



Preliminary Real-World Evaluation of an Intervention for Parents of Adolescents: The Open Door Approach to Parenting Teenagers (APT)

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Abstract

Most parenting interventions report high dropout rates for parents who exhibit clinically high levels of stress and/or are parents of adolescents with severe emotional and/or behavioral difficulties. The objective of this preliminary study was to evaluate the feasibility and real-world effectiveness of the Open Door Approach to Parenting Teenagers (APT), a six-session individually delivered face-to-face intervention for typically hard to engage parents of 11 to 21-year-olds. A one-group, pre-post evaluation design was adopted due to the naturalistic clinic-based setting of the study. Participants were 279 parents reporting clinical levels of stress relating to parenting an adolescent. Parents receiving the APT intervention demonstrated lower dropout rates than other parenting programs and reported high scores across several items relating to service satisfaction. The APT intervention was associated with significant reductions in parental stress and improvements in parent-adolescent relationships immediately post-intervention. Findings suggest that parents found the APT intervention acceptable and beneficial, and further suggest that the intervention is feasible and effective in retaining hard to engage parents. Moreover, preliminary findings suggest that the APT intervention is a promising intervention that may support parents who fail to engage in group programs. However, further research is required to establish the efficacy of the intervention.

Keywords Parenting · Adolescents · Parenting intervention · Parental stress · Clinical stress

Highlights

- This study evaluated a universal, manualized, intervention for parents of adolescents, Open Door Approach to Parenting Teenagers (APT).
- Findings suggested feasibility and acceptability of the intervention.
- APT was generally effective, even for parents who struggle to engage with group-based interventions.
- The intervention reduced parent stress and improved parent-adolescent relationships.
- APT is a promising intervention to fill a current gap in healthcare pathways.

Adolescence represents one of the most difficult and anxiety-provoking periods for young people, their parents and families (Arnett 1999; Kieling et al. 2011; Knapp et al.

2011). Whilst adolescence has traditionally been defined as 11–18 years, current evidence suggests that the definition and timeframe of adolescence should be expanded to include young adulthood, up to the early twenties (Jaworska and MacQueen 2015). The physical, emotional and socio-cognitive development of the emerging adult, coupled with shifts in familial relationships and beyond, has been shown to contribute to a high prevalence of emotional and behavioral problems during adolescence (Costello et al. 2003). Further, increased conflicts with parents may contribute to the development of significant mental health difficulties in adolescents which can be maintained in adult life, if not managed appropriately (Steinberg 2001; Steinhausen et al. 2009).

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Overwhelmingly, past research has shown that parenting practices can exert a strong and enduring influence on adolescents (DeVore and Ginsburg 2005; Liem et al. 2010). A positive adolescent-parent relationship, alongside consistent and reflective parenting, can facilitate positive adolescent outcomes (Barber 1996; Barber and Erickson 2001; Liddle et al. 1998; Morris et al. 2007). In contrast, maladaptive parenting practices, such as authoritarian or punitive parenting, may increase an adolescent's vulnerability to developing behavioral and emotional problems (Eichelsheim et al. 2010; Foster et al. 2008; Grolnick and Pomerantz 2009; Maynard and Harding 2010), externalizing and internalizing behaviors (Huth-Bocks and Hughes 2008; Snyder et al. 2012), and decreased cognitive and academic development (Spath et al. 2008). Therefore, parenting practices represent a potentially modifiable risk factor that can be targeted to reduce emotional and behavioral problems in adolescents (Deković et al. 2003).

Parenting interventions refer to interventions where parents are actively targeted, and the majority of the intervention is focused on changing knowledge, attitudes and skills relating to parenting practices. They have been increasingly accepted as one of the most effective ways of ameliorating problematic behavior, with much research supporting their efficacy for younger children (Forgatch et al. 2009; Metzler et al. 2012; Shah et al. 2016) and older children (Eshel et al. 2006; Forgatch and Patterson 2010). Additionally, parenting interventions have been shown to be a cost-effective tool for improving the wellbeing of the parent, family and child. Research reports that when the wider costs are accounted for, total gross savings over 25 years exceed the average cost of the parenting intervention by approximately a factor of eight to one (Knapp et al. 2011).

Over the past 30 years there is a growing body of research that recognizes the importance of parenting practices in adolescent development (Chu et al. 2012). Whilst the majority of parenting interventions tend to focus on concerns around the parenting of younger children (Barlow and Parsons 2003; Britto et al. 2015; Kane et al. 2007), in recent years there has been increasing attention on parenting interventions that specifically target the needs of adolescents (Burke et al. 2012; Henricson and Roker 2000; Nitsch et al. 2015; Sandler et al. 2015). Until recently, the needs of these parents have largely been neglected by Child and Adolescent Mental Health (CAMH) services despite research into parenting strongly indicating that effective parenting is a crucial and influential factor in adolescent psychological development (Jarvis et al. 2004). Moreover, research on interventions for parents of adolescents has demonstrated higher dropout rates in comparison to interventions for parents of younger children (Kaminski et al. 2008). Parenting interventions can be delivered within an

indicative, selective or universal framework (Fonagy 1998; Gordon 1983). Indicative interventions are typically delivered to families with known risk factors or in cases where a clinician has identified the experience of difficulties. Selective interventions tend to be delivered to families in environments that are associated with risk factors, e.g. neighborhoods with a high crime rate or low socioeconomic status. Universal interventions are offered to all families, regardless of existing risk factors or identified difficulties. The majority of currently available interventions for parents of adolescents focus on specific behavioral difficulties such as drug and alcohol abuse, sexual behavior or conduct disorders (Barton et al. 2015; Hooven et al. 2012; Koutakis et al. 2008; Pantin et al. 2009; Piehler and Winters 2015; Pineda and Dadds 2013). There are limited universal interventions that target parents of adolescents struggling with both internalizing and externalizing difficulties, and the majority of interventions available are delivered in a group setting e.g. ABCD Parenting Young Adolescents Program, (Burke et al. 2012; Burke et al. 2010), Parenting Plus Adolescent Program (PPAP) (Nitsch et al. 2015) and Group Triple P Teen program (Chu et al. 2015).

