Thumbs up! A Pilot Study of a Positive Psychology Intervention for Children in Greece

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Abstract

The current study aimed to test the hypothesis that a newly developed multi-component 8-week Positive Psychology Intervention (PPI) programme for children could lead to a significant decrease in negative emotion, state anxiety, trait anxiety, and a significant increase in hope and positive emotions. Participants were recruited online and assigned randomly to the experimental and control groups with equal sample sizes (N = 8) groups for this study. Each participant completed a battery of self-reported questionnaires before and after the completion of the programme. Measurements included Hope, STAI, PANAS and demographic self-reported questionnaires. Hope and positive emotions increased, whereas negative emotions, trait anxiety and state anxiety decreased. The results supported our hypothesis that PPIs could be considered a successful alternative intervention or prevention for children.

Keywords

Hope, Anxiety, Positive Psychology Intervention, Children

1. Introduction

Positive Psychology has been active in the scientific world for the past few years. In 1998 Martin Selingman invited the scientific community to turn its attention to the study of all those characteristics that contribute to the development of the individual (Seligman & Csikszentmihalyi, 2000). Positive Psychology studies the positive characteristics of a personality, the ability to love, to offer and hope, the ability to forgive, and the ability to regulate negative emotion (Seligman & Csikszentmihalyi, 2000). In addition, positive psychology enhances people's ability to develop meaningful relationships and their ability to function as team members (Buss, 2000). Positive psychology seems to provide a coherent frame-

work for studying conditions that enhance an individual's growth and development (Seligman, Steen, Park, & Peterson, 2005).

Positive interventions are defined as methods of treatment or planned activities aimed at cultivating positive emotions, behaviors, and thoughts (Sin & Lyubomirsky, 2009). In the past, many types of research have shown the beneficial effects of positive psychological education on well-being, psychological resilience and academic performance (Froh, Kashdan, Ozimkowski, & Miller, 2009; Lyubomirsky, Dickerhoof, Boehm, & Sheldon, 2011; Otake, Shimai, Tanaka-Matsumi, Otsui, & Fredrickson, 2006; Seligman, Ernst, Gillham, Reivich, & Linkins, 2009; Waters, 2011).

Positive intervention should be distinguished from programs, interventions or treatments aimed solely at defining, restoring or curing psychopathological symptoms as they do not enhance the positive elements of the individual. It should be emphasized that although the results of positive interventions are encouraging for increasing living standards, their overall effectiveness remains unclear, as there are insufficient evaluation data (Sin & Lyubomirsky, 2009). Further investigation of the effectiveness of positive interventions is needed to understand how they operate entirely.

Sin and Lyubomirsky (2009) conducted a meta-analysis taking into consideration 51 positive interventions with 4266 adult participants in order to explore their importance and therefore suggest practical guidance to mental health professionals. The findings revealed that positive interventions enhance well-being and reduce depression symptoms. In addition, it is essential to note that several factors were found to affect the positive outcomes of PPIs, such as depression, age, voluntary participation of participants, but also the form and duration of interventions. The researchers suggested that health professionals should incorporate positive psychological interventions into their clinical practice. Finally, the duration of the interventions is a key parameter as the longer duration seems to improve the psychological condition of the people.

In 2011, Waters observed that school-based studies on positive intervention programs are getting more attention, as they present remarkable results. Hence, he reviewed positive intervention surveys from 12 schools in different countries, recruiting students from 5 to 19 years old. These studies focused on different elements of positive psychology, such as hope, gratitude, positive character traits and positive emotions. His review showed a significant increase in students' academic performance and an improvement in their social relationships and prosperity. The latter indicates that it is essential to further research the design and implementation of positive interventions in children.

In 2009, Marques, Pais-Ribeiro and Lopez conducted a 5-week study in Portugal, which focused on a positive intervention based on hope in 62 students, aged 10 - 12. The positive intervention was aimed at strengthening hope, life satisfaction, self-worth, mental health and academic achievement. The results of the research showed that the cultivation of hope is positively related to the perceived ability, self-esteem, life satisfaction and mental health in children. It is al-

so important to note that the positive results of the intervention team were maintained even 18 months after the end of the program. The results of these studies were promising and therefore suggested the importance of implementing such programs. More specifically, a statistically significant increase in hope, positive emotion, life satisfaction and happiness were found and a statistically significant reduction in depression, stress and anxiety.

Some characteristics of the intervention itself may affect its effectiveness (Sin & Lyubomirsky, 2009). These characteristics mainly concern the structure of the intervention as well as its duration. In terms of the structure of the interventions, the variety of homework seems to help the effectiveness of the interventions, by increasing the benefits for participants (Seligman et al., 2005; Sin & Lyubomirsky, 2009), as it activates their interest and strengthens their motivation and commitment. It also allows participants to increase their involvement in the whole process, as they are encouraged to choose the homework that suits them best. In successfully applying this type of intervention, flexibility and individualisation of homework are of the essence.

