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A Parental Program for the Prevention of Depression in Adolescents

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Abstract

The Parental Program for the Prevention of Depression in Adolescents (3PDA) is an innovative intervention - which includes contents that were never studied in depression prevention programs but that the literature has identified as important variables for the promotion of well-being and treatment of psychological suffering (e.g. emotional validation; compassion).

Literature suggest the relevance of parenting practices and quality of familial relationships as risk/protection factors for the development of depressive symptoms, but there is few and inconclusive research on parental components in preventive interventions with youth (Horowitz & Garber, 2006).

Aims: The purpose of this study is to describe the process of planning (structure, contents, specific goals, strategies and resources), implementing (parents groups; sessions; contexts) and evaluating preliminary efficacy data of 3PDA.

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Methods: An experimental group (16 parents) and a control group (33 parents) participated in the efficacy study of the 3PDA. The selection was carried out from a sample of parents of adolescents, aged 13 to 15, considered as being “at risk” (scores between the 75th and the 90th percentiles on the CDI). The 3PDA is composed by 10 thematic sessions, developed during 5 weeks.

Results: Qualitative and quantitative analyses suggested a reduction of depressive symptoms in children.

Conclusion: The 3PDA is a parental program that can improve the efficacy of The Adolescent Program for the Prevention of Depression (Arnarson & Craighead, 2009). Future studies are needed, with larger samples.

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Keywords: Parental program; depression; prevention.

1. Introduction

Nowadays, mental disorders are considered the leading cause of years lived with disability worldwide, and depression represents 40.5% of this burden (Avenevoli et al. 2015). Affecting close to a quarter of all adults during their lifetime (Beardslee et al., 2013; Kessler et al., 2005) depression is also a common, chronic, and impairing disorder with first onset occurring during adolescence (Beardslee et al., 2013; Craighead, Beardslee, Johnson & Keller, in press; Kovacs, 2006). In adolescence, is expected that one in five adolescents suffer from depression by the end of high school (Lewinsohn, Hops, Roberts, & Seeley, 1994) and one in eleven suffer from depression by the end of middle school (Garrison, Schluchter, Schoenbach, & Kaplan, 1989). The estimated incidence of depression in adolescence approximates the adult lifetime prevalence rate and the first episode increases substantially between 13 and 18 years of age (Avenevoli et al. 2015; Kessler et al., 2005, Kovacs, 2006). Studies in several countries show that depression is a major worldwide phenomenon affecting 3-8% of adolescents (eg, Gladstone, Beardslee, & O’Connor, 2011), and at any point in time, 10 to 19% of adolescents report moderate to high levels of depressive symptoms (Gotlib, Lewinsohn & Seely, 1995; Nolen-Hoeksema, Girgus, & Seligman, 1986 cited by Gillham et al., 2007). Elevated depressive symptoms have been also associated with many of the same negative outcomes as depressive disorders (Gillham et al., 2007).

Depression and depressive symptoms are worrying either because of the cognitive and emotional difficulties that cause in the individuals but also considering the damage which results, in the short and long term, in the academic, social and family areas. Teenage depression is associated with school failure and dropout (Weissman et al., 1999), family conflicts (Rubin, et al., 1991) and self-destructive behaviors (Harnish, 1995), such as substance abuse and suicide. Adolescents with elevated depressive symptoms are similar to their clinically depressed peers on measures of social impairment (Gotlib, Lewinsohn & Seely, 1995). Like Gillham and collaborators conclude (2007, p. 324) “treatment and prevention of depressive disorders and symptoms are both important goals”. Despite its precocity, chronic course (Costello et al., 2002) and several negative consequences, recent studies in USA suggest that only 1% of youth are treated in an outpatient setting for depression each year (Avenevoli et al. 2015). Due to the high personal, familiar, social and economic invalidation that depression causes, adolescence is viewed as a critical developmental period for identifying risk of depression, namely individual, familiar and socioeconomic risk (circumstances that make people vulnerable) and protective factors (facing circumstances that make them resilient) (Anaut, 2005, Schoon, 2006) and implement effective programs to prevent depression in adolescence.

