



## Research Article

# Intervention feasibility study focused on acts of kindness induces a decrease in anxiety, depression, and stress in youths

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## Abstract

Interventions based on positive psychology are an effective alternative to reduce symptoms of emotional distress and prevent mental health problems. However, little is known about the evaluation of kindness on unpleasant emotional states. The objective is to evaluate the feasibility of an intervention focused on acts of kindness on anxiety, depression and stress in university students. Three men and two women participated in an intervention of three weekly sessions, and pre- post evaluation. A multi-element single-case design was carried out with five replicates where the effect size was calculated using the percentage of non-overlapping data and the reliable change index. In the results, the post-intervention evaluation showed a significant change index for depression, anxiety and stress. However, the size of the effect was questionable. From the results, we can affirm that the feasibility study offers data in favor of the component of acts of kindness as an intervention on negative affect. However, it is recommended to evaluate the effect size with larger samples and more robust statistical indices.

*Keywords:* acts of kindness; positive intervention; depression; feasibility and youth



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In recent decades, a series of interventions have been developed focused on reducing mental health problems such as depression and anxiety ([Bolier et al., 2013](#); [Gander et al., 2013](#); [Waters, 2011](#)). One of the theoretical approaches that has increased rapidly is positive psychology ([Seligman & Csikszentmihalyi, 2000](#); [Seligman et al., 2005](#); [Wang et al., 2023](#)), incorporating constructs such as happiness ([Lyubomirsky, 2001](#)), gratitude ([McCullough et al., 2002](#)), optimism ([Palacios & Acevedo, 2023](#)), kindness ([Otake et al., 2006](#); [Palacios et al., 2025](#)) and loving-kindness ([Fredrickson et al., 2008](#)).

From the confinement caused by COVID-19 and the mental health crisis, positive psychology is essential to maintaining personal well-being ([Brouzos et al., 2023](#); [García-Álvarez et al., 2021](#); [Palacios-Delgado et al., 2024](#)). Recent research indicates that positive psychological interventions (PPIs) can have beneficial outcomes for people ([Cohn & Fredrickson, 2010](#); [Seligman et al., 2006](#)). Positive emotion interventions are consistent with a larger body of research, which has found that they predict good outcomes. These outcomes include minimizing depressive symptoms ([Carr et al., 2020](#)), anxiety and depression ([Taylor et al., 2017](#)), as well as, improving happiness ([Lambert et al., 2019](#)) mental health ([Petrovic et al., 2024](#)) and kindness ([Kerr et al., 2015](#)). The evidence for the effectiveness of positive

psychology interventions shows that PPIs can, indeed, be effective in enhancing well-being ([Sin & Lyubomirsky, 2009](#)).

The evidence suggests that kindness intervention helps reduce depressive symptom levels in young populations ([Totzeck et al., 2020](#)). In one study, young people who performed acts of kindness for three weeks and one follow-up, increased in positive affect more than students who wrote about what they did during the past week ([Layous et al., 2016](#)). In another study, people who carried out acts of kindness towards others and performed recall acts of kindness increased in well-being more than those in the control condition ([Ko et al., 2019](#)). Interestingly, when college students performed random kind acts, they had improvements in well-being (e.g., higher positive affect and lower negative affect), and women had higher positive affect scores ([Pressman et al., 2015](#)). Finally, a study by [Lyubomirsky et al., \(2005\)](#) asked college students to complete five kind acts each week for six weeks. A notable finding of this research is that the intervention group experienced higher levels of well-being.

In Mexico, few studies evaluate the effectiveness of interventions in acts of kindness. [Hernandez et al. \(2018\)](#) determined the feasibility and acceptability of a wellness intervention based on positive psychology concepts in Hispanics/Latinos at risk of cardiovascular disease. The intervention consisted of focusing on personal strengths and acts of kindness. The results showed a retention rate of 57.89%, participants who completed the program attended 83.75% of the sessions and 97.1% felt satisfied in each session. There was an increase in behaviors that induce happiness and emotional vitality. Subsequently, [Hernandez et al. \(2019\)](#), conducted a controlled clinical trial phase II, in which a cultural adaptation of the group intervention based on positive psychology called “iAlegrate!” was carried out in the Hispanic/Latino population, focused on improving blood pressure and emotional well-being through the performance of acts of kindness, however, there are still no results.