Whilst various group based programs have been shown to be effective in improving parenting skills (Ralph and Sanders 2003), a significant number of parents find it difficult to engage in a group format, perceiving the "universal" content as less relevant to their particular situation (for review see Axford et al. 2012). Furthermore, whilst groups might be seen as a more effective approach economically, the evidence is mixed, and their overall effectiveness needs to be reviewed (Hoddinott et al. 2010). The majority of parenting interventions are designed and evaluated as group-based interventions. These interventions report low levels of engagement and high levels of dropout (Kaminski et al. 2008). Group interventions that specifically target parents of adolescents also report similarly high dropout rates (Baruch et al. 2011; Burke et al. 2012; Nowak and Heinrichs 2008). Further, Friars and Mellor (2009) showed that parents who experienced their children's difficulties as more severe and reported higher levels of stress were more likely to drop out from group-based parenting interventions. The majority of parents who dropout tends to be single mothers, who report finding the group context difficult, and find it challenging to put the suggested parenting strategies in place (Dumka et al. 1997; Rohrbach et al. 1994). Further, these parents are more reluctant to examine their own interpersonal difficulties and behaviors and struggle to disclose themselves and receive feedback in a group context. Thus, brief parenting programs delivered in a group setting may not represent the most appropriate intervention for this group of parents (Yalom and Leszcz 2005). Furthermore, the organizational challenges associated with setting up group interventions may potentially

contribute to clinicians and support workers feeling compelled to provide individual support to parents, leading to improvised protocols and a non-evidence-based approach (Axford et al. 2012).

Therefore, there is a substantial need for individually delivered parenting programs that promote engagement and are effective for parents experiencing significant difficulties relating to parenting adolescents. To date, the only individual, face-to-face intervention targeting parents of adolescents is the Standard Teen Triple P (Salari et al. 2014). This ten-session intervention has been shown to contribute to decreased levels of adolescent disruptive behavior and parent-adolescent conflict, as well as a reduction in the use of maladaptive parenting strategies, in comparison to a waitlist control. However, this study had several limitations, including a small sample ($N = 46$) and a design and intervention that specifically targeted parents who were in dual-partner relationships.

In the current study, we evaluated the feasibility, acceptability and real-world effectiveness of the Open Door's Approach to Parenting Teenagers (APT). The APT intervention is a six-session individual intervention, delivered in a face-to-face setting, which is specifically developed for parents of adolescents. Similarly to most internationally developed parenting programs (such as Strengthening families, Triple P Teen and PPAP), the APT intervention is significantly influenced by social learning and behavioral theories, which have a substantial evidence base (Chu et al. 2012). The intervention is further informed by attachment and psychodynamic theories. Furthermore, the APT is unique in its definition of adolescence. Whilst the majority of parenting interventions work with adolescents up to the age of 18 (Medlow et al. 2016; Petrie et al. 2007; Woolfenden et al. 2001), recent evidence suggests that the changes associated with adolescence extend into young adulthood (Jaworska and MacQueen 2015). Thus, the APT intervention was developed to work with parents of adolescents up to the age of 22. It has previously been shown that manualized interventions are associated with better treatment outcomes (Westen et al. 2004). The APT intervention was manualized in 2011 to include detailed descriptions of each session's goals and techniques, and considerations for sessions with couples or with the adolescent present in the consulting room (Jarvis et al. 2011). The APT intervention has demonstrated promising results in the past; a preliminary evaluation reported significant decreases in parental perception of adolescent distress and severity of difficulties, and significant reductions of parental stress (Jarvis 2005; Jarvis et al. 2011; Trevatt 2005). However, the intervention has not been formally evaluated since the manualization.

Traditionally, parenting interventions tend to focus on adolescent wellbeing and do not pay as much attention to

parental mental health and stress levels. However, a meta-analysis of 77 parenting programs (Nowak and Heinrichs 2008), has shown that the parent-child relationship is one of the most effective targets for improving both parent-child relations and child wellbeing. Consequently, the "patient" that is primarily targeted in the APT intervention, is the parent-child relationship. The APT intervention supports parents in re-establishing their relationship with their adolescent, through helping them to develop a more balanced approach to their perception of and behavior toward their adolescent. Although, similarly to other approaches, the APT model is informed by developmental theory, it also aims to provide specific behavioral and relational strategies and techniques that are relevant for a particular parent-adolescent relationship. Thus, the APT intervention aims to help the parent develop and apply their own "tailor made" strategies to their unique situation.

