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Mindfulness and Values: A Randomised Controlled Trial to Promote Emotional Regulation in University

Duygu Kocer^{1,*}, Núria Farriols^{1,2}, Ignacio Cifre¹, Teresa Pretel-Luque¹ and Álvaro Frías^{1,2}

¹Department of Psychology and Speech Therapy, FPCEE Blanquerna, Universitat Ramon Llull, Barcelona, Spain

²Hospital de Mataró, Consorci Sanitari del Maresme, Mataró, Spain

*Corresponding Author: Duygu Kocer. Email: duyguk@blanquerna.url.edu

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ABSTRACT: Background: University students and staff experience elevated levels of psychological distress, highlighting the need for accessible interventions that promote well-being, emotional regulation, and resilience within higher education settings. This study aims to evaluate the effectiveness of the GestEm-U hybrid intervention in enhancing psychological well-being, mindfulness-related facets, and reducing psychopathological symptoms among university students and staff. Specifically, the research examines the impact of integrating mindfulness with values-based action and emotional regulation and observes how these internal shifts promote resilience within the academic environment. **Methods:** Students and staff from Ramon Llull University (Spain) were recruited ($N = 188$). Eligibility included being an active member of the university community and completing baseline measures. A randomized, controlled, single-blind, parallel-group trial was carried out. After applying the predefined protocol compliance and exclusion criteria, the final analyzed sample consisted of 45 participants. The experimental group ($n = 25$) participated in GestEm-U, and the waiting-list control group ($n = 20$) received no intervention during the study period and was offered the programme afterwards. **Results:** Across most variables, the results were more favourable in the experimental group than in the control group both clinical and positive variables, however, statistical significance was reached only for well-being, the primary outcome (evaluated with the WHO-5 Well-Being Index, $F(1, 43) = 4.48$, $p = 0.040$, $\eta^2 = 0.094$) and for a mindfulness facet (evaluated with the FFMQ-SF non-judging of inner experience ($F(1, 43) = 8.02$, $p = 0.007$, $\eta^2 p = 0.157$). **Conclusions:** GestEm-U is a brief and feasible hybrid programme that provides preliminary evidence of selective benefits for well-being and non-judging. Although these findings support the potential value of mindfulness- and values-based interventions in university settings, larger and more diverse samples with lower attrition rates are needed to confirm their effectiveness and generalizability.

KEYWORDS: Mindfulness; values; well-being; emotional regulation; psychopathology

1 Introduction

The mental health of the university community—including students, faculty, and administrative staff—has become a significant global public health concern. Two Sustainable Development Goals (SDGs) are involved in this study, given their importance: improving health and well-being and raising the quality of education, including integral formation. Universities, characterized by high levels of academic pressure, financial strain, and social challenges [1], often experience higher rates of distress than the general population [2]. This vulnerability has been further exacerbated by the COVID-19 pandemic, which introduced unparalleled levels of social isolation and career uncertainty [3]. In the review from Paiva et al. [4], the prevalence of anxiety (13.42%) and depression (16.78%) has been reported in university students.

These reported rates are of significant concern because they negatively affect students' overall quality of life [5]. Within the university community, the well-being of one group significantly influences that of others; for instance, academic experiences directly impact student well-being [6].

While Mindfulness-Based Interventions (MBIs) are well-established for alleviating anxiety and reducing physiological stress markers such as cortisol [7], many programmes primarily concentrate on symptom relief. However, cognitive flexibility—the capacity to adapt behaviour in accordance with personal values—is crucial for enduring well-being [8]. Research suggests that integrating mindfulness with a values-oriented approach can enhance cognitive flexibility, allowing individuals to navigate new stressors more effectively [9], like other programmes have been developed [10,11]. MBIs and the cultivation of values such as non-judging and present-moment awareness are generally associated with improved well-being and reduced distress in higher-education students, though effects are often small to moderate and vary by programme and context [12].

Extensive evidence supports the efficacy of mindfulness in higher education (Table 1). For instance, a 2023 meta-analysis of 21 programmes demonstrated significant reductions in stress, anxiety, and depression among students, compared to controls [13]. Similarly, a large-scale randomised trial involving over 600 participants found that mindfulness training not only reduced distress but also provided sustained mental health benefits that persisted for up to a year, particularly during high-pressure periods like examinations [14]. MBIs are effective in reducing psychological distress, yet the development of core capacities, like non-reactivity, as other facets, often depends on the depth and duration of practice [15–17]. Research indicates that while standard 8-week programmes alleviate symptoms, they may lack the intensity needed to fully restructure cognitive schemas or improve complex emotional regulation [18].

Table 1: Overview of some studies on mindfulness interventions in higher education.

Author (Year)	Total Sample Size	Design Allocation	Intervention Type/Length	Instruments	Main Results
El Morr et al. (2020), Canada, [19]	160 Age(mean) = 22.55	RCT (pre-post), EG (79) WLC (80)	Online 12 modules with psychoeducation and mindfulness practice, anonymous peer forums, and guided 20-min videoconference	PHQ9), Anxiety (BAI), Stress (PSS), Mindfulness (FFMQ-SF)	Reductions in depression and anxiety scores, increase in mindfulness scores compared to the WLC group
Galante et al. (2021), UK, [20]	441/616 Age(mean) = referred by intervals	RCT (pre, 3-month post, 9-month follow-up), EG (309) mental health support group (307)	MSS, 75–90-min weekly 8-weeks	Resilience CORE-OM, Psyc. Distress WMWS	MSS reduced distress scores during the examination period compared with WL
Ritvo et al. (2021), Canada, [21]	154 Age(mean) = 23.1	RCT (pre-post), EG (76) WLC (78)	(1) Mindfulness and education videos (2) Anonymous peer discussions (3) Guided 20-min group videoconference	Depression (PHQ9), Anxiety (BAI) Stress (PSS) Mindfulness (FFMQ-SF)	Reductions in stress compared to the WLC group, but there were no other significant between-group differences
Medlicott et al. (2021), UK, [22]	86 Age(mean) = 24.91	Open Pre-post intervention-6 weeks follow-up	In person, 8 weeks Finding Peace in a Frantic World Intervention	Well-being (WEMWBS), (CORE-10), FFMQ-SF, (SCS-SF), Resilience Scale (CD-RISC-10), Goals and plans (MEPGAP)	Improvements in well-being were mediated by mindfulness, self-compassion, and resilience
Martínez-Rubio et al. (2021), Spain, [23]	30 Age(mean) = 22.29	Two-armed pilot RCT pre-post EG = 15, CG = 15	6 weeks in person 90 min intervention	Perceived Stress: (PSS), Psychological distress: General Health Questionnaire, Mindfulness: (FFMQ-SF), Decentering: (EQ), Self-Compassion: (SCS-SF), Experiential avoidance: (AAQ-II)	Improved stress, distress, mindfulness, decentering, self-compassion, and reduced avoidance; wait-list showed no change. Stress reduction was mediated by mindfulness, decentering, and self-compassion; distress by decentering
Acikgoz & Karaca (2025), Turkiye, [24]	87 Age(mean) = not mentioned	RCT, pre-test post-test-follow-up test design	2.5 h MBCT programme for 8 weeks	General health (GHQ), Depression & anxiety (DASS), Cognitive Flexibility (CFI)	The intervention group showed significantly lower depression, anxiety, and stress scores, and higher cognitive flexibility scores at post-test and follow-up compared to the control group ($p < 0.05$)

