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A Pilot Study of an Attachment-Based Parenting Intervention for Parents of Adolescents in China: Translation, Modifications, and Preliminary Effectiveness

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ABSTRACT

Adolescent mental health problems have increased internationally, and over one-quarter of Chinese adolescents—approximately 40 million teens—have reported significant mental health problems in recent years. This study tailored and evaluated the acceptance, uptake, and effectiveness of *Connect*, a brief manualized trauma-informed and attachment-based parenting program, for Mandarin-speaking families in Beijing, China. 30 parents (aged 36–50 years, $M_{age} = 44.6$, $SD = 3.2$; 83.3% mothers, 16.7% fathers) of youth aged 10–16 years ($M_{age} = 13.4$, $SD = 1.5$; 50.0% female) were enrolled in a single-arm pilot study with preprogram and postprogram assessments of youth mental health, parental functioning, and quality of parent–child relationships. Careful translation was necessary to retain program nuances and meaning, including references to Chinese idioms and poems to enhance cultural meaning. Program modifications included tailoring role plays to reflect culturally relevant domains of parent–youth conflict, direct prompting of parents in reflection exercises and discussions, and a deeper emphasis on empathy in parent–child relationships. These modifications enhanced rather than diminished core program fidelity within this cultural context. Program enrolment, attendance, retention, and parents' feedback revealed strong program acceptance and perceived cultural fit. Parents also reported significant reductions in youth internalizing and externalizing problems, youth-to-parent and parent-to-youth physical and psychological aggression, parent depressed mood, and parenting strain. The findings align with previous randomized clinical trials and implementation studies of *Connect* across diverse countries, contexts, and clinical populations. Replication is required with larger samples, randomized designs, and using parent and youth measures to sensitively capture the quality of parent–child relationships.

Lin Bao and Anna Kristen shared first co-authorship and contributed equally to this article. They both have the right to list their name first in their CV.

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1 | Introduction

The prevalence and severity of adolescent mental health problems are growing concerns internationally. The period of adolescence involves significant biological, psychological, and social development and is an especially vulnerable period for the development of mental health problems (Rapee et al. 2019). In fact, over 70% of mental health disorders emerge before age 25 (Solmi et al. 2022). Decades of research have identified the quality of the parent–child relationship as a key transdiagnostic target for preventing the onset or reducing the severity of adolescent mental health problems (Bosmans and Borelli 2022). However, most attachment-based parenting interventions are designed for parents of younger children (Grube and Liming 2018; Juffer et al. 2018). Few effective attachment-based parenting interventions for parents of adolescents are available, and services for adolescents and their families are difficult to access.

Alongside the increased mental health vulnerability that occurs during adolescence, this developmental period brings about unique challenges in the parent–child relationship. Adolescence is a critical stage for developing autonomy and exploring self-concept, as teens navigate the transition from childhood to adulthood. This period is often marked by increased social risk-taking, emotional fluctuations, and a shift from parental influence to a greater reliance on peers—all of which introduce new challenges in parent–teen dynamics. Importantly, adolescence is associated with heightened conflict in the parent–child relationship, as well as increased parenting stress (Branje 2018; Moed et al. 2015). The elevated emotional, relational, and developmental demands on parents put them at greater risk for mental health issues themselves (Kochanova et al. 2022; Wilkinson et al. 2013). Attachment-based parenting interventions aim to strengthen attachment security, enhance parental sensitivity and responsiveness, and support parents in successfully navigating adolescence with their child. Furthermore, strengthening attachment security in the parent–teen relationship can enhance other facets of parent and child functioning, such as improved parent and youth mental health, reduced parenting stress, and less parent–teen conflict. Therefore, attachment-based approaches designed to address the unique challenges of adolescence could be highly beneficial in supporting both teens and their families.

Attachment-based parenting interventions provide transdiagnostic benefits, including significant reductions in social–emotional problems (e.g., symptoms of anxiety and depression) and problem behaviors (e.g., symptoms of conduct disorder, oppositional defiant disorder, and attention deficit–hyperactivity problems; Barone et al. 2021; Grube and Liming 2018; Hoffman et al. 2006; Högström et al. 2017; Osman, Flacking, et al. 2017; Ozturk et al. 2019; Stattin et al. 2015). Additionally, such programs have been shown to improve parent and youth emotional regulation and to reduce parent–child conflict (Benzi et al. 2023; Moretti and Obsuth 2009; Moretti et al. 2015, 2025). With a focus on strengthening the parent–child relationship, attachment-based parenting programs have been shown to be acceptable and beneficial to parents across diverse cultural contexts (Han et al. 2023; Kitagawa et al. 2022). Much of this research has

focused on parents of younger children, and parenting programs that address parenting-related issues that are unique to adolescence are needed.

There is a global shortage of evidence-based interventions to support adolescents and their families. In China, over one-quarter of Chinese adolescents—approximately 40 million teens—have reported significant mental health problems in recent years (Chai et al. 2021). Although China has recently made significant efforts to improve mental health among children and adolescents (The Healthy China Initiative 2019–2030; Jiang and Jiang 2021), the availability and utilization of mental health services remain low (Xu et al. 2022). Several factors might account for low mental health service utilization. A recent review suggested that in China, mental health challenges tend to be minimized, and individuals prefer to rely on themselves, family, peers, or traditional Chinese medicine rather than seeking help from mental health professionals (Shi et al. 2020). Fear of stigma and limited familiarity with mental health treatments further create barriers to accessing mental health services (Yang et al. 2020). At the same time, Chinese parents are highly dedicated to their children's well-being and success and are keen to utilize effective services, especially if these are framed as broadly benefitting youth by enhancing their potential for success and ability to cope with challenges.

Alongside the numerous transdiagnostic benefits, attachment-based interventions may be particularly helpful for Chinese families given the highly competitive educational system that adolescents and their parents must navigate (Jiang and Saito 2024). Schoolwork is often a major source of parent–child conflicts in Chinese families (Cao and Tam 2023), and research supports that quality parent–child relationships can buffer the impacts of academic pressure and stressors on child mental health and behavioral problems (Jiang et al. 2022). More generally, positive parent–child relationships in Chinese families are related to good family functioning and predict adolescents' mental health and academic outcomes (Chen 2017; Li et al. 2020). Thus, participating in an attachment-based parenting intervention has the potential to address a range of issues that are important to Chinese families, beyond youth mental health problems.

