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The effectiveness of a positive group psychotherapy on the promotion of young adults' mental health

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Abstract

Background: Positive mental health has had different definitions, but the current one embraces the presence of levels of well-being and decreased levels of psychopathology. This vision of positive mental health has increased the interest in developing positive psychological intervention programs and activities that promote mental health, increasing levels of well- being and decreasing levels of psychopathology. This study aimed to verify the impact and effectiveness of a positive psychotherapy-based group intervention plan, in a non-clinical sample on the increase of well-being and reduction of psychopathology.

Method: The sample was selected by non-random convenience, consisting of 40 participants, who were subdivided into an experimental group and a comparison group, each consisting of 20 elements. The experimental group is made up by 11 men (55%) and 9 women (45%), with ages between 18- 27 years old, being the average of ages 20,70 (*SD*= 2,830). The comparison group is composed by 10 women (50%) and 10 men (50%) aged between 18 and 27 years old, being the average of the ages 22 (*SD*=6,808). To evaluate the effectiveness of the program, an assessment was done in two moments (pre and posttest), using the MHC-SF (for well-being assessment) and the DASS-21 (for psychopathology assessment) as assessment measures.

Results: The results obtained show a significant improvement in social well-being as well as a reduction in the levels of psychopathology (anxiety, depression, and stress).

Conclusions: These results demonstrate that participation in the program is beneficial for mental health promotion. It is suggested that a larger sample size and a randomization process may be used in future research.

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1. Introduction

The investigation on mental health has been changing through the years. In fact, mental health had been seen throughout time as the absence of symptoms. The World Health Organization (2005) defines it as "a state of well-being in which the individual realizes his or her own abilities, can cope with the normal stress of life, can work productively and fruitfully and is able to make a contribution to his or her community". This definition shows that mental health is more than the absence of illness. It evolves emotional, social, and psychological aspects that transform health on complete state (Keyes, Shmotkin & Ryff, 2002). This view of mental health is known as positive mental health, concept that is a part of a recent field of psychology, Positive Psychology (Snyder et al., 2016). In this theoretical background some research have highlighted the role of perceived control/empowerment, suggesting that greater perceived control is associated with positive psychological functioning (Myles, Connolly & Stanulewicz, 2020). The evolution of this field was focused in the identification, development, and evaluation of interventions that intended to improve wellbeing (Carr et al, 2021). Concretely, Positive Psychology can be understood has the study of the processes that contribute to flourishing and optimal functioning of individuals, groups, or institutions (Seligman & Csikszentmihalyi, 2000). In this sense, positive psychology is not the denial of the negative aspects of life nor a temptation to see it as perfect. It tries to focus on the human potentials, motivations, and abilities (Gable & Haidt, 2005). In this sense, Positive Psychology suggests that Psychology should not only focus on the study of illness, losses, or weaknesses, but empower human virtues and strengths, to encourage the investigation of positive experiences (Parks & Schueller, 2014; Snyder et al, 2106).

In this theoretical context psychological interventions began to have the intention to relieve distress, promote optimal psychological functioning and new concepts of flourishing (Parks & Layous, 2016). These interventions focus on the individual's well-being, proper functioning, and the development of a meaningful life (Baptista, 2013). In this sense, the goal of positive psychology interventions is to reduce distress, but also to enhance optimal psychological functioning or flourishing (Carr et al, 2021). These interventions aim not only the wellbeing of the individuals, but also their good functioning and the will to lead a meaningful life (Bolier et al., 2013). It is also important to say that positive psychology interventions are centered on the prevention, instead of treatment (Sin & Lyubomirsky, 2009). The prevention is based on positive activities. These activities are focused on the promotion of positive emotions (e.g. forgiveness, gratitude and kindness), decreasing negative symptoms – they are going to highlight the subjective well-being, the psychological well-being, social well-being – important elements

of positive mental health (Lyubomirsky, Bohem & Sheldon, 2011; Fredrickson, Cohn & Coffey, 2008; Froh, Sefick & Emmons, 2008; Lyubomirsky & Layous ,2013; Ryan & Deci, 2001). With all these activities being important for the promotion of well-being, there has been a growing interest in the development of positive psychology intervention programs (Hendriks et al, 2020). According to Lee Duckworth, Steen and Seligman (2005) positive psychological interventions increase pleasure, meaning and evolvement, decreasing mental illness, being useful to treat and prevent mental illness and function as the principal focus of a favorable psychotherapy (Carr et al, 2021).