Because of its high prevalence, the costs involved and the difficulty in treating the disease once developed, authors have intensified efforts to prevent depression in adolescents, developing progressively more specific interventions (selective and indicated prevention programs). Prevention

programs for young people who are already at risk for depression have shown promising results, and are more effective than universal prevention programs (Arnarson & Craighead, 2009, 2011; Clarke et al. 2001, 2007; Gillham et al., 1990; Lewinsohn et al., 1994).

A review of the literature shows us that programs to prevent depression in adolescence have been based mainly on cognitive-behavioral and/or interpersonal approaches. Studies also suggest that school-based cognitive-behavioral interventions can reduce and prevent depressive symptoms in youth (Gillham et al., 2007, 2013) and are useful in the treatment of depression (Gladstone & Beardsle (2009). Gillham et al. (2007) investigated the effectiveness of one of the most popular cognitive-behavioral depression prevention program, the Penn Resiliency Program for Children and Adolescents (the PRP-CA), when combined with a parent intervention component. The findings of this study suggest that school-based cognitive-behavioral interventions, that include parents, may prevent depression and anxiety symptoms in early adolescence. The combined version of the PRP-CA significantly reduced symptoms of depression and anxiety during the follow-up period.

The literature have consistently confirmed the importance of parenting support practices and quality of family relationships as protective factors for the development of depressive symptoms (Cole & McPherson, 1993 ; Ge, Conger, Lorenz, & Simons, 1994; Cuijpers et al., 2009; Gjerde, Block, & Block, 1991; Herman-Stahl & Petersen, 1999). However research on parental components in preventive interventions with young people is still limited and inconclusive (Gillham, Shatté, & Freres, 2000; Lee & Eden, 2009; Horowitz & Garber, 2006; Mueller, 2007).

Lee and Eden (2009) made an important review of family variables that have been associated with elevated risk of depression (e.g. psychopathology in family members, child abuse and neglect, and family disruption) as well family mechanisms by which risk is transmitted (biological processes, parental cognitive styles, and parent-child interaction patterns, including conflict, parental control, and lack of support). They also mentioned family factors, such as availability, support, and monitoring, that have been identified as protective and associated with youth resilience. In an important contribute they also completed a review of depression prevention programs in youth, and they identified i) a set of selective and indicated programs for parents and or children in stressful or family disruption conditions (such as separation, divorce, or death) or for depressed parents ii) a set of universal programs, composed by interventions that comprise a parental component that has been developed to modify family factors that are associated with depression, as well as programs that were designed to prevent the development of depression in young people who are at-risk by virtue of being the offspring of depressed parents.

1.1 Universal, selective and indicated prevention programs that including parents

Given the strong evidence of the influence of family factors in the development and maintenance of depression in adolescents, several attempts succeeded one another to include parental components, first in the universal prevention programs of depression that were applied in schools, later in selective prevention programs and ultimately in prevention indicated.

Lee and Eden (2009) presented two universal prevention programs for children that included a parental component, without selection criteria for parents: Family-School Partnership (FSP) (Ialongo et al. 1999, cited by Lee & Eden, 2009) and Resourceful Adolescence Program (RAP-Family) (Shochet et al., 2001, cited by Lee & Eden, 2009). At Ialongo et al. (1999) study no data were presented addressing the efficacy of the program in parent ratings of children behavior problems, parent-teacher communication or in parenting skills. In the Shochet et al. study (2001) both intervention groups (with or without parental intervention) improved their scores in CDI (Children Depression Inventory) and BHS (Beck Hopelessness Scale). No differences between

groups were found. In both studies the authors reported the difficulty to recruit and retain those parents who may be in greatest need of the program. As revealed by Hammen (2005) the more needed parents (for example who are themselves depressed) often lived in conflictual, stressful and little support environments, and have socio-economic disadvantage. For those parents can be difficult not only to attend sessions of programs, in terms of motivation, but also in terms of logistics, including transportation, child care and time management.

