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# “I’m not here to push you:” raising adolescents’ treatment engagement via autonomy support

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## ABSTRACT

More than 45% of adolescents with aggressive behavior problems drop out of treatment prematurely. Building on insights from self-determination theory, we examined in three studies whether clinicians can raise adolescents’ treatment engagement by supporting their autonomy. In an interview study (Study 1), clinicians ( $N = 16$ ; 43.8% female; ages 30–57) spontaneously described 12 times more autonomy-supportive than controlling strategies to engage adolescents. In a preregistered experiment (Study 2), clinicians ( $N = 68$ ; 88.2% female; ages 23–65) were confronted with videos of adolescents displaying resistance. We manipulated the DSM diagnosis of adolescents to indicate either aggressive behavior problems or other problems. We found that, regardless of diagnosis, clinicians used both autonomy-supportive strategies (57.7% of responses) and controlling strategies (39.3%), suggesting that applying autonomy support can be challenging with any adolescent displaying resistance. In an experimental study (Study 3), adolescents ( $N = 252$ ; 50.0% female; ages 12–17) reported higher therapeutic alliance ( $d = 0.95$ , 95% CI [0.80, 1.10]) and treatment engagement ( $d = 0.77$ , 95% CI [0.63, 0.91]) after listening to audio-recorded autonomy-supportive versus controlling responses from clinicians, regardless of whether these adolescents had aggressive behavior problems. Overall, this research suggests that clinicians can raise adolescents’ treatment engagement through autonomy support.

## 1. Introduction

Treatment resistance, or the refusal to cooperate with mental health treatment, is a key barrier to effective treatment of aggressive behavior problems in adolescence (Beutler et al., 2018; Westra & Norouzian, 2018). Adolescents may evade questions, refuse to talk, become angry, and ultimately terminate treatment (O’Keeffe et al., 2018; Westra & Norouzian, 2018). In fact, over 45% of adolescents drop out of treatment prematurely, with even higher rates for adolescents with aggressive behavior problems (De Haan et al., 2013). Untreated aggressive behavior problems can have profound consequences—including school dropout, unemployment, delinquency, and substance abuse—and induce high costs to individuals and society at large (Lochman & Salekin, 2003; Moffitt et al., 2002; Romeo et al., 2006). How can clinicians raise treatment engagement in adolescents with aggressive behavior problems? Bridging clinical science with self-determination theory, we examined whether clinicians can raise adolescents’ treatment engagement by supporting their autonomy. We report three studies—an interview study and two experimental studies—to address this question.

### 1.1. What do treatment-resistant adolescents need?

Adolescents have a strong need for autonomy (Dahl et al., 2018; Yeager et al., 2018): They strive to develop their own identity, make their own choices, and be independent from figures of authority. This striving may be thwarted in treatment, when an adult assumes the role of an authority figure, while most adolescents do not enter treatment voluntarily; they are often referred by their parents, school, or the justice system (De Haan et al., 2013). This need for autonomy may be even stronger in adolescents with aggressive behavior problems. In fact, adolescents with aggressive behavior problems often display defiant behavior or resistance to authority (American Psychiatric Association, 2013). This suggests that supporting adolescents’ autonomy is a critical means to improve treatment engagement in adolescents with aggressive behavior problems.

The potential benefits of autonomy-supportive treatment approaches can be understood through the lens of self-determination theory (Ryan & Deci, 2008). Self-determination theory poses that autonomy is an innate psychological need: In order to thrive, individuals need to experience

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that they can self-determine their behavior (Ryan & Deci, 2000). Consistent with this principle, scholars have argued that autonomous motivation is critical to treatment engagement and success (Ryan et al., 2016). Research within self-determination theory has identified several specific autonomy-supportive strategies, such as acknowledging clients' perspectives, offering choices, minimizing pressure, and providing a meaningful rationale for suggestions and requests (Ryan & Deci, 2008; Ryan et al., 2011).

Emerging research suggests that autonomy support may indeed improve adolescents' treatment engagement. Adolescent clients indicate being more engaged with treatment when they experience autonomy (e.g., being treated as equals, having choices; Binder et al., 2011; Gibson et al., 2016; Lavik et al., 2018). Observations of youth psychotherapy sessions show that, conversely, adolescents tend to be less engaged with clinicians who use controlling strategies, such as failing to acknowledge adolescents' emotions, pressing for information, criticizing, or misunderstanding adolescents' perspective (Karver et al., 2008). Yet, these findings are correlational, so it is possible that clinicians simply use more controlling strategies in response to adolescents' lack of engagement (Stiles, 2009). Experimental research is needed to establish causality.

One experiment has shown that adolescents with behavior problems appreciated a brief clinical workshop more if the clinician used autonomy-supportive strategies (i.e., providing rationale, choice, and empathy; Savard et al., 2013). Additional causal evidence stems from experiments in educational, parenting, and health settings. For example, supporting autonomy enhances students' engagement in school tasks or sports (for a review, see: Reeve & Cheon, 2021), phrasing a parental request in a controlling way evokes resistance in adolescents (Van Petegem et al., 2015), and framing certain behaviors as consistent with the value of autonomy encourages adolescents to engage in those behaviors (e.g., Bryan et al., 2016, 2019). We built on this work by experimentally testing the effects of clinician autonomy support on adolescent treatment engagement.

### 1.2. How do clinicians deal with treatment-resistant adolescents?

Although autonomy-supportive strategies are thought to raise adolescents' treatment engagement, it may be challenging for clinicians to use these strategies, especially when they are faced with resistance. Indeed, controlling approaches have been commonly observed in youth psychotherapy (Creed & Kendall, 2005; Karver et al., 2008). This could help explain why treatment dropout among adolescents with aggressive behavior problems is so high (De Haan et al., 2013). Clinicians report that resistance may evoke feelings of guilt, helplessness, or frustration (Westra et al., 2012). Such feelings may even be stronger when treating adolescents with aggressive behavior problems: Merely knowing that a client has been diagnosed with a behavior disorder can be enough to evoke negative feelings in clinicians (Shachner & Farber, 1997). This suggests that clinicians may be less likely to use autonomy-supportive strategies when treating adolescents with aggressive behavior problems. We examined this idea empirically.

### 1.3. The present studies

In three studies, we investigated whether adolescents' treatment resistance can be improved through autonomy support. We addressed this question by zooming in on clinicians' beliefs and practices, as well as by pinpointing the causal effect of autonomy support on adolescents. Study 1 was a qualitative interview study to explore whether clinicians spontaneously describe autonomy-supportive and controlling strategies to engage adolescents with aggressive behavior problems in treatment. Study 2 was a preregistered experiment to examine clinicians' spontaneous autonomy-supportive and controlling responses to videos of resistance shown by adolescents with or without aggressive behavior problems, and to test whether clinicians would be more controlling in

response to resistance by adolescents with aggressive behavior (versus other) problems. Study 3 was a within-subjects experiment to test the causal effects of autonomy support on adolescents' treatment engagement. We involved adolescents with and without aggressive behavior problems, and we examined their self-reported and behavioral treatment engagement in response to audio recordings of clinicians' autonomy-supportive versus controlling responses. We expected that autonomy support would raise adolescents' self-reported and behavioral treatment engagement, and that effects would be largest for adolescents with aggressive behavior problems and those with higher levels of trait resistance. We expected no gender differences, as autonomy is a universal need in adolescence (Chen et al., 2015).