Recent studies show the effectiveness of positive psychology group interventions on clinical samples or non-clinical samples. Studies Chu et al (2022), Kasperek Zimowska et al (2021), Pan et al, 2022 show that of Positive Psychology based interventions are effective on psychosis and depression field. Also, studies by Jung-Im Kim. (2021), Lambert et al (2019), Waters (2020), Garcia-Alvarez et al (2021), Heekerens et al (2022) show the effectiveness of Positive Psychology based group interventions on non-clinical samples. These studies prove the importance of these interventions on the promotion of well-being and the reduction of psychopathology. Group psychotherapy has played an important role in the treatment of mental health and research show it effectiveness for a wide diversity of circumstances and is similarly effective as individual psychotherapy. In groups dimensions as, altruism, vicarious learning, interpersonal learning increase effectiveness when the group is being treated as an agent of change (Malat, Cheng & Tay, 2023; Visintini et al., 2020). In order to contribute to the verification of the effectiveness of this type of interventions, this study aimed to evaluate the effectiveness of a positive psychological group intervention on mental health, promoting the well-being and reducing psychopathology on a non-clinical sample. More concisely, the goal is to investigate the impact of a positive psychology-based program on the changes in emotional, social, and psychological well-being as well as on anxiety, depression, and stress. To confirm this, a pre and post intervention evaluation was used with an experimental and a comparison group. It is expected that in the experimental group might be an increase of the variables of well-being and a decrease of psychopathology, between the pre and post intervention.

2. Method

2.1 Participants

A non-probability convenience sampling method was used for the selection of the sample as the participants were chosen according to their accessibility and availability. The probability of an element being included in the sample is unknown (Ribeiro, 2010).

This intervention program contains a sample of 40 individuals from a university in Northern Portugal, composed by first year psychology students. The total sample of this study (*n*=40) is divided into two groups: the experimental group (EG) (*n*=20) and the comparison group (CG) (*n*=20). The experimental group is made up by 11 men (55%) and 9 women (45%), with ages between 18- 27 years old, being the average of ages 20,70 (*SD*= 2,830). The comparison group is composed by 10 women (50%) and 10 men (50%) aged between 18 and 27 years old, being the average of the ages 22 (SD=6,808). All the participants of this group are single, and their academic qualification is higher education (university degree).

In terms of the subjective evaluation of quality of life: 5% (*n*=1) of the participants of this group classify this dimension as neither good or bad as very good, 75% (*n*=15) say it is good and 20% (*n*=4) classify it as very good. Then, in connection with health satisfaction 10% (*n*=2) report being neither satisfied or dissatisfied, 65% (*n* 13) evaluate themselves as satisfied with their health and 25% (*n=5*) consider themselves as very satisfied with their health). Lastly, 36,8% (*n*=7) of the sample refers having health problems while the remaining 63,2% (*n=12*) say they do not have any health problems, in which 36,8% (*N=7*) report taking medication, 63,2% (*n= 12*) report not taking any medication and the remaining 5% (*n*=2) did not answer the question.

The comparison group is composed by 10 women (*N=50%)* and 10 men (*N=50%)* aged between 18 and 27 years old, being the average of the ages 22 (*SD*=6,808). Regarding marital status, 10% (*n=2*) of the participants are married and 90% *(n*=18) are single. All the participants report higher education (university degree). In relation to the subjective evaluation of their quality of life, 5% (n=1) refer that is neither good or bad, 75% (*n*=15) evaluate it as good and the remaining 20% (*n=4*) consider it as very good. Additionally, in what comes to satisfaction with health, 2 subjects report being neither satisfied nor dissatisfied (10%), 15 say they are very satisfied and the last 4 individuals (20%) describe being very satisfied with their health. Referring to health problems, 3 (15%) subjects affirm having health problems and 17 (85%) say they do not have any health problems, being only 2 (10,5 %) individuals taking medication and the other 17 (89,5 %) not taking it.

