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ABSTRACT

Talk Therapy and Human Capital in Adolescence: Evidence from a Low-Resource Setting*

We evaluate the impact of a therapy intervention on Nepali adolescents at risk of dropping out of school. Our randomized controlled trial is the largest of its kind (N = 1,707) and is novel in that participation does not require a preexisting diagnosis. Participation was high: 89 percent of adolescents offered therapy attended, with younger participants showing higher compliance. Therapy significantly reduced psychological distress, improved emotional regulation, and enhanced perspectives on life. These psychological benefits did not translate into better school attendance or cognitive outcomes. Our results indicate that mental health interventions alone may not be sufficient to improve educational performance in low-resource environments.

JEL Classification: D12, I12, I15, I31, I32, O12, O18
Keywords: teen mental health, education, therapy, Nepal

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* This study was pre-registered in the AEA RCT Registry: https://www.socialscienceregistry.org/trials/7782. It was reviewed by the Nepali Health Research Council IRB and approved on December 21, 2021 with approval number 672/2021. Funding provided by the World Bank. The original pre-analysis plan is available here: https://sites.dartmouth.edu/eedmonds/files/2022/09/PAP_EMPPS.pdf. The populated PAP is available here:https://sites.dartmouth.edu/eedmonds/files/2025/01/empps_populatedpap.pdf. Our PAP was aimed at the research question of how therapy influences schooling whereas this study focuses on how subjects are impacted by therapy. Deviations from our PAP are described in Appendix G of the working paper version of this study (Edmonds et al., 2025) and are also available here: https://sites.dartmouth.edu/eedmonds/files/2025/04/ empps_defs.pdf. We are extremely thankful to Centre for Mental Health and Counselling - Nepal and especially Pashupati Mahat for implementing this intervention. We are grateful for the research assistance of Ariana Rodriguez Bruzon, Mridul Mishra, Deepika Shrestha, and Anisha Singhal.

1 Introduction

Mental health influences individual well-being and economic productivity. Poor mental health can perpetuate poverty by constraining economic opportunities and negatively affecting future generations (Bendini and Dinarte, 2020). Improvements in mental health correlate with increased investments in human capital (Baranov et al., 2020), pro-social behavior (Blattman et al., 2017) and higher income (Ridley et al., 2020; Lund et al., 2024). Despite the concurrent attention in public policy about the value of incorporating mental health considerations into broader development policies, rigorous evidence on the effectiveness of mental health interventions remains sparse, especially for adolescents – a crucial, distinct, and understudied stage of human development (Colizzi et al., 2020) that is experiencing a growing, global public health crisis (Currie, 2025). This crisis is exacerbated in low-resource settings where limited infrastructure for mental health screening and diagnosis complicates intervention targeting and effective treatments remain uncertain (Rai et al., 2021).

This paper evaluates the impact of individual talk therapy for adolescents at risk of school dropout, using a large randomized controlled trial in a low-income context. The study was conducted in Nepal in collaboration with the Center for Mental Health and Counseling-Nepal (CMC). The intervention offered free sessions with an experienced therapist– comprising four or, if the therapists thinks merited, six weekly individual sessions and two family sessions each lasting an hour – over a two month period and tailored specifically to address adolescent concerns such as bullying, anxiety, depression, and stress. The specific form of therapy was chosen by the therapist to conform to the child's needs.[1] Importantly, therapy participation did not require a formal mental health diagnosis, reflecting real world constraints on weak diagnostic infrastructure. Instead, subjects were selected based on their teachers identifying them as a dropout risk. Our trial enrolled 1,707 adolescents from 40 government schools across seven municipalities, selected in collaboration with local authorities and school principals. This makes our study among the largest

[1] Inspired by Jensen (2010), we cross-randomized therapy with an educational encouragement, but that encouragement did not appear meaningful to our subjects and does not feature in our findings. We discuss the encouragement in the next section.

RCTs assessing the impact of therapy in a low resource environment for any age group with more participants in our study than the sum total of all other therapy RCTs aimed at adolescents in low or middle income countries (Appendix D). Compliance was high (with 89 percent take-up of treatment) and attrition was 4 percent and unrelated to random assignment.

Our results 2-3 months post treatment indicate significant mental health improvements from therapy. Adolescents assigned to a therapy treatment experienced a 0.13 standard deviation reduction in psychological distress overall, with a 0.16 standard deviation reduction among those attending therapy because of random assignment. These reductions in distress were also observed by subject caregivers and are larger for subjects that received more therapy (variation in treatment intensity is not experimental). Improvements in sleep and reductions in tiredness appear important for these findings. These findings confirm that individualized counseling can effectively enhance mental health for adolescents across a range of initial conditions in a resource-limited setting. These findings challenge the traditional focus on diagnosed populations (Jakobsson et al., 2024). Moreover, in low-income contexts where limited awareness of mental health issues likely impedes individuals' ability to self-screen, the fact that we see broad-based benefits mitigates concerns about inefficient targeting for broad-based interventions (Gulliver et al., 2010; Hodgkinson et al., 2017). Further, our high participation rates indicate substantial acceptance and feasibility of therapy in resource-constrained environments, directly addressing concerns about stigma and barriers commonly cited in existing literature (Hodgkinson et al., 2017; Bharadwaj et al., 2017). Among the 89 percent taking-up our offer of therapy, 82 percent completed at least four sessions and 94 percent had caregivers participating in both of the family therapy sessions we offered. Take-up was highest among younger teens.

We further examine mechanisms through which therapy impacts mental health. Therapy improved emotional regulation (0.18 SD), adolescents' life outlook (0.08 SD), and relationships to classmates (0.07 SD). However, therapy had less impact on parental relationships and healthy behaviors in routine activities such as studying. These results align with our theory of change, where the short term effects of therapy improves emotional regulation, social connections, and life out-

look, reducing psychological distress.[2] Despite clear psychological benefits, therapy alone did not lead to improved school attendance or cognitive outcomes, contrasting with evidence from classroom-based psychosocial interventions which commonly report educational improvements (Alan and Ertac, 2018; Dhar et al., 2022; Edmonds et al., 2023; Shortt et al., 2001; Gillham et al., 2007; McNally Keehn et al., 2013; Shah et al., 2024). Our results highlight the limitations of individualized psychological interventions in addressing structural barriers to educational attainment.

This study makes five distinct contributions to the literature on mental health interventions. First, it provides empirical evidence on therapy's effectiveness reducing psychological distress for adolescents in a a low-resource environment at a scale substantially larger than prior work. Our study underscores the value of further investigation into the benefits of therapy for teens, especially over longer time horizons than feasible here. Second, the high uptake and engagement rates we observe for subjects and their caregivers, especially for younger teens, provide important insights into the feasibility and acceptability of mental health interventions in low-resource settings, challenging assumptions about resistance due to stigma, a lack of awareness, and logistical barriers. Third, by demonstrating broad mental health benefits across a population that was not medically pre-screened, we show that diagnostic screenings may not be necessary for successful interventions, extending prior adult-focused evidence on this point (Barker et al., 2022).

A fourth contribution is that by isolating individual therapy effects from the group dynamics and lesson content of classroom interventions, our findings clarify that much of the improvement in schooling documented in those studies might not derive from the therapeutic aspects of those classroom interventions. Classroom designs blur the differentiation of therapeutic effects from peer dynamics or classroom interactions. Our study isolates individualized therapeutic impacts, finding mental health improvements but without school attendance improvements. These findings underscore the significance of specific content and group interactions in previously reported educa-

[2]The importance of friendships over family relationships is consistent with adolescent psychology research (Schwartz-Mette et al., 2020), while findings on emotional regulation mirror therapy's effects in adults with pre-existing conditions (Lund et al., 2024). The link between depression and loneliness in older populations suggests therapy fosters social well-being differently across life stages (Banerjee et al., 2023), explaining why friendship benefits are stronger for adolescents but less evident among older adults (McKelway et al., 2023).

tional effects, suggesting that enhanced emotional well-being may not suffice to mitigate barriers to educational engagement in the current global teen mental health and school attendance crisis (Dalforno et al., 2022; Twenge and Blanchflower, 2025).

Finally, by distinguishing between psychological improvements and behavioral changes, we contribute nuanced evidence on the differential impacts of mental health interventions. Coupled with our findings of no change in schooling attendance or cognitive testing despite improved mental health, we contribute to the broader literature on the role of mental health interventions on well-being and and economic outcomes in low-income settings. Much of the existing evidence has focused on adult populations, consistently demonstrating that therapy or pharmacotherapy improves mental health outcomes. However, evidence on downstream economic effects, such as labor force participation, remains mixed (Angelucci and Bennett (2024), Baranov et al. (2020), Lund et al. (2024)). By extending this evidence to adolescents, we add new insights into how mental health interventions affect younger populations that face distinct developmental and economic challenges.

2 Experimental Design

2.1 Treatment

Funded by a contract with the World Bank, CMC implemented a private talk therapy intervention for adolescents in seven urban or semi-urban municipalities targeted for CMC's operational expansion, March-June 2022. As the largest mental health care provider in Nepal, CMC adopts an integrative therapeutic approach, primarily utilizing CBT.[3] Its structured sessions target five key adolescent mental health concerns: (i) anxiety, (ii) depression and suicide risk, (iii) school bullying, (iv) substance abuse, and (v) stress. The intervention begins with an introductory session to establish rapport and familiarize participants with psychosocial counseling. Subsequent sessions address common mental health challenges, often employing media such as case stories and videos.

[3]CMC was established in 2003, registered in the Kathmandu District Administration Office (838-059/060), and affiliated to the Social Welfare Council (14822) of the Government of Nepal.

A smartphone app with curated mental health content was available to participants, though all essential materials were integrated into in-person sessions for accessibility.

The therapy protocol consisted of six weekly, one-hour sessions, provided at no cost to participants. CMC administered four sessions for all participants, with an additional two for adolescents needing more support. Out of 818 adolescents offered therapy, 484 completed more than four sessions. Each therapist also conducted two family therapy sessions, totaling eight contact sessions and approximately eight hours of treatment.[4] The implementation of talk therapy in Nepal through CMC involved nineteen trained counselors, all with prior experience.

814 subjects also participated in an educational nudge intervention. Of these, 408 adolescents received both therapy and the educational nudge, while 406 received only the nudge. The nudge was led by a separately trained team of facilitators recruited and trained by CMC specifically for this project. We included the nudge based on our hypothesis that information on education's importance could mediate the effect of therapy on schooling outcomes (Jensen, 2010; Dinkelman and Martínez A, 2014). However, this single one-hour session appeared to lack salience for participants, and we assume it has no effect in our analysis.[5]

Our theory of change comes from the short-term effect of therapy. In the long run, therapy aims to restructure brain function (Yoshimura et al., 2014), but in the short term, it equips individuals with coping skills, healthier habits, and alternative perspectives on life's challenges (Leichsenring et al., 2004). We focus on these short-run effects because our endline follows two months after the end of treatment.

[4]This level of treatment intensity aligns with six of the ten studies identified in our meta-analysis in Appendix D. The remaining four studies had longer intended treatment durations, though actual session attendance was often lower. For instance, the longest reported intervention lasted 16 hours, but participants attended an average of only seven sessions of unspecified length (Murray et al., 2015). Other studies failed to report the number of sessions completed, further limiting comparability.