Positive interventions also include self-help actions, group training and individual therapy (Bolier et al., 2013). The results of the meta-analysis of Bolier et al. (2013) found no differences between these forms of intervention. However, further research is needed to explore the effectiveness of different forms of intervention. Another key feature of the interventions concerns its duration, with most studies stating that the period of 4 - 12 weeks is adequate for improving well-being (Bolier et al., 2013; Sin & Lyubomirsky, 2009). The range is quite broad, and the choice of duration depends on the nature of the intervention, its purpose and the population to which it is addressed.

Finally, it is proposed that age is a demographic feature that may influence the outcome of an intervention. The meta-analysis of Sin & Lyubomirsky (2009) showed that older people might benefit more from positive interventions than younger participants. However, these results are subject to limitations, such as the small number of studies on positive interventions and different age categories. On the other hand, some studies support the implementation of positive interventions in younger people, even children, as the benefits are apparent across the lifespan (Layous, Nelson, & Lyubomirsky, 2013; Seligman et al., 2009; Waters, 2011).

1.1. Positive Emotions and Positivity

Positive emotions play a dominant role in the field of positive psychology. According to Fredrickson (2001), emotions are defined as "complex reactive, to a stimulus, tendencies that manifest for relatively short periods." The Theory of Expansion and Structure aims to understand the functional value of positive emotions for mental health (Fredrickson, 1998). The Theory argues that specific positive emotions, such as joy, interest, satisfaction, satisfaction, pride, and love, while different, all can expand people's thinking and action repertoire and build long-term personal, mental, and emotional resources. These resources relate to

physical changes associated with: health and longevity, social skills such as friendship and social support networks, and cognitive and spiritual changes, such as the development of expertise and mental complexity, and psychological attitudes and approaches, which are associated with resilience, optimism and creativity (Fredrickson, 1998, 2001).

The Theory also suggests the existence of an upward and perpetual spiral interaction between the experience of positive emotions and the expansion according to which the instantaneous experience of a positive emotion causes expansion, i.e., the enrichment of personal resources (Fredrickson & Joiner, 2002). At the same time, two hypotheses are made regarding the ability of positive emotions to cancel out the negative consequences of negative emotions, thus acting as "antidotes" (Fredrickson, 1998). According to the first hypothesis, negative emotions, such as anger, anxiety and fear, stimulate the autonomic nervous system and cause an increase in heart rate, blood pressure and vasoconstriction. This change in physiology reflects the body's preparation for action, such as fleeing or fighting. Research shows that experiencing positive emotions after such a negative emotional stimulus leads to faster returns to baseline levels of cardiovascular function (Fredrickson & Levenson, 1998).

The second hypothesis about the role of positive emotions as an antidote is based on the ability of these emotions to facilitate the restoration of flexible and fruitful thinking after exposure of the individual in prolonged negative emotional experiences. However, this hypothesis has not been studied experimentally so far (Fredrickson, 1998). A few years later, the concept of positivity appeared on the scientific scene, which refers to the physical, cognitive and emotional state of people who are in a positive mood or experience positive emotions, such as love, joy, interest, gratitude, inspiration, peace, hope, pride and awe (Fredrickson & Losada, 2005). Positivity is the opposite force of negativity, which concerns the negative thoughts, and negative feelings that the individual pays, as well as the general negative predisposition towards everyday situations and events.

According to Fredrickson (2009), positivity improves a person's quality of life. The positive emotions that accompany positivity expand the individual's thought and action repertoire, making the individual more open to new experiences, more creative and ready to meet and relate to new people (Fredrickson, 1998, 2001). Positivity is a way of life but also a choice that requires the person to be capable, to want to see the positive element in their daily life and not to focus only on the negative points. In addition, a positive attitude towards life takes conscious effort but also time to establish, while it is incredibly fragile, as strong negative emotions can overturn it (Fredrickson & Losada, 2005).

1.2. Hope Theory

Hope consists of a central term of positive psychology. Hope is a cognitive process, which relates to the mobilisation towards an aim and its achievement (Snyder et al., 2002). According to Snyder et al. (2002), hope is a favorable situation of mobilisation, that emanates from a driving force and a shot-diode. It is

suggested that the first step in achieving the goals is a positive self-assessment.

The individual's ability to design and implement effective plans to achieve goals is considered an inherent tendency. Newborns use elementary forms of plans (pathways thinking) mainly to connect events and gain a sense of a chronological sequence of events. During childhood, as cognitive processes evolve, children can recognize in addition to the time sequence and the causal relationships of events. In this way, the child gradually recognizes the importance of their involvement in achieving the goals. The acquisition of hopeful and goal-oriented thinking is crucial for the survival and development of the individual. Parents and teachers need to promote this way of thinking. The fact that people differ in the degree of this ability may also be a result of the relevant education they have received or been deprived of. This Theory treats hope more as a cognitive process that evokes emotions than as an emotion. He argues that not achieving goals or obstacles that the person encounters, causes negative emotions. On the contrary, the increased ability to plan and implement strategies, the absence of obstacles and difficulties as well as the perceived progress towards achieving important goals, cause the experience of positive emotions and increase the subjective happiness of the individual Snyder et al. (2002). Increased levels of hope are associated with self-esteem and life satisfaction (Bailey, Eng, Frisch, & Snyder, 2007; Mruk, 2013), positive emotions (Aspinwall & Leaf, 2002; Ouweneel, Le Blanc, Schaufeli, & van Wijhe, 2012) and academic performance (Rand, 2009).