Based on the previous information, findings indicate that positive psychology focuses on the conditions that allow people and communities to thrive ([Seligman & Csikszentmihalyi, 2000](#)) and the interventions in which participants engaged in positive activities experienced increased well-being. A range of studies have shown that positive psychology interventions can significantly improve mood and reduce depressive symptoms.

These findings collectively suggest that kindness interventions can have a positive impact on well-being, particularly recall kindness, perform acts of kindness and loving kindness meditation, they can increase happiness levels and, in turn, reduce depression, anxiety and stress, so these

interventions can be highly effective ([Ko et al., 2019](#); [Lyubomirsky et al., 2005](#); [Otake et al., 2006](#)). Furthermore, these interventions are accessible and can be implemented in various settings.

The acts of kindness towards oneself and towards others can improve the positive emotions of young people, however, in our sociocultural context, there is little research that has been carried out on the acts of kindness interventions and may require further research to determine its feasibility. Therefore, it is crucial to explore innovative interventions based on acts of kindness that may be particularly effective for young people. Since this approach not only tries to reduce the symptoms of depression but also promotes a state of general well-being. Practicing acts of kindness, accompanied by a combination of positive emotions, can be extended as psychological resources ([Palacios & Acevedo, 2023](#)), that can act as a buffer against the negative effects of emotional distress ([Fredrickson et al., 2008](#); [Palacios et al., 2024](#); [Seligman et al., 2006](#)).

It is worth mentioning that the evaluation of positive psychology as a treatment has been carried out considering its six domains, gratitude, positive processing of past present, and future events, strength identification, goal pursuit, and acts of kindness and their impact on happiness ([Pan et al., 2022](#)) However, besides limitations in the independent evaluation of each domain. Little is known about the impact on different variables other than happiness; such as negative or positive affect, in more homogeneous population sectors ([Lyubomirsky et al., 2005](#); [Otake et al., 2006](#)). Carrying out an intervention of acts of kindness focused on negative emotional states in young people offers an innovative, fast, low-cost, and high-impact solution proposal to prevent the evolution of unpleasant emotional states and consequently mental health problems ([Palacios & Acevedo, 2023](#); [Taylor et al., 2017](#)).

For this reason, the main purpose of this research is to evaluate the effect size of an intervention focused on acts of kindness on anxiety, depression, and stress in university students. The specific objective is to evaluate the impact on subjective happiness. Using a multi-element single-case design with five replications. For this, the percentage of non-overlapping data (PND) was calculated. It is one of the oldest indices used in meta-analysis ([Ma, 2006](#); [Parker et al., 2011](#)). Finally, it is hypothesized that treatments aimed at performing acts of kindness towards oneself and others could have a relation in decreasing participants' negative affect and increasing subjective happiness. Such research will improve our understanding of the consequences of acts of kindness and help professionals maximize the

effectiveness of interventions targeting specific components of positive psychology to improve emotional well-being ([Curry et al., 2018](#); [Ko et al., 2019](#)).

Carrying out, on one hand, an intervention of acts of kindness that represent happiness for young people, in addition to being focused on negative emotional states, offers a proposal for an innovative, fast, low-cost, and high-impact solution by preventing the evolution of unpleasant emotional states and consequently mental health problems ([Palacios et al., 2024](#); [Taylor et al., 2017](#)).

## Method

### Design

Multi-element single-case design with five replications; this design was used because it is necessary to first corroborate the feasibility of the kindness component and the effect size on negative affect as a new dependent variable, before evaluating its efficacy and effectiveness ([Bowen et al., 2009](#)). For this purpose, the percentage of non-overlapping data was calculated [percentage of nonoverlappingnon overlapping data or PND], which is defined as the percentage of treatment phase data that exceeds the most extreme baseline (BL) data. It allows observing the change in levels of negative affect of participants, seen as his/her own experimental control, and thus ensuring that change is a product of the treatment. If not, the course of treatment can be modified to achieve a satisfactory decrease in negative affect and increase in subjective happiness ([Perone & Hursh, 2013](#); [Sanz & García-Vera, 2015](#)).