Studies, mentioned by Lee and Eden (2009), on selective prevention programs for at-risk youth, reported two types of programs: for depressed parents and their non-clinical children (Beardslee et al., 2003) and for depressed parents and their adolescents with moderate risk of depression (Sanford et al., 2003). These interventions, based on the premise that parental affective disorders produce negative effects in their children, revealed different results. Only at the Beardslee et al. (2003) study were obtained positive results in increasing parent-child communication and in enhancing the understanding of depression. This study included two intervention versions, lecture or a clinician-facilitated intervention which included 6-10 sessions for parents. The clinician-facilitated intervention produced more positive results, namely in communication and supportiveness and in children functioning.

The indicated programs studies comprised three kinds of interventions: adult-focus (Forgatch & DeGarmo, 1999), child-focus (Alpert-Gillis et al., 1989; Gwynn & Brantley, 1997; Roseby & Deutsch, 1985; Stolberg & Mahler, 1984) and adult and child focus (Sandler et al., 1992; Wolchik et al., 2000), to prevent depression in children exposed to situations of family disruption (Alpert-Gillis et al., 1989; Gwynn & Brantley, 1997). A number of school-based interventions emerged to help children understand their parents' divorce, to express their feelings about it, to improve problem solving, and to seek support (Lee et al., 1994, 2009). These studies also controlled variables as depression, internalizing problems and affective symptoms. The systematic review highlights the programs' success in terms of enhancing knowledge about separation and divorce events, and improving parenting. Within a year of the program, there were no evident effects in terms of reducing child's symptoms. However, the 30 months follow-up revealed that parenting changes were first evident, followed by changes in boy's behavior, and followed by changes in maternal depression.

In conclusion, more investigation is needed to clarify the predictive power of family variables and to find evidence that family-based interventions are effective in reducing adolescent depression. Till now, findings emphasize the importance of doing follow-up evaluations and booster sessions to reinforce positive changes and patterns and that "the pathways to resilience are complex and some family changes are not evident until months or years after the program" (Lee & Eden, 2009, p. 200).

1.2 3PDA - Parental Program for the Prevention of Depression in Adolescents

The tendency, in the last generation of programs designed to prevent adolescent depression, is to include prevention strategies targeted for the family and not only for the adolescents (Gillham et al., 2000, 2007). According to the literature, that suggests the relevance of parenting practices and quality of familial relationships as risk factors for the development of depressive symptoms, the 3PDA - A Parental Program for the Prevention of Depression in Adolescents was developed. 3PDA foci is to improve the efficacy of the Program for the Prevention of Depression in Adolescents (PPDA) that was adapted for the Portuguese population and based on the preventive program for adolescents "Mind and Health" originally developed by Arnarson & Craighead (2009). The authors of "Mind and Health" created a selected and indicated prevention program for individuals at risk for the development of depression and dysthymia among adolescents. They mentioned the increase in

first episodes of depression and dysthymia at about age of 15 (Craighead, Beardslee, Johnson & Keller, in press) to justify the decision of developing a program for the ages 14–15. Starting in 2001, Arnarson and Craighead developed a program designed to prevent the initial episode of major depression or dysthymia among adolescents that has been investigated in Iceland and in Portugal (Arnarson & Craighead, 2009, 2011; Matos et al., 2015, Matos, Marques, Oliveira, & Pinheiro, 2014V, Matos, Oliveira, Marques, & Pinheiro, 2014abLmp, Matos, Oliveira, Marques, Ribeiro, Pinheiro, & Simões, 2014H; Matos & Pinheiro, 2013Ap).