Note: RCT, Randomized Controlled Trial; EG, Experimental Group; CG, Control Group; WLC, Wait-List Group; MSS, Mindful Student Study; PHQ-9, Patient Health Questionnaire-9; BAI, Beck Anxiety Inventory; PSS, Perceived Stress Scale; FFMQ-SF, Five Facet Mindfulness Questionnaire–Short Form; CORE-OM, Clinical Outcomes in Routine Evaluation-Outcome Measure; WEMWBS, Warwick–Edinburgh Mental Well-Being Scale; CORE-10, Clinical Outcomes in Routine Evaluation-10; SCS-SF, Self-Compassion Scale-Short Form; CD-RISC-10, Connor-Davidson Resilience Scale; EQ, Experiences Questionnaire; AAQ-II, Acceptance and Action Questionnaire-II; GHQ, General Health Questionnaire; DASS, Depression Anxiety Stress Scales; CFI, Cognitive Flexibility Inventory; MBCT, Mindfulness-Based Cognitive Therapy.

In the framework of cognitive flexibility, values represent a pivotal shift from outcome-oriented goals to process-driven life directions. Following the conceptualisation by Hayes et al. [8] and Lejeune and Luoma [25] values are defined in this study not as static milestones, but as freely chosen, ongoing patterns of activity that serve as a consistent compass for behaviour. For the diverse university community—encompassing students, academic staff, and administrative personnel—this distinction is essential for navigating the multifaceted pressures of higher education. When these individuals become disconnected from their core values, their work and studies can become “avoidance-based” (i.e., working only to avoid failure or criticism). A values-based orientation, however, allows all members of the academic community to reconnect with their underlying motivations, such as scientific contribution, pedagogical passion, or institutional service. By integrating values into the mindfulness framework, the GestEm-U intervention (Emotional Regulation at the University) seeks to foster well-being, resilience, and mindfulness capacities and cognitive flexibility across all institutional levels. As noted by Ciarrochi et al. [26], when actions are aligned with core values, the impact of psychological distress is buffered, transforming mindfulness from a mere stress-reduction tool into a robust mechanism for professional and personal resilience. In higher-education settings, values-oriented mindfulness training can help students align studying and life choices with what they find meaningful, which in turn supports persistence, reduced burnout, and better academic adjustment [13].

This holistic approach ensures the intervention addresses the well-being of the university as a functional ecosystem [27], thereby promoting an environment where all members can thrive despite the inherent challenges of the academic setting. Some facets of mindfulness, for example, nonjudging, are linked to better well-being and lower distress among university students [28]. Literature suggests that non-judging skills play a protective role in student mental health by fostering superior emotion regulation and lowering the prevalence of depressive symptoms. More broadly, this mindfulness facet is linked to improved psychological outcomes through reduced repetitive negative thinking and emotional overreaction [29].

Unlike other mindfulness programmes, the GestEm-U protocol incorporates a comprehensive values-based intervention across three dimensions: internal, relational, and “reality” balance. Furthermore, the protocol is systematically aligned with emotional regulation processes to ensure a holistic therapeutic impact. While the benefits of mindfulness in general and in university populations are well documented, university-based programmes rarely combine these practices with a structured focus on various values and concrete emotional regulation in all the university community. The GestEm-U project aims to address this gap, with the primary objective to evaluate the effectiveness in improving emotional and psychological well-being among university students, compared with a non-intervention control group. The secondary objectives are to enhance mindfulness and its associated facets—particularly describing (expected to be associated with reduced sadness), nonjudging of inner experience (expected to be associated with non-rumination), and nonreactivity (associated with improved emotional regulation)—as well as to assess whether it increases psychological resilience, reduces levels of depression and anxiety, and supports the development of prosocial and contemplative values, including patience, thankfulness, equanimity, joy, generosity, love, compassion, and balance.

2 Methods

2.1 Study Design

A randomised, controlled, single-blind, parallel-group trial was conducted. Participants were randomly assigned to the experimental group, which completed the 8-week GestEm-U programme delivered in a hybrid format (in-person or online), or to a waiting-list control group, which received no intervention during

the study period. The random allocation sequence was computer-generated by an external researcher who was not involved in participant recruitment, intervention delivery, or outcome assessment. Allocation was therefore concealed from the intervention team until assignment had been completed. Outcome assessors and data analysts were blinded to group allocation, whereas participants and intervention facilitators could not be blinded due to the nature of the intervention. To ensure participant anonymity, an external researcher assigned each participant a unique code and sent it via email prior to the start of the programme. Participants were instructed to use this unique identifier when completing the pre-test and post-test measures. The assessments were administered through Google Forms. The Research Ethics Committee of Universitat Ramon Llull (CER-URL) approved the project (expedient CER-URL_2024_2025_014). All participants provided informed consent before completing the evaluations, thereby confirming their voluntary participation in the study.

To ensure ethical standards and equitable access to mental health resources, these participants were placed on a prioritised list to receive the full GestEm-U programme upon completion of the initial experimental phase, if they chose to participate.

2.2 Participants and Procedure

Participants from Universitat Ramon Llull (URL) were recruited between mid-January and mid-February 2025 through formal institutional invitations via email, web and posters. The recruitment strategy targeted undergraduate, postgraduate, and doctoral students, as well as Teaching and Research Staff (TRS) and Service and Administrative Staff (SAS).