### 1.4. Ethical approval, transparency and openness

Study 2 and 3 were approved by the Ethics Board of the Faculty of Social and Behavioral Sciences of Utrecht University (Study 2: #19-011; Study 3: #21-0074). Study 1 was ruled exempt because it concerned adult participants, entailed no risks or burden, and did not include experimental manipulations or deception. All studies were carried out in accordance with the provisions of the Declaration of Helsinki, except that Study 1 and 3 were not preregistered. Participants in all three studies provided informed consent for their participation and publication of the findings.

For each study, we report how we determined our sample size, all data exclusions (if any), all manipulations, and all measures in the study (Simmons et al., 2011). Study 2 was preregistered at: <https://osf.io/9btxz>. Study 3 was not formally preregistered, but we obtained ethics approval of the study plan, hypotheses, and planned analyses before data collection (our research proposal is available at: <https://osf.io/dsf74/>). Study 1 was not preregistered because it was an explorative interview study. For each study, we made all data, materials and code publicly available via the Open Science Framework (Van Dijk et al., 2023). In our Supplemental Material, we provide additional details on our method, analyses, pilot research, and gender differences.

## 2. Study 1

Study 1 was a qualitative interview study to examine to what extent clinicians spontaneously generate autonomy-supportive and controlling strategies to engage adolescents with aggressive behavior problems in treatment.

### 2.1. Method

#### 2.1.1. Participants

Participants were 16 trained clinicians (43.8% female; 62.5% self-identified as Dutch) ages 30–57 ( $M = 42.90$ ,  $SD = 7.92$ ) who provided the aggression regulation intervention "TACT" to Dutch adolescents referred through the justice system (Albrecht & Koppenberg, 2019). They had provided this intervention for 1–4 years ( $M = 2.50$ ,  $SD = 1.37$ ) and had worked with adolescents with aggressive behavior problems for 1–25 years ( $M = 9.53$ ,  $SD = 7.71$ ). They had a bachelor's degree (75.0%) or higher degree (25.0%). All clinicians provided active consent to participate in this study.

#### 2.1.2. Procedure

Semi-structured interviews were conducted in Fall 2018. We emailed all clinicians ( $N = 33$ ) providing TACT in one Dutch organization and scheduled interviews with interested clinicians one-by-one until we found that additional interviews yielded the same themes as the interviews before that (i.e., saturation; Guest et al., 2006). The interviews were conducted by a female research assistant with a BA in psychology (but no background knowledge on autonomy support) who had no previous relationship with the interviewees. She conducted the interviews in a location chosen by the clinician (most often their office or a

canteen). Interviews lasted for about 45 min and addressed adolescents' engagement in treatment (e.g., their motivation, attitude, reasons to participate), as derived from theory on treatment motivation (Drieschner et al., 2004). Here, we focus on the part of the interview where we asked two open-ended questions about what clinicians considered do's and don'ts to engage adolescents in treatment. This part of the interview took between 3 and 14 min ( $M = 7.30$ ;  $SD = 3.18$ ) and was transcribed for all verbal speech (i.e., denaturalized transcription; Oliver et al., 2005).

2.1.3. Coding

Interview fragments were coded to detect strategies to engage clients. A strategy was defined as "any visible action that can be used or avoided to promote adolescents' engagement." The first author and three trained research assistants (called assistants A, B, and C) coded the interviews using content analysis (Hsieh & Shannon, 2005). The first author was familiar with autonomy theory; the research assistants were not. Hence, the first author guided the content analysis, whereas the research assistants ensured replicability of the designed coding system. We used a five-step approach. First, assistants A-C divided the transcripts into fragments. Fragments consisted of one sentence, except when one sentence contained several strategies (e.g., in summaries) or when several sentences were used to describe one strategy (e.g., in examples and anecdotes). In those cases, a fragment consisted of one strategy. Second, assistants B and C independently coded whether fragments contained a strategy (1) or no strategy (0). Inter-coder reliability was good ( $\kappa = 0.83$ ). Discrepancies were resolved by the first author. Third, assistant A assigned content labels to all fragments coded as strategy. This yielded 204 labels. The first author thematically combined these into 37 unique strategies, which were then named and defined in a coding scheme (see Supplemental Material 1). Fourth, assistants B and C applied this coding scheme to all fragments coded as strategy, without seeing the assigned labels. Inter-coder reliability was good ( $\kappa = 0.91$ ). Discrepancies were resolved by the first author. Fifth, assistant A and the first author independently coded the 37 strategies as autonomy support, control, or neither, using definitions based on self-determination theory (Ryan & Deci, 2008; see Supplemental Material 1). Inter-coder reliability was good ( $\kappa = 0.82$ ). Discrepancies (10.8%) arose for the category neither and were resolved by creating a fourth category: unclear, indicating that strategies could be either autonomy-supportive or controlling, depending on how clinicians would use them. Thus, we created a large database of autonomy-supportive and controlling strategies.

2.1.4. Analyses

We used Bayesian statistics in JASP version 0.16 (JASP Team, 2021). The Bayesian approach is more informative than traditional p-value testing because it directly quantifies the amount of support for the hypothesis of interest, instead of merely indicating whether the null hypothesis can be rejected or not (Hojtink et al., 2019). For example, if we test whether clinicians generate more autonomy-supportive than controlling strategies, a Bayes factor of  $BF = 10$  would indicate that this difference is 10 times more likely than the null hypothesis of no difference. Higher Bayes Factors indicate stronger support for the hypothesis, whereas Bayes Factors below 1 indicate support for the null hypothesis. To estimate the strength of effects, we calculated Cohen's d with 95% confidence intervals, also using JASP.

2.2. Results

When asked how they engage adolescents in treatment, clinicians more often referred to autonomy-supportive strategies ( $M = 12.06$ ,  $SD = 6.50$ , range = 5–25) than to controlling strategies ( $M = 1.00$ ,  $SD = 1.90$ , range = 0–7),  $d = 2.08$ , 95% CI [1.19, 2.96]. A Bayesian dependent t-test showed that this mean difference was over 30,000 times more likely than no difference,  $BF = 31,992.52$ . Overall, clinicians mentioned 17

autonomy-supportive strategies, including: "avoiding judgment" (mentioned by 68.8% of clinicians), "rolling with resistance" (50.0%), "acting as equals" (43.8%), "showing empathy" (43.8%), "avoiding rigid use of protocols" (43.8%), and "adapting the treatment to adolescents' needs" (43.8%). They mentioned 3 controlling strategies to engage adolescents in treatment: "being strict" (25.0%), "being directive" (12.5%), and "trying to convince them" (12.5%). Clinicians also mentioned 13 general therapeutic strategies, coded as neither, including: "showing interest" (75.0%), "creating a positive atmosphere" (62.5%), and "building a relationship" (56.3%). Last, clinicians mentioned 4 strategies that we coded as unclear, because their autonomy-supportive versus controlling effect depends on how clinicians would use them. That is, clinicians could use "reinforcement" (43.8%) to express regard versus promote desired behavior; "set boundaries" (43.8%) in a structuring versus controlling way; "elaborate on resistance" (37.5%) to understand versus disqualify the resistance; and "ignore resistance" (31.3%) by switching topics versus just continuing. Table 1 shows example statements of clinicians; all strategies with examples can be found in Supplemental Material 1.