[5]Further details about this intervention are in our populated PAP. Cost information (not available at the time of populating the PAP) is in Appendix C.

2.2 Randomization

For its expansion, CMC targeted government schools serving grades 6–12. After screening headmasters' willingness to participate, CMC partnered with local governments to select 40 schools. In the fall of 2021, field staff enumerated students enrolled in these schools over the previous two years. Teachers assessed dropout risk, identifying an initial pool of 2,122 at-risk or dropped-out students. After removing duplicates and unlocatable students, the sample size was reduced to 1,942.

After a resurgent pandemic disrupted the baseline survey in early 2022 (Appendix C), the 1,942 listed students were stratified by municipality, gender, age, dropout risk, and baseline survey completion. In February 2022, a simple random number generator assigned students within each stratum to one of four groups: therapy without an education nudge ("therapy–"), an education nudge without therapy ("nudge"), therapy with a nudge ("therapy+"), and a pure control group. CMC's contract required dropping several strata at random to achieve a sample size of 1,803. Subsequently, 10 more duplicates were identified, resulting in a final randomized sample of 1,783 students. The average student is a 15-year-old male in grade 9 as of fall 2021. 10% are behind in school and 30% are at high risk of dropout according to teachers.

The early 2022 wave of the pandemic made it impossible to ascertain consent prior to randomization. All students randomized into a treatment arm who consented to therapy were offered treatment by CMC. CMC's consent process is separate from consent to be included in the research study. Ultimately, 1707 out of 1783 subjects consented to participate in our research. 1635 of these 1707 were found in the endline survey conducted in August of 2022 and are the basis for this evaluation.

As the school records data are used in stratification for randomization, study characteristics are mechanically balanced across treatment arms. However, our analysis is based on consenting subjects with endline data. We have administrative records on children that consented to the study and those that did not, and the F-Statistic associated with the null that random assignment does not predict consent is 0.25. The final sample with consent and outcome data appears balanced across

randomization arms in raw means (Appendix Table B1). We test this null using a Seemingly Unrelated Regression (SUR) by regressing each available student characteristic on the vector of treatment assignments and testing the cross-equation restriction that treatment assignment does not predict the study characteristics. This SUR test has a Chi-square statistic of 6.88 and an associated P-value of 0.991.

Our definition of attrition is a consenting subject that was not interviewed at endline. Under this definition, we have a 4 percent attrition rate. If we exclude therapy RCTs that condition their analysis entirely on non-attritors, our attrition rate is 86 percent below the average attrition rate in other therapy RCTs aimed at adolescents in low and middle income countries (Appendix D). We test the null that random assignment has no impact on attrition. This hypothesis is associated with an F-Statistic 0.72. The F-Statistic associated with the null that random assignment does not predict attrition-cum-consent is 0.37.

3 Empirical Specification

The central question is whether receiving therapy improves mental health and school attendance. Accordingly, we focus on compliers—those induced by randomization to take up therapy, in addition to reporting intent-to-treat (ITT) effects of each of the treatments.[6] We anticipate imperfect compliance due to administrative hurdles at CMC and because some participants initially consented but later declined treatment. Our goal is to estimate the effect of randomization-induced therapy uptake on key outcomes:

$$y_{is} = \beta_0 + \beta_1 D_{is} + f_s + \varepsilon_{0,is}, \tag{1}$$

where y_{is} is the outcome of interest for individual i in stratum s, f_s are strata fixed effects, and $\varepsilon_{1,is}$ is an error term robust to heteroskedasticity. The variable D_{is} measures therapy exposure. To address potential endogeneity in D_{is}, we instrument with random assignment, so β_1 measures the

[6]Both these approaches were pre-specified in our Pre-Analysis Plan.

impact on y_{is} of randomization-induced therapy participation.

We do not assume any specific threshold of sessions needed for therapy to affect mental health. Thus, our primary specification examines having any therapy, but we also consider completing six sessions, four sessions (the default number of sessions), or the continuous number of sessions. The choice of number of sessions is endogenous to latent potential returns to therapy. Hence, the characteristics of subjects induced into different number of sessions by randomization should be incomparable. We view the differences in treatment effects associated with varying treatment intensity as helpful in evaluating whether there is an impact of therapy, but readers should not draw inferences about the impact of adding more intensive treatments.

We estimate (1) using Two-Stage Least Squares (2SLS), modeling therapy uptake as:

$$D_{is} = \alpha_0 + \alpha_1 RA_{is} + f_s + \varepsilon_{1,is}, \tag{2}$$

where RA_{is} indicates the participant's assigned treatment. A random process allocated subjects to four groups: control, therapy without nudge (therapy–), therapy with nudge (therapy+), or nudge only. Our main specification uses the full vector of assignments as instruments for therapy uptake. In the appendix, we also pool the two therapy arms as one instrument as well as comparing therapy– to the control group (omitting any nudge group from the analysis).

We also present reduced-form (intent-to-treat) estimates:

$$y_{is} = \gamma_0 + \gamma_1 RA_{is} + f_s + \varepsilon_{2,is}, \tag{3}$$

In the body of the paper, we show reduced forms using all of our random variation in RA_{is}: therapy without nudge (therapy–), therapy with nudge (therapy+), or nudge only. Reduced forms pooling the two therapy arms and only considering (therapy–) vs. control are in the appendix.

We test whether the reduced-form impact differs between therapy– and therapy+ for each outcome category using seemingly unrelated regressions but never reject equality. Additionally, we never reject the null hypothesis that the nudge alone had no effect. This supports our hypothesis

that the nudge was a failed implementation.

4 Results

4.1 Participation

Assignment to a therapy treatment arm increases exposure to therapy, as shown in Table 1. Columns 1–5 present results from administrative records, and columns 6–7 use the endline survey. For each column grouping, the first column (1 and 6) reports results where random assignment is defined as being assigned to either the therapy– or therapy+ arm. The remaining columns use the full random assignment variation and serve as the first-stage specifications used throughout the paper.

Unlike expectations (Hodgkinson et al., 2017; Bharadwaj et al., 2017), we find a high degree of take-up. Our expectations were based on narrative evidence around stigma as existing RCTs (Appendix D) appear to condition their samples on take-up and thus are uninformative. In the administrative records, no therapy is recorded for the control group, and 89% of those assigned to therapy receive some private therapy. The remaining 11% are non-compliers. Among those assigned, 35% complete six sessions, and 82% complete at least four. The gap between columns 2 and 4 indicates that fewer than 5% of therapy recipients have under four sessions (Appendix Figure A1). While the mode is six sessions, the mean is 4.4.[7]

Measuring therapy participation through self-reports is challenging for a control group that may not recognize therapy. In our endline survey, 13% of the control group reported receiving therapy. We are not aware of any organization other than CMC offering therapy to adolescents in our geography. Hence, these survey responses likely reflect a misunderstanding rather than receipt of therapy. Overall, assignment to a therapy arm increases self-reported therapy by 40 percentage points (a three-fold increase). Both the therapy– and therapy+ arms (column 7) raise self-reports of therapy relative to control or nudge assignment.

[7]We also find high participation rates among parents for the two family sessions – 83 percent of those assigned to therapy took up both family sessions offered, 94 percent of those that took up any therapy also took up both family sessions, and 97 percent of those attending at least four private sessions also attended the two family sessions.

Since we estimate the impact of both being assigned to therapy (i.e., intent-to-treat effects), as well as the impact of *receiving* therapy (i.e., on compliers), we examine how compliers differ from noncompliers.[8] Appendix Table B2 summarizes background characteristics for every definition of treated considered. Age, current grade, and dropout risk stand out as predictors of compliance. If we partial out the correlation between age and dropout risk or grade, neither residual significantly predicts compliance. Thus, we infer that age is the primary driver of noncompliance. Figure 1 shows take-up by age and the age histogram for those assigned to a therapy arm. Take-up exceeds 90% among younger teens and begins to decline at age 15, consistent with prior developmental psychology research (Steinberg and Silverberg, 1986; Smetana et al., 2005; Brown and Larson, 2009) emphasizing that older adolescents' desire for autonomy and independence or increased social awareness may lead to increased resistance to therapy.

4.2 Mental Health

Random assignment to therapy is associated with improved mental health and that effects appears to come from the take-up of therapy. Table 2 presents these results. Each column is a different outcome variable. A higher value of each outcome indicates more severe symptoms. We include an aggregate Psychological Distress Index (PDI) and its components for anxiety [GAD-7, Casares et al. (2024)], depression [PHQ-8, López-Torres et al. (2019)], and caregiver assessments. Appendix F of Edmonds et al. (2025) precisely defines all variables. The ITT results are presented in Panel A – those assigned to therapy score around 0.13 standard deviations lower on PDI. We also find that the education nudge treatment had no impact, and that the impacts of the therapy- (therapy only) and therapy+ (therapy plus nudge) treatments are indistinguishable from each other.

The Two-Stage-Least Squares estimates are presented in Panel B. Each cell in panel B is from a different regression. Those induced into therapy by random assignment score approximately 0.16 standard deviations lower on PDI. We also observe reductions in depression and improved

[8] All 10 of the other RCTs we found (Appendix D) define treatment based on non-random take-up rather than the randomized offer. Hence, there is no comparable literature on adolescents in low- or middle-income countries.

caregiver perceptions of mental health among treated subjects, with anxiety improvements smaller in magnitude and not significant at the 5 percent level.

We are cautious in interpreting differences by treatment intensity since the number of sessions attended is endogenous[9], but the findings in Table 2 are consistent with the hypothesis that more intensively treated subjects experience greater improvements. Comparing the "Received 6+" and "Received 4+" rows shows the largest changes in the overall index, caregiver assessment, anxiety, and depression for the 6+ group.

Appendix Figures A2–A4 detail the individual questions forming these outcome indexes. For anxiety (Figure A2), we observe declines in feeling afraid for the future. For depression symptoms (Figure A3), we see improvements in feeling tired/low energy and trouble sleeping. In Figure A4 caregivers also observe improvements in sleep and feeling down as well as declines in worry. Each question asks the respondent to describe the frequency of the symptom. Overall, much of the change stems from respondents moving from reporting a symptom "several days" in a two-week period to "not at all," with smaller reductions for more frequent symptoms. However, for depression, we observe some declines in symptoms reported "more than half the days," including trouble concentrating, feeling tired, and sleep difficulties; caregivers also note a reduction in trouble sleeping and feeling down in these more intense experiences.

Social Desirability Bias: Dhar et al. (2022) highlight that interventions might alter social desirability awareness, affecting how individuals report symptoms. Social desirability bias can reduce reported anxiety (Logan et al., 2008), while its relationship with depression is less conclusive (Hoffmann et al., 2024). Because our therapy intervention aims to reduce stigma and enhance self-awareness (Latkin et al., 2017; Prati and Pietrantoni, 2009; Goh et al., 2021; Ferrari et al., 2019), it should make participants more comfortable reporting distress. If anything, we would expect more frequent, not fewer, reports of poor mental health. We identified six EPOCH survey items (Kern et al., 2016) that resemble Marlowe-Crowne social desirability (SD) questions and classified the sample into above- or below-median SD scores (Crowne and Marlowe, 1960). Appendix Table

[9]We did not pre-specify this analysis or measures of treatment intensity in our PAP. Edmonds et al. (2025) documents all deviations from our PAP in this study.