### Participants

In the study participants were selected through a non-probabilistic sampling ( $n = 5$ ); 60% men and 40% women between 18 and 22 years of age ( $M = 20$ ,  $SD = 1.41$ ) who were studying at university. The inclusion criteria were university students between 18 and 25 years old, to be enrolled at the university, to have a schedule available to participate voluntarily, and to sign the informed consent to be part of a research. The exclusion criteria were reporting any psychiatric diagnosis that could interfere with their participation in the intervention, to be simultaneously participating in another psychological intervention study or to have psychotherapy at the time of the intervention that could interfere with the results.

## Instruments

### *Acts of kindness*

The frequency of acts of kindness and activity performed by students each week was monitored and described by completing a digital form before each intervention session. Additionally, acts of kindness they received from others, acts of kindness they performed for themselves, and acts of kindness they performed for other people such as family, friends, or strangers were recorded. Examples of acts of kindness included “I visited my friends I hadn’t seen in a while,” “I gave my mom a hug when I got home from school,” or “I wrote a letter to my best friend.” Importantly, participants were told that acts of kindness had to involve positive experiences and emotions.

### *Subjective Happiness Scale (SHS)*

Which was culturally adapted for Mexico by [Quezada et al. \(2016\)](#), which measures global subjective happiness through statements with which participants rate themselves and compare themselves with others. It is a four-item Likert scale with seven points to respond to each statement. The mean score of the four items is calculated to obtain a single composite score of global subjective happiness. High scores indicate high levels of happiness. It is valid through confirmatory analysis (CFA) with excellent fit indicators (GFI = .99, NFI = .99, CFI = .99, RMSEA = .034). The scale showed an adequate level of internal consistency Cronbach's alpha = .83 with three statements for the sample of the present study.

### *Depression, Anxiety and Stress Scales (DASS 21).*

This was designed to measure emotional distress in three subcategories ([Salinas-Rodríguez, et al., 2023](#)) of depression, anxiety, and stress. Respondents evaluate from 0 to 3 the severity/frequency with which they have experienced each negative emotional symptom during the previous week. It was a self-reporting questionnaire with 21 items (seven items for each category) based on a four-point rating scale. Participants were asked to rate how many of each of the items (in the form of statements) applied to them over the past week, with “0 = did not apply to me at all” to “3 = applied to me very much, or most of the time”. The higher the score the more severe the emotional distress was. Prior studies have reported high reliability for alpha y omega coefficients related to this scale, both for general factor ( $\alpha = 0.94$ ) and subscales of depression ( $\alpha = 0.91$ ), anxiety ( $\alpha = 0.88$ ), and stress ( $\alpha = 0.88$ ).

## Procedure

Through purposive sampling ([Kerlinger, & Howard, 2002](#)), university students were invited to receive the treatment through diffusion. Students who agreed to participate were contacted to begin the admission and evaluation session, whose main goal was to establish the baseline of behaviors defined under the concept of kindness and levels of emotional distress ([Salinas-Rodríguez, et al., 2023](#)). People diagnosed with neurological or psychiatric illness and who were currently receiving psychological intervention were excluded. Participants who did not complete the intervention and those who had incomplete psychological instruments were discarded for analysis. The structure and techniques of the kindness intervention (see Table 1) are described in two phases: admission and assessment (one session) and treatment (three sessions).

**.Table 1.**

*Structure of the Kindness intervention for university students*

Session	Objective	Applied techniques	Instruments
Admission and evaluation	Measuring the mood of participants	Evaluation	BL, SHC, and DASS-21
Session 1	Define kindness and know the benefits of performing acts of kindness	Psychoeducation	acts of kindness timeline
Session 2	Identify obstacles to kindness and perform acts of kindness towards oneself	Problem Solving and planning acts of kindness	acts of kindness timeline
Session 3	Practicing kindness in close relationships and extending kindness to the community	Performing acts of kindness	acts of kindness timeline SHC and DASS-21