The current study is a preliminary, real-world evaluation of the manualized APT intervention with a sample of parents who presented with clinically significant levels of stress related to severe difficulties in parenting their adolescents. The current study analyzed data that is routinely collected at Open Door Young People's Consultation Service as part of standard clinical practice. Therefore, the study design was restricted by current service conditions and data analysis was adapted to fit the pre-existing recruitment conditions, outcome measures, and intervention. The aims of the study were as follows: to evaluate the feasibility of the intervention by measuring the dropout rate and to examine its relationship with clinical and demographic variables and manualization of the intervention; to evaluate the acceptability of the intervention; and to conduct a preliminary evaluation of the real-world effectiveness of the intervention for parents of adolescents up to the age of 22. We hypothesized that the intervention would: (a) demonstrate relatively low dropout rates; (b) be rated as satisfactory and helpful by parents who complete the program; and (c) be effective in reducing parent stress and improving the adolescent-parent relationship immediately post-intervention in parents of adolescents up to the age of 22.

Method

Participants

Participants were parents who consecutively self-referred or were referred to the Open Door Parenting Teenagers Project in North London from 2004 to 2016. Participants contacted Open Door on a voluntary basis and information about the research was then provided to them. Eligible parents had an adolescent aged 11 to 21, with at least one of the parents reporting levels of stress that fell into the clinically

significant or clinically severe range, as measured by the Stress Index for Parents of Adolescents (SIPA) Index of Total Parenting Stress (TPS). All parents consented to the study and completed the baseline measures. The Open Door ethics board reviewed the design, data collection and analysis processes and granted authorization to carry out the study, given that participants were experiencing the same intervention and evaluation procedures implemented in the standard clinical practice of the institution.

Measures

The following measures are used routinely at Open Door Young People's Services. These measures comply with reporting to trustees and adhere to regulations of the UK's Children and Young People's Improving Access to Psychological Therapies (CYP IAPT) national program.

Stress Index for Parents of Adolescents (SIPA)

Our primary outcome measure, SIPA, is a 112-item self-report questionnaire (Sheras et al. 1998) which assesses the parent's process of dealing with changes in their child's development as they move into adolescence. It is structured into three main domain scores: Adolescent Domain (AD); Parent Domain (PD) and Adolescent Parent Relationship Domain (APRD). The AD has 4 subscale scores: Moodiness/Emotional Lability (MEL), Social Isolation/Withdrawal (ISO), Delinquency/Antisocial (DEL) and Failure to Achieve or Persevere (ACH). The PD also has four subscales: Life Restrictions (LFR), Relationship with Spouse/Partner (REL), Social Alienation (SOC) and Incompetence/Guilt (INC). The APRD consists of 16 items and has no subscales. The Index of Total Parenting Stress (TPS) is a composite score computed from all items. Scores are then classified into broad ranges: normal, borderline, clinically significant and clinically severe: the higher the scores, the more likely they are to be in the clinical range. Internal consistency of the SIPA was established with a subscale reliability coefficient median of .88. The AD, PD, APRD and TPS were found to have internal consistency coefficients of 0.95, 0.94, 0.91 and 0.97 respectively. Test-retest reliability at a 4-week interval produced a subscale coefficient median of .84, with a test-retest reliability coefficient of 0.92 for the AD, 0.87 for the PD, 0.91 for the APRD and 0.93 for the TPS. Validity of the SIPA was established as the AD, PD, APRD and TPS were found to be significantly correlated with the Dyadic Adjustment Scale with $r = -0.50, -0.71, -0.79$ and -0.74 respectively, and with the Family Adaptability and Cohesion Evaluation Scales with $r = -0.33, -0.49, -0.57$ and -0.53 respectively. Furthermore, the TPS was found to be an effective screening measure to identify parents and adolescents with

relationship stressors, including an adolescent's DSM-IV diagnosis (Sheras et al. 1998).

Problem Perception Questionnaire (PPQ)

The Problem Perception Questionnaire is based on a measure devised by Austin et al. (1995) seeking to allow parents to describe the nature of the problem they were experiencing both before and after a treatment intervention. The items include four-point ratings of the severity, duration and distress caused by the problem. The first question was used as an evaluation measure in this outcome study. It was related to the severity of the problem and was coded on a 4-point Likert-scale from *very mild* to *very severe*. The second question was related to the level of distress caused by the problem which ranged from no distress to extreme distress. After the intervention parents also rated improvements and the factors to which they attribute those changes.

Current View Tool (CVT)

The CVT was initially developed by the UK's Children and Young People's Improving Access to Psychological Therapies (CYP IAPT) program (CAMHS EBPU 2012). This tool is a clinician report assessing 30 psychiatric diagnoses and adjustment factors (in a 4-point scale ranging from *none* to *severe*). It also records the presence/absence of 14 different complexity factors (e.g. "Looked-After Child", "Parental Health Issues", etc.). The CVT additionally records current education/employment status and contextual problems of the adolescent at home, at school/work, in the community and problems with service engagement (also scored on a 4-point scale from *none* to *severe*). The CVT's psychometric properties have not been extensively researched. However, preliminary analyses (Wolpert et al. 2015) indicate moderate intraclass correlation coefficients (.78). Given the scarcity of results supporting the CVT's reliability and validity, it will be only marginally used in this study and its results will be interpreted with caution.