B5 shows results analogous to Table 2 for these subgroups, and we never reject the hypothesis of equal treatment effects across them.

4.3 Education

Despite the global twin crises in school enrollment and mental health, therapy does not appear to enhance educational outcomes (Figure 2, Appendix Table B7 for the results behind the figure and Table B6 for the reduced forms). We utilize three sources of attendance data: subject self-reports (attendance in the past two weeks, missed school days, and overall attendance rate), caregiver-reported attendance rate, and school administrative records (available for a subset). Across all attendance measures, estimated impacts are small and statistically insignificant. For instance, the result in the first row of Figure 2 has a 95% confidence interval ranging from a 3 percentage point increase to a 2 percentage point decrease. Relative to the mean attendance rate of 93%, this corresponds roughly to a 3% increase or a 2% decrease. Similar null effects emerge consistently across all five attendance metrics.

We also find no significant effect of therapy on cognitive outcomes, assessed via digit span tests following Barker et al. (2022). Results for the Digit Span Index are illustrated in the bottom row of Figure 2 and detailed in Appendix Table B9.[10] The estimated therapy effect is small, imprecise, and statistically insignificant; for context, the gender gap in this index is 0.27 standard deviations, and estimates of therapy's impact are one-fifth of the gender gap.

4.4 Discussion

Based on our review of existing meta-analyses of talk therapy (Appendix E), we posit that short-run effects arise through improved emotional regulation, relationships, healthier habits, and revised perspectives on life.[11]

[10] Forward, backward, and ordered digit spans are combined into a single normalized index.

[11] Although not pre-specified in our PAP, we constructed these indexes before analysis based on psychological literature (definitions in Appendix F and deviations from PAP in Appendix G of Edmonds et al. (2025).

The top panel of Table 3 contains our findings on mechanisms when treatment is defined as receiving any therapy in the first row or is defined as receiving the minimum complete treatment of 4+ private therapy sessions. The other treatment measures reported in Table 2 are in Appendix Table B11 and omitted here for economy. Outcomes are indicated by column labels. Column 1's top panel repeats the results from Table 2 and column 2 repeats from the first row of Figure 2. Therapy (by either measure) has the largest effect on emotional regulation and perspective on life. Our emotional regulation index includes sharing feelings, coping strategies, stress response, and emotion management; the perspectives index draws on Cantril's ladder, EPOCH items, and future aspirations. Therapy's observed impact on emotional regulation is also highlighted by the adult literature on therapy's effects in adults with pre-existing conditions (Lund et al., 2024).

While emotional regulation and perspectives may enhance relationships indirectly, therapy can also affect relationships directly. In magnitude, we observe larger effects on relationship to classmates than relationship to parents. Interestingly, there is an increase in treated individuals perceiving themselves as engaging in bullying, possibly indicating heightened sensitivity to social interactions. This bullying effect attenuates our relationship to classmates results which would be larger without its inclusion.

For a few other possible mechanisms, we observe effects of therapy that are smaller in magnitude and in their t-statistics. We observe smaller, positive effects on relationship to parents. The smaller effect on relations with parents compared to friends is interesting given that parents were included in the family therapy sessions, which 94 percent of those receiving any therapy received. We also observe small positive effects on habits like studying that are consistent with our general lack of an impact on anything related to education. Interestingly, therapy is negatively associated with attitudes toward mental health. Looking into the composition of the index, the negative is driven primarily by perceptions of control over one's mental health—potentially reflecting question misinterpretation (null effect not rejected). However within that index, therapy is positively associated with openness to friendship with peers experiencing mental health challenges, aligning with findings in Gulliver et al. (2010).

In the bottom panel of the table, we examine heterogeneity in the impact of therapy with baseline mental health status. While our PAP prespecified numerous heterogeneity analyses related to schooling (reported in Appendix Table B13), this paper emphasizes the prespecified heterogeneity linked to baseline mental health status as our focus is on understanding the impact of therapy on mental health. Our baseline mental health flag is defined as the subject having a possible major depressive disorder or anxiety disorder based on Kroenke et al. (2003) and Plummer et al. (2016). We estimate 2SLS regressions, instrumenting therapy take-up and its interaction with baseline mental health, and interacting all strata fixed effects with baseline status (Feigenberg et al., 2023).

Aligning with Tolan and Dodge (2005) and existing RCTs targeting symptomatic individuals (Appendix D), results in the bottom panel of Table 3 show larger reductions in psychological distress among those flagged at baseline. Yet, theoretically, it's unclear whether therapy yields higher marginal returns for better or worse baseline mental health. We observe that improvements in emotional regulation and life perspectives are largest for teens without baseline flags whereas relationships are most improved by therapy for teens with the baseline flag. This is true for both parental and peer relationships.

Overall, we observe larger reductions in distress and larger improvements in relationships for those with a baseline mental health flag and larger improvements in emotional skills and life perspectives for those without the baseline mental health flag. We have not identified a unified theory of the impact of therapy that would explain this heterogeneity in results, but we think this heterogeneity illustrates that there are positive effects on mental health for both those with and without baseline flags and that the positive impact of therapy is multidimensional and may vary with your situation when you begin therapy.

5 Conclusion

Our study demonstrates that, in contexts with limited mental health awareness and weak medical infrastructure, adolescents without prior mental health diagnoses readily engage in talk therapy,

resulting in high uptake and measurable mental health improvements.[12] These gains include enhanced emotional regulation and a more positive life outlook. Although these outcomes align with our theoretical expectations regarding short-term therapy effects, evidence for broader lifestyle improvements remains limited.

While observational studies often highlight a positive link between mental health and education (Murphy et al., 2015; Finning et al., 2019), and recent research identifies academic challenges as contributing factors to mental health issues (Demange et al., 2024), our results indicate improved mental health does not necessarily translate into increased school participation. This underscores the complexity of the relationship between adolescent mental health and educational engagement, suggesting that addressing mental health alone may not resolve the concurrent global crises of adolescent mental health and school engagement.

Additionally, our analysis shows that adolescents with poor initial mental health experience the greatest reductions in psychological distress, while improvements in emotional regulation and outlook are primarily observed among those without baseline mental health concerns. This highlights the multidimensional nature of mental health and calls for thoughtful resource allocation. Although recent WHO and UNICEF initiatives (Jakobsson et al., 2024) advocate prioritizing therapy for acutely distressed adolescents, our findings indicate that broader access to therapy could also meaningfully benefit adolescents not initially identified as having mental health concerns.

[12]This suggests that removing supply-side barriers and subsidizing therapy costs may effectively bridge the adolescent treatment gap, even without additional demand-side interventions. The intervention was delivered by trained personnel at approximately $12 USD per session (see Appendix C). Altogether, our results extrapolate to $540 for a one standard deviation reduction in psychological distress.

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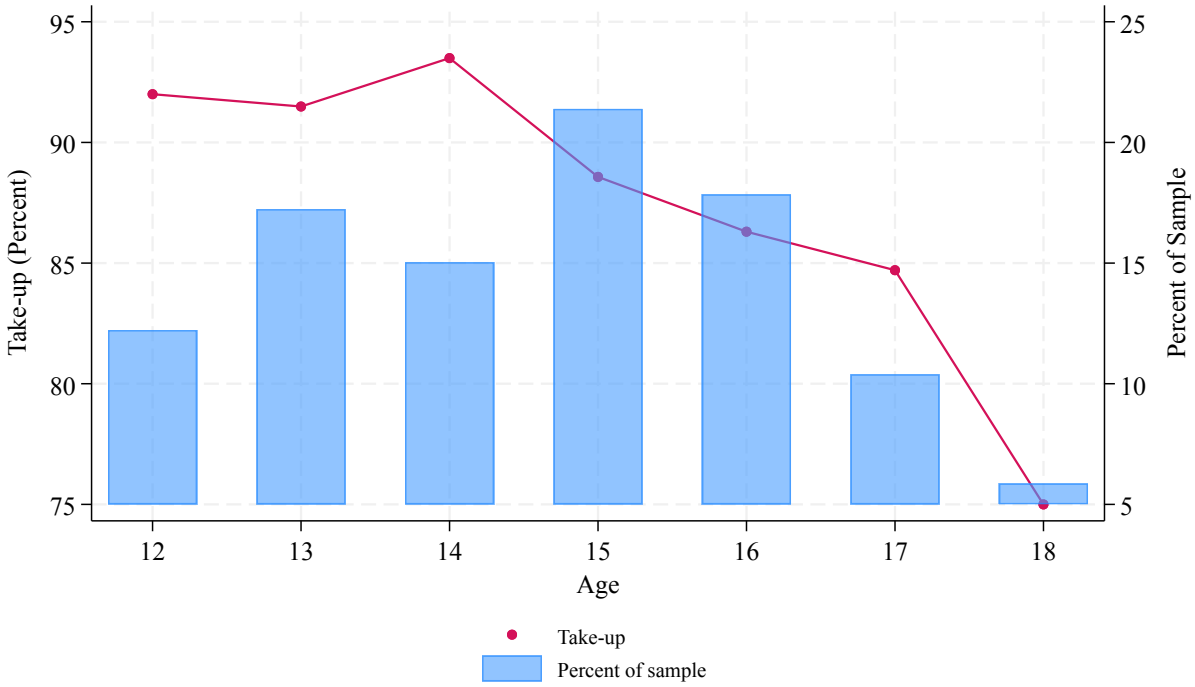
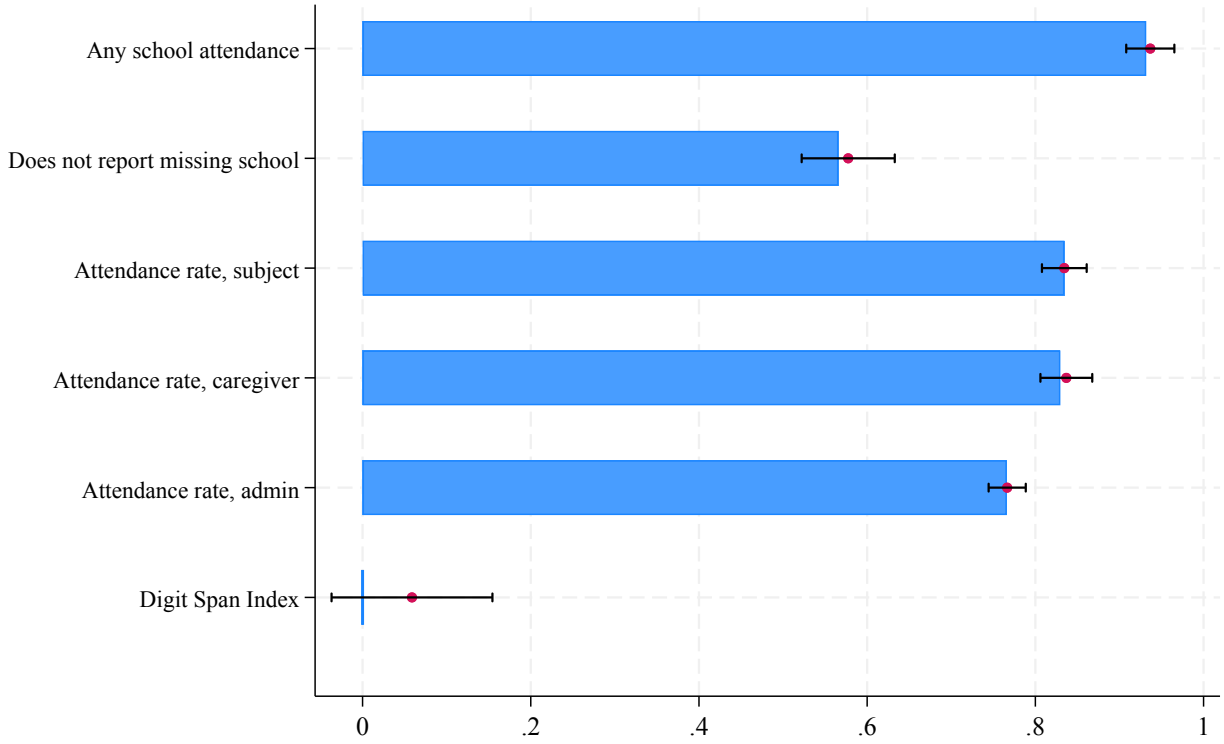
Figure 1: TAKE-UP AND TREATMENT SAMPLE COMPOSITION BY AGE