The *Connect* program is a manualized trauma-informed and attachment-based intervention for parents and alternative caregivers of adolescents experiencing significant behavioral and emotional problems (Moretti 2020). Within an attachment framework, *Connect* views trauma as deeply intertwined with serious relational disruptions (e.g., parental neglect, exposure to physical or psychological harm). For these reasons, facilitators are trained to be sensitive and responsive to relational trauma and adjust the program's delivery to best meet the needs of each group. The program uses emotion-focused exercises, role-plays, and reflective discussions to promote and develop parenting skills and strengthen the quality of parent–child attachment relationship. *Connect* targets the building blocks of parent–child attachment, namely parental reflective function, parenting sensitivity, dyadic affect regulation, and parent–teen mutuality and partnership. The program is grounded in these theoretically and empirically supported core elements of secure parent–child attachment that have

been shown to promote meaningful and lasting improvements in both youth and parental mental health and other domains of functioning. Parents practice *stepping back* to develop an awareness of their own emotional experiences and reactions to their child. They also practice *stepping into* their teen's mind with curiosity and reflecting on the attachment needs that may underlie behavior. Additionally, parents explore and practice new ways of responding to their teen's behavior with sensitivity, empathy, and a focus on prioritizing their partnership to leave the *door open* in their relationship.

The program is delivered in a small group-based format by two trained facilitators. The program can be delivered in person or online (Bao and Moretti 2023). The 10-session program begins with a welcome meeting to build trust and rapport and to introduce the group focus, format, and process of the program. The welcome session is followed by nine weekly intervention sessions, each introducing an easy-to-grasp principle related to attachment, parenting, and adolescent development. The 90-min intervention sessions use emotionally evocative role-plays to facilitate parents' awareness of their own emotional experiences and that of their child, while guided reflection exercises and group discussions support parents in building awareness of adolescent attachment needs and strategies for sensitive responding.

The intervention sessions are anchored around the delivery of role-plays by the facilitators and reflective exercises and discussions. Facilitators present brief role-plays of challenging parent-child interactions, demonstrating two different parental responses to the scenario that could exacerbate distress in parent-child relationships: intrusive-reactive and withdrawing-critical. The intrusive-reactive parent responses display emotionally charged, confrontative behaviors, while the withdrawing-critical parental responses illustrate emotionally dismissive, rejecting, and restrained behaviors. Role-plays are followed by a sequence of reflective exercises prompting parents to consider youth feelings and behaviors, possible underlying attachment needs of the child, and parent feelings and behaviors. Importantly, each role play concludes with parents reflecting on where the interaction left the parent-teen relationship and whether the interaction fixed a problem or set a consequence for the child. Together, parents then work to rescript the parent-child role-play, integrating their growing toolkit of responsive and sensitive parenting skills in ways that support the parent-teen relationship, compassionately acknowledging the feelings and challenges of the parent and promoting a shared partnership in addressing problem behavior. This is demonstrated in a third role-play. The program concludes with a feedback and integration session where parents engage in a semi-structured feedback session to discuss program elements that were most helpful or challenging and provide suggestions for improving the program for future families. This session is invaluable in collecting important information on the fit and value of the *Connect* program within each community and provides a critical opportunity for parents' integration of their therapeutic experiences and closure.

A series of uncontrolled, waitlist, and randomized clinical studies have provided strong evidence for the effectiveness and efficacy of *Connect* (Level 1—Supported Program; California Evidence Based Clearinghouse 2022) in reducing youth externalizing and internalizing problems, attachment insecurity,

parent and youth affect dysregulation, parent depressed mood, and parenting stress, with retention of treatment gains for up to 2 years posttreatment (Bao and Moretti 2023; Barone et al. 2020, 2021; Moretti and Obsuth 2009; Moretti et al. 2012, 2015; Osman, Flacking, et al. 2017; Osman, Salari, et al. 2017; Osman et al. 2021; Ozturk et al. 2019; Pasalich et al. 2021, 2022; Stattin et al. 2015).

Importantly, *Connect* can be tailored for culturally and contextually diverse populations and remain effective. For instance, studies evaluating translated and culturally tailored versions of *Connect* for forcibly displaced parents living in Sweden have collectively demonstrated improvements in parent and youth mental health problems, family functioning, parenting efficacy and satisfaction, and quality of parent-child relationships, with treatment gains maintained at a 3-year follow-up (Osman, Flacking, et al. 2017; Osman, Salari, et al. 2017; Osman et al. 2019; Osman et al. 2021; Kristen et al. 2023, 2024). In Australia, *Connect* has been adapted for kinship carers, and a RCT pilot study showed high levels of program satisfaction, uptake, reductions in unplanned placement changes, and improvements in numerous outcomes including caregiver strain and aggression (Pasalich et al. 2021). Preliminary evaluations of culturally tailored versions of *Connect* have also shown promise in Mexico, South Africa, and Kenya (Gallegos-Guajardo et al. 2023; Haffeejee et al. 2024; Moretti et al. unpublished). Additionally, *Connect* has been evaluated in Italy and Sweden with results showing improvements in youth internalizing and externalizing problems, attachment insecurity, parenting efficacy and satisfaction, and parent and youth affect regulation (Barone et al. 2020, 2021; Benzi et al. 2023; Högström et al. 2017; Ozturk et al. 2019; Stattin et al. 2015).

Adaptation of the *Connect* program for families in China is consistent with recent calls for cultural adaptation and delivery of evidence-based mental health interventions in China (Gearing et al. 2020). Such work requires close collaboration with researchers, clinicians, and agencies familiar with the local culture and context, and an evaluation strategy that includes both parent feedback and quantitative measures to assess cultural fit, uptake, and program outcomes.

1.1 | The Current Study

The current paper reports on a single-arm pilot study in partnership with a team of mental health professionals in Beijing, China. The primary goal of this work was to culturally tailor the *Connect* parenting program for Mandarin-speaking families in China and to measure program acceptability, uptake, and cultural fit. Based on our extensive experience with culturally tailoring *Connect* for diverse contexts and populations, and our partnership with mental health professionals in Beijing, we hypothesized that the adapted program for Mandarin-speaking families would be acceptable to parents, rates of attendance and retention would be high, and cultural fit would be achieved. The secondary goal of this study was to assess program effectiveness in improving youth mental health problems, parental functioning, and quality of parent-child relationships. Based on substantial empirical support for the *Connect* program, we expected to observe improvements in these domains of functioning.