Open Door's feedback

An ad-hoc measure for user satisfaction used routinely at Open Door was also analyzed. This is a general measure that this clinical service utilizes to receive feedback about the services from its users. It enquires about levels of satisfaction, on a 4-point Likert scale, about experiences with the administrative staff of the institution, about satisfaction in the contact with the clinician and the subjective feeling of satisfaction with the service received (regardless of the type of service: psychotherapy, parent training, evaluation, referral, etc.), and about satisfaction with the scheduling, convenience and length of appointments.

Design

This is a one-group pre-post clinic-based effectiveness trial. The sample was evaluated at the beginning of the treatment and then at the end of treatment (after the sixth session). Comparisons were then calculated within participants at those two time points. This design was adopted due to the real-world setting of the study.

Procedure

Before the first session, parents were asked to complete the pre-treatment questionnaire booklet including demographic information, the PPQ, and the SIPA. Therefore, any parent attending at least one appointment at Open Door would have filled a pre-treatment questionnaire booklet. At the end of the fifth session, the parent was asked to fill out the same booklet and a service satisfaction questionnaire.

Intervention

The Open-Door APT model works on a one-to-one or couple basis. The intervention offers 6 weekly 50-minute appointments, however, the frequency is adapted to the living conditions of the attending parent, to complete the 6 sessions. If a session is missed, that same session is rescheduled. Adolescents are invited to attend one to two of the sessions. The act of inviting the adolescent involves them in the consultation process and offers the therapist insight into current communication patterns between the parent and the adolescent. Further, joint sessions can provide the opportunity for meaningful dialog to occur between the parent and adolescent in a safe, containing environment, which can facilitate significant change in the parent-adolescent relationship. Therefore, therapists are instructed to encourage these sessions where appropriate. Adolescents are typically invited to attend session 4 or 5, however the intervention is designed to be flexible and adapt to parents' current needs.

The practitioners delivering the intervention have qualifications in psychotherapy or counseling and underwent training and supervision in the model. The aim of the APT approach is to help the parent manage the parenting of their adolescent more effectively and establish a more balanced relationship by: (1) Eliciting their views, feelings, and understanding of their adolescent and their relationship; (2) Discussing their parental identity and role; (3) Carefully examining communication, responses, and information giving; and (4) Supporting appropriate boundary making. During the intervention the therapist: (1) provides developmentally relevant psycho-educational information; (2) identifies dysfunctional patterns of behavior and perception; (3) helps the parent to find new ways of relating to their

adolescent; and (4) helps the parent to develop new behavioral and relational strategies. The intervention comprises three modules: (1) the first two sessions are devoted to establishing rapport, assessing difficulties, developing a focus and agreeing on treatment goals; (2) during sessions three, four and five, the parent and therapist address the issues and goals identified in the previous module. The therapist encourages the parent to try alternative parenting approaches by envisaging and putting into practice new behavioral and relational strategies; and (3) the final session includes a discussion of the outcome measures and reviewing objectives, expectations and results. A further optional review session is offered to the parent after a break. This intervention has been manualized (Jarvis et al. 2011) to include detailed descriptions of each session's goals and techniques, and considerations for sessions with couples or with the adolescent present in the consulting room. Therapists attended a weekly group supervision, in which therapists' adherence to the intervention was discussed and informally assessed using checklists for each session.

Data Analysis

Data was analyzed using SPSS 22. Completion of the intervention was defined by attendance at all 6 sessions and completion of both pre- and post-intervention questionnaires. Binary logistic regression was used to predict completion of the intervention or dropout. Proportion of dropouts was compared between the subsample who attended the APT program before its manualization to those who attended the intervention after its manualization. Parameters were basic demographic data in the first instance and then baseline scores on the PPQ and the SIPA. To evaluate service user satisfaction, frequency calculations were performed on relevant items of the PPQ and the Open Door Feedback measure. In the case of a second parent participating, analysis was performed on the referring parent's outcomes. To carry out outcome analyses using intent-to-treat analysis, missing data was imputed by carrying forward the last available value. Wilcoxon Signed-Ranks tests were used to compare parents' scores on the PPQ, and all the domains and sub-domains of the SIPA, at pre-treatment and at the end of treatment. Effect sizes were calculated following the suggestion of Rosenthal (1994) for nonparametric tests. Power for the analysis of outcomes was obtained *pot-hoc* using G*Power (Faul et al. 2007). Given our sample size ($N = 279$) power was observed to range from 0.90 to 0.99 when detecting effect sizes from 0.2 to 0.5, respectively. Group differences were further explored using multiple linear regression, which included possible covariates of change for the SIPA domains, including baseline scores and demographic variables seen to correlate with change. Lastly, given that the SIPA was administered

twice within a 6-week span, a statistic for reliable change was calculated for this measure's total score using the Reliable Change Index (RCI). The RCI specifies the amount of change an individual must show on a specific psychometric instrument between measurement occasions for that change to be considered reliable and therefore interpreted as potentially clinically significant (Jacobson and Truax 1991). The RCI is the sample average of the differences between individual pretest and posttest scores divided by the standard error of difference between the two test scores.