2.2 Instruments and procedure

It was used the Portuguese version of the Mental Health Continuum Scale for adults (MHC-SF) since it provides an assessment of three dimensions of positive mental health: emotional well-being, psychological well-being and social well-being (Fonte et al., 2020). The MHC-SF is a brief self-report questionnaire consisting of 14 items in which the respondents answer how frequently over the past month they experienced each facet of subjective well-being on a scale

from "never" to "everyday". Of these 14 items: 3 items are related to emotional well-being (happy, satisfied and interested in life), 6 items reflect psychological well-being (self-acceptance, autonomy, purpose in life, personal growth, environmental mastery and positive relations with others and 5 items refer to social well-being (acceptance of others, social coherence, social integration, social contribution, and social growth). (Fonte et al., 2020). Another used instrument was the DASS-2 (The Depression, Anxiety and Stress Scale, the Portuguese version), consisting on a set of three four-point Likert subscales for self-reporting. Each subscale consists of seven items, aimed to assess three different constructs: anxiety, depression, and stress (Pais-Ribeiro, Honrado & Leal, 2004). The subscale for anxiety involves concepts such as the activation of the autonomic nervous system, musculoskeletal effects, situational anxiety, and subjective experiences of anxiety. The depression subscale includes dysphoria, despondency devaluation of life, self-depreciation, lack of interest or involvement, anhedonia, and inertia. Lastly, the stress subscale covers difficulty relaxing, nervous excitement, agitation irritability or overreaction, and impatience (Pais Ribeiro et al., 2004).

Beyond these materials, a sociodemographic questionnaire was used to describe the participants, concerning the age, gender, marital status, academic qualifications, subjective assessment of quality of life (on a scale from 1, very poor to 5, very good), satisfaction with health (on a scale from 1, satisfied to 5, very satisfied), current health problems as well as the use of medication.

The present research had a positive approval by the Ethics Committee of the University institution where the authors are affiliate (PI: 138/21-2). The execution of this project involved a team composed by psychology interns under the supervision of a professor. Being the sample a non-clinical one, a positive psychology-based program was presented to first year students of the first cycle of studies in Psychology at a university in the north of Portugal. The program addressed the reduction of mental rumination and social comparison, kindness and forgiveness. The program consisted of six sessions lasting approximately ninety minutes, with a weekly frequency, totaling six consecutive weeks. The sessions were held in groups, with the presence of a psychotherapist and a co-psychotherapist, who were trainee psychologists under the supervision of a professor.

The program, it's the objectives' structure and duration were presented to a class, where it was guaranteed that the participation was voluntary, confidential and there was a possibility to withdrawal at any time. The participants filed out a registration form and were posteriorly contacted by the trainees who informed them of the initial date of the program. These

participants were selected to an experimental group: they have participated on the program and were evaluated after and before the program through DASS-21 and MHC-SHF.

The remaining participants were selected for the comparison group (no intervention, just filling out the pre-test and post-test). The elements of this group were informed about this particularity.

In the first session of the program, the participants were reminded about the program´s objectives and the procedure of the data collection. They were informed about the possibility to withdraw from the program. All the doubts and questions that were asked, were clarified. After this, the participants were asked to fill out the consent form, as well as the pre-test instruments. In the control group, the pre-test was completed again on the same week on a previously scheduled class. In the experimental group, the post-test was filled on the last session of the program. The control group filled it out on a scheduled class on the same week.

2.3 Data Analysis

After its collection, the data (sociodemographic and psychometric assessment) was introduced and analyzed in IBM SPSS (Statistical Package for Social Sciences - version 25).