Interested students and staff enrolled in the study by responding to institutional recruitment announcements distributed via email, the university website, and posters displayed across campus. Eligible participants received detailed information about the study procedures and provided written informed consent before participation. Following enrolment, participants were randomly assigned to either the experimental or waiting-list control group and received a unique identification code by email to ensure anonymity during data collection. Participants then completed the baseline (T1) assessment before the intervention period began. Post-intervention assessments (T2) were administered immediately after the 8-week programme. Participation was voluntary, and no financial compensation or academic credit was provided for taking part in the study (see Table 2).

2.3 Inclusion and Exclusion Criteria

To ensure the homogeneity and integrity of the sample, the following inclusion criteria were applied: being a student (undergraduate or graduate) or a staff member. Rather than implementing clinical baseline thresholds for inclusion, this study offered a wellness intervention accessible to all university students and staff, irrespective of their baseline psychological distress.

Participants were excluded from the final analysis based on the following criteria: Linguistic or Cognitive Impairment: Individuals with significant comprehension or language difficulties that would prevent them from engaging in therapeutic sessions or accurately completing self-report assessments; Concurrent Treatment Changes: Any substantial alterations to a participant's existing psychological or psychiatric pharmacological treatment during the study period could interfere with the accurate assessment of the intervention's effectiveness; Non-Adherence to Intervention: Failure to attend 25% or more of the scheduled sessions, ensuring that only those who received a minimal therapeutic dose were not included in the final data analysis.

2.4 Intervention Procedure

The GestEm-U programme was delivered in this study over 8 sessions, each lasting 1.5 h and held once per week. The programme was carried out both on campus and synchronously online. The sessions were structured as evaluations of home practices, introductions to the session theme, mindfulness meditations, and introductions to new home practices. The programme's audio mindfulness meditation recordings, written content, and films, videos and book recommendations were delivered to participants after each session. The GestEm-U programme was implemented in this study in a manner similar to the original, with respect to the type and content of the implementation. The facilitator and the assistant who implemented the programme were trained in teaching mindfulness-based interventions.

The development of the Mindfulness- and Values-based intervention—GestEm-U—is grounded in the work of Farriols and Aliaga [30], integrating principles of mindfulness and meditation with psychological approaches to emotional regulation and values-based development. Within this framework, the programme is structured around three core strategies:

1. *Psychoeducational Phase:* Participants received psychoeducational training on mindfulness and *values* (ongoing directions). This phase employed core value clarification exercises in which participants identified and prioritized fundamental life domains—such as generosity, compassion, patience, gratitude and interdependence—that remain stable motivators even in the presence of psychological distress.
2. *Meditation and Integration Phase:* Following the theoretical framework, the intervention continued with value-based mindfulness meditations. These practices were designed to foster a deep, felt connection to the identified values. Participants were guided to maintain awareness of their core values while observing internal barriers (e.g., anxiety or self-doubt) from a non-judgmental, equanimous stance.

During both the psychoeducational phase and the meditation, the values addressed were consistently present throughout the session.

Mindfulness-based interventions such as Mindfulness-Based Stress Reduction (MBSR) [31] and Mindfulness-Based Cognitive Therapy (MBCT) [32] cultivate core attitudes—non-judging, acceptance, and non-striving—that serve as foundational principles for the regulation of emotional responses. In contrast, GestEm-U extends this framework by incorporating values related to relational balance (e.g., generosity) as well as constructs associated with the balance and understanding of reality, including interdependence, transience, and openness/emptiness. Together with the dimension of inner balance, these three components offer a more comprehensive framework for integrated practice and conceptualization. Although other approaches, such as Heartfulness [10,11], also address these dimensions of balance, they tend to involve more complex program structures that may not be optimally suited to the specific characteristics and needs of most university students.

3. *Specific Emotional Regulation:* Furthermore, GestEm-U provides specific strategies for emotion regulation of four core emotions (fear, anger, sadness and happiness) aligned with these values.

The structure of the programme is explained in Table 2:

Table 2: GestEm-U: Conceptual model of the mindfulness and values-based intervention programme.

Session	Theme	Topic and Emotion Regulation	Procedure
1 2	Inner Balance	Motivation and understanding <i>Fear</i> Meditation in Action and Trust	Consent Form and Pre-test (T1)
3		Patience and Equanimity– <i>Anger</i>	
4 5 6	Balance in Relationships	Gratitude–Sadness Joy–Happiness	
		Generosity and Balance	
		Compassion and Love	
7 8	Balance with Reality	Interdependence, and Transience Openness/Emptiness and the Meaning of Life	Post-test (T2)

Note: While the entire programme focuses on identifying and understanding emotions as a whole, individual sessions were structured so that each specific emotion was systematically counterbalanced by a corresponding personal value.

2.5 Instruments

The evaluation indicators used in the different activities proposed for the entire university community were as follows:

Depression: Patient Health Questionnaire (PHQ-9) [33], is a 9-item self-administered instrument to screen for possible major depressive disorder. The PHQ-9 follows the criteria specified in the DSM-IV for screening for major depression. Each item is answered on a 4-point Likert scale, ranging from 0 (not at all) to 3 (about every day). The total score is the sum of the individual item scores. The total score ranges from 0 to 27. The standard cut score for suspected major depressive disorder is 10 or more. The Spanish version of the PHQ-9 has demonstrated adequate psychometric properties when used in Spain (Cronbach's $\alpha \approx 0.89$; adequate sensitivity and specificity) [34].

Anxiety: The Generalized Anxiety Disorder Scale (GAD-7) [35]. It is a 7-item self-administered instrument to screen for a possible generalized anxiety disorder. Each of the seven items is answered on a 4-point Likert scale, ranging from 0 (not at all) to 3 (every day). The total score is the sum of the individual item scores. The total score ranges from 0 to 21. The standard cut-off for suspicion of generalized anxiety disorder is 10 or more. The psychometric properties of the Spanish version have shown strong psychometric properties, with internal consistency typically ranging from $\alpha = 0.86$ to 0.93 [36].

Well-Being: Well-Being Index; (WHO-5) [37]. It is a 5-item self-report that scores on a Likert-type scale with six response options and assesses subjective general well-being. The raw score ranges from 0 to 25; 0 indicates the worst possible quality of life and may warrant further investigation of depressive symptoms, whereas 25 indicates the best possible quality of life. Spanish validation was done by Lucas-Carrasco and has demonstrated good reliability and construct validity ($\alpha \approx 0.84$) [38].