1.3. The Current Study

There is an increasing number of articles on positive psychology as well as the benefits of positive emotions, hope and optimism in well-being (Marques, Lopez, & Pais-Ribeiro, 2011; Rand, 2009; Waters, 2001). In Greece, PPIs have been performed based on kindness (Symeonidou, Moraitou, Pezirkianidis, & Stalikas, 2018), forgiveness (Zichnali, Moraitou, Pezirkianidis, & Stalikas, 2019), self-compassion (Karakasidou & Stalikas, 2017), as well as a PPI program in the school environment (Dimitropoulou & Leontopoulou, 2017). Previous research regarding a positive intervention in a multicultural school setting has shown that PPIs are effective in enhancing positive affect, optimism and self-efficacy (Dimitropoulou & Leontopoulou, 2017). Karakasidou and her colleagues (2021) showed that a self-compassion intervention for children in Greece increased positive emotions and mental resilience, and reduced isolation, over-identification, self-judgment, trait anxiety, and state anxiety. The above studies suggested that PPIs are effective in increasing well-being. On the other hand, it seems that there is a need for further study and research, especially in a diverse population, such as children. Overall, PPIs and their effectiveness have not been extensively studied in the children population. There is a research gap regarding the benefits of PPIs in children. Therefore, it was proposed to design and implement a pilot PPI.

This study aimed to test the effectiveness of a multi-component PPI among Greek children. The hypothesis was that compared to the control group, the par-

ticipants in the experimental group would demonstrate decreased levels of: 1) negative emotions, 2) state anxiety, 3) trait anxiety, as well as increased levels of 4) positive emotions and 5) hope.

The research hypotheses of this study were as follows:

1) Is a multi-component PPI effective in decreasing levels of negative emotions, state anxiety and trait anxiety compared to the control group?

2) Is a multi-component PPI effective in increasing levels of positive emotions, and hope compared to the control group?

2. Method

2.1. Participants

Participants were recruited from Santorini, Greece via the internet. An advert for the group was posted on social media 1 month before the start of the PPI. Parents could communicate with the therapists to ask for further information and a meeting was held to discuss the program structure. Sixteen children ($M =$ 9.63, $SD = .81$) participated in the study forming the intervention group (8) and the control group (8) (See Table 1). The recruitment method was snowball sampling. Informed consent was obtained before participation and individuals could withdraw at any time. Children provided their oral consent, while their parents provided written consent. Except for the demographic features, private data were anonymous as no identifying information was collected. Participants were invited to fill a survey distributed in Google form through e-mails and social media.

2.2. Materials

Hope Questionnaire. Hope questionnaire consists of 8 items, which relate to the belief in the achievement of goals and the dynamic achievement of goals (HS, 8 items, α = .83), (Snyder, Harris, Anderson, Holleran, Irving, Sigmon, Yoshinobu, Gibb, Langelle, & Harney, 1991). The score is the sum of the points. Participants indicate their answers using a Likert scale of five ratings (1: totally disagree up to 5: I totally agree).

This scale was adapted and validated in Greece by Moustaki and Stalikas (2012). In this study, the internal consistency was a = .78.

Table 1. Demographic characteristics of the participants (frequencies and percentages).

Demographic variables	Intervention group ($N = 8$)	Control group ($N = 8$)	F, χ^2	P value
Age, Mean (SD)	9.50 (.76)	9.75 (.89)	1.00	.310
Gender			.19	.833
Male	3 (37.5%)	5 (62.5%)		
Female	5 (62.5%)	3 (37.5%)		

PANAS Questionnaire. PANAS questionnaire consists of 20 items, which relate to positive or negative affect (PANAS, 20 items) (Watson, Clark, Tellegen, 1988). The scores on the subscales are derived from the average of the questions corresponding to each subscale. For scoring, the items of each subscale must be added. For each sub-scale, the total score ranges from 10 to 50. Higher scores indicate higher levels of positive or negative emotional state. Participants indicate their answers using a Likert scale of five ratings (1: totally disagree up to 5: I totally agree). The Positive and Negative Emotion Scale consists of 20 words, randomly distributed, which describe positive (proud, strong) and negative (ashamed, anxious) emotional characteristics of self-report. It consists of 2 subscales, one corresponding to the positive emotional state and the other to the negative emotional state. Each question is answered on a scale of 5 (1 = very little, up to 5 = too much). Guidelines report that for each statement and/or question, participants must circle the point on the scale that they feel most represents them. In this study, the internal consistency was a = .85 (positive affect) and a = .94 (negative affect).