To define the statistical tests to be used, an exploratory data analysis was performed. The Kolmogorov-Smirnov test, asymmetry and kurtosis were used to analyze the normality of the distribution of variables. This analysis revealed the existence of variables that did not assume an approximately normal distribution. Thus, given that not all assumptions for the use of parametric tests were met and given the fact that the sample does not follow an approximately normal distribution in all dependent variables analyzed and since it was not randomly selected for its small size, a non-parametric statistic was used (Martins, 2011; Pais-Ribeiro, 2010).

Considering the formulated objective of this research (to assess the effectiveness of a positive psychological group intervention program on mental health), it was decided to use difference tests once it was intended to assess whether there were differences in the experimental group before (pre-test) and after the positive psychological intervention (post-test) and whether there were differences between the comparison group and the experimental group in terms of well-being and psychopathology.

Thus, in order to evaluate the existence of pre and posttest differences in the variables of well-being and psychopathology in the experimental group, a within subject's design is presented.

Given that the requirements for the use of parametric statistics were not met, a use non-parametric statistic, in this case the Wilcoxon (*Z)* Test was used (Martins, 2011).

Descriptive statistics were also used to characterize the sample, through the distributions and frequencies of the sociodemographic data, the means of the dependent variables, as well as a previous analysis of the comparison between groups to analyze whether the groups are identical in terms of their characteristics.

In all statistical analyses, a $p<0.05$ was assumed as the critical significance value for the results. All the results with a significance level of $p<0.10$ were also considered marginally significant.

3. Results

3.1 Results regarding the sociodemographic characteristics of the sample

To analyze if the experimental group and the comparison group were not statistically different in terms of sociodemographic characteristics and on the dependent variables at the pretest, a preliminary analysis using the Qui-square association test and Mann Whitney test was performed. Although this analysis could not have had sufficient statistical power to detect a more detailed differences, we can analyze both groups as globally similar. It is important to underline that the control group is used to compare its results with the group that participated in the psychological intervention

Regarding the sociodemographic characteristics, it was not possible to identify statical differences between the two groups on the following variables: gender (χ^2 (1) = 0,1 p= 0,752), health problems (χ^2 *(1) = 1,427, p<0,232),* medication (χ^2 (1) = 2,330, p= 0,127).

It is also important to underline that it wasn´t necessary to do a Chi-Square analysis on the academic qualifications, because it was the same on both groups.

On the analysis of the other sociodemographic characteristics, it was possible to verify that on the 2x2 table was a note declaring that the cells (superior to 20%) had an expected count less than 5. On this case, it was necessary to do a *Fisher´s Exact Test (Martins, 2011).* The Fisher´s exact test results were age (p=11,338), health satisfaction (p= 0,298), quality of life (p=0,308). These results show that are no statistical differences between the groups on the mentioned variables.

It is also important to underline that it wasn´t necessary to do a Chi-Square analysis on the academic qualifications, because it was the same on both groups.

Table 1. Differences on the sociodemographic variables between the groups

Sample (*n*=40)	χ^2	Fisher´s Exact Test **
Gender	0,1	---------
Age	---------	11,338
Quality of Life	-------	0,308
Health Satisfaction	-------	0,298
Health Problems	1,423	-------
Medication	2,330	-------

**p>0,05*

*** Cells <20% had expected count less than 5. Trusty χ^2 values if the percentage is under 20%.*

Regarding the dependent variables at the pre-test, the comparison between both groups didn't show any statistical differences on emotional well-being, social well-being, and psychological well-being. However, the groups are different on the psychopathology variables, concretely on stress variables, showing a tendency to statistical significance (U =132.500, p= 0,066): the experimental group seem to present higher stress level.

Table 2. Statistical differences between groups in the pretest concerning the dependent measures Mann-Whitney Test).

	Experimental Group (*N*=20)	Comparison Group (*N*=20)	***U***
	Average (SD)	Average (SD)	
Emotional well-being	14,35 (2,277)	14,90 (1,889)	166,500
Social well-being	19,35 (3,748)	19,10 (4,352)	189,000
Psychological well-being	29,65 (3,014)	27,00 (6,009)	160,00
Anxiety	3,57 (3,876)	1,708 (1,992)	139,000
Depression	3,16 (3,505)	1,83 (2,122)	148,500
Stress	6,35 (3,133)	4,81 (4,261)	132,500 *

** p<0,05*

Thus, it can be concluded that the groups are equivalent in terms of the sociodemographic variables and the dependent variables, with exception of the subscale stress subscale (assessed by Dass-21).