2.3. Discussion

Study 1 reveals that clinicians working with adolescents with aggressive behavior problems embrace autonomy support as a viable strategy to enhance adolescent treatment engagement. However, it is not clear whether clinicians would actually use such strategies in treatment—for example, when they are confronted with an adolescent's resistance. Study 2 examined clinicians' spontaneous responses to resistance.

3. Study 2

Study 2 was a within-subjects experiment to examine clinicians' actual responses to client resistance. We asked clinicians to respond to videos of adolescents showing resistance. We recorded their responses

**Table 1**  
Clinician Statements Describing Autonomy-Supportive and Controlling Strategies

Strategy type	Example statements [and assigned strategy]
Autonomy-supportive	<p>If someone tells me, "Yo, listen, I don't feel like this at all." Then I think there should be room for that. [rolling with resistance]</p> <p>If a boy says: "Yeah, but I'm not aggressive." Then you shouldn't say: "Okay, well, but you are in treatment, right?" No, then you start a battle that you lose anyway. [avoiding confrontations]</p> <p>So you have to be able to put yourself in the shoes of youth, in their worlds, you know, even though you've been out that phase for a long time. Just try to put yourself in there. [showing empathy]</p> <p>Well when I had completed my training, I was very much in the process. This is what is expected of me (...). Then within half an hour I actually found out that: &lt;Own Name&gt;, you have a wonderful content here, but you don't have a connection with this youth at all". [avoiding rigid use of protocols]</p> <p>I tell them: "I'm not here to push you into something. See what you can get out of this for yourself." [emphasizing freedom of choice]</p>
Controlling	<p>I stick to the rules. That means that if they don't participate or come late, I report it to their justice agent. I just do what I have to do. [being strict]</p> <p>Don't ask too much. Because if I'm going to ask: "Shall we practice that?" he will say: "I'd rather not". [being directive]</p> <p>What you really have to do is, you know, explain or do some sort of advertising. like "Hey, by practicing this you will know how you're going to feel". [trying to convince them]</p>



(which were later content-coded as autonomy-supportive versus controlling), and we showed them autonomy-supportive and controlling responses and asked whether they endorsed those. The adolescents in the videos were described to have either Oppositional Defiant Disorder (ODD) or Social Anxiety Disorder (SAD), which enabled us to investigate whether clinicians would be more inclined to use and endorse controlling strategies when treating adolescents with aggressive behavior (versus other) problems. We measured clinician's self-efficacy, which enabled us to investigate whether clinicians with lower levels of self-efficacy would be more inclined to use and endorse controlling strategies in response to resistance of adolescents with aggressive behavior (versus other) problems.

### 3.1. Method

#### 3.1.1. Participants

Participants were 68 trained clinicians (88.2% female; 98.5% self-identified as Dutch) ages 23–65 ( $M = 37.06$ ,  $SD = 11.12$ ) providing therapy to Dutch youth referred to mental healthcare. Their experience working with youth with aggressive behavior problems varied from less than a year to 22 years ( $M = 5.39$ ,  $SD = 6.16$ ). All clinicians had a master's degree and most worked as a cognitive-behavioral therapist (82.4%). They provided active consent to participate in this study (consent rate: 100%). A priori power analysis indicated that we needed a sample size of  $N = 27$  to detect a medium effect ( $d = 0.50$ ; power = .80) of DSM diagnosis on clinicians' responses (Shachner & Farber, 1997). However, we collected more data to paint a comprehensive picture of how clinicians differ in their qualitative responses to resistance. We stopped data collection on a set date, before we conducted any analyses.

#### 3.1.2. Procedure and measures

Data collection was conducted in 2019 and 2020 by 5 research assistants with a BA in psychology. They recruited clinicians through the alumni network of their university and scheduled a 30-min visit at clinicians' workplace or home, individually. They informed clinicians about the study, asked their formal consent, and provided instructions to start the experiment: "You will view short videos of interactions between a therapist and adolescent. Please imagine that you are the therapist and that you are having this conversation yourself. If the text "please respond" appears, please respond verbally as you normally would in such situations." Experimenters then gave clinicians a laptop (with one folder opened that had the videos in the correct order for the clinician's assigned condition), turned on the audio recorder and left the room.

**Resistance Videos.** Clinicians opened the videos in the presented order. They first practiced with a 30-s video of a therapist interacting with a depressed girl. Once they were accustomed to the procedure, they continued with two 30-s videos, each of an adolescent showing resistance (presented in counterbalanced order across clinicians). Three Dutch 14-year-old adolescents (two girls, one boy) from a theater group acted as clients. The first author acted as the therapist, seen from the back. In both videos, the therapist asked whether clients had practiced a therapy exercise at home. One video concerned a relaxation exercise (starring the girl actor); the other concerned an anger recognition exercise (starring the boy actor). Clients displayed an attitude of indifference and said they had not done the exercise—a common display of resistance at this age (Westra & Norouzian, 2018). The script of the anger recognition video was:

T: Last week we decided that you would write down every day how you felt, using those thermometers, remember?

C: Yes ... (laid back, no eye contact)

T: I am curious how it went?

C: ... (silence, shrugs shoulders)

T: Tell me? Did you manage to use one of those thermometers?

C: Nothing happened last week.

T: No ... ?

C: I'm doing fine, you know. I didn't use that thermometer stuff.

Then the text cue "please respond" appeared and clinicians responded to the client as they normally would in such situations. Afterwards, clinicians rated the two videos as similar in realism (relaxation video:  $M = 74.60$ ,  $SD = 15.29$ ; anger recognition video:  $M = 71.81$ ,  $SD = 17.83$ ;  $BF = 0.58$ ) and displayed resistance ( $M = 57.81$ ,  $SD = 17.02$ ;  $M = 59.31$ ,  $SD = 18.54$ ;  $BF = 0.17$ ), rated on a scale from 0 (not at all) to 100 (highly). They reported that they could engage with the videos ( $M = 4.96$ ,  $SD = 0.95$ ), rated on a Likert scale from 1 (not at all) to 7 (totally). This engagement scale consisted of three items assessing whether clinicians felt engaged, identified with the therapist, and responded as they normally would. We averaged across the three items ( $r_{\text{mean inter-item}} = 0.31$ ).