Mindfulness: Five-Facet Mindfulness Questionnaire Short Form, FFMQ-SF. Reference [39] is a 20-item instrument that measures the full attention capacity expressed in five different facets: observation ($\alpha = 0.81$), description ($\alpha = 0.91$), acting with awareness ($\alpha = 0.89$), non-judging ($\alpha = 0.91$) and non-reactivity ($\alpha = 0.80$). The instrument rated on a Likert scale from 1 (never) to 5 (always true). The questionnaire score ranges from 20 to 100, with higher scores indicating greater mindfulness and self-awareness. The Spanish adaptation of the questionnaire by Coo Calcagni and Salanova Soria [40] was used to administer this questionnaire.

Resilience: The Connor-Davidson Resilience Scale; CD-RISC-10; [41]. It consists of 10 Likert-type items with 5 response options and assesses psychological resilience. Total scores are calculated by adding

the 10 items. A higher score indicates greater resilience. The scale features strong internal consistency (Cronbach's $\alpha = 0.85\text{--}0.90$) [42].

Cognitive Flexibility: Cognitive Flexibility Inventory; CFI [43]. Spanish validation will be produced in our study. It comprises 20 items across two factors: Control and Alternatives. This self-report scores on a Likert scale from strongly disagree to strongly agree. Higher scores typically indicate greater flexibility, while lower scores suggest more rigid thinking patterns. Concurrently, the assessment of internal consistency for both the overall scale and its subscales has proven to be adequate with the Alternatives subscale ($\alpha = 0.91$), the Control subscale ($\alpha = 0.86$), and the full score ($\alpha = 0.90$).

Psychological Symptoms: Clinical Outcomes in Routine Evaluation-Outcome Measure (CORE-10) [44] is a brief screening tool derived from the comprehensive 34-item CORE test. The CORE-10 was developed to assess and monitor global psychological distress. It comprises six problem-domain items covering anxiety, depression, trauma, and physical problems; three items assessing functioning; and one item assessing risk to self. The 10 items were selected based on their statistical performance and clinical coverage to ensure high sensitivity in identifying psychological distress. Responses are recorded on a 5-point scale, and total scores range from 0 to 40, with higher scores indicating greater global distress. Clinical significance is determined by a cutoff score of 11 or higher. The internal reliability of the CORE-10 was $\alpha = 0.90$.

Participants' perceptions of the intervention components were evaluated via a qualitative open-ended question administered at post-test. Specifically, participants were asked to identify which of the personal values explored throughout the programme proved to be the most useful or impactful for them.

2.6 Statistical Analysis

Data were analyzed using descriptive and inferential statistics. Means and standard deviations (SDs) were reported for all continuous variables. The Shapiro-Wilk test was used to assess the normality of the data distribution. A mixed-design ANOVA was conducted to examine the effect of the intervention, with Group (experimental vs. control) as the between-subjects factor and Time (pre-test vs. post-test) as the within-subjects factor. Homogeneity of variances and normality were tested before performing all ANOVA tests presented. The primary outcome of interest was the Group $\times$ Time interaction effect, which reflects differential change between groups over the intervention period. Effect sizes were computed using partial eta squared (η^2). The significance level was set at $\alpha = 0.05$ for all analyses. All statistical analyses were performed using JASP (version 0.96).

3 Results

A total of 188 participants were initially recruited for the study and randomly allocated into two equal groups: an experimental group ($n = 94$) and a control group ($n = 94$). At the pre-test stage, 83 participants in the experimental group and 26 participants in the control group completed the baseline assessment measures. Regarding programme adherence within the experimental condition, 59 participants completed the programme, (with 24 participants subsequently excluded from the analysis for failing to meet the predefined 75% attendance threshold). Of the remaining 59 participants in the experimental group, only 29 completed the post-test evaluation, while 21 in the control group completed the assessment. Following this evaluation, 4 participants from the experimental group and 1 from the control group were excluded due to changes in their medical or psychological treatment during the study period. Consequently, the final analyzed sample consisted of 45 participants: 25 in the experimental group and 20 in the control group (see Fig. 1).

Protocol compliance was evaluated in the experimental group. Participants were considered protocol-compliant if they attended at least 75% of the eight scheduled sessions (i.e., a minimum of six sessions).

This threshold was established a priori to ensure that participants had received an adequate therapeutic dose of the intervention. Participants who did not meet this attendance criterion were excluded from the final analysis.