3.2 Results regarding well-being

The descriptive analyses regarding the levels of well-being (MHC-SF) of the experimental group (EG) show that the participants have overall high levels of well-being in both assessment moments (pre and posttest) (Table 3). They seem to develop feelings of happiness, good mood; they feel calm and satisfied with life (emotional well-being subscale), they also feel that they have a purpose in life, are able to accept themselves, feel capable/aware of the environment, are autonomous, are able to establish positive relationships with others (psychological well-being subscale), perceive themselves as being able to contribute to their groups, to integrate, to be a part of a society/community and to trust others (social well-being subscale).

Table 3. Differences on well-being at pre and posttest in the experimental group (Wilcoxon Test)

	Pre -Test (*N*=20)	**Post-Test (*N*=20)**	**Z**
	Average (SD)	Avarage (SD)	
Emotional Well-being	14,35 (2,27)	14,50 (2,395)	-1,042
Psychological Well-being	29,65 (3,014)	30,35(3,990)	-0,831
Social Well-being	19,95 (3,748)	22,50 (3,663)	-2,160*

*p<0,05

Concerning the psychological well-being, the existing differences were not significant between the pre- and post-intervention periods (Z= -0,831, p = 0.406), even with the increase of the average (posttest average 30,35). There weren´t also significantly statistic differences on emotional well-being (Z = -1,042, p = 0.297), even with the increase of the average (posttest average = 14,50). On the other hand, regarding social well-being, significant differences were found between the two time periods (Z = -2,160, p = 0,03).

Concerning the comparison group (CG), the individuals presented high levels of well-being in both moments of the assessment. There is a decrease in the mean scores for emotional well-being (Z= -1,118, p= 0,264) and social well-being (Z= -0,438, p= 0,662) and an increase in the psychological well-being score (Z= -0,548 p= 0.584), with no significant values.

Table 4. Differences on well-being at pre and posttest in the comparison group (Wilcoxon Test)

	Pre-Test (*n*=20)	**Posttest (*n*=20)**	**Z**
	Average (*SD*)	Average (*SD*)	
Emotional well-being	14,90 (1,889)	14,40(2,088)	-1,118
Psychological well-being	27,00 (3,014)	27,70 (5.620)	-0,548
Social well-being	19,10 (3,748)	18,95 (4,395)	-0,438

When comparing the two groups at the post-intervention moment, the mean values of emotional, psychological, and social well-being were higher in the EG.

No significant differences were found in emotional well-being (*U*=188,500, *p*= 0.753) and in psychological well-being (U=148,500, p= 0.162). In respect to the social well-being construct, the differences are significant between the two groups (*U*=113,000 *p*= 0.018), being also higher in the EG (Table 5).

In conclusion, the participants in the program felt, on the average, more socially integrated; with a greater sense of cohesion; acceptance; happier and more satisfied with life. They also seem to be more autonomous and can establish more positive relationships with others and also have greater social coherence when compared to the comparison group.

Table 5. Differences on well-being between groups at posttest (Mann-Whitney Test)

	Experimental Group (*n*=20)	**Comparison Group (*n*=20)**		
	Average (*SD*)	Average (*SD*)	*U*	*P*
Emotional well-being	14,50 (2,395)	14,40 (2,008)	188,500	0,753
Psychologicalwell-being	30,35 (3,990)	27,70 (5,620)	148,500	0,162
Social-well being	22,50 (3,663)	18,95(4,395)	113,00	0,018*

**p<0,05*

3.3 Results concerning psychopatology

Concerning psychopathology, participants in the experimental group presented low levels of psychopathological symptoms, namely anxiety, depression, and stress. Since the cut-off point is 10.5 points (half of the maximum score for each subscale), the average results obtained show that they are below this cut-off point in all dimensions.