STAI Questionnaire. The State-Trait Anxiety Inventory for children consists of 40 items, which relate to state anxiety and trait anxiety (STAIC, 40 items), (STAIC; Spielberger et al., 1983). The score is the sum of the points for each subscale Participants were asked to answer how they felt during the completion of the questionnaire (state of anxiety) and how they usually feel (anxiety of predisposition). The answers are given on a scale of 4 grades (1 = not at all, 2 = little, 3 = moderate, 4 = very much. The questionnaire has been standardized in the Greek sample population by Fountoulakis et al. (2006). In this study, the internal consistency was a = .85 for state anxiety and a = .79 for trait anxiety.

2.3. Procedure

The current study involves children. Therefore, all participants and their parents were informed of the purpose of the study and gave their informed consent. The study followed the Ethics research guidelines of the Greek Psychological Society. Initially, all participants completed a battery of questionnaires, as described above, at the beginning and the end of the programme in pencil and paper. Both groups completed the same self-report questionnaires, but the control group did not participate in any intervention program. It is worth noting that after the end of the study, the participants of the control group were given the opportunity to participate in the program later on. Two experienced Psychologists-Psychotherapists ran the programme. The therapists were licensed and had completed education in Positive Psychology.

2.4. Program Structure

The program lasted eight weeks. Two meetings were held every week, with a duration of one hour and a half. The positive intervention program was aimed at learning, experiencing, and expressing positive emotions, cultivating hope and

coping with anxiety more positively through creative play and positive psychological education. Negative emotion management was also included, but the main scope of this intervention was to develop positive connections such as respect, kindness, understanding, gratitude, hope and psychological resilience. Every session focused on a specific subject relevant to cultivating hope and positive emotions. The program focused on positive psychoeducation and was mainly experiential. The meetings were held in the same place. In each session after entering the room, they were given some time to discuss how they felt and then the focus was shed on a positive psychology concept, which they explored through following exercises of positive psychology and creative playing.

The first two meetings consisted of an introduction to the concept of positive psychology and its aliquot terms, mainly focusing on positive emotions and connections as well as hope. During the third, fourth and fifth meetings, the group focused on the experiential experience of positive emotions and the concept of hope. During meetings six and seven, the participants were taught skills to be able to deal more hopefully with difficult situations and painful emotions. The module focused on the identification of feelings and an introduction to emotional regulation. During meetings eight and nine, a discussion took place so that the group could consolidate and internalize the concepts learned and provide feedback. Subsequently, the team focused on positive emotions in an interpersonal context. The focus was shed on the concept of love during meetings ten and eleven. Meeting eleven was focused on responsibility and meeting twelve to the individual and shared identity. Meeting thirteen focused on resilience. Meetings fifteen and sixteen focused on optimism and mindfulness. In the last meeting, the participants discussed how one could associate oneself with positive concepts, and the participants created their motto for hope (Table 2). The structure of the program is presented in detail below.

3. Results

The data were analyzed with the statistical package SPSS, version 25. Initially, it was checked whether there were differences between the control group and the intervention group in any of the demographic data or any of the measurements before the intervention. At baseline, no differences were found between the two groups. All data followed a normal distribution and no outliers were detected. To answer the research hypotheses, two paired sample t-tests were used to examine pre and post-changes for each group. There was a statistically significant difference in the scores of the intervention group before and after the completion of the PPI. The results of the t-tests were statistically significant across all the variables tested: hope ($t_7 = -5.94$, $p < .05$), positive emotion ($t_7 = -4.06$, $p < .05$), negative emotions ($t_7 = 4.36$, $p < .05$), trait anxiety ($t_7 = 5.61$, $p < .001$) and state anxiety ($t_7 = 11.10$, $p < .001$). No statistically significant difference was observed in the post-intervention outcomes of the control group (See Table 3).

Table 2. Structure of the program.

Meeting	Context	Exercises	Homework
1 - 2	Boundaries, introduction	Discussion, Painting	Diary of positive emotions
3 - 5	Positive emotions, kindness	Meditation	Meditation
6 - 7	Emotional regulation, identification of feelings	Music, feelings, discussion	Diary
8 - 9	Revision, feedback, and positive emotions in the interpersonal context	Pantomime, collage	Collage
10 - 11	Love, Responsibility	Theatrical play, photos	Show and accept love
12	Individual and shared identity	Introduce myself	-
13 - 14	Psychological resilience	Discussion, collage, psychological resilience cake	Positive Diary
15	Optimism	Painting	Positive Diary
16	Mindfulness	Mindfulness exercise	Mindfulness eating
Last	Discussion, moto	Pantomime	

Table 3. Mean scores for outcome measures by group for pre-group (Pre), post-group (Post).