## Data Analysis

The effect size of the treatment application was determined by the impact of performing acts of kindness toward oneself and others on levels of anxiety, depression, and stress, as well as on subjective happiness. With the Percentage of Non-overlapping Data (PND), it is defined as the percentage of data from the treatment phase that exceeds the most extreme data in the LB and is calculated with the formula:  $PND = (\text{Number of treatment data that exceed the most extreme data in the LB}) / (\text{the total number of treatment data}) \times 100$  ([Ma, 2006](#); [Parker et al., 2011](#)). Additionally, using the reliable change index (ICC) proposed by [Jacobson and Truax \(1992\)](#), it



was determined whether there was a significant improvement between the average group in both evaluations. Values greater than +1.96 will be considered clinically significant. To calculate the formula, the standard deviation values of the reference group were used, along with the reliability values reported in the original instruments.

### Ethical Considerations

They voluntarily participated in the study and were provided with informed consent in which they accepted the privacy policies, such as the confidentiality of information, the results of the study for research purposes, and the duration of treatment, and it was specified that they could decline at any time.

## Results

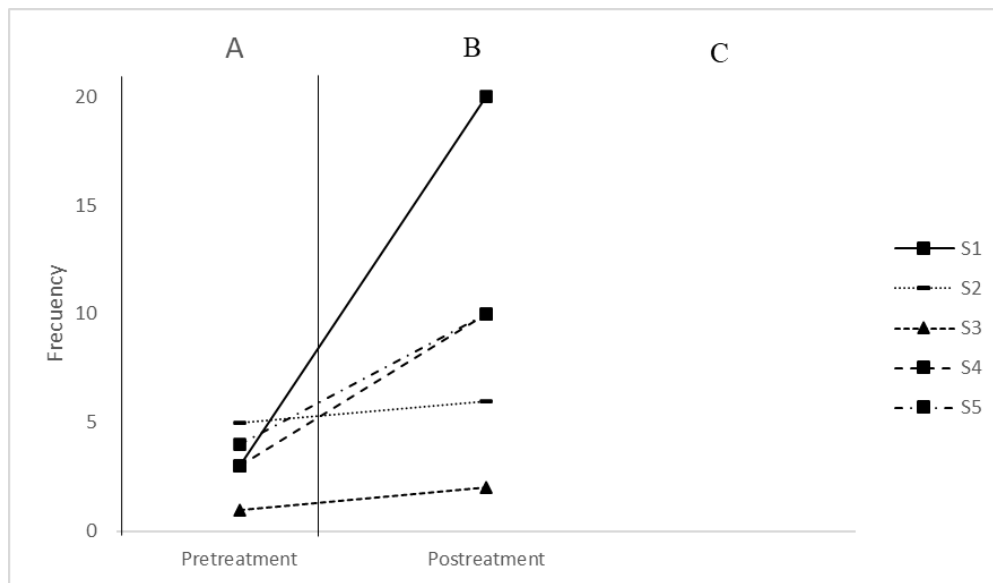
The following table 2 shows the main descriptive data of the subjective happiness scale and the depression (D), anxiety (A) and stress (S) scores (pre - post treatment). The mean subjective happiness before starting the treatment was lower ( $M = 7.4$ ) compared to the mean at the end of the treatment ( $M = 8.2$ ). However, in one student (2) there was a decrease of one point, while in another (3) no changes were perceived.