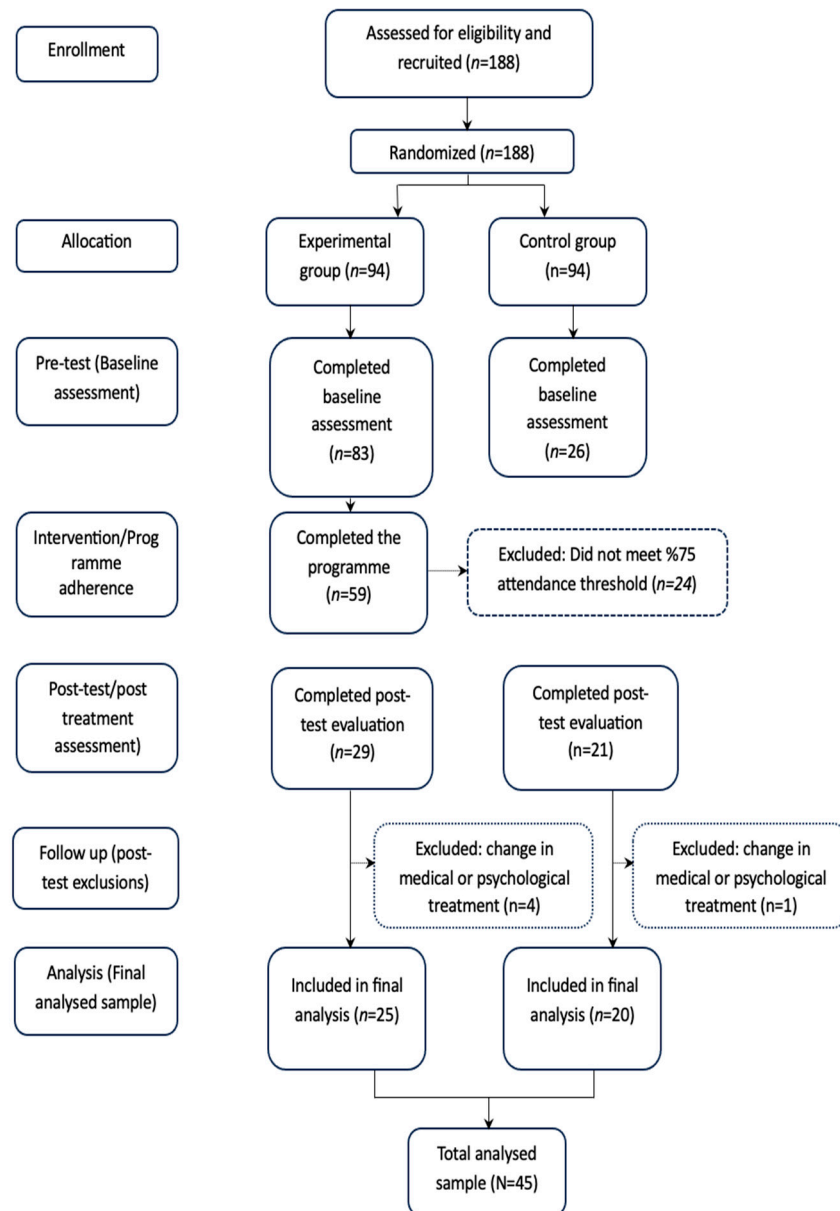


Figure 1: CONSORT flow diagram of participant recruitment, allocation, follow-up and analysis.

To examine potential attrition bias, baseline data were analyzed to compare participants in the experimental group who remained in the study and completed both the pre- and post-test assessments with those who discontinued the programme or failed to complete the post-test. For this reason, pre-test scores of participants in the experimental group ($n = 83$) were compared between those who completed both the pre- and post-test assessments ($n = 29$, including four participants who subsequently changed medication) and participants who were not included in the final analysis ($n = 54$). Some participants in the programme did not complete the pre-test and/or post-test assessments. No significant differences were found between

groups on any clinical or mindfulness measure at baseline, including depression (PHQ-9), anxiety (GAD-7), well-being (WHO-5), mindfulness facets (FFMQ-SF), cognitive flexibility (CFI), or psychological symptoms (CORE-10; all $ps > 0.17$). The only significant difference was observed for resilience (CD-RISC-10; completers: $Mean = 28.17$, $SD = 5.11$; non-completers: $Mean = 24.09$, $SD = 6.81$; $t(81) = 3.08$, $p = 0.003$), suggesting that those who remained in the programme presented higher baseline resilience. These results indicate that, with the exception of this variable, the final sample was largely comparable to those who dropped out at pre-test, limiting the potential impact of attrition bias on the primary outcomes.

The social and demographic characteristics were evenly distributed across groups (see Table 3). No variables showed statistically significant differences; consequently, none were included as confounding variables (e.g., age).

Table 3: Social and demographic variables.

Variable	Experimental Group ($n = 25$) (%)	Control Group ($n = 20$) (%)	p -Value
Gender			
Women	$n = 22$ (88%)	$n = 16$ (80%)	0.462
Men	$n = 3$ (12%)	$n = 4$ (20%)	
Age			
Mean	27.72	23.00	0.078
SD	11.53	5.17	
Birth place			
Spain	$n = 22$ (88%)	$n = 16$ (80%)	0.462
Other	$n = 3$ (12%)	$n = 4$ (20%)	
Civil status			
Single	$n = 19$ (76%)	$n = 17$ (85%)	0.503
Married	$n = 4$ (16%)	$n = 1$ (5%)	
In a relationship	$n = 2$ (8%)	$n = 2$ (10%)	
Widow	$n = 0$ (0%)	$n = 0$ (0%)	
Having children			
Yes	$n = 5$ (20%)	$n = 1$ (5%)	0.141
No	$n = 20$ (80%)	$n = 19$ (95%)	
Study level			
Bachelor	$n = 21$ (84%)	$n = 20$ (100%)	0.173
Master	$n = 3$ (12%)	$n = 0$ (0%)	
PhD	$n = 1$ (4%)	$n = 0$ (0%)	
Study type			
Psychology	$n = 18$ (72%)	$n = 15$ (75%)	0.213
Health	$n = 2$ (8%)	$n = 4$ (20%)	
Other	$n = 5$ (20%)	$n = 1$ (5%)	
Working			
Yes	$n = 13$ (52%)	$n = 9$ (45%)	0.641
No	$n = 12$ (48%)	$n = 11$ (55%)	

Note: SD, standard deviation. Among university staff (Teaching and Research Staff and Service and Administrative Staff), 16 participants initially enrolled; however, only 3 completed both the intervention and the assessment.

Pre-test comparison between the full experimental ($n = 83$) and control ($n = 26$) groups showed no meaningful baseline differences across the primary clinical and mindfulness outcomes, including depression, anxiety, well-being, resilience, total mindfulness, and cognitive flexibility (all $ps > 0.19$). Although psychological symptoms (CORE-10) showed a statistically significant difference at baseline ($p = 0.008$), both groups scored well above the clinical cutoff, with nearly all participants presenting similar symptom levels regardless of group allocation.

Across most variables, the results were more favourable in experimental group than in the control group (both clinical: PHQ-9, GAD-7, CORE-10, and positive: CD-RISC-10, WHO-5, FFMQ-SF, CFI variables), but only reached statistical significance for well-being ($F(1, 43) = 4.48$, $p = 0.040$, $\eta^2 = 0.094$) and non-judging

($F(1, 43) = 8.02, p = 0.007, \eta^2 p = 0.157$). While these variables decrease in the control group, they increase in the experimental group. Neither group demonstrated significant changes in the non-reactivity facet, nor did they show a meaningful increase in the perception of control (a facet of the Cognitive Flexibility Inventory).

Significant changes over time were observed for PHQ-9, GAD-7, CD-RISC-10, and the Observing and non-judging facet in both groups, although the changes were more pronounced in the experimental group. The results are shown in Table 4.

Twenty-five participants completed at least 75% of the sessions of GestEm-U. The mean number of sessions attended was 7.07 (SD = 0.65). Regarding at-home practice, 1 participant reported completing none of the home practices, 16 completed some, 4 completed many, and 5 completed all.