	Intervention (N = 8)		Control (N = 8)	
	Pre	Post	Pre	Post
	M (SD)	M (SD)	M (SD)	M (SD)
Hope	22.50 (4.04)	30.31 (2.05)	23.46 (5.14)	23.00 (5.24)
Positive affect	27.13 (10.82)	36.26 (8.73)	28.02 (8.27)	28.13 (7.90)
Negative Affect	21.75 (9.00)	14.34 (5.13)	23.25 (9.97)	25.00 (9.78)
Trait Anxiety	37.13 (1.96)	34.13 (2.17)	37.24 (1.77)	36.88 (2.03)
State Anxiety	31.29 (3.83)	24.63 (3.96)	36.00 (2.39)	35.88 (2.80)

The changes in the outcome measures of the experimental group for the variables of hope, positive emotions, negative emotions, state anxiety and trait anxiety are illustrated in Figure 1.

4. Discussion

Up to date, only a few studies have investigated the effect of PPI in children. This study aimed to explore the effectiveness of a PPI in children regarding levels of hope, positive emotion, negative emotion, state and trait anxiety. Participants in
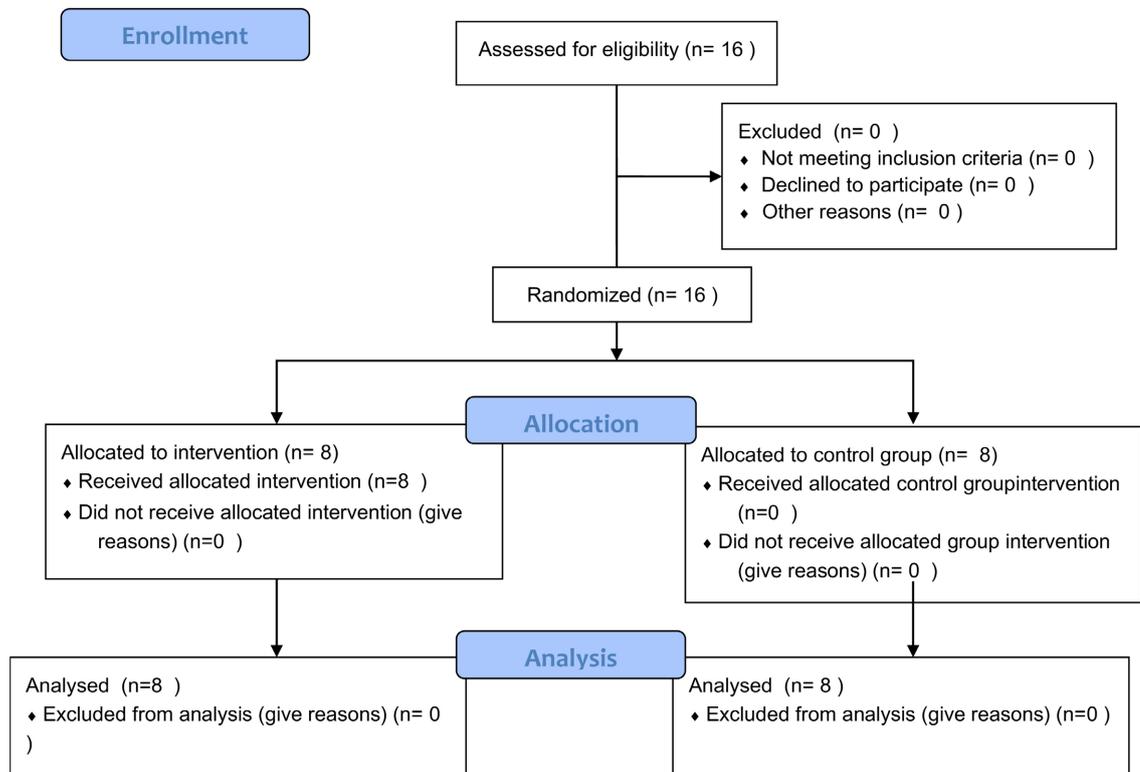
Figure 1. Flow diagram of the progress through the phases of a parallel randomised trial of two groups.

the Thumbs Up! PPI reported significantly lower negative emotions, state anxiety and trait anxiety. There was also a significant increase in positive emotions and hope. Therefore, the hypotheses of the study were confirmed.

The results of this study were in accordance with previous findings. The results of the research showed that teaching children the concepts of positive psychology, such as positive emotions and positive connections, through an eight-week program has significant benefits on well-being and state of mind. Along with the increase in hope, there was a significant increase in the levels of positive emotions, which means that the increase in positive emotions changes the way one evaluates situations and adopts a more hopeful way of thinking, as observed in previous research (Froh, Kashdan, Ozimkowski, & Miller, 2009; Lagacé-Séguin, & d'Entremont, 2010; Layous, Nelson, & Lyubomirsky, 2013; Lyubomirsky, Dickerhoof, Boehm, & Sheldon, 2011). As expected, the results of the present study showed that the PPI increased positive emotions as well as the levels of hope and reduce negative ones (Marques, Lopez, & Pais-Ribeiro, 2011; Mruk, 2013; Otake, Shimai, Tanaka-Matsumi, Otsui, & Fredrickson, 2006; Rand, 2009; Seligman, Ernst, Gillham, Reivich, & Linkins, 2009; Snyder, Rand, & Sigmon, 2002; Valle, M. Huebner, & Suldo, 2006; Waters, 2011).