Results

Sample

Participants were 279 parents consecutively referred to the service and who received APT. The majority (85.7%) of the sample were mothers while 14.3% were fathers. The age range of the sample was 31–67 years ($M = 47.98$, $SD = 6.93$). About half (44.8%) of the sample lived with a romantic partner. 65% of the sample was White, followed by 15.2% Black, 4.4% Asian, 6.7% mixed ethnicity, and 8.9% other ethnicities. The age range of parents' adolescents was 11–22 years ($M = 15.3$ years, $SD = 2.12$). About half of adolescents (46.6%) were in mid-adolescence (15–17 years), whilst 38.3% were in early adolescence (11–14 years), and 15.2% were in late adolescence (18–22). 59% of adolescents were male and 41% were female Fig. 1 presents a chart of the total recruited sample, the sub-samples that received the pre-manualized and manualized interventions, and the drop-out numbers. Adolescent participation occurred in 12% of cases and a second parent attended in 16% of the cases. Adolescent participation or dual parent attendance had no significant impact on treatment outcome.

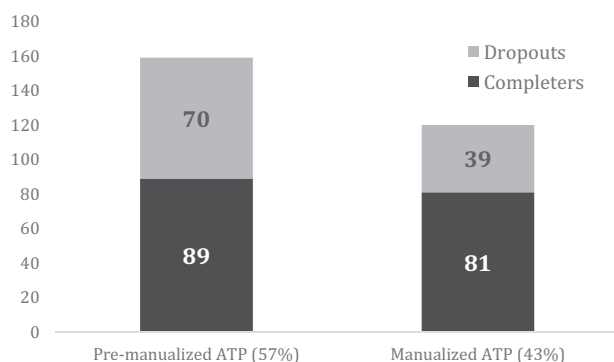


Fig. 1 Participant recruitment, type of intervention received, completers and dropouts. ATP: Open Door Approach to Parenting Teenagers

Feasibility and Acceptability of the Intervention

Dropout and completion analyses

Of the 279 parents who completed pre-intervention outcome measures, 170 completed the 6 sessions (60.9%) and filled out both pre- and end-of-treatment questionnaires. 109 parents (39.1%) did not attend for the entire length of the therapeutic intervention and did not complete end of treatment questionnaires.

Comparing completers and non-completers on pre-manualization and post-manualization status. Of the total sample ($N = 279$), 159 participants (57%) received the APT prior to manualization of the approach and 120 participants (43%) received the intervention once it was manualized. Further analysis reported a dropout rate of 44.0% before the intervention was manualized, which fell to 32.5% following manualization. No other significant differences were observed between samples preceding and following manualization therefore pre-manualization and post-manualization samples were combined for subsequent data analyses.

Comparing completers and non-completers on demographic characteristics. A binary logistic regression was run with parental gender, parental age, parental marital status (living with romantic partner v/s single), child gender, and child age entered as independent variables. The overall model was significant (Cox & Snell $R^2 = 0.111$, $\chi^2(3) = 18.55$, $p < 0.05$). Parental age and parental gender were significant predictors of completion of the intervention such that older parents showed a slightly increased probability of completing the six sessions in comparison to younger parents, and mothers were more likely to complete the full intervention than fathers (see Table 1).

Comparing completers and non-completers on PPQ and SIPA baseline scores. Total Scores on each SIPA domain, the SIPA Index of Total Parenting Stress (TPS) and the PPQ were included as predictors in the binary logistic regression. The overall model was not found to be significant with $R^2 = 0.004$, $\chi^2(5) = 0.988$, $p = 0.964$ and no variables were found to predict whether a parent would complete the intervention.

Acceptability

At the end of the intervention, 88.7% participants reported in the PPQ that they thought the changes achieved were due to the intervention. In the same line, a small questionnaire about service satisfaction was administered to a subsample of participants ($n = 181$). On this measure, 76.1% of

Table 1 Binary logistic regression assessing association between demographic data and completion or non-completion of the six-session model

	β	SE β	Wald's χ^2	p	e β (odds ratio)
(Constant)	2.633	1.310	4.036	0.045*	13.910
Parental gender	0.935	0.398	5.534	0.019*	2.548
Parental age	-0.077	0.023	11.560	0.001*	0.926
Parental marital status	-0.413	0.295	1.965	0.161	0.661
Child gender	-0.205	0.299	0.468	0.494	0.815
Child age	0.047	0.069	0.465	0.495	1.048

* $p < 0.05$

participants reported that the therapist was able to make them feel that they could deal with things more effectively. 87.5% of participants reported that the service helped them to think about their problems in new ways, and 72.6% reported that the service met their expectations. 90.7% reported that they were “Satisfied” or “Very Satisfied” with the number of sessions offered to them. 98.1% reported that they were “Satisfied” or “Very Satisfied” with the length of each appointment. Lastly, 96.7% of this subsample would recommend the APT intervention to other families.

Real-World Effectiveness of the Intervention

Comparing pre-treatment and end-of-treatment scores

This set of analyses consisted of comparisons between parents' scores on the PPQ and the SIPA domains and sub-domains at pre- and post-treatment time points. Given the nonparametric distribution of the variables the preferable statistical test was Wilcoxon Signed-Ranks tests. Significance threshold was adjusted by a Bonferroni correction, obtaining a threshold of $\alpha = 0.000714$ for rejection of the null hypothesis. As shown in Table 2, parents were significantly more likely to rate the problem as less severe and causing less distress on the PPQ following the intervention. Significant improvements were found in both PPQ and in the majority of subdomains, domains and the Index of Total Parenting Stress on the SIPA, with the exception of parents' social alienation and life restrictions. Significant effect sizes were all medium to large (see Table 2).