2 | Method

2.1 | Program Adaptation

An iterative process was adopted to tailor *Connect* for Chinese families located in Beijing. First, the *Connect* manual developed by Dr. Marlene M. Moretti (2020), in consultation with the *Connect* clinical team and international collaborators, was professionally translated into Mandarin and reviewed by author L.B., who is Chinese-born, Mandarin-speaking, and familiar with cultural considerations related to parenting and adolescence (Moretti and Bao 2021). L.B. is also a certified *Connect* facilitator, supervisor, and trainer. Once finalized, eight mental health professionals (i.e., therapists or counselors) living in Beijing were invited to complete a standardized *Connect* training workshop (20h) in preparation for delivering the program. Six trainees went on to deliver the *Connect* program in Mandarin (two trainees per group), with the groups scheduled sequentially. Group sessions were recorded for supervision, and trainees completed one hour of weekly supervision (delivered by L.B.) throughout the delivery of the program to ensure program fidelity and adherence and to achieve facilitator certification. Throughout the delivery of the program, we followed a participatory action approach in making program modifications, through close partnerships and feedback from program facilitators as well as listening to feedback from parents. Consistent with common components identified in various cultural adaptation frameworks (Asiimwe et al. 2023; Schilling et al. 2021) and assessed through instruments used to quantify program adaptations (Miller et al. 2021; Stirman et al. 2013), program modifications focused on language and the use of cultural metaphors, identification of common parenting challenges and concerns, and ensuring deep respect for cultural parenting traditions. Modifications were evaluated recursively by the implementation team and program developer (M.M.M) to ensure retention of the structural aspects and the primary therapeutic targets of the program.

2.2 | Participants and Recruitment

Parents living in Beijing of youth aged 8–18 years old were eligible for the study. Inclusion criteria included parent-reported youth emotional and behavioral problems. Exclusion criteria included low child intellectual functioning ($IQ < 70$), major mental disorder (schizophrenia, bipolar disorder), or acute psychosis. Recruitment was undertaken (September 2022 to February 2023) through social media announcements distributed by a mental health agency in Beijing. Interested parents were contacted by phone and provided with details on the *Connect* program and the optional research study. All parents were deemed eligible and were invited to enroll in the *Connect* program. Parents interested in participating in the research provided their verbal consent to enroll in the study and subsequently provided informed written consent. Parents completed a questionnaire package prior to the first *Connect* session (T1) and following the last treatment session (T2). For each set of questionnaires, parents were given an honorarium equivalent to \$20 USD. Additionally, program feedback provided by study participants in the posttreatment *Feedback and Integration* session was also included in the study. The study received ethical approval from

the Simon Fraser University Research Ethics Board (#2011s0284 and #20200401).

Three separate *Connect* groups (10 weeks each) were delivered between November 2021 and April 2022. All the group sessions were held in person at a mental health agency in Beijing, China. All 36 parents who attended the program consented to participate in the research study. Data from one parent was removed due to misinterpretation of reporting instructions. To avoid dependency in the data, self-reports from only one parent of each youth were retained. In these cases ($n = 5$), data retention was determined following sequential rules: (a) the parent who attended more sessions; (b) if equal, the parent who more thoroughly completed the study questionnaire; (c) if equal, preference was given to the mother to increase comparability with past research. The final sample included 30 biological parents (aged 36–50 years, $M_{age} = 44.6$, $SD = 3.2$; 83.3% mothers) of youth aged 10–16 ($M_{age} = 13.4$, $SD = 1.5$; 50.0% female). Most youth lived at home with their parents (93.3%). Parent education ranged from partial high school education (3.3%), completion of a college diploma or bachelor's degree (60.0%), partial postgraduate education (6.7%) to postgraduate degree completion (30.0%). All but one parent reported having sufficient or more income to cover their living expenses. See Table 1 for additional demographic information.

2.3 | Measures

Parent self-report measures used in the current study closely mirrored those used in prior research evaluating the *Connect* program in culturally diverse contexts (Bao and Moretti 2023; Barone et al. 2020, 2021; Benzi et al. 2023; Kristen et al. 2023; Moretti et al. 2015; Moretti and Obsuth 2009; Pasalich et al. 2021, 2022). All evaluation measures were translated and back translated by author L.B. and the team of *Connect* facilitators in Beijing before the study launch. Measures were completed pre- and postprogram.

2.3.1 | Youth Emotional and Behavior Problems

The Brief Child and Family Phone Interview (BCFPI) is a 39-item standardized parent-reported measure of youth emotional and behavior problems that taps DSM-V symptoms of major disorders with strong psychometric validity (Cunningham et al. 2009; Moretti et al. 2025; Pasalich et al. 2022). A composite externalizing subscale was computed from the sum of subscales tapping regulation of attention (ADHD; T1: $\alpha = 0.77$, T2: $\alpha = 0.83$), cooperativeness (ODD; T1: $\alpha = 0.89$, T2: $\alpha = 0.89$), and conduct problems (CD; T1: $\alpha = 0.61$, T2: $\alpha = 0.60$). The composite internalizing subscale was computed from the sum of subscales tapping separation anxiety (SAD; T1: $\alpha = 0.80$, T2: $\alpha = 0.81$), managing anxiety (GAD; T1: $\alpha = 0.84$, T2: $\alpha = 0.83$), and managing mood (MDD; T1: $\alpha = 0.91$, T2: $\alpha = 0.89$). Subscale scores were computed as the sum of item responses. Parents rated the frequency of behaviors on a 3-point scale (1 = *never*; 3 = *often*) where higher scores indicated higher levels of difficulty or concern. The BCFPI also includes 6 items that assess parental depressed mood (T1: $\alpha = 0.83$, T2: $\alpha = 0.88$). Parents rated the frequency of depression symptoms over the past 2 weeks on a 3-point scale

TABLE 1 | Preintervention demographic characteristics of sample ($N=30$).

| Variables | |
|--|-----------------|
| Parents, n (%) | |
| Mothers | 25 (83.3) |
| Fathers | 5 (16.7) |
| Participant age in years ($mean \pm SD$) | 44.63 \pm 3.2 |
| Highest education level, n (%) | |
| Partial high school education | 1 (3.3) |
| Completion of a college diploma or bachelor's degree | 18 (60.0) |
| Partial completion of postgraduate degree | 2 (6.7) |
| Post-graduate degree completion | 9 (30.0) |
| Financial well-being, n (%) | |
| Not enough money to cover living expenses | 0 (0.0) |
| Barely enough money to cover living expenses | 1 (3.3) |
| Enough money to cover living expenses | 7 (23.3) |
| More or much more than enough to cover living expenses | 22 (73.3) |
| Multiple caregiver homes, n (%) | 27 (90.0) |
| No. of children in house ($mean \pm SD$) | 1.2 \pm 0.4 |
| Child sex: female, n (%) | 15 (50.0) |
| Child age ($mean \pm SD$) | 13.43 \pm 1.5 |
| Child living in the parents' home, n (%) | 28 (93.3) |

(0 = *less than 1 day*; 3 = *5 days or more*) where higher scores indicated higher levels of depressed mood.