**Within-Subject Manipulation of DSM Diagnosis.** Each video was introduced by a short case description including the adolescent's DSM diagnosis: Oppositional Defiant Disorder (ODD) or Social Anxiety Disorder (SAD; control condition; Supplemental Material 2). The manipulated DSM diagnosis was counterbalanced across videos.

**Coding of Spontaneously Used Autonomy-Supportive Versus Controlling Strategies.** Two trained coders and the first author coded clinician's audio-recorded responses to each video on a Likert scale from 1 (controlling) to 7 (autonomy-supportive). Controlling responses were defined as: "The clinician does not accept that the adolescent may choose not to do the exercise; emphasizes that the exercise is very important; pushes the adolescent to do the exercise; and does not give the adolescent room to share his/her opinion." Autonomy-supportive responses were defined as: "The clinician accepts that the adolescent may choose not to do the exercise; emphasizes that the exercise should fit the adolescent; does not push the adolescent to do the exercise; and gives the adolescent room to share his/her opinion." These definitions were based on Self-Determination Theory (Ryan & Deci, 2008) and the Motivational Interviewing Skill Code (Miller et al., 2008), and were specified using examples (Supplemental Material 2). Coders started each recording at a score of 4 (neutral) and shifted their rating more towards one pole or another as they heard more extreme expressions of either autonomy support or control. We adapted this coding procedure after the preregistration, using a scale rather than separate categories, and using examples relevant to the resistance videos rather than only a global definition. Inter-coder reliability was good ( $r = 0.81$ ). Discrepancies were resolved through discussion.

After recording clinicians' spontaneous responses to the two resistance videos, the experimenter returned and asked clinicians to fill out questionnaires.

**Endorsed Autonomy-Supportive Versus Controlling Strategies.** First, we presented clinicians with 5 autonomy-supportive strategies (e.g., asking the adolescent: "In what way would the exercise work for you?") and 5 controlling strategies (e.g., telling the adolescent: "Our conversations only work if you also take your responsibility"), developed in consultation with two trainers in Motivational Interviewing. Clinicians rated their endorsement of these strategies for each video on a scale from 1 (bad response) to 7 (good response). Factor analysis using 2 orthogonal factors revealed that only 3 autonomy-supportive items loaded sufficiently on one factor (loadings 0.39, 0.66 and 0.87), whereas all 5 controlling items loaded on the other factor (loadings 0.72-0.82; see Supplemental Material 2 for all items and loadings). We averaged across these 3 and 5 items to index endorsed autonomy-supportive strategies ( $\alpha = 0.56$ ) and endorsed controlling strategies ( $\alpha = 0.84$ ), respectively.

**Self-Efficacy.** Next, we assessed clinicians' self-efficacy to treat adolescents with aggressive behavior problems who show resistance. Clinicians rated the Session Management scale of the Client-Specific Counselor Activity Self-Efficacy Scales (CASES-S; Lent et al., 2006), applied to the client in the ODD video. They rated their confidence to use 10 therapy skills (e.g., "Know what to do or say next after your client talks") on a scale from 0 (no confidence) to 9 (complete confidence). We

averaged across items ( $\alpha = 0.87$ ).

Finally, we asked clinicians to rate the perceived realism and resistance for each of the videos, rate their overall engagement with the videos, and provide demographic information. The experimenter then debriefed clinicians about the study goal and asked them whether we could use their audio-recorded responses for Study 3 (91.4% written consent).

### 3.1.3. Analyses

As in Study 1, we used JASP version 0.16 (JASP Team, 2021) to calculate Bayes Factors and effect sizes. To assess how often clinicians spontaneously generated autonomy-supportive and controlling strategies, we dichotomized our content-coded scores so that scores 1–3 were controlling and 5–7 autonomy-supportive. We used Bayesian dependent *t*-tests to examine whether clinicians endorsed autonomy-supportive strategies more so than controlling strategies, and whether they used more controlling strategies for clients diagnosed with ODD (versus SAD). To test whether these differences were larger for clinicians with lower self-efficacy, we used Bayesian linear regressions predicting difference scores between the ODD versus SAD condition from clinicians' self-efficacy.

## 3.2. Results

### 3.2.1. Data screening

We found no outliers (all *z*-scores were  $<3.29$ ). Most dependent variables were normally distributed (*z*-scores for skewness and kurtosis below 1.96). If variables were somewhat non-normal (i.e., *z*-scores ranged up to 2.27), we reran the analyses using nonparametric Bayesian tests. These analyses yielded the same conclusions (Supplemental Material 2), and so we report the parametric results. Due to recording issues, response data were missing for three therapists for both videos ( $n = 1$ ) or for one video ( $n = 2$ ). All other data were complete (i.e., 98.8%). We used pairwise deletion to deal with missing values.

### 3.2.2. Clinician's use and endorsement of autonomy-supportive versus controlling strategies

When they spontaneously responded to videos of adolescents displaying resistance, clinicians used autonomy-supportive strategies (57.7% of responses) more often than controlling strategies (39.3%). Yet, more than half of the clinicians (58.2%) used controlling strategies for at least one of the two videos. Table 4 shows transcribed autonomy-supportive and controlling responses from clinicians.

When clinicians afterwards evaluated possible strategies, they endorsed autonomy-supportive strategies ( $M = 4.29$ ,  $SD = 0.93$ ) more than controlling strategies ( $M = 2.73$ ,  $SD = 1.13$ ),  $d = 1.03$ , 95% CI [0.73, 1.32]. A Bayesian dependent *t*-test showed that this difference was over 2 billion times more likely than no difference,  $BF = 2,835,000,000$ . Unsurprisingly, clinicians who had spontaneously used only autonomy-supportive strategies, endorsed autonomy-supportive strategies more than controlling strategies,  $d = 1.43$ , 95% CI [0.89, 1.95],  $BF = 343,074$  (for descriptive statistics of this analysis, see Supplemental Material 2). Strikingly, even clinicians who had

spontaneously used controlling strategies, endorsed autonomy-supportive strategies more than controlling strategies,  $d = 0.80$ , 95% CI [0.43, 1.15],  $BF = 1,414$ , but less strongly so.

### 3.2.3. Effects of DSM diagnosis and self-efficacy

**Manipulation Check.** Most clinicians (88.2%) correctly remembered the DSM diagnosis for both videos. Others instead mentioned depression, which was the diagnosis for the practice video ( $n = 5$ ); mentioned ASS instead of SAD ( $n = 1$ ); or provided no answer ( $n = 2$ ). We reran the analyses excluding these eight participants and found the same pattern of results (Supplemental Material 2).

**Main Analyses.** In contrast to our hypotheses, clinicians' spontaneous use and endorsement of autonomy-supportive and controlling strategies did not depend on the DSM diagnosis of the adolescent in the videos (Table 2). Bayesian dependent *t*-tests yielded Bayes Factors below 1, indicating that the null hypothesis (i.e., no difference in responses between DSM diagnoses) was more likely. Moreover, clinicians' self-efficacy to use therapy management skills with the adolescent from the ODD video ( $M = 6.14$ ,  $SD = 1.10$ ) did not moderate effects of DSM diagnosis on clinician's spontaneously used strategies ( $BF = 0.27$ ), endorsed autonomy ( $BF = 0.30$ ) or endorsed control ( $BF = 0.25$ ).