One of the most important findings of the present research, which also answers the primary research hypothesis, is that hope, awareness and observation of positive emotions can be taught. Finally, it is worth mentioning that through the feedback given by the participants, important directions for improvements

were noted. The feedback concerned the duration of the meetings and the duration of the program, as well as the enrichment of the homework.

The current study returned useful results in improving the state of mind of the individual. Positive psychology can be a different path to positivity by reducing negative emotions and increasing the variables associated with well-being. The purpose of PPIs is to integrate the child into a new context in order to identify detrimental behaviors that benefit the individual and not to trap the individual in a vicious circle of maladaptive thoughts and behaviors. The results of this research show that the concepts that a child can gain from a positive psychology program are a useful tool for achieving psychological well-being.

All in all, the concepts of positive psychology focus on utilizing one's optimal potential, creating life attitudes as well as learning new skills with the ultimate goal of enhancing positivity and mental toughness. Therefore, the above elements lead to increased well-being and levels of life satisfaction and subjective happiness. This idea was aimed at the child population in order to further explore the effectiveness of positive interventions at younger ages. The purpose of this study was to investigate the possibility of educating children in hopeful thinking and positive emotions, while examining the differences in the indicators of psychological difficulties in the levels of anxiety and negative emotions before and after the program.

5. Implications

The aim of the current study was to examine whether a PPI is effective for Greek children between 9 and 11 years of age. The purpose was to increase the understanding of the role of PPI regarding the variables of hope, positive emotions, negative emotions, state anxiety and trait anxiety in childhood. A better understanding of the role of PPIs in children could help researchers and therapists to design beneficial intervention plans to treat anxiety and enhance well-being for younger ages. The findings demonstrated that PPIs are beneficial for children. This indicates that the specific group may probably benefit from such an intervention. However, the current study is a pilot one, and further evaluation is needed to ensure the effectiveness of the programme.

Positive psychology interventions aimed at children are minimal in Greece (Foka, Hadfield, Pluess, & Mareschal, 2020; Dimitropoulou, & Leontopoulou, 2017). The findings of the present study enrich the existing literature on the effectiveness of positive psychology interventions (Karakasidou et al., 2021) and extend to a population that needs further investigation.

Thumbs Up! is a psycho-educational program, lasting 16 sessions, which provides children with the opportunity to become familiar with the primary axes of positive psychology on a cognitive and experiential level. Participants learn how to cultivate the principles of positive psychology and put them into practice in their lives so that they can benefit by increasing the levels of hope and positive emotions they experience. On the other hand, they learn to manage their stress

and negative emotions more effectively, improving their symptoms and quality of life.

The benefits we can get from a positive intervention are manifold, both for professionals and for the beneficiaries. First of all, it is essential to note that professionals from various disciplines can incorporate positive interventions into their practice (psychologists, mental health counselors, educators, nurses) after appropriate training and supervision. In addition, PPIs can be used to prevent and enhance participants' mental health, but also to increase their life satisfaction levels and overall well-being. Besides, according to Fredrickson's Theory of Expansion and Structure, people who experience positive emotions have better mental and physical health while building their mental resilience (Fredrickson, 2013).

6. Limitations and Future Research Directions

This research presented some limitations. The sample size limited the implications of the benefits associated with the positive intervention. Future studies should address a larger sample, as well as children from different areas across Greece. Self-report questionnaires could also be another factor of limitation. Self-report measurements may often present biases. At this initial stage, it is suggested that a later longitude study may prove beneficial for the outcomes of the research. Future studies may be guided toward a more significant sample of the population so that possible positive results may be investigated more thoroughly.

The limitations of this study provide essential guidance for future research. The sample consisted exclusively of Greeks living in Santorini so the results cannot be generalized to populations with other characteristics, which could be the subject of a future study. The interest of future research could turn both to the general population and too much larger samples. Still, the positive intervention program could find application in specific clinical populations, e.g., children belonging to vulnerable groups such as cancer, heart disease, psoriasis or diabetes if it is associated with a reduction in levels of negative emotion. Finally, it would be of particular interest to apply this program to people experiencing various difficulties, such as refugees and children who have suffered domestic violence, as well as positive psychology and related concepts such as mental resilience, hope, optimism, respect, love, self-compassion could help people in crisis to cope in the short term, but also in the long term in the difficulties they face in their daily lives.

In conclusion, positive intervention is considered to have a positive outcome on general well-being and the regulation of the negative emotional state. The results indicated that positive intervention could increase the level of hope and positive emotion while it can reduce negative emotion. There is also an interaction between intervention and time in terms of a positive emotional state. The results followed previous findings: positive intervention promotes physical and

mental well-being. Additionally, the result extended the literature because they showed the interaction between positive intervention in children and hope, positive and negative emotional states. As a result, it is suggested that future studies should address this issue in more detail. Finally, it is proposed that future studies check the retention of profits from the participation in the program in the long term.

Conflicts of Interest

The authors declare no conflicts of interest regarding the publication of this paper.