2.3.2 | Caregiver Strain

The Caregiver Strain Questionnaire (CGSQ) is a 21-item self-report measure of perceived parenting strain due to youth mental health problems that consists of three subscales: Objective Strain (e.g., financial strain; T1: $\alpha=0.89$, T2: $\alpha=0.87$), Subjective Externalizing Strain (e.g., anger; T1: $\alpha=0.62$, T2: $\alpha=0.52$), and Subjective Internalizing Strain (e.g., fatigue; T1: $\alpha=0.88$, T2: $\alpha=0.89$). The subscale scores were computed as the average of item responses. Parents rated items on a 5-point scale (1 = *not at all*; 5 = *very much*) where higher scores represented greater strain and stress experienced by caregivers. The CGSQ has shown strong psychometric properties in a range of samples, including Chinese parents (Bao and Moretti 2023; Brannan et al. 1997; Pasalich et al. 2021; Yang et al. 2021).

2.3.3 | Physical and Psychological Aggression

The Revised Conflict Tactics Scale (CTS2), a 44-item self-report scale with good psychometric properties, assesses violence and

aggression (Bao and Moretti 2023; Moretti and Obsuth 2009; Pasalich et al. 2021; Straus et al. 1996). In the present study, four subscales were used to measure aggression perpetrated by youth to parents and aggression perpetrated by parents to youth: Physical Aggression (Youth to parent: 7 items, T1: $\alpha=0.88$, T2: $\alpha=0.67$; Parent to youth: 7 items, T1: $\alpha=0.83$, T2: $\alpha=0.61$) and Psychological Aggression (Youth to parent: 9 items, T1: $\alpha=0.87$, T2: $\alpha=0.81$; Parent to youth: 9 items, T1: $\alpha=0.74$, T2: $\alpha=0.76$). The subscale scores were computed as the average of item responses. A total aggression score was calculated as the average of the two subscale scores for each perpetrator–target pair (i.e., youth to parent and parent to youth). Parents rated the frequency of the behaviors on a 4-point scale (1 = *never*; 4 = *always*), where higher scores indicated more frequent and severe use of aggressive tactics in conflict.

2.3.4 | Parent–Adolescent Attachment Anxiety & Avoidance

The Adolescent Attachment Anxiety & Avoidance Inventory (AAAAI) is a 16-item scale originally adapted from the Experiences in Close Relationships (ECR) scale and measures parent ratings of parent–youth attachment quality (Moretti and Obsuth 2009). Items are rated on a 7-point response scale (1 = *strongly disagree*; 7 = *strongly agree*) with higher scores representing greater levels of attachment insecurity. Two subscales can be derived: attachment anxiety (e.g., “my child needs a lot of reassurance that they are loved by me”; T1: $\alpha=0.75$, T2: $\alpha=0.73$) and attachment avoidance (e.g., “whenever we get close, my child pulls back from me”; T1: $\alpha=0.83$, T2: $\alpha=0.86$). The subscale scores were computed as the average of item responses. The AAAAI has strong psychometric properties (Moretti et al. 2015; Pasalich et al. 2022; Vernon and Moretti 2024).

2.3.5 | Program Attendance

Parent attendance was tracked across the nine treatment sessions and was deemed program completion if parents attended 6 out of the 9 intervention sessions (excluding the welcome session; 66%).

2.3.6 | Program Acceptability

The Parent Program Acceptability Questionnaire (PPAQ) was adapted from the Telehealth Usability Questionnaire's Satisfaction and Future Use subscale (Parmanto et al. 2016) and consists of 5 items assessing parent acceptance of the program (e.g., “I would recommend *Connect* to other families”; Bao and Moretti 2023). The PPAQ is rated on a 7-point scale (1 = *strongly disagree*; 7 = *strongly agree*; T2: $\alpha=0.76$), and the frequency of endorsed responses for each item was calculated.

2.3.7 | Treatment Engagement and Parent Satisfaction

The Connect Treatment Engagement and Client Satisfaction Questionnaire is a 15-item self-report questionnaire developed to assess the helpfulness and importance of components of the *Connect* program (Moretti 2020). Parents use a 4-point scale (1 = *very helpful*; 4 = *unhelpful*; T2: $\alpha=0.85$) to rate the extent to

which the program was helpful in understanding their child's behavior, their own parenting behavior, and their relationship with their child. Items also assess the extent to which parents applied what they learned in parenting their child, the degree of change they experienced or anticipated change in their relationship, and their confidence in parenting abilities. The frequency of endorsed responses for each item was calculated. Additionally, parents were invited to comment on the cultural fit of the program, and their responses were coded into a binary variable (*fit or not a good fit*).

2.4 | Statistical Analyses

For quantitative outcome measures administered at T1 and T2, preprogram and postprogram changes were estimated using a latent growth curve modeling (LGCM) approach that approximates paired sample *t*-tests in a structural equation modeling (SEM) framework (Voelkle 2007). Via the slope parameter, the LGCM approach with two timepoints allows for inferences about the *amount* of change that occurs between observations, but not the *shape* of that change (Duncan and Duncan 2009). The advantage of this approach is that it estimates missing data using full information maximum likelihood (FIML) which has been shown to produce more accurate parameter estimates than traditional approaches to handling missing data, such as listwise and pairwise deletion (Engers 2010). The proportion of missing data across the variables ranged from 3.3% to 10%. This approach involves fixing the residual variances of both T1 and T2 observed scores to be zero for each model to have sufficient degrees of freedom (i.e., fully saturated, where the number of observed parameters equals the number of estimated parameters with degrees of freedom = 0). However, this also meant that model fit could not be assessed. Statistical models were performed using Mplus 8.3.

