonstrated the ability to selectively improve the *perception of social support* and *certainty about the future*, essential aspects for resilience. However, it did not achieve broad changes in most emotional and behavioral problems, and was associated with a slight increase in *aggressive attitude*. These findings confirm that mindfulness, in a brief and isolated format, is not sufficient to address the biopsychosocial complexity of adolescents in conflict with the law. Future interventions should be combined with cognitive therapies, family components and follow-up plans, all framed in public policies that promote comprehensive, restorative and culturally relevant juvenile rehabilitation.

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Conflict of Interest

The authors declare that they have no conflicts of interest to declare.

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