To complement the quantitative findings, we present representative verbatim excerpts from participants' open-ended responses for the core values most frequently commented on. These quotations illustrate the ways in which participants expressed the meaning and perceived influence of these values. The open-ended questions explored eleven distinct core values targeted by the programme. The resulting themes reflected how participants perceived the intervention's influence on their emotional regulation, psychological well-being, and academic experiences. Representative verbatim quotations are provided to illustrate each value, accompanied by the percentage of participants who mentioned each theme to indicate its relative salience within the sample.

Patience emerged as the most frequently reported value (68%), with participants describing greater self-control and reduced impulsivity (e.g., *"I have worked on impulsivity and patience."*). This was followed by Gratitude (64%), as many participants reported a heightened appreciation of the present moment and greater awareness of positive aspects of their lives (e.g., *"It has helped me appreciate the present moment and become aware of everything I have."*). Balance was identified by 64% of participants, reflecting increased emotional stability and a more balanced perspective on life (e.g., *"It has allowed me to observe life through different eyes, more calmly and with balance."*). Compassion and Love was reported by 52% of participants, indicating enhanced emotional connection with themselves and others. Interdependence was identified by 40% of participants, highlighting an increased awareness of interconnectedness with others (e.g., *"These types of programmes help us develop greater awareness of our own emotions and how they are connected with others and with our environment."*). Similarly, Impermanence/Transitoriness was reported by 40% of participants, who described a greater ability to accept change and focus on the present moment (e.g., *"It has helped me adapt better to situations, focus on the here and now, and let whatever comes flow."*). Openness/Sense of Life was mentioned by 36% of participants and reflected greater openness to experience, personal growth, and meaning in life (e.g., *"From now on, every moment is precious, every look has an answer... I am convinced that little by little I will find deeper internal balance and greater harmony with people who are already in my life... who will undoubtedly enrich and transform my sense of life's purpose"*). Joy/Happiness emerged in 28% of responses, with participants describing greater enjoyment of everyday experiences (e.g., *"It has made me enjoy everyday life, even when nothing 'exciting or fun' is happening."*). Finally, Equanimity (24%) and Generosity (24%) were the least frequently reported themes. Participants associated equanimity with a calmer and more objective perspective (e.g., *"It has been like a mirror that reflected things I had overlooked in everyday life, such as equanimity."*), whereas generosity was reflected in the willingness to share the benefits of the programme with others (e.g., *"I had the pleasure of sharing the new topic of each week of the programme with my family, trying to pass on the well-being I was achieving and the gift of being together in the 'here and now'."*).

Table 4: Results of ANOVA analysis for variance effects.

Test Name	Experimental Pre-Test	Experimental Post-Test	Control Pre-Test	Control Post-Test	F (p-Value Group)	F (p-Value Time)	F (p-Value Interaction)	$\eta^2 p$ (Interaction)
PHQ-9	7.76 (5.43)	5.84 (4.65)	8.25 (5.94)	7.4 (4.01)	0.528 (0.471)	6.026 (0.018)	0.899 (0.348)	0.020
GAD-7	6.67 (4.57)	5.04 (4.00)	7.95 (4.87)	6.70 (4.18)	1.409 (0.242)	7.182 (0.010)	0.180 (0.674)	0.004
CD-RISC-10	28.12 (5.29)	30.88 (5.27)	27.05 (7.33)	28.75 (6.89)	0.861 (0.359)	11.224 (0.002)	0.634 (0.430)	0.014
WHO-5	13.80 (5.70)	15.92 (5.13)	14.30 (4.66)	13.70 (5.13)	0.417 (0.522)	1.402 (0.243)	4.489 (0.040)	0.094
FFMQ-SF-Observing	17.60 (3.88)	19.16 (3.74)	16.60 (3.71)	17.15 (3.36)	2.210 (0.144)	5.384 (0.025)	1.234 (0.273)	0.027
FFMQ-SF-Describing	10.52 (2.66)	11.20 (2.59)	10.50 (2.70)	10.60 (2.72)	0.180 (0.674)	1.430 (0.238)	0.791 (0.379)	0.018
FFMQ-SF-Act Mind	12.84 (4.45)	13.84 (3.17)	12.05 (3.33)	11.40 (3.56)	2.537 (0.118)	0.157 (0.694)	3.491 (0.069)	0.075
FFMQ-SF-No Judging	12.40 (1.93)	14.92 (3.76)	14.60 (3.53)	14.45 (3.31)	1.078 (0.305)	6.318 (0.016)	8.018 (0.007)	0.157
FFMQ-SF-No Reaction	13.00 (1.91)	12.48 (1.89)	12.70 (1.65)	12.70 (1.89)	0.009 (0.927)	0.538 (0.467)	0.538 (0.467)	0.012
FFMQ-SF-Total	67.64 (11.36)	71.60 (9.17)	66.45 (9.43)	66.30 (9.94)	1.373 (0.248)	2.543 (0.118)	2.959 (0.093)	0.064
CFI-Alternatives	69.72 (8.96)	73.36 (12.23)	72.95 (7.28)	74.65 (10.15)	0.812 (0.373)	2.753 (0.104)	0.363 (0.550)	0.008
CFI-Control	36.00 (6.91)	36.80 (5.53)	29.85 (9.42)	30.70 (7.41)	9.264 (0.004)	0.875 (0.355)	0.001 (0.978)	<0.001
CFI-Total	105.7 (13.93)	110.2 (15.14)	102.8 (13.34)	105.4 (11.94)	1.129 (0.294)	3.241 (0.079)	0.237 (0.629)	0.005
CORE-10	16.72 (4.29)	15.32 (2.96)	19.15 (5.49)	17.85 (4.26)	5.742 (0.021)	3.177 (0.082)	0.004 (0.948)	<0.001

Note: Data are presented as Mean (SD). For all Mixed-design ANOVA tests, degrees of freedom are $df = (1, 43)$. Bold values indicate statistically significant effects ($p < 0.05$). PHQ-9, Patient Health Questionnaire (9-item depression scale); GAD-7, Generalized Anxiety Disorder Scale (7-item); CD-RISC-10 Connor-Davidson Resilience Scale (10-item); WHO-5, World Health Organization Well-Being Index; FFMQ-SF, Five Facet Mindfulness Questionnaire-Short Form; CFI, Cognitive Flexibility Inventory; CORE-10, Clinical Outcomes in Routine Evaluation (Outcome Measure/10-item version).