References

Aspinwall, L. G., & Leaf, S. L. (2002). In Search of the Unique Aspects of Hope: Pinning Our Hopes on Positive Emotions, Future-Oriented Thinking, Hard Times, and Other People. *Psychological Inquiry, 13,* 276-288.

Bailey, T. C., Eng, W., Frisch, M. B., & Snyder, C. R. (2007). Hope and Optimism as Related to Life Satisfaction. *The Journal of Positive Psychology, 2,* 168-175. https://doi.org/10.1080/17439760701409546

Bolier, L., Haverman, M., Westerhof, G. J., Riper, H., Smit, F., & Bohlmeijer, E. (2013). Positive Psychology Interventions: A Meta-Analysis of Randomized Controlled Studies. *BMC Public Health, 13,* Article No. 119. https://doi.org/10.1186/1471-2458-13-119

Buss, D. M. (2000). The Evolution of Happiness. *American Psychologist, 55,* 15-23. https://doi.org/10.1037/0003-066X.55.1.15

Dimitropoulou, C., & Leontopoulou, S. (2017). A Positive Psychological Intervention to Promote Well-Being in a Multicultural School Setting in Greece. *The European Journal of Counselling Psychology, 6,* 113-137. https://doi.org/10.5964/ejcop.v6i1.141

Foka, S., Hadfield, K., Pluess, M., & Mareschal, I. (2021). Promoting Well-Being in Refugee Children: An Exploratory Controlled Trial of a Positive Psychology Intervention Delivered in Greek Refugee Camps. *Development and Psychopathology, 33,* 87-95. https://doi.org/10.1017/S0954579419001585

Fountoulakis, K. N., Papadopoulou, M., Kleanthous, S., Papadopoulou, A., Bizeli, V., Nimatoudis, I., Apostolos, I., & Kaprinis, G. S. (2006). Reliability and Psychometric Properties of the Greek Translation of the State-Trait Anxiety Inventory Form Y: Preliminary Data. *Annals of General Psychiatry, 5,* Article No. 2. https://doi.org/10.1186/1744-859X-5-2

Fredrickson, B. (2009). *Positivity*. Harmony.

Fredrickson, B. L. (1998). What Good Are Positive Emotions? *Review of General Psychology, 2,* 300-319. https://doi.org/10.1037/1089-2680.2.3.300

Fredrickson, B. L. (2001). The Role of Positive Emotions in Positive Psychology: The Broaden-and-Build Theory of Positive Emotions. *American Psychologist, 56,* 218-226. https://doi.org/10.1037/0003-066X.56.3.218

Fredrickson, B. L. (2013). Positive Emotions Broaden and Build. In *Advances in Experimental Social Psychology* (Vol. 47, pp. 1-53). Academic Press. https://doi.org/10.1016/B978-0-12-407236-7.00001-2

Fredrickson, B. L., & Joiner, T. (2002). Positive Emotions Trigger Upward Spirals toward Emotional Well-Being. *Psychological Science, 13,* 172-175. https://doi.org/10.1111/1467-9280.00431

Fredrickson, B. L., & Levenson, R. W. (1998). Positive Emotions Speed Recovery from the Cardiovascular Sequelae of Negative Emotions. *Cognition & Emotion, 12,* 191-220. https://doi.org/10.1080/026999398379718

Fredrickson, B. L., & Losada, M. F. (2005). Positive Affect and the Complex Dynamics of Human Flourishing. *American Psychologist, 60,* 678-686. https://doi.org/10.1037/0003-066X.60.7.678

Froh, J. J., Kashdan, T. B., Ozimkowski, K. M., & Miller, N. (2009). Who Benefits the Most from a Gratitude Intervention in Children and Adolescents? Examining Positive Affect as a Moderator. *The Journal of Positive Psychology, 4,* 408-422. https://doi.org/10.1080/17439760902992464

Karakasidou, E., & Stalikas, A. (2017). Empowering the Battered Women: The Effectiveness of a Self-Compassion Program. *Psychology, 8,* 2200-2214. https://doi.org/10.4236/psych.2017.813140

Karakasidou, E., Raftopoulou, G., & Stalikas, A. (2021). A Self-Compassion Intervention-Program for Children in Greece. Psychology, 12, 1990-2008. https://doi.org/10.4236/psych.2021.1212121

Lagacé-Séguin, D. G., & d'Entremont, M. R. L. (2010). A Scientific Exploration of Positive Psychology in Adolescence: The Role of Hope as a Buffer against the Influences of Psychosocial Negativities. *International Journal of Adolescence and Youth, 16,* 69-95. https://doi.org/10.1080/02673843.2010.9748046

Layous, K., Nelson, S. K., & Lyubomirsky, S. (2013). What Is the Optimal Way to Deliver a Positive Activity Intervention? The Case of Writing about One's Best Possible Selves. *Journal of Happiness Studies, 14,* 635-654. https://doi.org/10.1007/s10902-012-9346-2