“Mind and Health” program is a 14-session prevention program, with a cognitive-behavioural developmental basis. The sessions include components found to be effective in depression intervention programs (e.g., pleasant activities, cognitive restructuring, problem solving) but tailored to be implemented in a preventive fashion. The Portuguese research prevention program examined changes in depressive symptoms and associated risk and protective factors among participants in the Research Project "Prevention of Depression in Portuguese Adolescents: Study of the Effectiveness of an Intervention with Adolescents and Parents" (PTDC/MHC-PCL/4824/ 2012) – Funded by FCT and implemented in CINEICC – Research Centre of the Study of Behavioural and Cognitive Intervention – Faculty of Psychology and Educational Sciences of the University of Coimbra. The research project is coordinated by Ana Paula Matos and has a team of psychology and education researchers, who have been applying the prevention program. The main objectives of the Portuguese research project are (i) to identify a "risk profile" for depression in adolescence and (ii) to evaluate the effectiveness of PPDA adaptation of the “Mind and Health” program enhancing its efficacy with the addition of a new component – the Parental Program for the Prevention of Depression in Adolescents (3PDA).

The inclusion of the parental component is justified with data that supports the relevance of parenting and familial risk factors for the development of depressive symptoms (Ge et al., 1994, Herman-Stahl & Petersen, 1999). Once literature shows inconsistent results, further efficacy studies are recommended (Gladstone & Beardslee, 2009; Gillham, Shatté & Freres, 2000; Gillham et al. 2007; 2013; Lee & Eden, 2009; Sander & McCarty, 2005). The study of the 3pda efficacy will be a contribution to clarify the importance of the parental components in preventive interventions with youth.

1.3 The theoretical rationale and objectives of 3PDA

As stated before by the authors (Matos et al., 2014), the Parental Program adds some innovative contents, such as emotional validation and compassion parental skills toward their children, is based on the cognitive behavioral model and includes psychoeducation and parental coaching. It is a structured intervention designed to increase resilience, coping and parenting skills. It is expected that more resilient and skilled parents can help vulnerable children to learn how to cope with day life and adversity, reducing major cognitive-behavioural risk factors to depression: disturbing thoughts, emotional deregulation, and behavioural problems.

The 3PDA has the following main objectives: (i) Increase the effectiveness of Mind and Health Program (Program for Prevention of Depression in Adolescents; Arnarson and Craighead, 2009), to prevent the first episode of depression/dysthymia in adolescents at risk for depression; (ii) Increase the parents comprehensibility about risk and protective factors for adolescent’s depression or dysthymia; (iii) Increase the quality of the relationship between parents and adolescents: communication, conflict resolution and problems, emotional validation, acceptance, compassion and social support.

We hypothesized that participation in 3PDA would result in enhancing child and parents

resilience, and in decreasing depressive symptomatology in children. In addition, we hypothesized that this parental intervention would produce change in children's cognitive, emotional and behavioural self-understanding.

1.4 Innovative content of the program

The 3PDA consists of 10 group sessions (and an additional session for celebration and program ending) for parents of adolescents at risk for depression attending the PPDA. The 3PDA includes some content similar to the children program (e.g., understanding the relationship between thoughts, emotions and behaviours, promoting mastery and leisure activities, communication skills training, problem solving training and conflict resolution) and other more innovative content such as promotion of parenting skills of emotional validation and compassion for the children. We highlight the most innovative contents: i) emotional validation - focused on emotional recognition, labelling and expression (Leahy, 2002, 2005); parents learn not only to validate the emotions of their children but also to teach their children to differentiate and properly express the emotional experience, helping them to develop emotional regulation skills; ii) compassion - an important emotional regulation strategy to deal with negative emotions (e.g., sadness, shame, anxiety, anger) that will facilitate affiliative relations (Gilbert & Procter, 2006); compassion will be developed in parents as a way to achieve tolerance, acceptance and responsiveness regarding the suffering of the children, in a warm and friendly attitude.