4 Discussion

The GestEm-U hybrid programme showed statistical significance only for well-being, which constituted the primary objective of the study, and for the mindfulness facet of non-judging of inner experience. These variables are particularly relevant, as they are associated with reductions in harsh self-criticism and the development of a more accepting and compassionate relationship with oneself. Most outcomes favoured the experimental group over the control group; however, these differences did not reach statistical significance. This descriptive pattern was observed across clinical outcomes (anxiety, depression, and psychological symptoms) as well as positive outcomes (resilience and all mindfulness facets except non-reactivity), although improvements over time were also observed in the control group for several outcomes. Importantly, the significant Group $\times$ Time effect observed for non-judging is consistent with the findings of Sedighimornani et al. [45], who identified non-judging as a particularly relevant mindfulness facet associated with lower levels of shame, even after accounting for self-compassion.

Non-judging, a central component of mindfulness practice, has been identified as a key mechanism of change and is consistently associated with greater psychological well-being [12,22,28,46,47]. Moreover, higher levels of non-judging have been linked to lower levels of rumination and maladaptive cognitive processing [46]. The importance of reducing rumination and worry is significant, as these factors act as mediators of clinical outcomes [48]. In student populations, stronger non-judging skills and mindfulness have also been associated with more effective emotion regulation and lower levels of depressive symptoms [47], highlighting the relevance of this facet for psychological adjustment in academic contexts.

Clinical symptoms decreased across all variables, consistent with previous findings [13] in both groups. Previous studies have reported broader and more consistent improvements across psychological outcomes following mindfulness-based interventions. For example, El Morr et al. [19] and Ritvo et al. [21] found significant reductions in depression, anxiety, and stress, alongside increases in mindfulness. Similarly, Galante et al. [14] reported reduced psychological distress during high-stress academic periods, while Acikgoz & Karaca [24] observed improvements in depression, anxiety, and cognitive flexibility.

A possible explanation for the lack of statistically significant differences is that, although the experimental group showed greater improvements, the control group also demonstrated positive changes, albeit to a lesser extent. This overall tendency may be related to an environment-driven stabilization effect. Specifically, participation within a “healthy university” ecosystem—particularly among psychology students [23], who often possess higher levels of mental health literacy—may naturally buffer psychological distress and promote well-being independently of the specific intervention. A healthy university ecosystem can be characterized by a holistic curriculum where core values permeate the majority of academic discourse. This institutional philosophy manifests through the use of intimate, small-group seminars and a commitment to personalized, individual tutoring [49]. Furthermore, these improvements in the control group can also be explained by the Hawthorne effect, in which participation in a research study prompts behavioural self-monitoring and psychological stabilization [50]. Differences in sample size and statistical power may have contributed to the variability in findings, as larger trials (e.g., Galante et al. [14]) are better positioned to detect smaller effects.

Non-reactivity is an important facet of mindfulness that may develop through mindfulness practice; however, current evidence regarding its role as a mechanism of mindfulness-based interventions remains preliminary [48]. Changes in facets such as non-reactivity may emerge only over longer follow-up periods [15,16]. This pattern may reflect the greater complexity of non-reactivity, which involves the attenuation of habitual emotional and cognitive responses. Accordingly, the limited or non-significant

changes observed in non-reactivity in the present study may be attributable to the time required for the consolidation of this facet. Future implementations should place greater emphasis on this component.

Implementing values-based mindfulness programmes in the university setting requires a balance between depth and simplicity. Heartfulness [10,11] is a very complete and deep emerging meditation-based programme with preliminary empirical evidence, but its complexity and high time demands could create challenges within rigid academic environments. In contrast, the GestEm-U protocol is specifically designed for the university ecosystem, offering a more accessible, structured, yet sufficiently comprehensive approach. By focusing on mindfulness facets, especially non-judging and combining emotional regulation with a clear values-based framework, it provides an effective yet less demanding alternative for both participants and institutions. This practical and accessible design addresses the growing need for mental health support while ensuring the programme remains feasible within academic settings.

Additionally, this research fills a significant gap in the literature by integrating a values-based framework and emotional regulation into traditional mindfulness practices. Combining present-moment awareness with personal values helps participants move beyond simple stress management toward “committed action”—learning to pursue meaningful goals even during difficult periods. A frequency analysis of the values prioritized by the experimental group revealed a strong emphasis on patience, which emerged as the most frequently reported value and is conceptually linked to improved emotion regulation, including the management of anger [51]. This was followed by gratitude, which is conceptually associated with lower levels of depression as supported by a recent meta-analysis [52], and balance, associated with greater equanimity. These results, along with the high prevalence of Interdependence, suggest that the participants appeared to value qualities that foster emotional stability and relational connectivity. Overall, the high selection rate across categories indicates that participants successfully adopted the programme’s values across multiple dimensions.

A strength of this study is its holistic approach to the university community. While most research focuses on students, we included academic and administrative staff, treating the university as a complete ecosystem. Given that the well-being of academics [6] and administrative staff—despite limited research—directly influences campus climate and educational quality, this approach provides a more realistic perspective on university mental health. However, staff participation was limited. One possible explanation is the reluctance to disclose mental health information, despite anonymity being ensured through externally assigned codes. Future studies should encourage staff to complete both pre- and post-test measures to enable comparisons across groups. Previous research has shown that mindfulness-based interventions in university staff improve mindful awareness, reduce work-related anxiety, and increase job satisfaction [53,54], supporting their role in enhancing emotional regulation and well-being. Therefore, future studies should continue to include all members of the university community.

Despite the promising preliminary findings of the present research, several critical methodological limitations must be acknowledged. First, the study suffered from a high attrition rate across both conditions, particularly within the waitlist control group. Out of 188 initially recruited participants, the final analytical sample was substantially smaller due to significant dropouts between recruitment and post-test phases. One possible explanation for the low completion rate of the baseline assessment especially in the wait-list control group is that participants may have been less motivated to complete the questionnaires knowing that they would not receive the intervention during the study period. This occurred despite several reminder emails from the research team encouraging compliance with the study assessments in both groups at the same time. The voluntary nature of the study, together with the demands of the 8-week GestEm-U programme

in the experimental group and the heavy academic and administrative workloads of participants, may have hindered programme completion and compliance.