Lyubomirsky, S., Dickerhoof, R., Boehm, J. K., & Sheldon, K. M. (2011). Becoming Happier Takes Both a Will and a Proper Way: An Experimental Longitudinal Intervention to Boost Well-Being. *Emotion, 11,* 391-402. https://doi.org/10.1037/a0022575

Marques, S. C., Lopez, S. J., & Pais-Ribeiro, J. L. (2011). "Building Hope for the Future": A Program to Foster Strengths in Middle-School Students. *Journal of Happiness Studies, 12,* 139-152. https://doi.org/10.1007/s10902-009-9180-3

Moustaki, M., & Stalikas, A. (2012). The Life Orientation Test (LOT). In A. Stalikas, S. Triliva, & P. Roussi (Eds.), *Psychometric Instruments in Greece* (2nd ed., p. 613). Pedio.

Mruk, C. J. (2013). *Self-Esteem and Positive Psychology: Research, Theory, and Practice.* Springer Publishing Company.

Otake, K., Shimai, S., Tanaka-Matsumi, J., Otsui, K., & Fredrickson, B. L. (2006). Happy People Become Happier through Kindness: A Counting Kindnesses Intervention. *Journal of Happiness Studies, 7,* 361-375. https://doi.org/10.1007/s10902-005-3650-z

Ouweneel, E., Le Blanc, P. M., Schaufeli, W. B., & van Wijhe, C. I. (2012). Good Morning, Good Day: A Diary Study on Positive Emotions, Hope, and Work Engagement. *Human Relations, 65,* 1129-1154. https://doi.org/10.1177/0018726711429382

Rand, K. L. (2009). Hope and Optimism: Latent Structures and Influences on Grade Expectancy and Academic Performance. *Journal of Personality, 77,* 231-260. https://doi.org/10.1111/j.1467-6494.2008.00544.x

Seligman, M. E. P., & Csikszentmihalyi, M. (2000). Positive Psychology: An Introduction. *American Psychologist, 55,* 5-14. https://doi.org/10.1037/0003-066X.55.1.5

Seligman, M. E., Ernst, R. M., Gillham, J., Reivich, K., & Linkins, M. (2009). Positive Education: Positive Psychology and Classroom Interventions. *Oxford Review of Education, 35,* 293-311. https://doi.org/10.1080/03054980902934563

Seligman, M. E., Steen, T. A., Park, N., & Peterson, C. (2005). Positive Psychology Progress:

Empirical Validation of Interventions. *American Psychologist, 60,* 410-421. https://doi.org/10.1037/0003-066X.60.5.410

Sin, N. L., & Lyubomirsky, S. (2009). Enhancing Well-Being and Alleviating Depressive Symptoms with Positive Psychology Interventions: A Practice-Friendly Meta-Analysis. *Journal of Clinical Psychology, 65,* 467-487. https://doi.org/10.1002/jclp.20593

Snyder, C. R., Harris, C., Anderson, J. R., Holleran, S. A., Irving, L. M., Sigmon, S. T., Yoshinobu, L., Gibb, J., Langelle, C., & Harney, P. (1991). The Will and the Ways: Development and Validation of an Individual-Differences Measure of Hope. *Journal of Personality and Social Psychology, 60,* 570-585. https://doi.org/10.1037/0022-3514.60.4.570

Snyder, C. R., Rand, K. L., & Sigmon, D. R. (2002). Hope Theory: A Member of the Positive Psychology Family. In C. R. Snyder, & S. J. Lopez (Eds.), *Handbook of Positive Psychology* (pp. 257-276). Oxford University Press.

Spielberger, C. D., Gorsuch, R. L., Lushene, R., Vagg, P. R., & Jacobs, G. A. (1983). *Manual for the State-Trait Anxiety Inventory.* APA PsycTests. https://doi.org/10.1037/t06496-000

Symeonidou, D., Moraitou, D., Pezirkianidis, C., & Stalikas, A. (2018). Promoting Subjective Wellbeing through a Kindness Intervention. *Hellenic Journal of Psychology, 16,* 1-21.

Valle, M. F., Huebner, E. S., & Suldo, S. M. (2006). An Analysis of Hope as a Psychological Strength. *Journal of School Psychology, 44,* 393-406. https://doi.org/10.1016/j.jsp.2006.03.005

Waters, L. (2011). A Review of School-Based Positive Psychology Interventions. *The Educational and Developmental Psychologist, 28,* 75-90. https://doi.org/10.1375/aedp.28.2.75

Watson, D., Clark, L. A., & Tellegen, A. (1988). Development and Validation of Brief Measures of Positive and Negative Affect: The PANAS Scales. *Journal of Personality and Social Psychology, 54,* 1063-1070. https://doi.org/10.1037/0022-3514.54.6.1063

Zichnali, O., Moraitou, D., Pezirkianidis, C., & Stalikas, A. (2019). Examining the Effectiveness of Two Types of Forgiveness Intervention to Enhance Well-Being in Adults from Young to Older Adulthood. *OBM Geriatrics, 3,* Article 044. https://doi.org/10.21926/obm.geriatr.1902044