### 3.2.4. Sensitivity analyses

We repeated the analyses excluding: (a) clinicians who guessed the study goal ( $n = 5$ ); (b) reported low engagement with the video task (i.e., score  $<4$ ;  $n = 9$ ), (c) mentioned the DSM diagnosis in their response so that coders were not blind ( $n = 5$ ); (d) reported a larger than 1 *SD* difference in perceived resistance between the two videos ( $n = 13$ ) or did not complete the resistance ratings ( $n = 6$ ); or (e) encountered assessment issues (i.e., rushed due to tight schedule, hearing or visual impairment;  $n = 3$ ). We found the same pattern of results (Supplemental Material 2).

## 3.3. Discussion

Whereas Study 1 revealed that clinicians proposed many autonomy-supportive strategies to enhance adolescents' treatment engagement, Study 2 revealed that—when confronted with adolescents showing resistance—more than half of the clinicians spontaneously used controlling strategies. This effect was independent of whether adolescents had an aggressive behavior disorder or clinicians felt self-efficacious. This study shows that although clinicians may verbally indicate that autonomy support is the most effective strategy to enhance treatment engagement, and although they may recognize the value of autonomy-supportive strategies when they are presented to them, they may still spontaneously use controlling strategies in the heat of the moment. Study 3 therefore examined the effects of using autonomy-supportive versus controlling strategies on adolescents' engagement.

## 4. Study 3

Study 3 was a within-subjects experiment to test the causal effects of clinicians' autonomy-supportive versus controlling strategies on

**Table 2**

Means (*M*) and standard deviations (*SD*) on study 2 dependent variables for the ODD and SAD videos separately, and effect sizes (*d*) and bayes factors (*BF*) for the tested contrasts.

	ODD	SAD	Within-Subjects Contrast		
	<i>M</i> ( <i>SD</i> )	<i>M</i> ( <i>SD</i> )	<i>d</i>	95% CI	<i>BF</i>
Spontaneous autonomy vs. control <sup>a</sup>	4.38 (1.96)	4.67 (1.90)	−0.19	[−0.04, 0.06]	0.41
Endorsed autonomy <sup>b</sup>	4.33 (1.00)	4.25 (1.01)	0.11	[−0.13, 0.35]	0.18
Endorsed control <sup>b</sup>	2.77 (1.22)	2.70 (1.14)	0.10	[−0.14, 0.34]	0.20

*Note.* Data were missing on spontaneous strategies for ODD ( $n = 3$ ) and SAD videos ( $n = 1$ ).

<sup>a</sup> Coded as: 1 = controlling, 7 = autonomy-supportive.

<sup>b</sup> Rated as: 1 = bad, 7 = good response.

**Table 3**

Demographic characteristics, self-reported ODD symptoms, therapy experience, and attitude towards therapy for adolescents in special and regular education.

	Statistic	Special	Regular	$d^a$	95% CI	BF
Age	$M (SD)$	14.42 (1.24)	13.65 (0.92)	0.75	[0.47, 1.03]	56,744
Boy	$n (%)$	57 (78.1)	53 (31.0)	1.14	[0.79, 1.50]	2.22e9
Identified as Dutch	$n (%)$	26 (35.6)	130 (76.0)	-0.96	[-1.29, -0.64]	377,071
Self-reported ODD	$M (SD)$	0.70 (0.42)	0.61 (0.44)	0.20	[-0.07, 0.48]	0.41
Received therapy	$n (%)$	55 (75.3)	86 (49.4)	0.63	[0.29, 0.96]	199.78
Therapy attitude	$M (SD)$	4.38 (1.84)	4.88 (1.46)	-0.32	[-0.60, -0.04]	1.66

Note. ODD scores ranged between 0 and 2; higher scores indicate higher symptom levels. Therapy attitude scores ranged between 0 and 7; higher scores indicate more positive attitudes.

<sup>a</sup> We calculated Cohen's  $d$  for dichotomous outcomes using the Practical Meta-Analysis Effect Size Calculator (Lipsey & Wilson, 2001).

**Table 4**

Fragments from the audio recordings of autonomy-supportive and controlling responses.

Autonomy-supportive responses	Controlling responses
1. <i>Hmm, yes. I can imagine that; you are busy and now you also have to fill out those things for me. Actually, it's probably not much fun to come here, and you already have enough on your mind. (...)</i>	<i>(...) I also see from your attitude that you found it quite difficult to fill in that thermometer. So, I would like to ask you to start working on that this week. Because if you don't do the homework assignments during a treatment, it is also difficult for me as a therapist to take steps with you.</i>
2. <i>(...) I only want to do things that make you feel like you're up for it or you're behind it. Because I can propose a lot, but if it doesn't suit you, you are not motivated to do it either. (...)</i>	<i>Well, I think you should do it anyway. We have now agreed on it, and then we can see very well what is going well and what we still need to work on. (...)</i>

adolescents' treatment engagement. We asked adolescents with and without aggressive behavior problems to listen to audio-recorded clinician responses from Study 2 that were either autonomy-supportive or controlling, and to rate their expected treatment engagement for each recording. Next, to test whether autonomy support may also affect adolescents' behavioral treatment engagement, we used a between-subjects experiment with the same participants. We asked adolescents to participate in a bogus therapy exercise introduced using autonomy-supportive versus controlling instructions. We assessed their treatment engagement as the number of words written for the exercise. We expected that autonomy support would raise adolescents' expected and behavioral treatment engagement, and that effects would be larger for adolescents with (versus without) aggressive behavior problems and for those with higher levels of trait resistance.

#### 4.1. Method

##### 4.1.1. Participants

Participants were 252 adolescents ages 12–17 ( $M = 13.88$ ,  $SD = 1.08$ ). They reported their gender through a survey: "I am a ... boy (45.1%), girl (50.0%), other (1.6%), or prefer not to tell (3.3%)." When asked about their cultural background, 63.9% self-identified as Dutch, 10.6% as Dutch and other, 5.3% as Moroccan; 4.9% as European other than Dutch, and 15.3% as other. We recruited adolescents from two regular high schools ( $n = 179$ ) and one high school providing special education to Dutch adolescents referred for severe aggressive behavior problems ( $n = 73$ ). In the Netherlands, adolescents are only referred to this kind of special education if they have severe disruptive behavior problems (e.g., fighting, truancy, theft). All schools provided preparatory vocational education—a below-average education level in the Netherlands. In our sample, adolescents from special education, compared to regular education, were more likely to be older, identify as non-Dutch, and have received therapy (Table 3). They were also more likely to identify as boy, representing the higher prevalence of

aggressive behavior problems among males (American Psychiatric Association, 2013). They were not likely to differ on their attitude towards therapy (assessed using the 4-item Attitude scale of the Therapy Attitudes and Process questionnaire;  $\alpha = 0.88$ ; Clough et al., 2017) or on self-reported ODD (assessed using the 5-item ODD syndrome scale of the Youth Self Report;  $\alpha = 0.67$ ; Achenbach & Rescorla, 2001). In fact, self-reported ODD scores were low in both groups, which may reflect that adolescents tend to underreport aggressive behavior problems (De Los Reyes et al., 2011).