**Table 2.**  
*Characteristics of the participants*

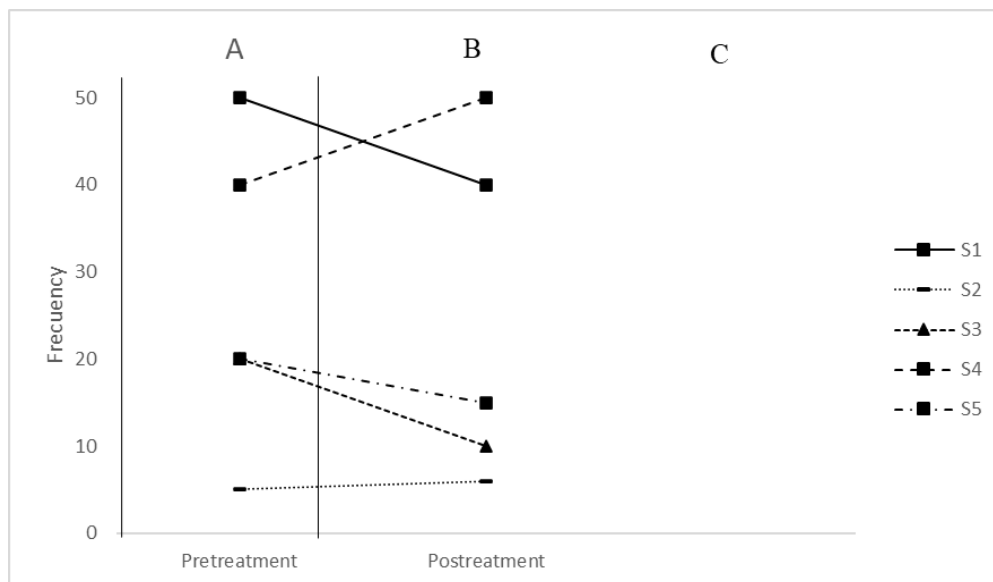
Participants	Age	Sex	Subjective Happiness Scale (SHS)		Depression, Anxiety and Stress Scales (DASS-21)					
			Pre-assessment	Post evaluation	Pre-assessment			Post evaluation		
					D	A	S	D	A	S
1	18	M	7	8	14	14	14	5	12	5
2	22	F	9	8	5	3	8	0	0	4
3	20	M	7	7	7	7	12	7	3	9
4	19	F	6	9	14	11	12	5	5	7
5	21	M	8	9	5	6	10	1	2	3

Note: M = men F = female

Regarding acts of kindness to oneself, an increase in frequency can be observed in the total sample at the end of the treatment (see Figure 1). Whereas, in acts of kindness to others in the post-treatment phase, an increase is observed in only two participants (2 and 5), and in the rest of them a decrease is observed compared to the pre-treatment (see Figure 2). It is worth noting that, compared to acts of kindness to oneself in the pre-treatment, acts of kindness to others were performed more frequently in the same phase.