Furthermore, the low rate of pre-test in the control group could have introduced a potential selection bias but the pre-test comparison between the experimental and control group showed no meaningful baseline differences across the primary clinical and mindfulness outcomes, with nearly all participants presenting similar symptom levels regardless of group allocation. This pattern indicates that both groups were clinically similar at baseline, except in one variable, reducing the likelihood that the observed findings can be explained by initial differences between the samples. Most participants in the control group also completed post-test measures, possibly because they were regular students.

The high attrition rate between the initial participants assigned to the experimental group and those who completed both assessments may also represent a potential source of bias. Moreover, nearly half of the participants who regularly attended the programme did not complete the post-test assessment. However, baseline analyses indicated no significant differences between participants who completed the programme and those who withdrew, with the sole exception of baseline resilience. Specifically, completers exhibited significantly higher initial resilience levels, whereas no significant differences were observed across the remaining baseline variables. Despite these overall similarities between completers and non-completers, the high attrition rate may still have introduced bias through unmeasured confounding factors, such as individual motivation, time availability, or intervention expectations. The observed positive outcomes may reflect a selection artifact, potentially overestimating the programme's efficacy among less-resilient individuals.

Therefore, while the improvements in nonjudging and well-being are encouraging, they should be interpreted with caution due to high attrition. Future studies should implement stronger engagement strategies, such as academic incentives to improve retention and ensure the findings are more generalizable.

A second important limitation is that at-home practice was not monitored, so we cannot precisely quantify the extent of active mindfulness practice that contributed to these effects, although participants were asked about their home practice. Regular practice is one of the most crucial variables for achieving positive outcomes [17]. The composition of the sample also represents a limitation, as a large proportion of participants were psychology students, possibly reflecting greater motivation or interest in topics such as emotional regulation, mindfulness, and values. These students may be more receptive to psychological interventions than those from other disciplines (e.g., engineering or the physical sciences), which may limit the generalizability of the findings to the broader student population. Furthermore, we relied entirely on self-report measures, which are susceptible to social desirability bias. Finally, the absence of a long-term follow-up assessment represents a limitation. Although a three-month follow-up was requested, only six participants responded, so these data could not be analyzed in the present study. This precludes determining whether the observed positive changes persist throughout the academic year or beyond.

Future studies should aim to recruit larger and more diverse samples across academic disciplines, including both students and staff, to enhance the generalizability of the findings. They should also move beyond self-report measures by incorporating monitoring of daily home practice, as well as behavioral or ecological measures, to better characterize dose–response patterns. In addition, the inclusion of objective indicators—such as biometric markers (e.g., heart rate variability or cortisol levels)—would provide more robust evidence of anxiety or stress reduction.

The decision to use a waitlist control group was based on the exploratory nature of this initial trial and on ethical considerations, as it ensured that all participants would eventually have access to the intervention. In addition, the use of a waitlist control allowed us to obtain a preliminary estimate of the potential effectiveness and feasibility of the GestEm-U programme before undertaking more complex and

resource-intensive trial designs. Furthermore, the inclusion of an active control group (e.g., relaxation training or psychoeducation) in future studies would strengthen causal inferences. This design feature is critical to differentiating the specific therapeutic mechanisms of the GestEm-U programme from non-specific treatment effects, such as the Hawthorne effect or the benefits of mere participation. Longer-term follow-up assessments (e.g., six months or one year) will be essential to determine whether the integration of values leads to sustained behavioral changes beyond those associated with mindfulness alone. Another emerging challenge is the integration of artificial intelligence into higher education, alongside its subsequent impacts on the mental health and well-being of the broader university community [55]. Finally, future research should incorporate qualitative methodologies, such as structured thematic analysis, to provide a deeper, more comprehensive evaluation of how participants experience this type of intervention.

This study will be retrospectively registered in a public clinical trials registry (e.g., ClinicalTrials.gov). This occurred because the GestEm-U program was originally developed and executed as an internal, localized pilot initiative within the university's personal guidance service rather than a clinical medical trial.

The university system faces the challenge of motivating the entire community—particularly students—to engage in programmes that enhance well-being. This can be achieved through both extrinsic incentives, such as credit recognition, and the fostering of intrinsic motivation to address the growing need for mental health promotion. This aligns with the conclusions of González-Martín et al. (2023) [13] who advocate for such initiatives as strategic interventions at the institutional level. Cultivating a mindfulness and values-based ecosystem as a main regulator of emotions remains a major undertaking.

5 Conclusions

Despite the operational challenges of enrolling and retaining higher education cohorts in voluntary well-being programmes, developing institutional strategies to enhance emotional regulation remains crucial given rising psychopathology rates. The GestEm-U program provided preliminary, selective evidence of benefit, demonstrating a significant post-test increase in the mindfulness facet of “non-judging”—a mechanism vital for mitigating rumination and fostering self-compassion—and a significant improvement in general well-being, the central objective of the study.

Future iterations must implement robust engagement incentives to curb attrition, utilize active control groups, and deploy objective monitoring tools.

Overall, these results suggest that GestEm-U is a brief, deep and promising programme with meaningful preliminary benefits in the university setting, delivered in eight weeks. Developing competencies that support emotional regulation and well-being remains essential, alongside intensifying the non-reactivity facet of mindfulness, in order to develop global programs that foster satisfactory relationships grounded in the values of inner, relational, and systemic balance within university communities.

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Abbreviations

MBIs	Mindfulness-Based Interventions
GestEm-U	Emotional Regulation at the University (Gestión Emocional en la Universidad)
SDGs	Sustainable Development Goals
WHO-5	World Health Organization-Five Well-Being Index
FFMQ-SF	Five Facet Mindfulness Questionnaire-Short Form
PHQ-9	Patient Health Questionnaire (9-item depression scale)
GAD-7	Generalised Anxiety Disorder Scale (7-item)
CD-RISC-10	Connor-Davidson Resilience Scale (10-item)
CFI	Cognitive Flexibility Inventory
CORE-10	Clinical Outcomes in Routine Evaluation (Outcome Measure/10-item version)
DSM-IV	Diagnostic and Statistical Manual of Mental Disorders, Fourth Edition
TRS	Teaching and Research Staff
SAS	Service and Administrative Staff
URL	Universitat Ramon Llull
CER-URL	Research Ethics Committee of Universitat Ramon Llull
T1	Baseline assessment (pre-test)
T2	post-intervention assessment
ANOVA	Analysis of Variance

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