We asked passive consent from parents (regular education: 94.2%; special education: 100%) and active consent from adolescents (97.9% and 77.8%, resp.). The initial sample was  $N = 268$ . Before running any analyses, we excluded data of adolescents who quit the study before they had heard all audio-recorded responses ( $n = 6$ ) or gave suspicious responses (e.g., rating all items with the same score;  $n = 10$ ). Of the 20 adolescents who dropped out after our main assessment of treatment engagement, we used their available data in the analyses (see Supplemental Material 3 for more details on data inspection and dropout). A priori power analysis at 0.80 indicated that we needed a sample size of  $N = 34$  to obtain medium effects of clinicians' autonomy-supportive versus controlling responses on adolescents' treatment engagement (Savard et al., 2013; Van Petegem et al., 2015) and  $N = 158$  to obtain medium interaction effects with aggressive behavior problems and trait resistance. We oversampled to account for study dropout and possible low consent rates.

##### 4.1.2. Procedure and measures

Data collection was conducted at schools in spring 2021 by the first author and 3 research assistants with a BA in psychology. Sessions lasted 30–40 min. We presented all study instructions, manipulations, and measures through a digital survey. Adolescents completed the survey independently on a laptop with earphones, supervised by the researcher (individually in a separate room in special education; in class in regular education). Adolescents read: "This is a study about psychologists. A psychologist helps people by talking with them. Youth visiting a psychologist sometimes get an assignment to do at home. However, they won't always do this assignment. How does the psychologist respond to that? And what do you think of this response? That's what this study is about."

**Within-Subjects Manipulation of Autonomy-Supportive versus Controlling Responses.** Adolescents saw two pictures representing the relaxation and anger recognition assignments from Study 2, preparing them for the clinicians' responses they would hear next. They then listened to 8 audio-recorded responses (4 autonomy-supportive and 4 controlling), presented in random order. We selected these recordings from Study 2 because they: (a) had high scores on autonomy support or control in Study 2 and (b) clearly differentiated in adolescents' experienced autonomy in our pilot study ( $n = 42$ ; Supplemental Material 3). The recordings lasted between 10 and 54 s ( $M = 29.50$ ,  $SD = 14.73$ ) and came from 6 female and 2 male clinicians (spread equally across conditions). Table 4 shows example responses for both conditions (see Supplemental Material 3 for all transcribed responses). After each audio recording, adolescents rated their expected therapeutic alliance and

treatment engagement with the clinician.

**Expected Therapeutic Alliance.** We assessed expected therapeutic alliance, an important dimension of treatment engagement (Tetley et al., 2011), using the 4-item Session Rating Scale (Duncan et al., 2003). We adapted the last item to apply to the just-heard response, instead of “today’s session.” Adolescents rated the items on an analogue scale from 1 to 11 (e.g., “The psychologist’s approach [is not/is] a good fit for me”). We created average scores across items for each recording ( $0.90 < \alpha < 0.95$ ), and then averaged these scores across the autonomy-supportive ( $\alpha = 0.60$ ) and controlling recordings ( $\alpha = 0.78$ ).

**Expected Treatment Engagement.** We created a 4-item scale to assess expected treatment engagement, reflecting the dimensions of attendance, homework completion, and contribution to therapy sessions (including self-disclosure and other activities; Tetley et al., 2011). Adolescents rated what they would do if this was their therapist on an analogue scale from 1 to 11. Items were: “I [would not/would] ... 1) do the assignments; 2) keep going to this psychologist; 3) share personal stuff; 4) participate seriously.” We created average scores across items for each recording ( $0.91 < \alpha < 0.95$ ), and then averaged these scores across the autonomy-supportive ( $\alpha = 0.76$ ) and controlling recordings ( $\alpha = 0.83$ ).

**Trait Resistance.** After completing the audio fragments, adolescents rated their trait resistance using the Hong Psychological Reactance Scale (Shen & Dillard, 2005). They rated their agreement with 11 items (e.g., “I resist the attempts of others to influence me”) on a scale from 1 (totally disagree) to 5 (totally agree). We averaged across items ( $\alpha = 0.85$ ).

Next, adolescents completed measures that were not relevant for our research questions but provided important sample descriptives: (a) ODD symptoms; (b) received therapy and demographics; and (c) attitude towards therapy. We also included two optional open-ended questions asking adolescents’ advice to clinicians about good and bad ways to respond to client resistance, which we used only to give adolescents space to share their opinions.

**Between-Subjects Manipulation of Autonomy-Supportive versus Controlling Strategies.** Next, adolescents participated in a between-subjects experiment within the same survey to assess the effects of autonomy support versus control on their behavioral treatment engagement. We invited adolescents to try a newly developed therapy exercise, which we called an “app”. The instructions were: “One last thing: One of the psychologists you just heard has developed a new app for youth. Click here to hear which psychologist this was: <audio recording>. Now, you can go the app: <hyperlink>.” The link referred them to a bogus therapy writing exercise, presented as a separate webpage in different layout.

We manipulated autonomy support ( $n = 120$ ) versus control ( $n = 122$ ; randomly assigned) in two ways. Neither participants nor experimenters were aware of the assigned condition, which was randomized by the digital survey. First, we manipulated which clinician allegedly developed the exercise by re-playing an autonomy-supportive versus controlling audio recording (Table 4, line 1), selected based on pilot

**Table 5**  
Manipulated instructions for the bogus therapy exercise.

Autonomy-supportive instructions	Controlling instructions
This app is about what you find important in life. If you take it seriously, you will get to know yourself better. That way you can make good choices for yourself.	This app is a writing assignment. Please fill it out seriously. You should always try to do your best on these kinds of assignments.
It’s your story. There are no right and wrong answers. You can just write it in your own way. The more you write down, the better you get to know yourself. Good luck!	Make sure you write it down as clearly and neatly as possible. It is important that you take this assignment seriously. Try to write down as much as possible. Do your best!

work (Supplemental Material 3). Second, we manipulated the exercise itself. We used an existing self-affirmation writing assignment, which is known to increase prosocial feelings and behaviors (Thomaes et al., 2012). This assignment asks adolescents to write about the things they value in life, choosing two or three values from a list (e.g., being athletic, being independent, living in the moment). We adapted the instructions surrounding this exercise to manipulate autonomy-support versus control (Table 5).

**Behavioral Treatment Engagement.** We assessed behavioral treatment engagement as the number of words written in the exercise (note that instructions in both conditions asked adolescents to write much). We simply counted the number of words, with two exceptions. First, we counted 0 for responses that did not follow instructions ( $n = 5$ ; e.g., “bbbbbj,” or “I don’t want to do this”). Second, we counted 1 word for values copied from the list (e.g., “living in the moment” counted as 1; see Supplemental Material 3 for case-by-case word counts). The word count varied from 0 to 242 ( $M = 24.51$ ;  $SD = 38.90$ ), with only 5.4% of adolescents using more than 100 words ( $z_{skewness} = 16.14$ ).