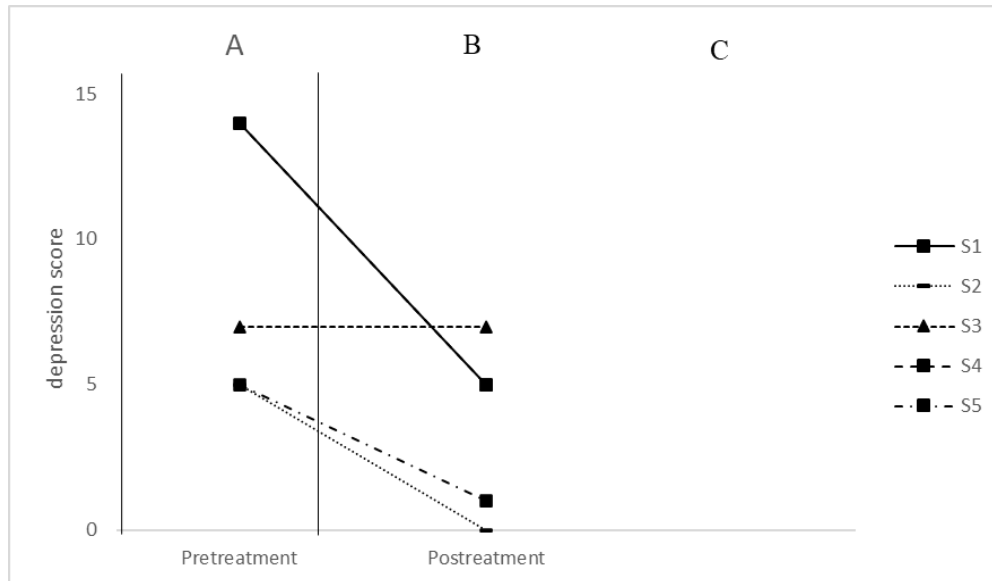


**Figure 1.** Frequency of acts of kindness to oneself.



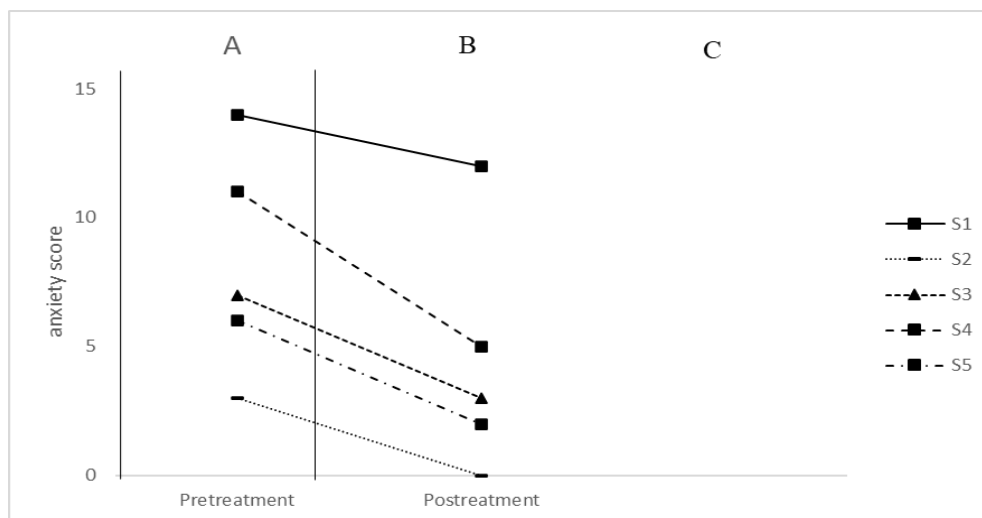
**Figure 2.** Frequency of acts of kindness to others.

Regarding the levels of depression, anxiety, and stress, a decrease can be observed in the post-treatment measurement of depression in four participants; two of them (1 and 4) from extremely severe to moderate, one remained at a moderate level (3) and two of them (5 and 2) despite observing a decrease in score maintained a mild level (see Figure 3).



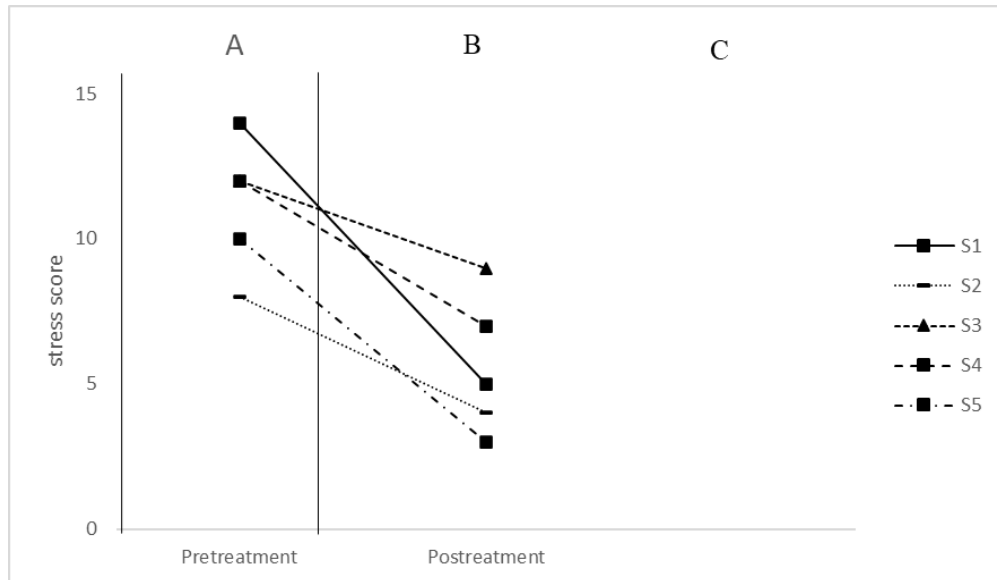
**Figure 3.** Levels of depression according to DASS-21.

Regarding anxiety levels, a decrease in the score is observed in the total sample, however, for two students with an extremely severe level (1 and 5), only one decreased to moderate (5); two participants (3 and 4) decreased their score from moderate to mild and one (2) remained at a mild score (see Figure 4).