1.5 Structure and contents of sessions

In terms of structure, the program consists of 10 thematic sessions, two at a time, for a total of 5 weeks and 15 hours of training. Each session is organized around a theme and a central message (see Table 1), being guided by specific goals. In each session activities are developed, individual and in group (e.g. groups dynamics, practical exercises, and metaphors analysis, reflections and debates). Supporting materials are provided for parents (e.g. slides, handouts and record sheets). In the end of each session, reactions were assessed, by evaluation questionnaires, about satisfaction and participation, and suggestions are made for transfer of learning knowledge and competencies to the relationship with their children. The multilevel model by Kirkpatrick and Kirkpatrick (2005) was used to structure the evaluation of the program, which includes the articulation of four levels: reaction (in each session), learning, behaviour and results of the participants (before, during, and after the program). The pre-program evaluation occurs before the first session and the post-program evaluation occurs after the tenth session.

Our prevention approach is designed to provide information about depressive symptomatology to parents, to equip parents with the skills needed to communicate with their children, and to open a dialogue with their children about the adolescent development, resilience and depression issues.

The first session promotes the parents' knowledge about adolescence, and depression and its risk and protection factors, with the key message: *All coins have two faces*.

In the second session the topic is wellness practices (e.g., meditation), and leisure activities and their impact on the development of a more positive mood. The focus is placed on how parents can help their children and help-themselves in those aspects. The key message is: *We can have a more positive mood*.

In the third and fourth sessions is developed an understanding of the relationship between thoughts, emotions and behaviours, and the negative consequences of automatic, irrational and distorted thoughts. The key messages are, respectively: *We all have resources* and *We can change our thoughts and behaviours*.

In the fifth session, communication skills are optimized, active listening is trained and parents learn how to make powerful questions. The key message is: *Listening is seeing, hearing and asking.*

In the sixth session, strategies for problem solving and conflict resolution are learned, with the key message: *We all have strengths and opportunities.*

Seventh and eight sessions are dedicated to the most innovative components of the program: emotional validation and emotional training (key message: *We all have an emotional baggage*) and acceptance and compassion (key message: *Keeping a positive view of ourselves and others*).

The ninth session discusses protection factors in adolescents and family, including social support, the quality of parent-child relationships and resilience, with the key message: *Together in good and bad times.*

The session ten is dedicated to the evaluation of the gains obtained with the program and the application of post-test research protocol to assess the variables that are being investigated, and the key message is. *Evaluation is needed.*

A last meeting occur at the end the program, to deliver the certificates and celebrate with parents, adolescents and trainers. The last message is: *Let's celebrate with a special snack!*

Table 1. Summary table of themes and key messages of the sessions of the program 3PDA

Ses.	Theme	Key Message
1	Adolescence and Depression - Risk and Protection Factors	<i>All coins have two faces</i>
2	Wellness Practice and Leisure Activities	<i>We can have a more positive mood</i>
3	Thoughts, behaviours and emotions	<i>We all have resources</i>
4	Thoughts, behaviours and emotions	<i>We can change thoughts and behaviours</i>
5	Communication and Active Listening	<i>Listening is seeing, hearing and asking</i>
6	Problem solving and conflict	<i>We all have strengths and opportunities</i>
7	Emotional validation and training	<i>We all have an emotional baggage</i>
8	Acceptance and compassion	<i>Keep a positive view of ourselves and others</i>
9	Adolescents and Family: Resilience and Social Support	<i>Together in good and bad times</i>
10	Assessment of the investment and gains from the program	<i>Evaluation is needed</i>
11	End of the program with parents, adolescents and educators. Delivery of the certificates	<i>Let's celebrate with a special Snack!</i>

The present study aims to describe the process of planning, implementing and evaluating results of the 3PDA. These preliminary analyzes of the effectiveness of the parental program 3PDA, as a supplement of the adolescents program PPDA, are performed using the results of Children's Depressive Inventory (CDI; Kovacs, 1983; Portuguese version: Marujo, 1994) for adolescents at baseline, post-test and 6 month follow-up.

2. Methods

An experimental group (EG) composed by parents that ran the 3PDA and that had children running the PPDA (16 parents) and a control group (CG) composed by parents without intervention of children that were running the PPDA (33 parents) participated in the efficacy study of the 3PDA. The selection was carried out from a sample of parents of adolescents, aged 13 to 15, considered as being "at risk" (scores between the 75th and the 90th percentiles on the CDI).