Notes: The sample includes 818 participants assigned to either therapy arm. Each bar represents the percentage of the sample at a given age, while each point plots the percentage of subjects who took up therapy at that age. Age refers to the adolescent's age in school records collected in November 2021.

Figure 2: IMPACT OF THERAPY ON SCHOOL ATTENDANCE AND DIGIT SPAN COGNITIVE TEST, 2SLS



Notes: Each point represents the 2SLS estimate of the effect of randomization-induced therapy from Equation 1, with 95% confidence intervals. Therapy take-up is instrumented using random assignment. Bars indicate the control group mean at endline for each dependent variable. The sample includes 1,635 participants with endline consent and nonmissing observations for each dependent variable. There are two missing responses for "does not report missing school" and eight missing responses for "attendance rate, subject" due to non-responses. The digit span index test is available only for in-person surveys (N=1,540). The administrative attendance rate is available for 1,048 respondents, while the caregiver-reported attendance rate is available for 1,507 respondents. All regressions include strata fixed effects and robust standard errors. Reduced form estimates are presented in Appendix Table B6 for attendance measures and Appendix Table B8 for the Digit Span index. The pictured 2SLS results are in Appendix Table B7 and Appendix Table B9.

Table 1: THERAPY TAKE-UP BY TREATMENT STATUS (FIRST STAGE REGRESSIONS)

	Admin records					*Endline Survey*	
	Received Therapy		6+ sessions	4+ sessions	Number of sessions	Therapy Experience	
Variable	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Assigned to any therapy arm	0.889**					0.402**	
	(0.011)					(0.021)	
Assigned to therapy-		0.877**	0.352**	0.822**	4.338**		0.520**
		(0.016)	(0.023)	(0.019)	(0.093)		(0.028)
Assigned to nudge		-0.001	-0.003	0.000	-0.010		0.264**
		(0.005)	(0.009)	(0.006)	(0.032)		(0.028)
Assigned to therapy+		0.899**	0.355**	0.845**	4.460**		0.546**
		(0.014)	(0.023)	(0.018)	(0.086)		(0.027)
Control group mean	0.000	0.000	0.000	0.000	0.000	0.131	0.131

Notes: This table reports the impact of treatment assignment on student therapy receipt. "Therapy–" indicates the therapy treatment arm without the educational nudge, "Therapy+" represents the arm with therapy and the educational nudge. Columns 1–5 present results based on administrative records, while Columns 6–7 use endline survey data. In Columns 1 and 6, treatment assignment is defined as randomization into any therapy arm (therapy– and therapy+ pooled), while the remaining columns include separate indicators for each arm. The sample consists of students with endline consent (N=1,635). All regressions include strata fixed effects, and robust standard errors are shown in parentheses. * $p<0.1$, ** $p<0.05$.

Table 2: IMPACT OF THERAPY ON MENTAL HEALTH RELATED OUTCOMES

Variable	Psychological distress index (1)	Anxiety index (2)	Depression index (3)	Caregiver distress assessment index (4)
Panel A: Intent to Treat				
Assigned to therapy–	-0.125*	-0.054	-0.072	-0.168**
	(0.071)	(0.068)	(0.067)	(0.068)
Assigned to nudge	0.029	0.054	-0.008	0.003
	(0.076)	(0.070)	(0.068)	(0.078)
Assigned to therapy+	-0.127*	-0.036	-0.118*	-0.168**
	(0.071)	(0.067)	(0.065)	(0.070)
F-stat for therapy–=therapy+	0.001	0.072	0.494	0.000
	(0.979)	(0.789)	(0.482)	(0.998)
Panel B: Impact of Random Assignment Induced Therapy Take-Up				
Received therapy (Admin)	-0.156**	-0.081	-0.103**	-0.188**
	(0.057)	(0.053)	(0.051)	(0.058)
Received 6+ therapy sessions	-0.387**	-0.204	-0.256**	-0.466**
	(0.140)	(0.134)	(0.125)	(0.144)
Received 4+ therapy sessions	-0.166**	-0.086	-0.110**	-0.200**
	(0.060)	(0.056)	(0.054)	(0.061)
Number of therapy sessions	-0.031**	-0.016	-0.021**	-0.038**
	(0.011)	(0.011)	(0.010)	(0.012)
Observations	1488	1635	1635	1488

Notes: Panel A presents the reduced form estimates of therapy's effect on mental health outcomes. The test that therapy–=therapy+ reports the F-statistic and its associated p-value (in parentheses) for the null hypothesis that the coefficients on therapy– and therapy+ are equal. A Seemingly Unrelated Regression (SUR) test was conducted for all regressions in the table. For the null hypothesis that therapy– equals therapy+ across all regressions, the chi-squared statistic is 2.85 (p-value=0.584). For the null hypothesis that the nudge coefficients are jointly zero across all regressions, the chi-squared statistic is 2.04 (p-value=0.729). Panel B reports the coefficient from the 2SLS estimate of the effect of randomization-induced therapy. Therapy take-up (or treatment intensity) is instrumented using random assignment. First Stage for Panel B row 1 is column 2 of Table 1. First stage for row 2 is column 3, row 3 is column 4, and row 4 is column 5 of Table 1. The sample consists of students with endline consent (N=1,635). For Columns 1 and 4, we are missing caregiver responses for 147 subjects that were not at home during their endline survey. Robust standard errors are shown in parentheses. All regressions include strata fixed effects. Therapy– vs. control estimates are in Appendix Table B3. Therapy+ and therapy– pooled results are in Appendix Table B4. * p<0.1, ** p<0.05.

Table 3: MECHANISMS AND HETEROGENEITY BY MENTAL HEALTH FLAG AT BASELINE

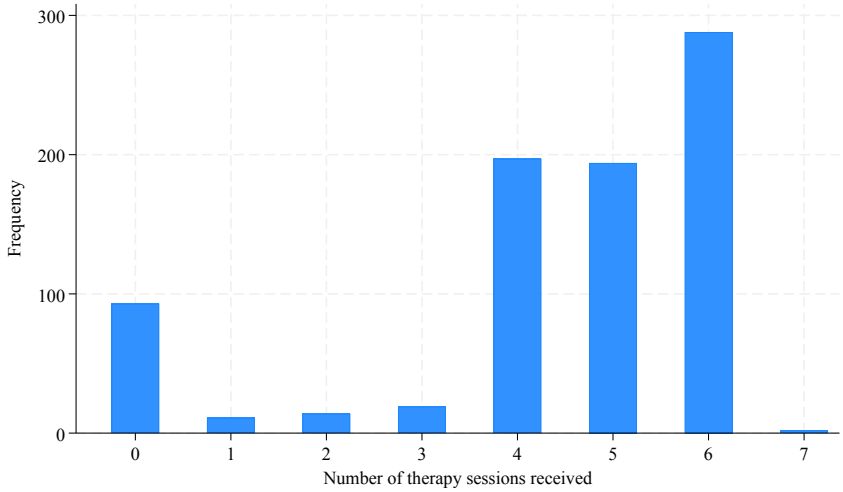
Variable	Psychological distress (1)	Any school attendance (2)	Emotional skills (3)	Relationship to parents (4)	Relationship to classmates (5)	Healthier habits (6)	Perspective on life (7)	Mental health attitudes (8)
Panel A: Pooled, Full Sample								
Received therapy	-0.156**	0.005	0.180**	0.026	0.072	0.048	0.084*	-0.065
	(0.057)	(0.015)	(0.056)	(0.061)	(0.055)	(0.051)	(0.046)	(0.052)
4+ therapy sessions	-0.166**	0.005	0.191**	0.027	0.076	0.051	0.089*	-0.070
	(0.060)	(0.016)	(0.059)	(0.065)	(0.059)	(0.054)	(0.049)	(0.056)
Observations	1488	1635	1540	1488	1540	1540	1540	1635
Panel B: Heterogeneity by Baseline Mental Health Flag, Sample with Complete Baseline								
Received therapy	-0.082	-0.022	0.201**	-0.083	0.012	0.030	0.088	-0.099
	(0.079)	(0.021)	(0.088)	(0.079)	(0.056)	(0.070)	(0.078)	(0.065)
Received therapy * MH flag	-0.132	0.027	-0.102	0.234	0.102	0.014	-0.060	-0.047
	(0.138)	(0.034)	(0.122)	(0.164)	(0.134)	(0.127)	(0.137)	(0.120)
4+ therapy sessions	-0.086	-0.022	0.210**	-0.092	0.015	0.028	0.094	-0.097
	(0.083)	(0.022)	(0.094)	(0.083)	(0.059)	(0.075)	(0.083)	(0.069)
4+ sessions * MH flag	-0.142	0.028	-0.103	0.249	0.107	0.020	-0.064	-0.054
	(0.146)	(0.035)	(0.129)	(0.173)	(0.141)	(0.135)	(0.144)	(0.126)
Observations	954	1033	979	954	979	979	979	1033

Notes: Panel A reports the coefficient from the 2SLS estimates of the effect of randomization-induced therapy on outcomes and standardized indexes designed to capture mechanisms through which therapy affects mental health. Therapy take-up (or treatment intensity) is instrumented using random assignment. The sample includes students with endline consent (N=1,635). All regressions include strata fixed effects. Panel B reports the coefficient from the 2SLS estimate of the effect of randomization-induced therapy and the coefficient on its interaction with a baseline mental health flag. Therapy take-up (or treatment intensity) and its interaction with baseline mental health are instrumented using random assignment and the interaction of random assignment with baseline mental health. The sample for Panel B consists of students with both endline and baseline consent (N=1,033). All regressions include strata fixed effects fully interacted with the baseline mental health flag. Indexes with components not asked in the endline student phone survey have a reduced sample (Columns 3 and 5-7), while indexes incorporating caregiver responses have a reduced sample from subjects that were not at home during the endline survey (Columns 1 and 4). Edmonds et al. (2025) contains a specification of these results also including baseline outcomes as a control. Robust standard errors are shown in parentheses. * $p<0.1$, ** $p<0.05$.