**Figure 4.** Anxiety levels according to the DASS-21.

Finally, in the stress score as well as in anxiety, a decrease in the score is observed, however, three of them with extremely severe levels (1, 3, and 4) and one with a moderate level (5) decreased to mild, whose level coincides with participant 2 in which there was no change.



**Figure 5.** Stress levels according to DASS-21.

Regarding the effect size (see Table 3), questionable effectiveness (50%) is observed for depression, anxiety, and stress. Only in one participant was the treatment ineffective for depression. It is important to highlight that it was the participant at the end of treatment who presented a lower frequency of acts of kindness to oneself and even a decrease in acts of kindness towards other people, in addition to the fact that his depression levels remained at a moderate score.

**Table 3.**  
Effect size of the kindness intervention on depression, anxiety and stress

N	Values	Interpretation
Participant 1		
Depression		
Anxiety	50%	Questionable effectiveness
Stress		
Participant 2		

Depression		
Anxiety	50%	Questionable effectiveness
Stress		
Participant 3		
Depression	0%	Ineffective treatment
Anxiety	50%	Questionable effectiveness
Stress		
Participant 4		
Depression		
Anxiety	50%	Questionable effectiveness
Stress		
Participant 5		
Depression		
Anxiety	50%	Questionable effectiveness
Stress		

When analyzing the reliable change, it was found that in happiness, participants 2 and 3 showed a decrease in their happiness, participants 1 and 5 were within normal values, and only participant 4 showed a clinically significant improvement (see Table 4). Regarding the change obtained in depression, it is observed that the five participants had a significant improvement, the highest values being observed in participants 1 and 4.

Finally, regarding the change in anxiety, the results show a significant decrease in anxiety in all participants. However, participant 4 showed a significant improvement, participants 3 and 5 had changes that placed them within the normative values of the reference group and only participant 1 did not show a change in their anxiety level. Finally, when analyzing the change in stress, all would indicate a reliable negative change, that is, a significant decrease in stress, except for participants 2 and 3, which are located within the normative values of the reference group. Participants 1, 4, and 5 obtained a significant improvement in the reduction of their stress levels.

**Table 4.**  
*Reliable change index per participant*

Participant*	Happy	Depression	Anxiety	Stress
1	1.63	-4.28*	-0.93	-3.67*
2	-1.63	-2.38*	-1.40	-1.63
3	0	-2.1*	-1.86	-1.22
4	4.9*	-4.28*	-2.80*	-2.04*
5	1.63	- 1.9	-1.86	-2.85*

\*Criteria for significant change: Significant improvement: absolute values +/- greater than 2. Significant change: absolute values between +/- 1.96 and 2. Normative change: Absolute values between +/- 1 and 1.96. No significant change: absolute values less than +/- 1

## Discussion

The main objective proposed seeks to evaluate the feasibility of kindness treatment for depression, anxiety, and stress. The main results show a decrease in depression scores and levels from severe to moderate (participants 1 and 4) and from moderate to mild (participants 5 and 2). The effect size obtained (50%) according to the Percentage of Non-overlapping Data (PND), has a questionable interpretation ([Parker et al., 2011](#)). While in Participant 3 the treatment was not effective for depression, whose moderate level remained unchanged. Despite observing a decrease in depression levels and scores that coincide with a meta-analysis ([Pan et al., 2022](#)), some participants reported severe and moderate scores. Therefore, although participants with any psychiatric diagnosis were not included, those participants could have been part of a clinical sample and have influenced the results obtained (1, 3, and 4). However, contemporary research on positive psychology in carrying out acts of kindness seems to indicate its adequate implementation in the university context, as demonstrated in the current study. When analyzing the reliable change index, our results seem to be conclusive regarding the improvement in depression for all the young people who participated in the intervention, which supports previous studies that detail the effect of kindness on the reduction of symptoms present in depression ([Layous et al., 2016](#); [Totzeck et al., 2020](#)). Therefore, it is suggested that this intervention should be evaluated with other positive psychology components that could improve change ([Seligman et al., 2005](#)). In addition, we suggest addressing depression in an affective component through active coping strategies in future studies ([Palacios et al., 2024](#)).