Clinical change

As shown in Fig. 2, fewer parents presented with clinically significant or clinically severe scores at the end of treatment. The Reliable Change Index (RCI) was calculated for the SIPA Index of Total Parenting Stress in these participants to account for the effects of the test being administered twice. Utilizing the published test-retest reliabilities (Sheras et al. 1998) for the total score, the RCI (for $p < 0.05$) indicated that 53.2% of the sample demonstrated a reliable positive

change, 40.3% showed no reliable change and 6.5% of the sample showed a reliable worsening.

Predictors of change

Change was calculated as the difference between baseline and end-of-treatment scores for the different SIPA domains. Predictors were selected from a correlation matrix that included the change scores of the SIPA domains and demographics, which were entered into a linear regression model. For the change in the SIPA Parent Domain, the model was significant ($F = 4.301$, $p = 0.004$; $R^2 = 0.498$). The only significant predictor of change was baseline score in SIPA-Parent Domain ($\beta = -8.592$, $p = 0.032$). Baseline score in the SIPA-Adolescent Domain was the only significant predictor for amount of change in most SIPA domains: SIPA Adolescent Domain ($F = 2.943$, $p = 0.015$; $R^2 = 0.09$; $\beta = 0.361$, $p < 0.001$), SIPA-Adolescent Parent Relationship Domain ($F = 4.282$, $p = 0.003$; $R^2 = 0.588$; $\beta = 0.255$, $p = 0.028$), and SIPA- Index of Total Parenting Stress ($F = 4.493$, $p = 0.003$; $R^2 = 0.509$; $\beta = 0.301$, $p = 0.017$). Parents reporting higher adolescent severity at baseline showed a steeper change across all domains. Other baseline results and parent and adolescent demographic characteristics were not significant predictors of change in SIPA domains.

Discussion

The current study evaluated the feasibility, acceptability, and real-world effectiveness of the APT intervention; an individualized, manualized approach for clinically-stressed parents of adolescents. The intervention endeavored to overcome the limitations of previous interventions and provide support to parents who are often most vulnerable to drop out. Further, the intervention aimed to reduce parenting stress and improve parenting skills, wellbeing, and parent-adolescent relationships as reported by parents in a clinic-based setting. Due to the naturalistic setting of the study, a one-group, pre-post evaluation design was adopted resulting in the absence of a control group. Therefore,

Table 2 Comparison of Parents' Scores on the PPQ and the SIPA between Pre-treatment and End-of-treatment Questionnaires

Variable	Mean	SD	Wilcoxon Signed Rank test (z)	Effect size (r)
Problem severity				
Baseline	1.77	0.616	-8.109*	0.45
Post-treatment	2.48	0.751		
Distress caused by problems				
Baseline	1.53	0.543	-8.525*	0.47
Post-treatment	2.25	0.713		
AD: Moodiness/emotional lability				
Baseline	40.85	5.376	-7.877*	0.43
Post-treatment	36.45	6.802		
AD: Social isolation/withdrawal				
Baseline	28.52	6.973	-5.15*	0.28
Post-treatment	26.41	7.042		
AD: Delinquency/antisocial				
Baseline	29.79	20.655	-6.089*	0.33
Post-treatment	25.58	8.145		
AD: Failure to achieve or persevere				
Baseline	36.74	6.349	-4.883*	-0.27
Post-treatment	35.04	6.973		
PD: Life restrictions				
Baseline	29.45	7.400	-3.128	0.17
Post-treatment	28.26	7.538		
PD: Relationship with Spouse/ Partner				
Baseline	27.02	7.430	-4.066*	0.22
Post-treatment	25.45	7.957		
PD: Social alienation				
Baseline	17.12	4.522	-2.069	0.11
Post-treatment	16.53	4.337		
PD: Incompetence/Guilt				
Baseline	28.34	5.203	-5.300*	0.29
Post-treatment	26.07	5.233		
AD Total				
Baseline	134.79	14.568	-7.806*	0.43
Post-treatment	123.39	19.358		
PD Total				
Baseline	101.9324	16.581	-5.197*	0.28
Post-treatment	96.4246	17.598		
APRD Total				
Baseline	52.74	9.447	-7.22*	0.39
Post-treatment	47.64	10.737		
Index of total parental stress				
Baseline	289.4593	22.969	-8.379*	0.46
Post-treatment	267.1427	33.347		

Z-statistics for the PPQ have been reversed (the PPQ indicates more problem severity and distress with lower scores) to match the direction of the SIPA (higher scores indicate more stress)

PPQ Problems Perception Questionnaire, *SIPA* Stress Index for Parents of Adolescence, *AD* Adolescent Domain, *PD* Parent Domain, *APRD* Adolescent-Parent Relationship Domain

*Statistically significant after Bonferroni correction; $p < 0.000714$

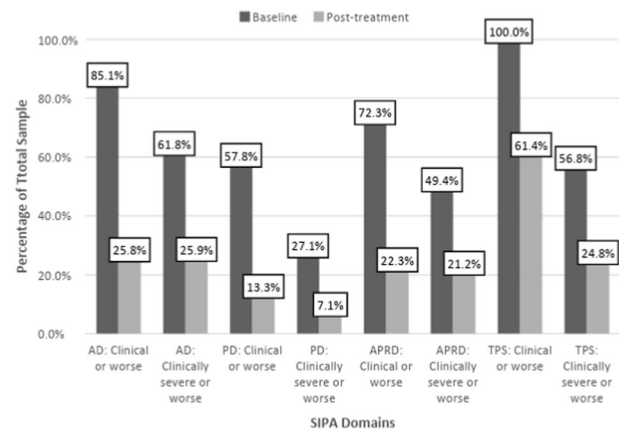


Fig. 2 Participants who were in the clinically significant or clinically severe classification of the SIPA and its subdomains at baseline and post-intervention. Note. The “clinical or worse” group includes participants in the “clinically severe” classification. SIPA Stress Index for Parents of Adolescence, AD Adolescent Domain, PD Parent Domain, APRD Adolescent-Parent Relationship Domain, TPS Index of Total Parental Stress

findings regarding the effectiveness of the intervention are limited and should be interpreted with caution. However, overall, findings from the current study suggest that the APT intervention is a promising treatment for parents of adolescents that requires further research to confirm its efficacy.