On-Line Appendices for Talk Therapy and Human Capital in Adolescence

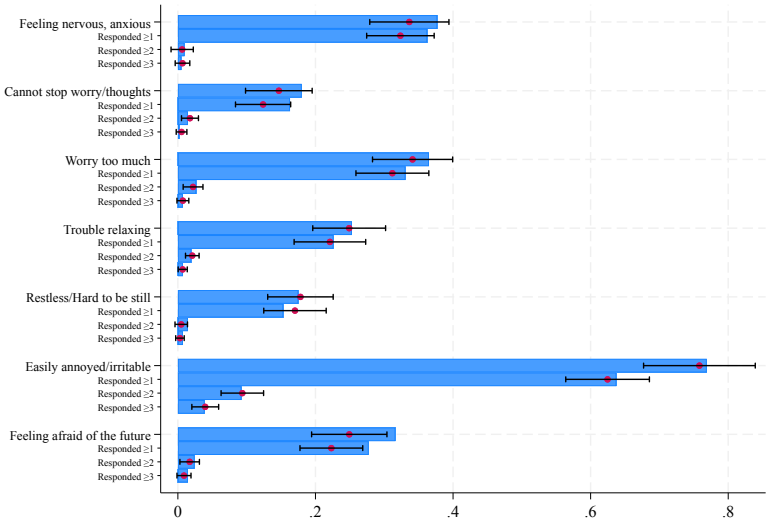
A Appendix Figures

Figure A1: NUMBER OF THERAPY SESSIONS RECEIVED



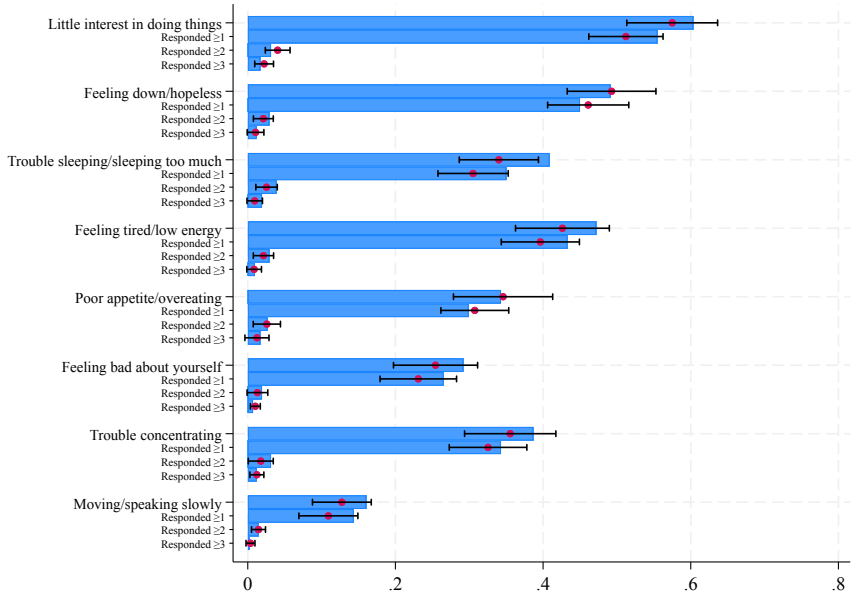
Notes: Each bar represents the number of individuals, among those assigned to either therapy arm (N=818), who received the corresponding number of sessions. Data are based on CMC's administrative records.

Figure A2: EFFECTS ON COMPONENTS OF ANXIETY INDEX



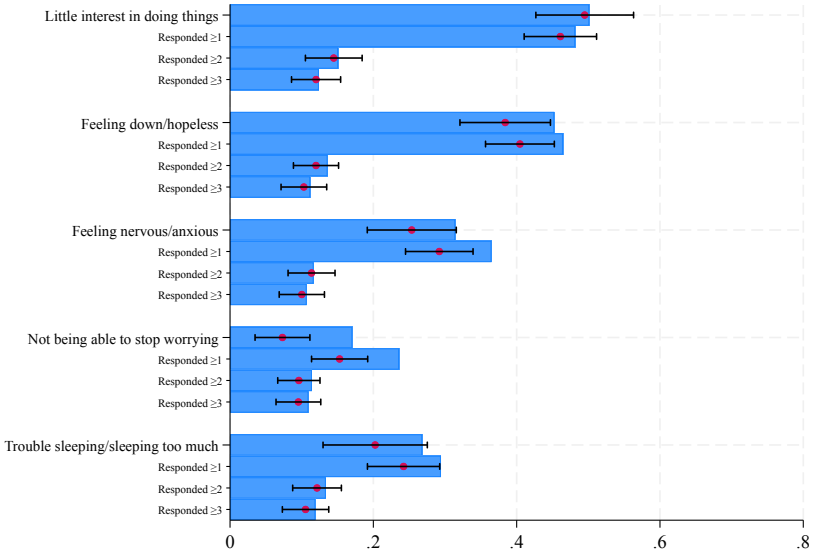
Notes: For each question, the bar represents the control group mean. The coefficient and 95% confidence interval is from estimating β_1 in the 2SLS estimate of equation 1. For each question, the survey asks the respondent how frequently they feel as described in the statement in the last two weeks with responses not at all (0), several days (1), more than half the days (2), nearly every day (3). In the first row, next to the question statement, we report results with this scale treated as a continuous variable. In the second row, the dependent variable in 1 is an indicator that the response was several days or greater. The third row is more than half days or greater. The fourth row is nearly every day.

Figure A3: Effects on components of Depression Index



Notes: For each question, the bar represents the control group mean. The coefficient and 95% confidence interval is from estimating β_1 in the 2SLS estimate of equation 1. For each question, the survey asks the respondent how frequently they feel as described in the statement in the last two weeks with responses not at all (0), several days (1), more than half the days (2), nearly every day (3). In the first row, next to the question statement, we report results with this scale treated as a continuous variable. In the second row, the dependent variable in 1 is an indicator that the response was several days or greater. The third row is more than half days or greater. The fourth row is nearly every day.

Figure A4: Effects on components of Caregiver Distress Assessment Index



Notes: For each question, the bar represents the control group mean. The coefficient and 95% confidence interval is from estimating β_1 in the 2SLS estimate of equation 1. For each question, the survey asks the caregiver's impression of how frequently the subject feels as described in the statement in the last two weeks with responses not at all (0), several days (1), more than half the days (2), nearly every day (3). In the first row, next to the question statement, we report results with this scale treated as a continuous variable. In the second row, the dependent variable in 1 is an indicator that the response was several days or greater. The third row is more than half days or greater. The fourth row is nearly every day.

B Appendix Tables

Table B1: STUDY POPULATION CHARACTERISTICS

Variable	Sample Mean (Targeted) (1)	Sample Mean (Consented) (2)	Control Mean (3)	Therapy– Mean (4)	Nudge Mean (5)	Therapy+ Mean (6)	F-Stat (p-value) (7)
Female	0.477	0.480	0.487	0.493	0.483	0.483	0.036
	(0.500)	(0.500)	(0.500)	(0.501)	(0.500)	(0.500)	(0.991)
Age	14.725	14.719	14.674	14.724	14.692	14.676	0.075
	(1.696)	(1.700)	(1.665)	(1.726)	(1.665)	(1.727)	(0.973)
High dropout-risk	0.315	0.305	0.302	0.305	0.305	0.299	0.017
	(0.465)	(0.461)	(0.460)	(0.461)	(0.461)	(0.458)	(0.997)
Medium dropout-risk	0.532	0.541	0.547	0.532	0.544	0.547	0.088
	(0.499)	(0.498)	(0.498)	(0.500)	(0.499)	(0.498)	(0.967)
Current grade	8.602	8.602	8.537	8.647	8.582	8.624	0.437
	(1.472)	(1.476)	(1.493)	(1.455)	(1.430)	(1.512)	(0.727)
Behind grade-for-age	0.119	0.118	0.131	0.098	0.127	0.094	1.465
	(0.324)	(0.322)	(0.337)	(0.298)	(0.333)	(0.292)	(0.222)
Completed baseline	0.620	0.647	0.645	0.622	0.653	0.608	0.743
	(0.486)	(0.478)	(0.479)	(0.485)	(0.477)	(0.489)	(0.526)
Completed endline	0.917	0.958					
	(0.276)	(0.201)					
Completed both surveys	0.579	0.605	0.645	0.622	0.653	0.608	0.743
	(0.494)	(0.489)	(0.479)	(0.485)	(0.477)	(0.489)	(0.526)
Observations	1783	1707	411	410	406	408	

Notes: Column 1 reports the mean of each variable for the students originally targeted for the study, and Column 2 reports the mean for the students who ever consented to the study. Columns 3-6 report the means of each variable for the control, therapy– (T1), education nudge (T2), and therapy + education nudge (T3) groups, respectively. Standard deviations are shown in parentheses. Column 7 reports the F-statistic and its associated p-value (in parentheses) for the null hypothesis that treatment status does not predict each individual outcome variable, using robust standard errors. The sample for Columns 3-7 is limited to students with consent at endline (N=1,635). A Seemingly Unrelated Regression (SUR) test was conducted for the regressions in Column 7 (excluding variables on survey completion). The chi-squared statistic is 6.88 (p-value = 0.991). The sample for the SUR test is reduced to 1,620 observations after dropping 15 students that have missing data on their current grade. We test the null that random assignment has no impact on attrition. This hypothesis is associated with an F-Statistic 0.72. The F-Statistic associated with the null that random assignment does not predict attrition-cum-consent is 0.37.

Table B2: COMPLIERS V. NONCOMPLIERS

Variable	Mean compliers (1)	Mean noncompliers (2)	Received therapy (3)	6+ sessions (4)	4+ sessions (5)	Number of sessions (6)
Female	0.491	0.462	0.029	0.019	0.051	0.007
	(0.500)	(0.501)	(0.055)	(0.037)	(0.047)	(0.009)
Age	14.626	15.280	-0.653**	-0.663**	-0.754**	-0.193**
	(1.701)	(1.808)	(0.197)	(0.120)	(0.162)	(0.032)
High dropout risk	0.291	0.387	-0.096*	-0.121**	-0.128**	-0.027**
	(0.455)	(0.490)	(0.053)	(0.032)	(0.045)	(0.009)
Medium dropout risk	0.548	0.473	0.074	-0.023	0.122**	0.010
	(0.498)	(0.502)	(0.055)	(0.037)	(0.047)	(0.009)
Current grade	8.580	9.077	-0.497**	-0.474**	-0.570**	-0.142**
	(1.477)	(1.462)	(0.162)	(0.105)	(0.133)	(0.027)
Behind-grade-for-age	0.098	0.077	0.022	-0.052**	0.009	-0.004
	(0.298)	(0.268)	(0.030)	(0.020)	(0.027)	(0.005)
Joint significance test			3.015**	12.027**	6.242**	8.949**
			(0.006)	(0.000)	(0.000)	(0.000)
Observations	725	93	818	818	818	818

Notes: The sample for this table is restricted to subjects in either therapy treatment arm (therapy– or therapy+, that is, those that received any therapy) with endline consent (N=818). Behind-grade-for-age is missing six observations due to missing current grade data. Columns 1-2 report the mean for compliers and noncompliers, defined as having received any therapy according to administrative records. Standard deviations are shown in parentheses. Columns 3-6 report the output of the null hypothesis that therapy take-up does not predict each individual outcome variable, for receiving any therapy, 6+ sessions, 4+ sessions and the number of sessions, respectively, as compliance indicators. Therapists decided whether to offer additional sessions after four had been completed, and subjects could accept or decline. Among 818 subjects offered therapy, 484 received more than four sessions. Column 6 contains the results of regressing each characteristic on the number of completed sessions. Robust standard errors are shown in parentheses. The joint significance test reports the F-statistic and its associated p-value (in parentheses) for the null hypothesis that all background characteristics do not predict therapy take-up. * $p<0.1$, ** $p<0.05$.