When analyzing anxiety levels in the total number of participants, a decrease in the score is observed, only three of them (participants 3, 4, and 5) decreased their anxiety level from severe to moderate (participant 5) and from moderate to mild (1 and 2) respectively. However, the effect size for all participants was found to be questionable. The impact on stress and a decrease in the score are observed in the total number of participants, in three of them, there was a decrease from severe to moderate (1, 3, and 4) and from moderate to mild (5). While participant 2 maintained a mild level. Despite this, when calculating the effect size, it was questionable. This may be due to the majority of participants decreasing their level of negative affect to a moderated level, which could mean maintaining the associated discomfort, which agrees with the literature, in which the usefulness of the components of positive psychology for a primary level of health care ([Taylor et al., 2017](#)). Additionally, another important factor, the number of measurements taken throughout the kindness treatment, may have had a statistical impact on the questionable effect size ([Palacios et al., 2025](#)).

Regarding acts of kindness, although in all participants compared to their baseline, a notable increase in acts of kindness towards oneself is observed, only in two participants (5 and 2) a slight increase is observed at the end of the treatment. When analyzing the reliable change index, acts of kindness were also found to have a significant impact on changing symptoms of stress in Participant 1 (-3.67), 4 (-2.04), and 5 (-2.85), and anxiety in Participant 4 (-2.80), which is consistent with the literature ([Kerr et al., 2014](#)). These results seem to suggest that an intervention incorporating acts of kindness may have better results in those young people with average levels of anxiety and stress, so the variability in response to the kindness intervention would indicate that the benefit of our intervention is different for each level of symptomatology. The effectiveness of similar kindness interventions have been previously demonstrated ([Kerr et al., 2015](#); [Lyubomirsky et al. 2005](#); [Otake et al. 2006](#)). The results seem to indicate that the kindness intervention structured as carried out in our study could be more effective by emphasizing actions that facilitate the planning of kindness activities ([Ko et al., 2019](#); [Lyubomirsky et al., 2005](#); [Pressman et al., 2015](#)) and that serve to extend positive resources within the social support network of university students ([Palacios et al., 2024](#)).

Finally, regarding the impact on subjective happiness, it was observed that there was a slight increase on average of one point in three participants (1, 4, and 5). In contrast to participants 2 and 3, which presented a decrease and maintenance of their score respectively. Our results differ from other studies ([Fredrickson et al., 2008](#); [Hofmann et a., 2011](#); [Otake et al., 2006](#)) and

could be due to the levels of depression and anxiety found in the participants. We suggest conducting the study in larger samples to confirm the results obtained.

### **Limitations and future research suggestions**

The main contribution of this research is the evaluation of specific components of positive psychology such as acts of kindness towards oneself and other people, on a new dependent variable which has negative affect: depression, anxiety, and stress, since the literature reports the application of several components of positive psychology on happiness. However, in the present study happiness is evaluated as a secondary variable to the impact on negative affect ([Bowen et al., 2019](#)).

One of the limitations of the single-case design is not being able to generalize the results or conclude that the participant has recovered from their treatment problem (Sanz, & García-Vera, 2015). For future research, it is recommended to evaluate the intervention in larger samples; and to conduct efficacy studies comparing the kindness treatment with other standard interventions ([Bowen et al., 2019](#)). Another limitation is the limited number of measurements available on the new dependent variable, which is depression, anxiety, and stress. Additionally, there are no cut-off points to identify the categorization of the results obtained. In the use of the subjective happiness scale when evaluated with a Likert-type scale, which coincides with one of the limitations of other research ([Pan et al., 2022](#)).

### **Conclusion**

The present study aimed to evaluate the feasibility of the kindness treatment on negative affect: depression, anxiety, and stress in improving psychological well-being. Results indicated changes in levels of negative affect depression, anxiety, and stress levels among participants. The size of the effect was questionable for these variables and not effective for depression in one participant. Meanwhile, the impact on subjective happiness was heterogeneous since a slight change in their perception was only observed in three participants. These findings suggest that the intervention is a promising approach for addressing psychological distress and promoting positive mental health. Further research is needed to replicate these results in larger and more diverse samples and to examine the long-term effects of the intervention.

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**Competing Interests**

The authors have declared that no competing interests exist.

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