According to the data obtained in the post intervention in the experimental group, it can be observed that there was a decrease in all dimensions (anxiety, depression, and stress), showing that in this period the participants seem to feel: more excited; confident; more relaxed; more resistant to frustration; more patient; showing less situational anxiety; fewer subjective experiences of anxiety, and less intense fear responses after participating in the program.

In what respects to the results of inferential statistics, it indicates the existence of statistically significant differences between the two moments (pre and posttest) at the level of anxiety (Z = -2.972, p = 0.003).

To sum up, at the psychopathological level the results of the experimental group indicate a decrease in the levels of anxiety, depression, and stress after participation in the program.

Table 6. Differences in psychopathology at pre and posttest in the experimental group (Wilcoxon test)

	Pre-Test (*n*=20)	**Post Test** *(n=20)*	**Z**
	Average (*SD*)	Average (*SD)*	
Anxiety	3,57 (3,876)	2,30(2,904)	-2,972*
Depression	3,16 (3,505)	2,45 (2,012)	-1,015
Stress	6,35 (3,133)	6,20 (3,318)	-0,095

**p<0,05*

In the comparison group, the mean values obtained in all subscales were higher in the post-test with an increase in the mean scores. It can be said, therefore, that the CG participants (who did not participate in the program) at the post-test assessment seem to have higher levels of negative affect. However, the differences between the two-time assessments were not significant (anxiety - Z = -0,951, p = 0.332; depression - Z = -1,034 p = 0.301; stress - Z = -1,142, p = 0.253).

Table 7. Differences in psychopathology at pre and posttest in the comparison group (Wilcoxon-Test)

	Pre-Test (*n*=20)	**PosTest (*n*=20)**	**Z**
	Average (SD)	Average (SD)	
Anxiety	1,70 (1,922)	2,50(2,982)	-0.951
Depression	1,82 (2,122)	3,10 (4,090)	-1,034
Stress	4,81 (4,261)	6,35 (4,826)	-1,142

**p<0,05*

When comparing the two groups at post-test assessment, no statistically significant differences were found. The levels of anxiety (U=193,500, p= 0.857), depression (U=187,500, p= 0.731) and stress (U=196,000 p= 0,913) vary between the experimental group and the comparison group, but these differences are not statistically significant

According to the descriptive and inferential analysis of the results concerning the psychopathological measures, the sample shows reduced symptoms in both moments.

Table 8. Differences on psychopathology between groups at posttest (Mann-Whitney Test)

	Experimental Group (*n=20*)	Comparison Group (*n=20*)		
	Average (*SD)*	Average (*SD*)	*U*	*P*
Anxiety	2,30(2,904)	2,50(2,982)	193,500	0,857
Depression	2,45 (2,012)	3,10 (4,090)	187,500	0,731
Stress	6,20 (3,318)	6,35 (4,826)	196,000	0,913

It is possible to notice some differences, namely in the experimental group, with a significant reduction in anxiety, depression, and stress. When comparing the two groups, although there are no significant differences, the EG shows lower mean values in the depression and anxiety variables, as they were higher in the pre-test.

In this sense, according to the empirical research, the participation in the program seems to positively affect the levels of well-being and psychopathology, improving the daily lifestyle of the individuals.

4. Discussion

This study aimed to evaluate the effectiveness of a positive psychology intervention program in a group, using positive exercises (described in the literature as effective) to promote and develop well-being and mental health.

In general, it can be said that the results of this study confirm what is described in the literature through the already performed studies. As for the pre and post results in the evaluation of well-being, both in the assessment of the EG and in the comparison of the two groups, show that it had an impact in increasing well-being. Especially in social well-being. It is possible to verify that the program promoted in the participants a sense of purpose in life, they feel capable, autonomous, can establish positive relationships with others, identify themselves as able to contribute to the group where they are inserted, to integrate, to be part of a society, and to trust others. The participants in this group felt significantly more socially integrated, felt more socially accepted, felt a greater sense of contribution to the group to which they socially belonged, as well as more social cohesion and integration.