Table B3: MENTAL HEALTH RELATED OUTCOMES, RESTRICTED TO THERAPY– AND CONTROL

Variable	Psychological distress index (1)	Anxiety index (2)	Depression index (3)	Caregiver distress assessment index (4)
Reduced Form - OLS				
Assigned to therapy–	-0.137*	-0.061	-0.080	-0.174**
	(0.072)	(0.068)	(0.068)	(0.069)
2SLS				
Received therapy (Admin)	-0.153*	-0.070	-0.091	-0.194**
	(0.087)	(0.082)	(0.076)	(0.074)
Received 6+ therapy sessions	-0.376*	-0.172	-0.225	-0.476**
	(0.210)	(0.202)	(0.184)	(0.180)
Received 4+ therapy sessions	-0.163*	-0.074	-0.097	-0.207**
	(0.093)	(0.088)	(0.081)	(0.078)
Number of therapy sessions	-0.031*	-0.014	-0.018	-0.039**
	(0.017)	(0.017)	(0.015)	(0.015)
Observations	738	821	821	738

Notes: The sample for these regressions is limited to subjects assigned to therapy– and the control group with endline consent (N=821). This table presents both reduced form and 2SLS estimates of the effect of therapy on mental health outcomes. For 2SLS, therapy take-up and treatment intensity are instrumented using random assignment. Columns 1 and 4 are missing 83 responses of caregivers that were not home during the endline survey. Robust standard errors are shown in parentheses. All regressions include strata fixed effects. * $p<0.1$, ** $p<0.05$.

Table B4: MENTAL HEALTH RELATED OUTCOMES, USING ASSIGNMENT TO ANY THERAPY

Variable	Psychological distress index (1)	Anxiety index (2)	Depression index (3)	Caregiver distress assessment index (4)
Reduced Form - OLS				
Assigned to any therapy	-0.140**	-0.072	-0.091*	-0.169**
	(0.052)	(0.048)	(0.047)	(0.051)
2SLS				
Received therapy (Admin)	-0.156**	-0.081	-0.102**	-0.188**
	(0.057)	(0.053)	(0.051)	(0.058)
Received 6+ therapy sessions	-0.386**	-0.203	-0.256**	-0.466**
	(0.140)	(0.134)	(0.125)	(0.144)
Received 4+ therapy sessions	-0.165**	-0.086	-0.109**	-0.200**
	(0.060)	(0.057)	(0.054)	(0.061)
Number of therapy sessions	-0.031**	-0.016	-0.021**	-0.038**
	(0.011)	(0.011)	(0.010)	(0.011)
Observations	1488	1635	1635	1488

Notes: The sample for these regressions include subjects with endline consent (N=1,635). For Columns 1 and 4, we are missing caregiver responses for 147 subjects that were not at home during their endline survey. This table presents both reduced form and 2SLS estimates of the effect of therapy on mental health outcomes. For 2SLS, therapy take-up and treatment intensity are instrumented using an indicator that is one if subject is randomly assigned to either therapy arm, and zero if assigned to nudge only or control group. Robust standard errors are shown in parentheses. All regressions include strata fixed effects. * $p<0.1$, ** $p<0.05$.

Table B5: MENTAL HEALTH OUTCOMES BY SOCIAL DESIRABILITY SCORE

Variable	Psychological distress index (1)	Anxiety index (2)	Depression index (3)	Caregiver distress assessment index (4)
SDB score above median				
Received therapy (Admin)	-0.099	0.019	0.032	-0.278**
	(0.074)	(0.103)	(0.108)	(0.087)
Received 6+ therapy sessions	-0.214	0.038	0.064	-0.604**
	(0.157)	(0.213)	(0.231)	(0.209)
Received 4+ therapy sessions	-0.103	0.019	0.032	-0.291**
	(0.076)	(0.106)	(0.112)	(0.091)
Number of therapy sessions	-0.019	0.004	0.006	-0.055**
	(0.014)	(0.020)	(0.021)	(0.017)
Observations	402	438	438	402
SDB score below median				
Received therapy (Admin)	-0.116	-0.028	-0.153	-0.112
	(0.104)	(0.093)	(0.096)	(0.092)
Received 6+ therapy sessions	-0.306	-0.075	-0.403	-0.295
	(0.274)	(0.243)	(0.254)	(0.241)
Received 4+ therapy sessions	-0.122	-0.032	-0.164	-0.116
	(0.112)	(0.099)	(0.103)	(0.098)
Number of therapy sessions	-0.024	-0.006	-0.031	-0.023
	(0.021)	(0.019)	(0.020)	(0.019)
Observations	552	595	595	552

Notes: This table reports the same regressions as Table 2 conducted separately for subjects with high and low social desirability bias scores. The sample for these regressions is restricted to subjects with baseline and endline consent (N=1,033). For Columns 1 and 4, we are missing caregiver responses for 79 subjects that were not at home during their endline survey. Robust standard errors are shown in parentheses. All regressions include strata fixed effects. To construct social desirability scores, we identified six EPOCH survey items (Kern et al., 2016) that resemble Marlowe-Crowne social desirability (SD) questions and classified the sample into above- or below-median SD scores (Crowne and Marlowe, 1960). A description of these questions can be found in Appendix F of Edmonds et al. (2025). * p<0.1, ** p<0.05.

Table B6: TREATMENT EFFECTS ON SCHOOL ATTENDANCE (REDUCED FORM - OLS)

	In the past 2 weeks:				
	Any school attendance	Does not report missing school	Attendance rate, subject	Attendance rate, caregiver	Attendance rate, admin
Variable	(1)	(2)	(3)	(4)	(5)
Assigned to therapy–	-0.011	0.008	-0.013	-0.019	0.016
	(0.017)	(0.034)	(0.019)	(0.021)	(0.014)
Assigned to nudge	-0.015	0.008	-0.022	-0.042**	-0.005
	(0.018)	(0.034)	(0.019)	(0.021)	(0.015)
Assigned to therapy+	0.003	0.020	-0.010	-0.011	-0.020
	(0.017)	(0.034)	(0.019)	(0.022)	(0.016)
Control group mean	0.932	0.566	0.835	0.830	0.766
F-stat for therapy–=therapy+	0.623	0.152	0.020	0.136	6.428**
	(0.430)	(0.697)	(0.886)	(0.713)	(0.011)
Observations	1635	1633	1627	1507	1048

Notes: This table presents the reduced form estimates of therapy's effect on school attendance outcomes. The sample for these regressions consists of students with endline consent (N=1,635). There are two missing responses for does not report missing school and eight missing responses for subject-reported attendance rate due to non-responses. The administrative attendance rate is available for 1,048 respondents, while the caregiver-reported attendance rate is available for 1,507 respondents due to increased caregiver response rates for education-related measures. The test that therapy–=therapy+ reports the F-statistic and its associated p-value (in parenthesis) for the null hypothesis that the coefficients on therapy– and therapy+ are equal. A Seemingly Unrelated Regression (SUR) test was conducted for the regressions in the table. For the null hypothesis that therapy– equals therapy+ across all regressions, the chi-squared statistic is 6.98 (p-value=0.222). For the null hypothesis that the nudge coefficients are jointly zero across all regressions, the chi-squared statistic is 10.87 (p-value=0.054). The SUR test was executed for 966 observations with available data for all dependent variables. Robust standard errors are shown in parentheses. All regressions include strata fixed effects. * $p<0.1$, ** $p<0.05$.

Table B7: TREATMENT EFFECTS ON SCHOOL ATTENDANCE (2SLS)

	In the past 2 weeks:				
	Any school attendance	Does not report missing school	Attendance rate, subject	Attendance rate, caregiver	Attendance rate, admin
Variable	(1)	(2)	(3)	(4)	(5)
Received therapy (Admin)	0.005	0.012	0.000	0.007	0.000
	(0.015)	(0.028)	(0.014)	(0.016)	(0.011)
Received 6+ therapy sessions	0.012	0.029	0.000	0.018	0.003
	(0.037)	(0.071)	(0.034)	(0.039)	(0.029)
Received 4+ therapy sessions	0.005	0.012	0.000	0.007	0.000
	(0.016)	(0.030)	(0.014)	(0.017)	(0.012)
Number of therapy sessions	0.001	0.002	0.000	0.001	0.000
	(0.003)	(0.006)	(0.003)	(0.003)	(0.002)
Control group mean	0.932	0.566	0.835	0.830	0.766
Observations	1635	1633	1627	1507	1048

Notes: Each column reports the coefficient from the 2SLS estimate of the effect of randomization-induced therapy. Therapy take-up (or treatment intensity) are instrumented using random assignment. The sample for these regressions include students with endline consent (N=1,635) and nonmissing observations for each dependent variable. There are two missing responses for does not report missing school and eight missing responses for subject-reported attendance rate due to non-responses. The administrative attendance rate is available for 1,048 respondents, while the caregiver-reported attendance rate is available for 1,507 respondents due to increased caregiver response rates for education-related measures. Robust standard errors are shown in parentheses. All regressions include strata fixed effects. Reduced form estimates are presented in Appendix Table B6. * $p<0.1$, ** $p<0.05$.

Table B8: TREATMENT EFFECTS ON COGNITIVE TESTS (REDUCED FORM - OLS)

Variable	Forward digit span score (1)	Backward digit span score (2)	Ordered digit span score (3)	Digit Span Index (4)
Assigned to therapy–	0.028	0.067	0.051	0.052
	(0.086)	(0.075)	(0.094)	(0.069)
Assigned to nudge	-0.048	0.022	-0.085	-0.038
	(0.086)	(0.071)	(0.092)	(0.068)
Assigned to therapy+	-0.024	0.066	0.002	0.015
	(0.086)	(0.075)	(0.089)	(0.068)
F-stat for therapy-=therapy+	0.367	0.000	0.297	0.304
	(0.545)	(0.986)	(0.586)	(0.581)
Control group mean	5.471	3.453	3.932	0.000
Observations	1540	1540	1540	1540

Notes: This table presents the reduced form estimates of therapy's effect on cognitive test performance. Robust standard errors are shown in parentheses. All regressions include strata fixed effects. The sample for these regressions include students with endline consent with in-person surveys (N=1,540). The test that therapy– =therapy+ reports the F-statistic and its associated p-value (in parentheses) for the null hypothesis that the coefficients on therapy– and therapy+ are equal. A Seemingly Unrelated Regression (SUR) test was conducted for the regressions in Columns 1-3. For the null hypothesis that therapy– equals therapy+ across these regressions, the chi-squared statistic is 0.68 (p-value=0.878). For the null hypothesis that the nudge coefficients are jointly zero across these regressions, the chi-squared statistic is 1.76 (p-value=0.624). * $p<0.1$, ** $p<0.05$.