2.1 Participants

The sample included 49 subjects, sixteen (16) parents in EG and thirty three (33) parents in CG.

Regarding gender, we had 15 (30.61%) male and 34 female (69.39%) subjects. The gender distribution in the groups has no statistically significant difference ($\chi^2(1) = 0.387, p = .534$).

2.2 Instruments

Children Depression Inventory – CDI (M. Kovacs P. D. D., 1983; Portuguese version: Marujo, 1994). CDI is used to evaluate depressive symptomatology in children and adolescents, aged 7-17. This instrument consists of 27 items and five factors: *negative mood*, *interpersonal problems*, *ineffectiveness*, *anhedonia* and *negative self-esteem*. There are three possible responses to each item, ranging from 0 (no problem), 1 (moderate symptom) to 2 (presence of symptom). This yields a total score (sum of all items) varying between 0 and 54 points, with higher values corresponding to higher levels of depressive. To answer each item, the child/adolescent has to choose the statement that best describes him/her in the last two weeks. In the original version, the internal consistency values were high for the total and for sub-factors of the scale (α between .83 and .94) The Portuguese version of the CDI showed good internal consistency, with Cronbach's alpha of .80 for a one-dimensional structure (Marujo, 1994).

2.3 Procedures

All the participants were informed about the purpose of the study, their role as participants, the voluntary nature of their participation and the confidentiality of data. The participating adolescents and their parents completed the consent form.

Previous, an authorization for this work was granted by the National Ethics Committee that regulates and supervises the procedures employed in studies conducted in schools. The second phase included screening – identifying and selecting adolescents who were at risk (i.e., with subclinical depressive symptoms – CDI scores between 75th and 90th percentiles). The at risk adolescents were then interviewed using the Schedule for Affective Disorders and Schizophrenia for School-age-children – Present and Lifetime Version (K-SADS-PL) [30] and the Children's Depression Rating Scale-Revised (CDRS-R) [31], prior to the Intervention Phase. The purpose of the interviews was to exclude participants who met criteria for major depression, dysthymia, bipolar disorder I or II, cyclothymia, anorexia, bulimia, psychotic disorder, alcohol or substance dependence, ADHD, ODD, or conduct disorder. The at-risk adolescents who were not excluded according to the previous criteria and met inclusion criteria were randomly allocated to groups: a group of adolescents that did the PPDA and another group of adolescents without intervention. Subsequently, the 14- session intervention was implemented.

It was randomized a group of parents of teenagers who were doing the PPDA program, to take part in 3PDA. The parents who accepted to participate took part of the EG. Many parents proved to be unavailable, claiming overlapping schedules due to work and family responsibilities.

Finally, the adolescents and parents were evaluated longitudinally. Risk and protective factors and outcome variables were measured before the intervention (Pre-test), immediately after the intervention (Post-test), and at 6 month follow-up.

3. Results

A previous analysis of the normality of data distribution was studied for the CDI in the three time moments of evaluation. The standardized skewness was less than 2. Subjects with standard

scores of 2.5 or greater were considered outliers and were truncated. There were no missing values. Homocedasticity was tested with Levene's test and when significant Brown-Forsythe correction was used.

It was verified if the groups differed on CDI scores in the pre-test. For this purpose the Analysis of Variance (ANOVA) (Howell, 2011) was executed. The difference between the means was not statistically significant [$F_{BF}(1, 20.34) = 0.536, p = .368$; homocedasticity test: $F_{Levene}(1, 47) = 7.412, p = .009$]. No statistically significant differences were found between gender in scores of CDI at the pre-test [$F(1, 46) = 2.197, p = .145$; homocedasticity test: $F_{Levene}(1, 45) = 0.001, p = .982$]. The adolescent's gender distribution in the groups had no statistically significant difference [$\chi^2(1) = 0.387, p = .534$]. The average age of the adolescents was 14.20 (SD = 0.92), with a mean of PPDA the ages of 13.97 (SD = 0.69) and the 3PDA group 14.15 (SD = 1.34), the difference between the mean age was not statistically significant [$F(1, 44) = 0.371, p = .545$].