Effect sizes of standardized mean differences were computed using a supplementary spreadsheet from Lakens (2013). From this output, we report the recommended form of Hedges' *g* for one-sample studies (i.e., g_{av} vs. g_{rm}), which is determined based on the correlation between assessments and the equality of their variances. We chose to apply the Hedges' *g* correction as opposed to Cohen's *d*, as the latter tends to provide biased (inflated) estimates with small samples (Cumming 2012). We used the following criteria for interpreting the magnitude of our effect sizes: $g=0.2$ as small, $g=0.5$ as medium, $g=0.8$ as large; (Hedges 1981). We evaluated the significance of our changes across time with a Bonferroni corrected critical $\alpha=0.0025$ ($0.05 \div 20$) to control for the risk of Type 1 errors associated with running 20 statistical models. We chose to take a conservative approach to the correction given our small sample size and our focus on effect size estimates.

2.4.1 | Power Analysis

A power analysis was conducted to determine the required sample size for detecting a significant difference in means using a paired samples *t*-test. We estimated an effect size of $d_z=0.50$, based on previous findings from a culturally

tailored *Connect* evaluation for Somali parents in Sweden ($d_z=0.41$ – 0.51). With an alpha level of 0.05 and a desired power of 0.80, the analysis indicated that a minimum of 34 participants would be needed. Our sample size of 27–30 participants is slightly below this threshold, suggesting some of our analyses may be statistically underpowered. Nevertheless, our core focus was on effect size estimates given that the aim of our pilot study was a preliminary examination of program effectiveness. Considering our small sample size, effect sizes may be unstable and should be interpreted with caution (Leon et al. 2011).

3 | Results

3.1 | Cultural Adaptation

Adaptations to *Connect* did not compromise retention of attachment principles, program components (e.g., role plays, reflective exercises), and group structure. The key adaptation themes are summarized as follows.

3.1.1 | Language of the Program

In addition to translating the program materials to Mandarin, the language of the translation was further revised to make the content clearer and more accessible to Chinese parents. This was necessary as the Chinese language has a higher level of specificity than English, and the direct translation of a word or phrase might have different underlying meanings than what was intended in the English context. As such, abstract wordings in the English manual were revised to be more concrete and specific, and the content was translated based on the meaning that it attempted to convey rather than using a direct translation. For instance, the principle *celebrating attachment* was translated to 建立情感联系, 享受依恋关系 (i.e., building an emotional connection, enjoying our attachment relationship). Additionally, examples, idioms, and poems were used to illustrate concepts as appropriate. For instance, the poem “不识庐山真面目, 只缘身在此山中” (i.e., Of Mountain Lu we cannot make out the true face, for we are lost in the heart of the very place; Su, Northern Song Dynasty) was used to explain the concept of *stepping back* from one's own emotional reactions to be able to step into the mind of their teens.

3.1.2 | Prompts to Reflect on the Connect Attachment Principles

Consistent with Chinese cultural norms, the facilitators observed that Chinese parents were more likely to treat the group as a class and follow the curriculum rather than share and reflect on their own experiences. To better promote and facilitate reflection, the program facilitators adjusted to use more direct and specific queries to encourage parents to discuss how they might use parenting skills introduced in program (e.g., empathy). For instance, the question “When we see a conflict coming, what can we do to respond to strengthen our relationship?” was revised to “When you and your child are about to get into a conflict situation, what kind of

communication method can maintain or strengthen your relationship, rather than hurting it? What could you do? What body language, facial expression, and tone of voice might you use?” Lastly, one or more suggestions about how parents could practice the principles and skills at home were provided at the end of each session.

3.1.3 | Role-Plays

The role-play scenarios were modified to fit within the Chinese cultural context and to reflect typical familial interaction patterns and Chinese parenting norms. These modifications included changes in the topics that prompted conflict, the language used, and the behaviors of the parent and youth in the role-plays. For instance, conflict over schoolwork was used to replace conflict over quitting a soccer team, and the depiction of a dismissive and disengaged parent was revised to be more verbally dismissive instead of ignoring the child.

3.1.4 | Emphasis on Emotions, Reflection, and Empathy

Adaptations were required to shift the primary focus away from problem-solving, which is emphasized in Chinese parenting, to encourage a greater focus on using empathy. Facilitators needed to provide concrete steps and examples to demonstrate how one could practice empathy to support the parents' learning. Parents also showed difficulty practicing empathy with themselves, reflective of the cultural norm of laying blame on the parents for their children's problems. As a result, Chinese parents struggled to express negative emotions or thoughts that they, the parents depicted in role-plays, or children might have. Instead, they were more likely to focus on problem-solving without discussing the role of emotions.

To address these challenges, program facilitators strategically worked with parents, introducing pauses and encouraging reflections on parent and child feelings throughout the sessions. The facilitators themselves emphasized empathy and responsiveness during the program, establishing a sense of safety for parents to share and process their thoughts and feelings. Reflection questions also used the word “情绪” (i.e., emotion/mood) rather than “感受” (i.e., feeling) to explicitly prompt the group to focus on emotions in the role plays and in the group discussions of their experiences with their children.

3.2 | Program Outcomes

Program outcome measures were administered at preprogram (T1) and postprogram (T2). The results of the LGCM models for the program outcomes are shown in Table 2.

3.2.1 | Youth Mental Health Problems

Parent reports of overall youth internalizing problems decreased significantly from T1 to T2 with a small-to-medium effect size, $p < 0.001$, $g_{av} = 0.43$. Specifically, subscale scores showed numerical decreases in youth symptoms of depression (MDD: $p = 0.006$,

$g_{av} = 0.26$), generalized anxiety (GAD: $p = 0.004$, $g_{av} = 0.45$), and separation anxiety symptoms (SAD; $p = 0.093$, $g_{av} = 0.29$), but the results did not reach significance.

Parent reports of overall youth externalizing problems decreased significantly with a medium effect size, $p = 0.002$, $g_{av} = 0.60$. Subscale analyses revealed a significant medium effect size reduction in symptoms of ADHD ($p = 0.001$, $g_{av} = 0.52$). The observed small and medium effect size reductions in ODD ($p = 0.013$, $g_{av} = 0.51$) and CD ($p = 0.253$, $g_{av} = 0.16$) did not reach significance.