Finally, we asked adolescents why they thought they were asked to do the app, and the experimenter debriefed them. One adolescent guessed the goal of the app; findings were the same when we excluded her data (Supplemental Material 3).

4.1.3. Analyses

We again used JASP version 0.16 (JASP Team, 2021) to calculate Bayes Factors and effect sizes. We used Bayesian dependent *t*-tests to examine whether adolescents expected a stronger therapeutic alliance and stronger treatment engagement for autonomy-supportive versus controlling responses. We used a Bayesian independent *t*-test to examine whether adolescents who received the autonomy-supportive versus controlling therapy exercise showed stronger behavioral treatment engagement. We used Bayesian (mixed) ANOVAs to test whether these effects were larger for adolescents with aggressive behavior problems (i.e., adolescents referred to special education versus attending regular education) or higher levels of trait resistance.

4.2. Results

4.2.1. Data screening

Half of the variables were not normally distributed (i.e., *z*-scores  $> 1.96$  for skewness or kurtosis; see Supplemental Material 3 for descriptive statistics and correlations between all Study 3 variables). We found 12 outliers ( $z > 3.29$ ). Conclusions were the same when we ran nonparametric tests or excluded outliers (Supplemental Material 3). We therefore report the parametric tests including outliers. Data were mostly complete (i.e., 99.2%), except for  $n = 2$  scores on trait resistance and  $n = 12$  scores on behavioral treatment engagement, because these adolescents quit before they reached that part of the digital survey. We used pairwise deletion to deal with missing values.

4.2.2. Gender differences

We disaggregated the data by gender (Supplemental Material 3) and examined differences between participants who identified as boy or girl. We found no evidence for gender differences on study variables (all *BFs*  $< 1$ ), expect that girls wrote on average 31 words for the behavioral engagement exercise, whereas boys wrote 16 ( $BF = 9.70$ ). The study findings were not moderated by gender.

4.2.3. Within-subjects effects of autonomy-supportive versus controlling clinician responses

Adolescents reported a stronger expected therapeutic alliance with clinicians whose audio-recorded responses were autonomy-supportive ( $M = 8.16$ ,  $SD = 1.70$ ) versus controlling ( $M = 6.22$ ,  $SD = 2.23$ ),  $d = 0.95$ , 95% CI [0.80, 1.10]. Similarly, their expected treatment engagement was stronger for autonomy-supportive ( $M = 7.91$ ,  $SD = 2.09$ ) versus controlling responses ( $M = 6.41$ ,  $SD = 2.49$ ),  $d = 0.77$ , 95% CI



[0.63, 0.91]. These differences were extremely likely, with Bayes Factors over a trillion ( $BF = 4.71e33$  and  $BF = 1.53e24$ , respectively).

#### 4.2.4. Between-subjects effect of autonomy-supportive versus controlling therapy exercise

Our hypothesis on behavioral treatment engagement was not supported. Although the mean number of words adolescents wrote for the exercise seemed to differ between adolescents who had received the autonomy-supportive ( $M = 19.38$ ,  $SD = 35.72$ ) versus controlling instructions ( $M = 29.35$ ,  $SD = 41.34$ ),  $d = 0.26$ , 95% CI [0.01, 0.51], the Bayes Factor was below 1 (i.e.,  $BF = 0.94$ ), indicating that the null hypothesis of no difference between conditions was more likely. There was a large amount of variance around the mean in both conditions, suggesting the apparent difference between conditions was due to random variation.

#### 4.2.5. Moderation by aggressive behavior problems and trait resistance

Results did not support our hypothesis that the effects of autonomy support versus control were stronger for adolescents with aggressive behavior problems (i.e., special versus regular education). Bayesian (mixed) ANOVAs showed that such moderation effects were highly unlikely for expected therapeutic alliance,  $BF = 0.15$ , expected treatment resistance,  $BF = 0.53$ , and behavioral treatment resistance,  $BF = 0.53$ . Similarly, moderation by trait resistance was unlikely for all three outcomes (i.e.,  $BF = 1.09$ ,  $BF = 3.08$ , and  $BF = 0.06$ , respectively).

## 5. General discussion

Across three studies, we investigated whether adolescents' treatment engagement can be improved through autonomy support. We examined how autonomy support is perceived and used by clinicians, and whether autonomy support is successful in enhancing adolescent treatment engagement. Study 1 showed that, when asked how they typically engage adolescents with aggressive behavior problems in treatment, clinicians mentioned autonomy-supportive strategies 12 times as often as controlling strategies. Thus, clinicians embrace autonomy support as a viable strategy to enhance adolescent treatment engagement. However, Study 2 suggests that it can be challenging for clinicians to use autonomy support in the heat of the moment. In this preregistered experimental study, more than half of the clinicians responded with controlling strategies to at least one video of an adolescent showing treatment resistance. Their use of controlling strategies, however, was not stronger for adolescents with aggressive behavior (versus other) problems, suggesting that controlling responses may be easily elicited by any adolescent showing resistance. Yet, when clinicians were later asked what strategies they would endorse, they more strongly endorsed autonomy-supportive than controlling strategies—even clinicians who had just used controlling strategies themselves—showing that Study 2 clinicians also saw autonomy support as the preferred response to treatment resistance. Study 3 supported clinicians' intuition. This experiment showed that, when exposed to autonomy-supportive (versus controlling) clinician responses, adolescents reported higher levels of expected therapeutic alliance and treatment engagement, regardless of their trait resistance or whether they had aggressive behavior problems. However, this effect was not stronger for adolescents who had aggressive behavior problems or higher levels of trait resistance. Effects of autonomy support did not generalize to our behavioral engagement task. Overall, autonomy support seems an effective, yet challenging, strategy to raise adolescents' treatment engagement.

### 5.1. Theoretical implications

Adolescence is a life phase in which youngsters seek separation and individuation from parents and other adults (Church, 1994; Erikson, 1950). Unsurprisingly, then, providing treatment to adolescents can be challenging: When adolescents feel that they have no influence on the

course of treatment, or that clinicians do not respect their views, they may be less inclined to take treatment seriously (Yeager et al., 2018). Our research suggests that clinicians may successfully engage adolescents if they manage to align their practices with adolescents' needs, in particular autonomy. The benefits of supporting adolescents' autonomy have been described and experimentally tested by research on self-determination theory, showing, for example, that autonomy support enhances adolescents' engagement with school tasks and reduces resistance to parental requests (Reeve & Cheon, 2021; Van Petegem et al., 2015). Intervention research suggests that health interventions may be more effective if they harness adolescents' need for autonomy (Bryan et al., 2016, 2019). The present paper provides the first causal evidence that autonomy support raises adolescents' expected treatment engagement.