Table B9: TREATMENT EFFECTS ON COGNITIVE TESTS (2SLS)

Variable	Forward digit span score (1)	Backward digit span score (2)	Ordered digit span score (3)	Digit Span Index (4)
Received therapy (Admin)	0.029	0.062	0.077	0.059
	(0.063)	(0.054)	(0.076)	(0.049)
Received 6+ therapy sessions	0.073	0.154	0.190	0.146
	(0.155)	(0.136)	(0.191)	(0.121)
Received 4+ therapy sessions	0.031	0.066	0.081	0.062
	(0.067)	(0.057)	(0.081)	(0.052)
Number of therapy sessions	0.006	0.013	0.015	0.012
	(0.013)	(0.011)	(0.015)	(0.010)
Control group mean	5.471	3.453	3.932	0.000
Observations	1540	1540	1540	1540

Notes: Each column reports the coefficient from the 2SLS estimate of the effect of randomization-induced therapy. Therapy take-up (or treatment assignment) is instrumented using random assignment. The sample for these regressions include students with endline consent with in-person surveys (N=1,540). Robust standard errors are shown in parentheses. All regressions include strata fixed effects. Reduced form estimates are presented in Appendix Table B8. * $p<0.1$, ** $p<0.05$.

Table B10: MECHANISMS (REDUCED FORM - OLS)

Variable	Emotional skills (1)	Relationship to parents (2)	Relationship to classmates (3)	Healthier habits (4)	Perspective on Life (5)	Mental health attitudes (6)
Assigned to therapy–	0.094	0.066	0.083	0.059	0.068	-0.038
	(0.071)	(0.073)	(0.068)	(0.070)	(0.073)	(0.072)
Assigned to nudge	-0.094	0.039	0.044	-0.006	-0.034	0.122*
	(0.071)	(0.072)	(0.069)	(0.070)	(0.070)	(0.073)
Assigned to therapy+	0.131*	0.021	0.090	0.022	0.048	0.040
	(0.071)	(0.074)	(0.069)	(0.071)	(0.071)	(0.071)
F-stat for therapy–=therapy+	0.266	0.379	0.010	0.271	0.083	1.113
	(0.606)	(0.538)	(0.921)	(0.603)	(0.774)	(0.292)
Observations	1540	1488	1540	1540	1540	1635

Notes: This table presents the reduced form estimates of therapy's effect on different standardized indexes designed to capture mechanisms through which therapy affects mental health. Robust standard errors are shown in parentheses. All regressions include strata fixed effects. The sample for these regressions include students with endline consent (N=1,635). For Columns 1 and 3-5, we are missing 95 responses from phone surveys at endline. For Column 2, we are missing caregiver responses for 147 subjects that were not at home during their endline survey. The test that therapy-=therapy+ reports the F-statistic and its associated p-value (in parenthesis) for the null hypothesis that the coefficients on therapy– and therapy+ are equal. A Seemingly Unrelated Regression (SUR) test was conducted for the regressions in the table. For the null hypothesis that therapy– equals therapy+ across all regressions, the chi-squared statistic is 3.47 (p-value=0.748). For the null hypothesis that the nudge coefficients are jointly zero across all regressions, the chi-squared statistic is 7.61 (p-value=0.268). * $p<0.1$, ** $p<0.05$.

Table B11: MECHANISMS (2SLS)

Variable	Emotional skills (1)	Relationship to parents (2)	Relationship to classmates (3)	Healthier habits (4)	Perspective on Life (5)	Mental health attitudes (6)
Received therapy (Admin)	0.180**	0.026	0.072	0.048	0.084*	-0.065
	(0.056)	(0.061)	(0.055)	(0.051)	(0.046)	(0.052)
	[0.011]	[0.677]	[0.318]	[0.415]	[0.213]	[0.318]
Received 6+ therapy sessions	0.444**	0.064	0.177	0.119	0.207*	-0.167
	(0.143)	(0.150)	(0.138)	(0.127)	(0.112)	(0.131)
	[0.012]	[0.677]	[0.318]	[0.415]	[0.213]	[0.318]
Received 4+ therapy sessions	0.191**	0.027	0.076	0.051	0.089*	-0.070
	(0.059)	(0.065)	(0.059)	(0.054)	(0.049)	(0.056)
	[0.011]	[0.677]	[0.318]	[0.415]	[0.213]	[0.318]
Number of therapy sessions	0.036**	0.005	0.014	0.010	0.017*	-0.013
	(0.011)	(0.012)	(0.011)	(0.010)	(0.009)	(0.011)
	[0.011]	[0.677]	[0.318]	[0.415]	[0.213]	[0.318]
Observations	1540	1488	1540	1540	1540	1635

Notes: This table reports the coefficient from the 2SLS estimates of the effect of randomization-induced therapy on different standardized indexes designed to capture mechanisms through which therapy affects mental health. Therapy take-up (or treatment intensity) are instrumented using random assignment. The sample for these regressions include students with endline consent (N=1,635). For Columns 1 and 3-5, we are missing responses from 95 respondents who did phone surveys at endline. For Column 2, we are missing caregiver responses for 147 subjects that were not at home during their endline survey. All regressions include strata fixed effects. Robust standard errors are shown in parentheses. FDR adjusted q-values are shown in brackets and are calculated by pooling all specifications in the table. Reduced form estimates are presented in Appendix Table B10. * p<0.1, ** p<0.05.

Table B12: HETEROGENEITY - MENTAL HEALTH FLAG AT BASELINE

Variable	Psychological distress (1)	Any school attendance (2)	Emotional skills (3)	Relationship to parents (4)	Relationship to classmates (5)	Healthier habits (6)	Perspective on life (7)	Mental health attitudes (8)
Received therapy	-0.082	-0.022	0.201**	-0.083	0.012	0.030	0.088	-0.099
	(0.079)	(0.021)	(0.088)	(0.079)	(0.056)	(0.070)	(0.078)	(0.065)
Received therapy * MH flag	-0.132	0.027	-0.102	0.234	0.102	0.014	-0.060	-0.047
	(0.138)	(0.034)	(0.122)	(0.164)	(0.134)	(0.127)	(0.137)	(0.120)
6+ sessions	-0.187	-0.054	0.453**	-0.155	0.016	0.089	0.187	-0.258*
	(0.175)	(0.048)	(0.189)	(0.185)	(0.125)	(0.154)	(0.173)	(0.147)
6+ sessions * MH flag	-0.430	0.055	-0.027	0.406	0.346	0.066	-0.054	0.028
	(0.339)	(0.086)	(0.276)	(0.392)	(0.336)	(0.305)	(0.302)	(0.293)
4+ sessions	-0.086	-0.022	0.210**	-0.092	0.015	0.028	0.094	-0.097
	(0.083)	(0.022)	(0.094)	(0.083)	(0.059)	(0.075)	(0.083)	(0.069)
4+ sessions * MH flag	-0.142	0.028	-0.103	0.249	0.107	0.020	-0.064	-0.054
	(0.146)	(0.035)	(0.129)	(0.173)	(0.141)	(0.135)	(0.144)	(0.126)
Number	-0.016	-0.004	0.040**	-0.016	0.002	0.006	0.018	-0.020
	(0.016)	(0.004)	(0.018)	(0.016)	(0.011)	(0.014)	(0.016)	(0.013)
Number * MH flag	-0.028	0.005	-0.018	0.045	0.022	0.004	-0.011	-0.008
	(0.028)	(0.007)	(0.024)	(0.033)	(0.027)	(0.026)	(0.027)	(0.024)
Observations	954	1033	979	954	979	979	979	1033

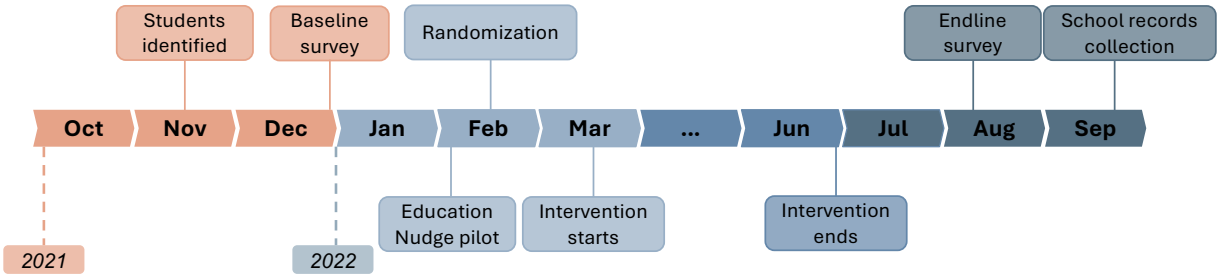
Notes: Each column reports the coefficient from the 2SLS estimate of the effect of randomization-induced therapy and the coefficient on its interaction with the baseline mental health flag. Therapy take-up (or treatment intensity) and its interaction with baseline mental health are instrumented using random assignment and the interaction of random assignment with baseline mental health. The sample consists of students with both endline and baseline consent (N=1,033). Indexes with components not asked in the endline student phone survey have a reduced sample of 979 (Columns 3 and 5-7), while indexes incorporating caregiver responses have a reduced sample of 954 (Columns 1 and 4). Robust standard errors are shown in parentheses. All regressions include strata fixed effects fully interacted with the baseline mental health flag. * $p<0.1$, ** $p<0.05$.