3.2.2 | Parent Functioning

Parents' depressed mood decreased with a small-to-medium effect size ($p = 0.021$, $g_{av} = 0.41$), with results approaching significance. In addition, a significant small effect size reduction was observed in reports of objective parenting strain ($p = 0.006$, $g_{av} = 0.37$). Although a small effect size reduction was observed in reports of internalized parenting strain ($p = 0.019$, $g_{av} = 0.34$) and externalized parenting strain ($p = 0.181$, $g_{av} = 0.23$), the results did not reach significance.

3.2.3 | Parent–Child Aggression

A medium effect size decrease in overall youth-to-parent aggression ($p = 0.003$, $g_{av} = 0.51$) was found. This reflected a significant medium effect size reduction in youth psychological aggression ($p < 0.001$, $g_{av} = 0.54$) and a nonsignificant small effect size reduction in youth physical aggression ($p = 0.045$, $g_{av} = 0.40$). A significant medium-to-large effect size reduction was also observed in the overall level of parent-to-youth aggression ($p < 0.001$, $g_{av} = 0.76$), reflecting a significant medium size reduction in parent psychological aggression ($p < 0.001$, $g_{av} = 0.80$) and a nonsignificant medium size reduction in parent physical aggression ($p = 0.004$, $g_{av} = 0.58$).

3.2.4 | Youth Attachment Anxiety and Avoidance

In contrast to prior studies, we did not find significant reductions in parent-reports of youth attachment anxiety ($p = 0.870$, $g_{av} = 0.03$) and avoidance ($p = 0.876$, $g_{av} = 0.02$).

3.2.5 | Program Attendance, Retention, and Acceptability

On average, the parents attended 8.5 sessions out of the nine therapeutic sessions ($SD = 0.73$) and all parents were deemed program completers (100% program retention).

The PPAQ was completed by 29 parents as part of the post-group questionnaire. All parents (100%) reported that they were satisfied with the *Connect* program, and 86.2% ($N = 25$) indicated that the Mandarin adaptation of *Connect* met previously unmet service needs. All but one parent ($N = 28$; 96.6%) reported that they would recommend *Connect* to other families.

TABLE 2 | Outcome measures at T1 and T2 and intervention outcomes using latent growth curve modeling ($N = 27-30$).

| Outcomes | Preintervention | Postintervention | Possible score ranges | LGCM results | | | Effect size |
|---------------------------|-----------------|------------------|--------------------------|-------------------|------|---------|-----------------|
| | Mean (SD) | Mean (SD) | | S_{mean} | SE | p | g_{av} |
| BCFPI—INT | 34.97 (8.54) | 30.85 (7.88) | 21–63 | −3.56 | 1.00 | <0.001* | 0.43 |
| BCFPI—SAD | 8.63 (2.67) | 7.86 (2.26) | 6–18 | −0.73 | 0.44 | 0.093 | 0.29 |
| BCFPI—GAD | 12.23 (3.17) | 10.62 (3.31) | 6–18 | −1.48 | 0.51 | 0.004 | 0.45 |
| BCFPI—MDD | 14.10 (4.71) | 12.70 (3.94) | 9–27 | −1.15 | 0.41 | 0.006 | 0.26 |
| BCFPI—EXT | 33.10 (4.82) | 29.97 (5.17) | 18–54 | −3.04 | 0.97 | 0.002* | 0.60 |
| BCFPI—ADHD | 13.13 (2.40) | 11.69 (2.88) | 6–18 | −1.40 | 0.43 | 0.001* | 0.52 |
| BCFPI—ODD | 13.50 (2.81) | 11.93 (3.00) | 6–18 | −1.51 | 0.61 | 0.013 | 0.51 |
| BCFPI—CD | 6.47 (0.86) | 6.34 (0.72) | 6–18 | −0.13 | 0.12 | 0.253 | 0.16 |
| CGSQ—OBJ | 2.23 (0.74) | 1.90 (0.78) | 1–5 | −0.29 | 0.11 | 0.006 | 0.37 |
| CGSQ—SUBEXT | 2.35 (0.57) | 2.22 (0.58) | 1–5 | −0.14 | 0.10 | 0.181 | 0.23 |
| CGSQ—SUBINT | 3.14 (0.78) | 2.82 (0.85) | 1–5 | −0.28 | 0.12 | 0.019 | 0.34 |
| BCFPI—Parent mood | 5.66 (5.01) | 3.46 (3.91) | 0–18 | −1.90 | 0.82 | 0.021 | 0.41 |
| CTS2—TOL: Youth to Parent | 1.34 (0.38) | 1.18 (0.23) | 1–4 | −0.16 | 0.05 | 0.003 | 0.51 |
| CTS2—PHY: Youth to Parent | 1.26 (0.40) | 1.14 (0.22) | 1–4 | −0.13 | 0.06 | 0.045 | 0.40 |
| CTS2—PSY: Youth to Parent | 1.42 (0.42) | 1.23 (0.27) | 1–4 | −0.19 | 0.05 | 0.000* | 0.54 |
| CTS2—TOL: Parent to Youth | 1.30 (0.29) | 1.12 (0.16) | 1–4 | −0.17 | 0.04 | <0.001* | 0.76 |
| CTS2—PHY: Parent to Youth | 1.24 (0.33) | 1.09 (0.15) | 1–4 | −0.14 | 0.05 | 0.004 | 0.58 |
| CTS2—PSY: Parent to Youth | 1.36 (0.29) | 1.15 (0.22) | 1–4 | −0.20 | 0.05 | 0.000* | 0.80 |
| AAAAI—ANX | 3.13 (0.93) | 3.15 (0.90) | 1–7 | 0.03 | 0.17 | 0.870 | 0.03 |
| AAAAI—AVO | 3.33 (1.05) | 3.28 (0.94) | 1–7 | −0.02 | 0.13 | 0.876 | 0.02 |

Abbreviations: AAAAI, Adolescent-Parent Attachment Inventory; ADHD, Attention Deficit Hyperactivity subscale; ANX, Attachment anxiety scale; AVO, Attachment avoidance scale; BCFPI, Brief Child and Family Phone Interview; CD, Conduct Problems subscale; CGSQ, Caregiver Strain Questionnaire; CTS2, Revised Conflict Tactic Scale; EFF, Sense of efficacy subscale; EXT, Youth externalizing problem scale; GAD, Generalized Anxiety subscale; INT, Youth internalizing problem subscale; MDD, Depressive Mood subscale; OBJ, Objective strain subscale; ODD, Oppositional Defiant subscale; PHY, Physical aggression subscale; PSOC, Parental Sense of Competence Scale; PSY, Psychological aggression subscale; SAD, Separation Anxiety subscale; SAT, Sense of satisfaction subscale; SUBEXT, Subjective externalizing strain subscale; SUBINT, Subjective internalizing strain subscale; TOL, Total aggression scale.