Our findings show that clinicians recognize the benefits of autonomy support, yet often use controlling strategies when faced with adolescents displaying treatment resistance. It may be hard for clinicians to follow through on their intentions in the heat of the moment. According to psychoanalytical theory, challenging behavior of clients may evoke countertransference responses in clinicians, including feelings of anger, frustration, helplessness, and a need to regain control (Church, 1994; Westra et al., 2012). When clinicians perceive adolescents' resistance as rejection of their well-meant advice, rather than as a developmentally appropriate response, such feelings may be inevitable (Church, 1994). This suggests that it may be important to help clinicians (1) recognize early signs of resistance in adolescents, (2) acknowledge their own emotional response to the resistance, (3) understand why their current approach may violate adolescents' autonomy, and (4) resort to autonomy-supportive strategies instead (Miller & Rollnick, 2012; Westra et al., 2020).

Contrary to our hypotheses, our results show that clinicians were not more likely to use controlling strategies when responding to an adolescent with aggressive behavior problems (versus an adolescent without such problems). A previous study found that clinicians reported more negative feelings for clients with aggressive behavior problems (Shachner & Farber, 1997). Our results suggest that such effects may not generalize to clinicians' behavioral responses to such clients: although clinicians correctly remembered whether adolescents had aggressive behavior problems, their degree of autonomy support did not differ between adolescents. Similarly, our results show that autonomy support raised therapeutic alliance and treatment engagement, regardless of whether adolescents had aggressive behavior problems or high levels of trait resistance. These findings align with experimental evidence showing that autonomy-supportive parental request were more effective than controlling ones, regardless of whether adolescents were high in trait resistance (Van Petegem et al., 2015). Last, our results were not moderated by gender. Thus, autonomy-supportive strategies may be relevant in the treatment of all adolescents, which aligns with developmental theories stressing that autonomy is a central adolescent need (Dahl et al., 2018; Erikson, 1950).

Clinicians' autonomy support raised adolescents' expected therapeutic alliance and treatment engagement, but it did not raise their behavioral treatment engagement. Why not? For one, a single autonomy-supportive or controlling response might not be enough to affect adolescents' behavioral engagement. Consistent with this idea, meta-analytical evidence shows that the therapist-client relationship assessed by the end (versus at the start) of treatment is more predictive of treatment outcomes (Shirk & Karver, 2003). In addition, it is possible that our task to measure behavioral engagement was imperfect. We assessed behavioral engagement by indexing the number of words adolescents wrote for a bogus therapy exercise. We presented our task as "one last thing" at the end of our study, suggesting that the exercise was not central. Indeed, the average number of written words was rather low (i.e., 19 and 29 words in the autonomy-supportive and controlling conditions, respectively). Future studies may present the exercise as the primary study goal, or use a different research method, such as

observations of adolescents' engagement in a real or simulated treatment setting.

## 5.2. Strengths, limitations, and future directions

Our research extends previous work by showing, for the first time, that clinicians' autonomy support causally effects adolescents' expected treatment engagement. Our studies have important methodological strengths. They were highly powered; they used Bayesian analyses that do not suffer from Type I error inflation, they included clinicians as well as adolescents; they included adolescents with and without aggressive behavior problems; and they used a diverse set of methods, including interviews, observations, and experimental manipulations. By including adolescents referred for severe aggressive behavior problems, we now know that the effects of autonomy support also apply to this clinically challenging population (Hanna et al., 1999).

Our studies also had limitations. First, Study 2 asked clinicians to respond to videos of adolescents displaying resistance, imagining they were the therapist in the video. We did so to create a standardized context to measure clinicians' controlling and autonomy-supportive responses. One possibility is that clinicians would respond in more controlling ways to actual in-treatment resistance than to our videos, because they are more emotionally involved in face-to-face interactions with their own patients (Westra et al., 2012). Another possibility is that clinicians responded in more controlling ways to our videos than they normally would to actual in-treatment resistance, because our videos only displayed resistance, making the resistance salient. Second, Study 3 assessed adolescents' expected therapeutic alliance and engagement immediately after they listened to audio-recorded responses of clinicians. An important challenge for future work is to examine whether adolescents would be more engaged with clinicians using autonomy-supportive strategies during their actual, ongoing treatment. Such studies could, for example, provide a clinical workshop in both autonomy-supportive and more controlling ways (Savard et al., 2013) and assess adolescents' engagement using a therapy exercise, or simulate therapy interactions in virtual reality to manipulate clinician behaviors and assess effects on adolescents' observed engagement.

Our work also generates new research directions. One important direction is to identify barriers to clinicians' autonomy-supportive strategies. Given that clinicians endorse autonomy-supportive strategies, it seems crucial to understand which factors may prevent them from putting these strategies into practice. For example, clinicians may experience pressure from within their organization to swiftly complete their treatments, or they may feel morally compelled to "make" clients change (Ryan & Deci, 2008). Another direction is to examine potential individual differences in adolescents' responses to autonomy-supportive strategies. Although autonomy may be a universal need in adolescence (Chen et al., 2015), different autonomy-supportive strategies may be effective for different adolescents. Similarly, scholars and clinicians increasingly recognize the importance of tailoring therapeutic strategies to clients' characteristics, preferences, and readiness to change (Norcross & Wampold, 2011). Clinicians in Study 1 described 17 autonomy-supportive strategies and provided hundreds of examples. Arguably, some approaches will better align with some adolescents than with others, and the effects of therapeutic strategies may depend on how they are implemented. For example, in general, providing structure tends to raise adolescents' engagement by enhancing their sense of competence (Ryan & Deci, 2008), but doing so during the very first session may not, possibly because it feels forced and gives adolescents the impression that the therapist is not truly interested in their experiences (Jungbluth & Shirk, 2009). Studies using high-frequency measurements over the course of treatment are needed to examine differences in individuals' engagement trajectories and to identify possible person-level triggers causing drops or raises in adolescents' resistance levels (Laurenceau et al., 2007).

## 5.3. Conclusion

Our research shows that clinicians embrace autonomy support as a strategy to resolve treatment resistance, and that adolescents expect to experience better therapeutic alliance and treatment engagement when clinicians treat them in autonomy-supportive ways. These findings have important implications for treatment effectiveness, as youth who experience a better alliance with their therapist tend to benefit more from treatment (Karver et al., 2018; McLeod, 2011). To reduce treatment dropout among adolescents, it will be critical to support clinicians in implementing their autonomy-supportive strategies.

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## CRediT authorship contribution statement

**Anouk van Dijk:** Conceptualization, Methodology, Formal analysis, Investigation, Writing – original draft, Preparation, Writing – review & editing. **Eddie Brummelman:** Methodology, Writing – review & editing. **Bram Orobio de Castro:** Conceptualization, Methodology, Writing – review & editing.

## Declaration of competing interest

The authors declare no competing interest.

## Data availability

All data, materials and code are publicly available via the Open Science Framework: <https://osf.io/ds74/>

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## Appendix A. Supplementary data

Supplementary data to this article can be found online at <https://doi.org/10.1016/j.brat.2023.104304>.

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