Also, an important aspect of this program was that it took place in a group setting, as it seems to have a significant impact on social well-being. Several studies have shown that this format of interventions can promote social support, allows individuals to encourage each other to share similar experiences, build a social network, and provide social support (Hammill et al., 2022; Marrero et al., 2016). Group interventions allow subjects to have a space where they can share experiences, learn through the experiences of others, have feedback from others, group cohesion, feel stimulated by the progress of other participants, promote hope, and may serve as mediators of the change process (Burlingame et al., 2018; Couto & Vicente, 2018). So, one of the positive aspects of the program seems to be related to the format, being this an important aspect for the practice.

Concerning the pre- and post-intervention evaluation in the EG only, regarding psychopathology, the results are also in agreement with the scientific literature. It is observed that there was a decrease in all dimensions (anxiety, depression, and stress), that can indicate the participants in this period can feel more cheerful; confident; more relaxed; more resistant to frustration; more patient; less situational anxiety; fewer subjective experiences of anxiety, and less intense fear responses after participating in the program. It may, therefore, be stated that, in relation to the experimental group, the intervention program seems to have contributed to the promotion of mental health (decrease in psychopathological symptoms and increase in well-being) in the previously mentioned dimensions. These results add support to the numerous studies on the effectiveness of positive psychology interventions that mainly report

improvements in dimensions such as well-being and a significant decrease in anxiety traits (Scothanus-Dijkstra et al., 2017; Krahnen et al., 2022 Shoshani & Steinmetz, 2013). The results obtained show that, for the experimental group, the program seems to have contributed to the promotion of mental health (decrease in psychopathological symptoms and increase in well-being). In sum, these results are in line with some studies on the effectiveness of positive psychology interventions (Dambrun & Dubuy, 2014; Heekerens et al 2022, Lambert et al 2019).

5. Conclusion

This study presented some limitations, particularly the sampling process: the sample was not randomly selected, but selected by convenience, which makes it impossible to interpret conclusions. The sample size can also be considered a limitation as it consists of only 40 participants, not to big we must consider the risk of false positives/negatives in terms of the global results. Also, the comparison group was not controlled with a placebo and they were also not blind. Accordingly, any change in scores could readily stem from simply knowing that the individuals in the experimental group were in the experimental group.

Thus, in future research it would be relevant to address these limitations by changing the sampling process, with the formation of groups of a random sample, as well as increasing the sample size to provide the possibility of generalizing the results and also performed multiple comparisons in order to correct the risk of false positives. It would be equally important to do a follow-up session in order understand whether the differences have been maintained over time and if the participants applied them to their daily lives.

It could be relevant, for future research, to conduct these programs in the reception of university students. The students with good mental health are more successful academically, being their social, emotional, and decision-making skills affected positively, which leads to good academic performance. It would be also interesting to apply this program to students who are taking other degrees or to clinical populations.

In this sense, it is important to continue to develop studies in this area. This type of study increases the scientific knowledge about positive psychological interventions in the Portuguese population, providing the perception that mental health is a complex concept and that it does not only comprehend the absence of psychopathology, but also promotes the existence of high levels of well-being.

Therefore, it is essential to investigate in this area to develop programs for the promotion of well-being.

Ethical approval

The current study was approved by the ethical committee of the University Fernando Pessoa (PI: 138/21-2) conducted in according with the EU General Data Protection Regulation (GDPR), and designed in the respect of principles of the Declaration of Helsinki.

Informed Consent Statement

Once the young adults' eligibility had been established, an informed consent to participate was obtained and signed before the intervention.

Data Availability Statement

The data and materials that support the findings of this study are available from the corresponding author upon reasonable request.

Conflict of interest statement

The authors have no conflicts of interest to declare that are relevant to the content of this article.

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Authors' Contribution

CF designed the study and define the group sessions interventions; MM analyzed the data. All authors have revised literature and interpreted the data and drafted the manuscript. CF critically revised the manuscript. All authors have read the manuscript and have agreed with its submission.

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