* $p < 0.0025$ indicates statistical significance.

3.3 | Program Feedback

Twenty-five participants completed the Connect Treatment Engagement and Client Satisfaction Questionnaire (see Table 3). All parents (100%, $N = 25$) reported that the Mandarin adaptation of *Connect* was a good fit with Chinese culture and with their role as a parent. Similarly, all parents found that the program helped somewhat (40%, $N = 10$) or a great deal (60%, $N = 15$) in understanding their children better. They also expected future improvements in their relationship with their children somewhat (68%, $N = 17$) or a great deal (32%, $N = 8$).

Reflecting on themselves, most parents (88%, $N = 22$) reported that the *Connect* helped them somewhat (48%, $N = 12$) or a great

deal (40%, $N = 10$) in understanding themselves as parents. Almost all parents reported applying what they learned in the group when parenting (96.0%, $N = 24$), and noticing changes in their relationship with their children as a result (84.0%, $N = 21$). Finally, all but two parents reported feeling more confident in their parenting after completing the program (92.0%, $N = 23$).

3.3.1 | Helpfulness of the Program Components

All parents (100%, $N = 25$) found the key components of *Connect* to be helpful, including learning about attachment, discussing how attachment might be related to their children's and their own behaviors, and the role-plays. Most parents

TABLE 3 | Program feedback using the connect treatment engagement and client satisfaction questionnaire ($N = 25$).

| Item category | Item | % Caregivers endorsed |
|------------------------------------|--|-----------------------|
| Cultural fit | Connect fits with Chinese culture and my role as a mother/father | 100% |
| Program impact | Connect helped me understand my child better | 100% |
| | Connect helped me understand myself better | 88% |
| | I applied the ideas and exercises discussed in Connect when parenting my child | 96% |
| | Connect led to change in my relationship with my child | 84% |
| | I anticipate Connect leading to changes in my relationship with my child in the future | 96% |
| | Connect led me to be more confident in my parenting ability | 92% |
| Helpfulness of the program | Learning about attachment | 100% |
| | Discussing attachment relationship in relation to child behavior | 100% |
| | Discussing attachment relationship in relation to parent's own behavior | 100% |
| | Role plays | 100% |
| | Reflective exercises | 88% |
| | Handouts and suggestions for home practice | 96% |
| Parent sense of safety and respect | I felt welcomed in the program to discuss my experiences and concerns | 100% |
| | My experience as a caregiver was respected in the group | 100% |

found the reflection exercises (88.0%, $N = 22$) and handouts, including practice suggestions, to be particularly helpful (96.0%, $N = 24$).

3.3.2 | Parent Sense of Safety and Respect

All parents (100%, $N = 25$) reported somewhat (56%, $N = 14$) or a great deal (44%, $N = 11$) that they felt safe and welcomed to discuss their experiences and concerns and that their experience as a parent was somewhat (24%, $N = 6$) or a great deal (76%, $N = 19$) respected in the group.

4 | Discussion

To the best of our knowledge, this is the first study to culturally tailor and evaluate an attachment-based intervention for parents of adolescents living in China. Our findings are very promising and align with previous evaluations of *Connect* delivered across a wide range of countries and cultures. Our results also indicate high program acceptability and excellent uptake among parent participants, evident in the high levels of attendance and the 100% retention rate. All the parents who enrolled in the program completed the program and felt satisfied with their experience, with the vast majority reporting that they would recommend the program to other families and that *Connect* for Mandarin-speaking parents helped to meet an unmet service need of theirs. Importantly, parents unanimously agreed

that the culturally tailored adaptation of *Connect* fit well with Chinese culture. High levels of cultural fit are associated with high intervention receptivity, engagement, and retention, in addition to improved outcomes (Hall et al. 2016). These findings support initiatives to broaden the implementation of *Connect* in China and underscore its potential to address the major mental health service gaps in the country (Xu et al. 2022).

Our results represent four key program modification themes. All modifications were implemented with the intention of ensuring cultural relevance and respect while also retaining the structural aspects and the primary therapeutic targets of the program (i.e., role plays, reflective exercises). In brief, the modifications included greater specificity in language and additional use of examples, idioms, and poems; greater emphasis on using empathy instead of problem solving; explicit prompting to encourage parental reflection; and modification of role-play scenarios to ensure consistency with cultural parenting norms and practices. We suspect that these modifications are related to the high rates of endorsed program helpfulness (e.g., *Connect* helped me understand myself and my child better) and helpfulness of specific program components (e.g., role-plays), as well as the unanimous endorsement of the cultural fit of the program. The nature of these modifications may serve as a potential roadmap for future efforts when extending intervention work to Chinese parents.

Our results also provide preliminary support for the effectiveness of the culturally tailored *Connect* program in improving

youth mental health. Specifically, parents reported reductions in their children's internalizing ($g_{av}=0.43$) and externalizing problems ($g_{av}=0.60$) after the 10-week program. These findings are consistent with previous *Connect* evaluations that have found medium effect size reductions in these domains (internalizing: $ds=0.34$ to 0.75 , externalizing: $ds=0.54$ to 0.56 ; Bao and Moretti 2023; Barone et al. 2021; Moretti and Obsuth 2009). In comparison to recent evaluations of culturally tailored program versions that found a large effect size for externalizing problems (Kristen et al. 2023; Ozturk et al. 2019), our study effect size remained in the medium magnitude. The current study found a similar magnitude of effect size for reductions in internalizing problems compared to another culturally tailored evaluation (Kristen et al. 2023), although this study finding did not reach significance and other studies found small effect sizes ($ds=0.16$ – 0.19 ; Moretti et al. 2015; Osman, Flacking, et al. 2017; Ozturk et al. 2019). Moreover, our findings are especially promising given that data collection occurred during COVID-19, a period of exacerbated mental health problems (Panchal et al. 2023).