Table B13: HETEROGENEITY

Variable	Psychological distress (1)	Any school attendance (2)	Emotional skills (3)	Relationship to parents (4)	Relationship to classmates (5)	Healthier habits (6)	Perspective on life (7)	Mental health attitudes (8)
Full sample	-0.156**	0.005	0.180**	0.026	0.072	0.048	0.084*	-0.065
	(0.057)	(0.015)	(0.056)	(0.061)	(0.055)	(0.051)	(0.046)	(0.052)
High dropout risk=1	-0.089	0.056*	0.184**	0.037	0.145	0.070	0.080	-0.080
	(0.115)	(0.032)	(0.091)	(0.088)	(0.111)	(0.103)	(0.089)	(0.097)
High dropout risk=0	-0.184**	-0.016	0.177**	0.020	0.041	0.039	0.085	-0.061
	(0.066)	(0.015)	(0.071)	(0.079)	(0.062)	(0.058)	(0.055)	(0.063)
Behind in grade=1	-0.390**	0.035	0.174	0.204	0.042	0.045	0.120	-0.121
	(0.175)	(0.072)	(0.213)	(0.206)	(0.193)	(0.222)	(0.203)	(0.198)
Behind in grade=0	-0.128**	0.000	0.158**	-0.001	0.050	0.028	0.067	-0.062
	(0.060)	(0.011)	(0.057)	(0.060)	(0.061)	(0.051)	(0.045)	(0.057)
Age$\geq$15	-0.124	0.019	0.228**	0.004	0.036	0.127*	0.089	-0.040
	(0.083)	(0.026)	(0.075)	(0.100)	(0.074)	(0.067)	(0.061)	(0.069)
Age$<$15	-0.192**	-0.012	0.126	0.050	0.113	-0.041	0.078	-0.096
	(0.076)	(0.011)	(0.082)	(0.064)	(0.084)	(0.073)	(0.072)	(0.082)
Female=1	-0.167*	0.020	0.300**	0.075	0.112	0.064	0.113	-0.123
	(0.099)	(0.020)	(0.077)	(0.088)	(0.081)	(0.071)	(0.076)	(0.081)
Female=0	-0.145**	-0.010	0.062	-0.022	0.033	0.033	0.055	-0.010
	(0.059)	(0.021)	(0.082)	(0.085)	(0.077)	(0.074)	(0.055)	(0.062)
Baseline MH Flag=1	-0.214*	0.005	0.099	0.151	0.114	0.044	0.027	-0.145
	(0.114)	(0.026)	(0.085)	(0.144)	(0.122)	(0.106)	(0.113)	(0.102)
Baseline MH Flag=0	-0.082	-0.022	0.201**	-0.083	0.012	0.030	0.088	-0.099
	(0.079)	(0.021)	(0.089)	(0.080)	(0.056)	(0.071)	(0.078)	(0.065)

Notes: Each column reports the coefficient from the 2SLS estimate of the effect of randomization-induced therapy for a given subgroup. Therapy take-up is instrumented using random assignment. Robust standard errors are shown in parentheses. All regressions include strata fixed effects. The sample for these regressions include students with endline consent (N=1,635) and non-missing observations for each dependent variable except for the last two variables which rely on baseline data and are drawn from subjects with both baseline and endline information (N=1,033). * p$<$0.1, ** p$<$0.05.

Figure C1: TIMELINE OF DATA COLLECTION AND INTERVENTION



C Intervention Description and Costs

C1 Timeline

This study was conducted between fall 2021 and late summer 2022, during the global COVID-19 pandemic, in the following municipalities: Bheriganga, Birendranagar, Dhandghadi, Dhulikhel, Ghodaghodi, and Panauti. Figure C1 provides a detailed overview of the project timeline. Initially, in fall 2021, the pandemic appeared to be subsiding in Nepal, allowing field visits to identify partner schools and compile student lists. However, a resurgence of COVID-19 in late fall through January 2022 necessitated adjustments to our data collection approach.

Due to pandemic-related restrictions, the baseline survey was conducted via telephone using contact numbers available in student records. This method resulted in an incomplete baseline dataset, introducing selection concerns associated with latent factors correlated with having accurate and active phone numbers. Given these limitations, we opted against using the baseline survey for stratification in randomization. Instead, we relied on school records to stratify and randomly assign students to one of four treatment arms in February 2022.

Following randomization, in-person treatment sessions commenced in March 2022 and continued through June. The endline survey was conducted in person during late summer 2022, with all fieldwork concluding by September.

C2 Intervention Costs

The implementation costs for the interventions in this project are presented in Table C1. Panel A presents the costs for the talk therapy disaggregated into components. Panel B does the same for the education nudge. For both interventions, we also calculate the average cost per beneficiary by dividing the total cost incurred by the number of beneficiaries (725 beneficiaries for talk therapy and 814 beneficiaries for the education nudge). For the talk therapy, we also report the average cost per session by dividing the total cost by the 4,981 sessions delivered (subject sessions plus family sessions). Costs were incurred in Nepali Rupees (NPR), and for the conversion to US Dollars (USD), we assume 1 USD = 115 NPR.[13]

[13]This is the exchange rate used by CMC during the contracting process.

The average cost of talk therapy is NPR 9,669 (USD 84) per treated adolescent, resulting in a per session cost of NPR 2,197 (USD 12). A review of therapist listings on the Nepal Mental Health Website at the time of this draft revealed session prices ranging from NPR 500 to NPR 3,000. Thus, our per session costs align with market prices.

Table C1: INTERVENTION COSTS

	Nepali Rupees	US Dollars
Panel A: Talk Therapy Costs		
NGO management staff	1,756,238	15,272
Counselor recruitment	20,010	174
Counselor training	757,965	6591
Counselor salaries	2,880,015	25,044
Mobile app content development	310,035	2,696
Operational costs	1,285,690	11,180
Total	7,009,953	60,956
Per beneficiary	9,669	84
Per session	1,407	12
Panel B: Education Nudge Costs		
NGO management staff	476,550	4,144
Facilitator training	171,600	1,492
Facilitator salaries	510,000	4,435
Operational costs	345,900	3,008
Total	1,504,050	13,079
Per beneficiary	1,848	16

C3 Benefits

From the 2SLS results presented in Table 2 we know that receiving talk therapy decreased psychological distress by 0.156 SD. Thus, the cost to reduce psychological distress by 0.1 SD is $9,669/1.56 =$ NPR 6,198 (USD 54) equating to USD 540 for a one standard deviation decrease.

D Meta-analysis of Evidence from Randomized Controlled Trials of Individualized Talk Therapy Interventions Aimed at Adolescents in Low and Middle Income Countries

In order to identify the appropriate, applicable literature, we conducted a meta-analysis of published research included in the PubMed, PsycInfo, Cochrane Library, Web of Science, ERIC, and SCOPUS indexes. We chose to eliminate Google Scholar as a source because of limits in its boolean search algorithm and the preponderance of unpublished gray literature.

Studies were included if they met the following criteria for inclusion:

- Study is an original RCT (not a report summarizing others RCTs or review articles)
- Study is published in English
- Study takes place in a low or middle income country
- Study is targeted at adolescents. "Targeted" implies that a majority of subjects are within ages 12-17
- Study has at least 1 citation
- Intervention is provided to one person at a time, not in a group setting
- Intervention is a form of talk therapy

Edmonds et al. (2025) contains the complete script used in this search and tabulates the search results by database. Two additional studies were added based on prior knowledge of the study. After duplicates were eliminated, there were a total of 174 papers that were manually screened based on the inclusion criteria, leaving a total of 10 studies with a total of 1,634 participants that met the criteria for inclusion. None of these 10 studies were targeted at a general population; all pre-screened for a pre-existing condition. None of these 10 studies considered schooling as a primary outcome. These studies are: Amin et al. (2020), Charkhandeh et al. (2016), Jaberghaderi et al. (2019), Kaminer et al. (2023), Kane et al. (2024), Kumuyi et al. (2022), Miri et al. (2019), Murray et al. (2015), Rossouw et al. (2018), and Shein-Szydlo et al. (2016).

Several of these studies limit their analysis to subjects that complied with random assignment and did not attrit. Hence, while 1,634 are randomized and 763 are treated, only 1,161 are used in the reported analysis. Appendix Table D1 summarizes the location, pre-existing conditions used for selection into the sample, total subjects randomized, total assigned to a therapy treatment, compliance data when available, and the number of non-attriting observations used in analysis. We find it incredible that the number of subjects assigned to therapy matches the number of partial compliers in all studies. We suspect this reflects differences in disciplinary norms in whether researchers consider subjects assigned to treatment that decline treatment.

Table D1: COMPLIANCE IN RCTS

Study	Country	Pre-existing condition	Total subjects randomized	Assigned to therapy treatment	Partial compliers	Full compliers	Non attritors
Amin et al. (2020)	Pakistan	Social anxiety	76	38	*No details on compliance*		76
Charkhandeh et al. (2016)	Iran	Depression, not treated	188	65	65	65	188
Jaberghaderi et al. (2019)	Iran	Physical abuse or witnessed conflict	139	40	40	25	102
Kaminer et al. (2023)	South Africa	Trauma-exposed	75	37	37	35	73
Kane et al. (2024)	Zambia	Significant HIV risk behaviors	610	307	307	273	252
Kumuyi et al. (2022)	Nigeria	High levels of Conduct Disorder	16	8	*No details on compliance*		8
Miri et al. (2019)	Iran	Overweight	110	55	55	55	102
Murray et al. (2015)	Zambia	Experienced at least one traumatic event	257	131	131	107	210
Rossouw et al. (2018)	South Africa	PTSD	63	31	31	25	52
Shein-Szydlo et al. (2016)	Mexico	At least moderate post-traumatic stress	100	51	51	50	98

Notes: Partial compliers and full compliers are relative to the number of subjects assigned to any therapy treatment. Partial compliers receive some therapy treatment while full compliers are those that completed the treatment. Non attritors are those engaged with the study until endline and is relative to the total subjects randomized in the study.

E Meta-analysis of Meta-analyses and Review Articles of Talk Therapy Interventions Aimed at Adolescents

During the fall of 2024, we conducted a meta-analysis of meta-analyses on the impact of talk therapy aimed at adolescents. The criteria for study inclusion were:

- Study is a Review Article or Meta-analysis, not original research paper
- Study is published in English
- Study focuses on research targeted at adolescents. "Targeted" implies that a majority of subjects are within ages 12-17 (subjects do not need to be exclusively 12-17 nor do they need to span that range)
- Study has at least 1 citation
- Study focuses on interventions that are a form of talk therapy.

We identified six databases in which we could identify published meta analyses: PubMed (614 articles identified), PsychINFO (28), Cochrane Library (77), Web of Science (454), and Scopus (3,033). We decided to exclude Google Scholar because of our desire to focus on published, mainstream research. In each database, we selected articles using the following title and abstract search: ("talk therapy" OR "psychotherapy" OR "counseling" OR "CBT" OR "cognitive behavioral therapy") AND ("adolescents" OR "teenagers" OR "youth") AND ("meta-analysis" OR "systematic review" OR "review article").

After removing duplicates, this search process resulted in 3,338 unique articles. We screened the title and abstracts of these 3,338 articles to find meta-analyses that focus on the impact of talk therapy on the well-being of adolescents. Thus, meta-analyses built around the treatment of some pre-existing diagnosis were removed. Specifically, we removed from these 3,338 articles those that focus on substance abuse, gambling, physiological conditions including obesity, sexual behaviors, pre-existing medical or mental health conditions, and pharmacological, music, movement or non-talk therapy treatments. This left us with 249 studies. We manually screened these remaining 249 studies. 90 were inaccessible, and 41 were screened out as false inclusions, leaving a sample of 113 studies to analyze.

We then trained an LLM to evaluate these 113 studies. A few interesting points stand out in the resulting data:

- A total of 3,330 (non-unique) studies are referenced across these meta-analyses
- 67 out of 113 report uniformly positive effects of talk therapy
- 22 of the 113 emphasized methodological problems with the studies they discussed, usually the absence of a control group
- 8 of the 113 discussed CBT treatments. 6 of those 8 emphasize uniformly positive results of CBT on outcomes
- 2 of the 113 consider school attendance related outcomes. 1 focuses on school-based social work.