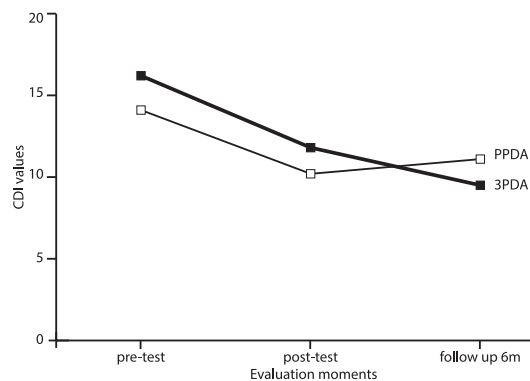
The differences between groups were tested with repeated measure analysis of variance (ANOVA) (Tabachnick & Fidell, 2006). The group was considered as between-subjects independent variable and the time of evaluation (pre-test, post-test and follow up) as a within subjects independent variable, pre-test, post-test and follow up with repeated measures. The assumptions were verified with M Box, Levene's test and Mauchy's test of sphericity.

The Box's M obtained a value of 14.89 and a significance higher than .01, so it should be considered the equivalence of covariance matrices ($F(6, 5767) = 2.274, p = .034$) (Tabachnick & Fidell, 2006). The Mauchly's test achieved a of .927 and was not significant ($\chi^2(2) = 3.502, p = .174$).

The descriptive statistics are presented in Table 1. There was no interaction between the group and the time of evaluation ($F(2, 47) = 2.496, p = .088$) (cf. graph 1). There were statistically significant differences in evaluation moments ($F(2, 47) = 17.776, p < .001$). There was not a statistically significant effect between groups ($F(1, 47) = 0.136, p = .714$). The differences were statistically significant between the pre-test and post-test ($p < .001$) and between the pre-test and the follow up ($p < .001$).

Table 1. Number of subjects and values in CDI at the tree moments of evaluation in the PPDA and 3PDA

Group	n	Pre-test				Post-test				Follow up 6 months			
		M	SD	Min	Max	M	SD	Min	Max	M	SD	Min	Max
PPDA	33	14.12	4.65	4	26	10.30	5.82	0	24	11.15	6.24	2	25
3PDA	16	16.06	7.79	5	30	11.69	5.91	4	22	9.50	6.06	1	26



Graph 1. Means of CDI scores at pre-test, post-test and follow up for 3PDA and PPDA

In both programs there are statistically significant gains between pre-test and post-test, which remain in the follow up. Although the difference between the means of the groups was not statistically significant, in the descriptive analysis, we found that in 3PDA the CDI scores continue to fall consistently at follow up.

Then we analysed if the change observed in the groups differs statistically. We will assess whether the change occurred between the pre-test, post-test and follow up differed significantly between the groups.

The change between the pre-test and post-test was obtained by subtracting to the score at post-test the scores obtained in the pre-test. The change between the pre-test and the follow up was attained by subtracting to the score at follow up the score in the pre-test. If the difference was zero, then there was no change between pre and post-test. If the difference has a negative sign, the subject dropped his score from the pre-test to post-test, in other words, the pre-test score were higher than the post-test score. Finally, if the difference has positive sign then there was a raise from pre-test to the post-test. To a greater difference corresponded a bigger increase in values.

In the variables obtained pre/post, post/follow up and post/follow up, the standardized skewness was less than 2, and outliers were truncated. Homocedasticity was not significant for the pre-test/follow up, pre-test/post-test and post-test/follow up ($F_{Levene}(1, 47) = 0.705, p = .405$; $F_{Levene}(1, 47) = 1.691, p = .200$; $F_{Levene}(1, 47) = 2,855, p = .098$).