The first aim of the current study was to evaluate the feasibility of the APT intervention by measuring the dropout rate and examining its relationship with several variables. The drop-out rate in the current study is relatively low compared to other parenting interventions (Baruch et al. 2011; Boggs et al. 2005; Burke et al. 2012; Gross and Grady 2002; Salari et al. 2014), particularly when considering the complexities of the client group included in this study. The current study reported a 32.5% dropout rate, after manualization of the intervention. This is a lower dropout rate in comparison to rates reported for other well-established parenting interventions. For example, a meta-analysis of the Triple P intervention, that included interventions for both children and young adolescents reported dropout rates as high as 60% (Nowak and Heinrichs 2008). Furthermore, group interventions that specifically target parents of adolescents also report relatively high dropout rates; the ABCD Parenting Young Adolescents Program (Burke et al. 2012) and the Parenting with Love intervention (Baruch et al. 2011) report a 38 and 45% dropout rate respectively. Therefore, the lower dropout rate reported in the current study supports the suggestion that the APT intervention is a feasible and acceptable intervention for parents who may find it difficult to engage with and attend group-based programs.

Furthermore, in contrast to other parenting interventions that find it difficult to attract and maintain engagement with

parents who report high levels of stress in their own lives and who experience their children's difficulties as severe (Friars and Mellor 2009), the present study focused specifically on this hard to retain group of parents. Whilst the current study found that younger parents and fathers, were less likely to complete the APT intervention; a finding that is frequently observed in studies of parenting interventions (Kazdin 1990; Salari et al. 2014; Wierzbicki and Pekarik 1993), the severity of stress reported by parents, and the severity of adolescent difficulties as reported by parents, were not associated with completion of the intervention. This was also observed for single parents, who often report finding a group context difficult (Axford et al. 2012). In the current study, this subgroup of parents was able to maintain engagement and attendance in the APT intervention and reported similar improvements. This further supports the argument that APT represents a feasible and acceptable parenting intervention for parents who may find it difficult to engage with and attend group-based parenting interventions.

In relation to the second aim of the study, the majority of parents who completed the intervention rated it as a highly acceptable intervention. This supported our initial hypothesis that parents who completed the program would report higher ratings of satisfaction and helpfulness. Thus, for parents who find group interventions insufficient or difficult, and who do not find generalized advice relevant or helpful to their specific difficulties, the APT intervention may be a more suitable approach. The APT intervention focuses on the specific difficulties of the family and aims to restore the quality of the parent-adolescent relationship alongside addressing other targeted difficulties. Therefore, it can be argued that the individualized nature of the APT intervention is an acceptable approach for parents who are experiencing more severe difficulties relating to parenting. This is supported by the high ratings of satisfaction reported by parents who completed the program. The majority of parents who completed the intervention attributed changes to the intervention and over 90% would recommend the program to a friend, suggesting that these parents found the intervention satisfactory and helpful, as hypothesized. This further supports the argument that APT is an acceptable parenting intervention. Furthermore, the findings of the current study are promising as they indicate that there are ways to support hard to retain client groups with a relatively short intervention. This is often an important consideration for services where clinical resources are limited.

In relation to the evaluation of real-world effectiveness of the APT intervention, as hypothesized, the current study found that the APT intervention was associated with a reduction in both stress associated with parenting as well as the overall levels of stress as reported by parents. Further, the intervention was associated with a significant

improvement in the quality of the adolescent-parent relationship according to parent report. The relatively low dropout rate and high ratings of acceptability reported in the current study may have contributed to these significant findings. The significant statistical findings and medium-to-large effect sizes in the current study are consistent with previous meta-analyses of parent trainings (e.g., Lundahl et al. 2006), supporting the effectiveness of parenting interventions. Therefore, the APT intervention appears to be an effective intervention for reducing parent stress and improving the adolescent-parent relationship. However, due to the absence of a control group the findings regarding the effectiveness of the intervention are limited and should be interpreted with caution.

Prior research has shown that manualized programs, which are connected to empirically supported theories, are associated with better treatment outcomes. This may be due to the standardization of the intervention, which minimizes variability, and consequently ensures consistent delivery of effective components (Westen et al. 2004). In line with this research, the lower dropout rate (32.5%) observed following the manualization of the APT intervention may be explained in a similar way. No differences were observed in outcomes between parents who received the APT intervention before and after manualization, which suggests that the manual accurately captured the essential components of the intervention.