Importantly, our findings demonstrated that this culturally tailored version of *Connect* may have contributed to improving parents' own mental health by reducing parents' depressed mood ($g_{av}=0.41$). Although the observed effect size was small-to-medium, the limited sample size and conservative correction for running multiple tests mean that we cannot conclude that the effect is statistically meaningful and not due to chance. Again, these findings generally align with evaluations of *Connect* in diverse countries and contexts which have found increases in parent mental health and satisfaction (Gallegos-Guajardo et al. 2023; Moretti and Obsuth 2009; Moretti et al. unpublished; Osman, Salari, et al. 2017; Osman et al. 2021). Parents also reported small decreases in parenting-related stressors such as missing work and financial strain (objective strain; $g_{av}=0.37$), feelings of worry and guilt (internalized strain; $g_{av}=0.34$), and feelings of anger and embarrassment (externalized strain; $g_{av}=0.23$). These results were generally comparable to prior studies on *Connect* assessing parenting strain and stress, including studies completed both before and during the COVID-19 pandemic, although the effect sizes in this study were lower compared to previous studies (objective strain: $ds=0.55$ – 0.93 , internalized strain: $ds=0.46$ – 0.70 ; externalized strain: $ds=0.29$ – 0.98 ; Bao and Moretti 2023; Moretti and Obsuth 2009; Moretti et al. unpublished; Ozturk et al. 2019; Pasalich et al. 2021).

Importantly, we also found medium-to-large effect size reductions in youth-to-parent ($g_{av}=0.51$; not statistically significant), and parent-to-youth ($g_{av}=0.76$; statistically significant), physical and psychological aggression. Such findings stand out in their relevance to reducing family violence by supporting parents in responding sensitively to parent–child conflict. Again, these results are generally consistent with previous evaluations across varied countries and parenting contexts (e.g., biological, kinship) that have shown aggression between parents and youth significantly declined following participation in the *Connect* program (youth-to-parent: $ds=0.53$ – 0.74 ; parent-to-youth: $ds=0.20$ – 0.94 ; Bao and Moretti 2023; Moretti and Obsuth 2009; Pasalich et al. 2021).

Contrary to past findings on *Connect* (Bao and Moretti 2023; Barone et al. 2021; Benzi et al. 2023; Moretti et al. 2012, 2015,

2024; Moretti and Obsuth 2009; Pasalich et al. 2022), parent-reported youth attachment insecurity did not show any meaningful changes over the course of the program. Yet, these findings appeared to conflict with parent feedback, including enhanced understanding of their children and themselves, improvements in parent–child relationships, and anticipated future improvements in their relationships.

The attachment measure we used in this study may not sensitively capture the quality and changes in parent–youth attachment in Chinese families. This measure has not yet been validated in a Chinese sample and was translated into Chinese when used in this study. As such, the cultural differences in the expression of attachment avoidance and anxiety might not have been adequately captured (Grossmann et al. 2005; Wang and Mallinckrodt 2006). Past research using other attachment measures has found that when translated into Asian languages, these measures might not sensitively capture variance in attachment nor retain the same psychometric properties as their English counterparts (Behrens 2016; Jang et al. 2018). Furthermore, a recent study evaluating *Connect* for forcibly displaced Dari-, Somali-, and Arabic-speaking parents in Sweden also found that the directly translated versions of AAI did not appear to capture the culturally diverse meanings of attachment (Kristen et al. 2023). The findings highlight a need for future research to explore alternative measures of attachment that can adequately capture culturally normative expressions of attachment anxiety and avoidance in Chinese families.

As the first effort to implement and evaluate the culturally tailored version of *Connect* in China, this study had several limitations. First, we did not collect data on enrollment rates which could have provided insight with respect to program uptake and implementation. Second, the sample size was relatively small ($N=30$) and some of our analyses were likely underpowered, which may explain some of the null findings. We additionally chose to take a conservative approach to correcting for the multiplicity of tests due to our relatively small sample size and the need for future replication of findings in any case. Furthermore, the study did not have a control group and random assignment; thus, changes in functioning across the program should be interpreted with some caution. In addition, the internal consistencies of the conduct disorder subscale of the BCFPI ($\alpha=0.61$, 0.60) and the subjective externalizing strain subscale of the CGSQ ($\alpha=0.62$, 0.52) were less than adequate at T1 and T2, respectively. This heightened level of statistical noise may also, in part, explain some of the null findings. Future research with larger samples and a comparison group is needed to confirm and extend results. Third, we did not include a follow-up time-point and thus cannot determine the maintenance or trajectory of treatment gains. Future longitudinal research is crucial in establishing treatment effectiveness and utility. Finally, our study only included parent-reported data. Based on our prior research that has included adolescents (Moretti et al. 2025; Barone et al. 2021), we anticipate that similar findings would emerge for youth reports, including reported reductions in emotional and behavioral problems. Future research should continue to strive to include adolescent-reported data to explore the experiences of adolescents with a parent participating in the *Connect* program as well as examine the consistency of reports between adolescents and their parents. Future studies should also seek to

employ measures with established clinical thresholds for adolescents in China to help provide additional insights into the degree of clinical change observed before and after parents participate in *Connect*.

Despite these limitations, the present study demonstrated that *Connect* for Mandarin-speaking parents, a culturally tailored attachment-based parenting intervention, was highly acceptable to parents and demonstrated excellent uptake in China. The cultural adaptations, such as greater specificity in language and modifications to role play content, appeared to be well received by the parents. The preliminary results also provided support for the program's effectiveness in improving the well-being of adolescents and their parents in a short period of time (10 weeks). Taken together, these findings can pave the way for future efforts to implement and scale up the program in China to reach and benefit more families. Given the unique healthcare context in China, researchers will likely need to work closely with local practitioners, schools, or government agencies to ensure sustainability in this scaling up effort. Finally, the important lessons learned in the adaptation process of *Connect* could serve as a helpful reference for future efforts to adapt other interventions for the Chinese population, facilitating the development of the mental health service field in China. This includes the need for the development and validation of attachment measures that are more culturally sensitive and relevant for Chinese families.

Conflicts of Interest

Marlene M. Moretti occasionally receives remuneration for speaking and training engagements related to the *Connect* program. The authors declare no conflicts of interest.

Data Availability Statement

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

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