The groups did not differ in change between the pre-test and post-test ($F(1, 48) = 0.075, p = .785$), between the pre-test and the follow up ($F(1, 48) = 3.743, p = .059$), but change was significant between the post-test and follow up (decrease at CDI scores). The change is higher in 3PDA regarding the PPDA. The results suggest that both programs contribute to the decrease in CDI scores, but 3PDA seems to be more effective in maintaining this effect and in its amplification in the medium term (cf. table 2).

Table 2. Means and SD for change in the three moments for PPDA and 3PDA

Change	Group	M	SD	F	p
Pre-test/Post-test	PPDA	-3.88	5.52	0.075	.785
	3PDA	-4.38	6.73		
Post-test/Follow up	PPDA	0.85	4.20	4.218	.046
	3PDA	-2.19	6.01		
Pre-test/Follow up	PPDA	-3.15	6.10	3.743	.059
	3PDA	-6.56	5.05		

The Reliable Change Index (RCI, Jacobson & Truax, 1991) was calculated between pre-test and post-test and between the pre-test and the follow up, which allowed to classify and clarify the direction of change.

Between the pre-test and post-test were classified into global improvement 69.7% of PPDA subjects and 62.5% of 3PDA, 12.5% in both groups classified in global deterioration (cf. table 3).

Table 3. Reliable Change Index (RCI) for CDI by group and evaluation moment

	RCI	PPDA		3PDA	
		n	%	n	%
Pre-test/pos-test	Global improvement	23	69.7	10	62.5
	No change	6	18.2	4	25.0
	Global deterioration	4	12.1	2	12.5
Pre-test/follow up	Global improvement	19	57.5	16	100
	No change	6	18.2	0	0

If we consider the effect of programs at pre-test /follow up of six months, 57.5% of PPDA subjects were classified in global improvement, 18.2% in no change and 24.2% in global deterioration. However at 3PDA all subjects were classified in global improvement.

4. Discussion

The main aims of this study were to describe the process of planning and implementing the Parental Program for the Prevention of Depression in Adolescents (3PDA), and to investigate preliminary efficacy data of the 3PDA. This program, composed by 10 thematic sessions and developed during 5 weeks, was implemented in an experimental group of 16 parents (3PDA group) carried out from a larger sample of parents of adolescents, considered as being “at risk” of depression (scores between the 75th and the 90th percentiles on the CDI) who were doing the Mind and Health Program (Program for Prevention of Depression in Adolescents; Arnarson and Craighead, 2009). Those adolescents were evaluated in depressive symptomatology, on the CDI, at baseline, post-test and 6 month follow-up after the parents program.

No significant difference were found at pre-test between EG and CG in gender and CDI scores, in other words, as it would be advisable, groups were equivalent in depressive symptomatology at baseline. Results showed that in both groups, EG and CG, there are statistically significant gains between pre-test and post-test, which remain in the follow up. Regarding means, using classical statistical analyses, repeated measures analysis, difference between groups was not statistically significant, but in the descriptive analysis, we found that in 3PDA the CDI mean scores continue to fall consistently at follow up. Regarding the change observed in the groups, we found that the groups did not differ in change between the pre-test and post-test or between the pre-test and the follow up, but change was significant between the post-test and follow up (decrease at CDI scores). The change is higher in 3PDA regarding the PPDA. The Reliable Change Index also showed that regarding the effect of programs at pre-test /6 months follow up, 57.5% of PPDA subjects (CG) were classified in global improvement, 18.2% in no change and 24.2% in global deterioration. However at 3PDA (EG) all subjects were classified in global improvement.

We can conclude that the results suggest that both programs, 3PDA and PPDA, contribute to the decrease in CDI scores, but 3PDA seems to be more effective in maintaining this effect and in its amplification in the medium term. Our data support the idea stated by other authors (Gillham et al, 2000, 2007; Horowitz & Garber, 2006; Lee & Eden, 2009; Matos et al, 2015) that prevention strategies targeted for the family are an encouraging contribute to prevent depression in adolescence.

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