The majority of parenting interventions work with adolescents up to the age of 18 (Medlow et al. 2016; Petrie et al. 2007; Woolfenden et al. 2001), however, the APT intervention works with parents of adolescents up to the age of 22. This is consistent with neurological research which suggests that adolescent development continues into the mid-twenties (Jaworska and MacQueen 2015; Johnson et al. 2009). There is limited research evaluating parenting interventions for parents of adolescents who are over 18. However, in the current study, the outcomes of the APT intervention were equally effective for parents of adolescents in the upper end of the adolescent age group (18 – 22 years). This suggests that the flexible nature of the APT approach allows for appropriate developmental adjustment and may be suitable for services working with parents and young adults beyond the age of 18.

Limitations and Future Research

The majority of community-based parenting interventions rely on pre- and post-intervention assessment of participants due to practical and financial difficulties in recruiting matched comparison groups (Moran et al. 2004), and ethical reservations associated with denial of service (Ghate 2001). Due to the clinic-based setting of the current study and the

associated practical and ethical factors, a one group, pre-post design was adopted. Therefore, the main limitations of the current study are the absence of control group and follow-up. Consequently, the current study findings can only be categorized as level 2 evidence out of a possible five, as described by Scientific Maryland Scale (SMS; Farrington et al. 2002). Therefore, while this study addresses a gap in the research of individualized, manualized parenting interventions for parents of adolescents, and despite the large sample size and promising findings, the lack of a control group means that any interpretations about the efficacy of the APT intervention are limited and speculative in nature. Future research of the APT intervention should take into account this limitation and examine the efficacy of the intervention using a randomized controlled trial (RCT) with a waitlist control group and further examine whether the immediate treatment gains of this promising approach are sustained at later follow-ups. Additionally, the APT intervention should be comprehensively examined in comparison to other established interventions for parents of adolescents.

Due to working with parents whose adolescents were often reluctant to engage with services, the present study used parent and parent-adolescent relationship focused outcomes assessed through parent self-report. Multiple studies demonstrate that one of the strongest predictors of adolescent wellbeing is the quality of parenting they receive (DeVore et al. 2005; Montemayor 1986; Smokowski et al. 2015). There is considerable evidence suggesting that improvement in parental stress, parenting quality and parent-adolescent relationships closely corresponds with an improvement in adolescent behavior, internalizing and externalizing symptoms (Baruch et al. 2011; Conger et al. 1995). It is therefore reasonable to speculate that the improvement in parents' stress levels, as well as an overall improvement in the quality of the adolescent-parent relationship observed in the current study may also correspond with an improvement in adolescent wellbeing. However, as the current study did not capture adolescent outcomes, this speculation about the indirect impact of the APT intervention on adolescent wellbeing is limited and warrants further research. Further, some studies suggest that reports from young people and parents about emotional and behavioral problems are not always in agreement (Achenbach et al. 1991; Kolko and Kazdin 1993). Therefore, in order to fully understand the impact of the APT intervention on adolescent wellbeing, future studies should utilize adolescent report measures at pre-, post-treatment and follow-up time-points in addition to parent report measures. Additionally, as engagement is a central issue with adolescent client groups, future research should endeavor to tackle any potential barriers to engagement. Technological advances offer a promising avenue for increasing accessibility and

improving participation in both research and clinical practice.

Additionally, both adolescent and dual parent participation were low in the current study. It is possible that these factors may influence participation and treatment outcomes. However, low participation consequent insufficient power prevented exploration of these factors in sufficient detail. Future research should endeavor to examine the impact of these factors on study outcomes in greater detail.

Conclusion

The current study's main objective was to evaluate the feasibility, acceptability, and real-world effectiveness of the APT intervention; a promising individualized, manualized intervention that fills an important gap in existing parenting programs. The present study has several qualities that contribute to the growing body of literature supporting parenting interventions for adolescence, including a large sample size, the naturalistic setting of the study, the inclusion of parents from broader demographics than are typically included in parenting research, the ability to engage parents who are highly stressed and who typically have low levels of engagement, and the evaluation of a parenting intervention for parents of adolescence, which are limited in their number. Despite limitations in study design, the current findings suggest that the APT intervention is feasible and effective in retaining parents who may have difficulty engaging with and attending parenting interventions. Further, findings indicate that parents find the APT intervention acceptable and beneficial. Finally, the APT intervention was associated with significant reductions in parent stress and improvements in parent-adolescent relationships, as reported by parents, which suggests that the APT intervention is a promising treatment option for clinical practice that requires further research to fully establish its efficacy. Within national healthcare systems, a stepped-care model of delivery for parenting interventions with a greater variety of choice would be a cost-effective approach to provide the right type of care to parents in need of support, with families offered both group and individually based interventions. The current findings suggest that the APT intervention is a promising intervention that could address the current gap of individually based parenting interventions. This study adds to the strong empirical evidence that parenting programs are highly effective in changing parenting behavior, and that there is a need for evidence based, adolescent-specific interventions, as well as for systems to disseminate and implement such programs (Sandler et al. 2015).

Author Contributions All authors contributed to the study conception and design. All authors read and approved the final manuscript.

Compliance with Ethical Standards

Conflict of Interest The authors declare that they have no conflict of interest.

Ethical Approval The Open Door ethics board reviewed the design, data collection and analysis processes and granted authorization to carry out the study, given that participants were experiencing the same intervention and evaluation procedures implemented in the standard clinical practice of the institution. All procedures performed in studies involving human participants were in accordance with the ethical standards of the Open Door ethics committee and with the 1964 Helsinki declaration and its later amendments or comparable ethical standards.

Informed Consent Informed consent was obtained from all individual participants included in the study.

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