A Culturally Adapted Intervention to Treat Depression and ART Nonadherence on the U.S.-Mexico Border: Final (Promising!) Results from a Pilot RCT

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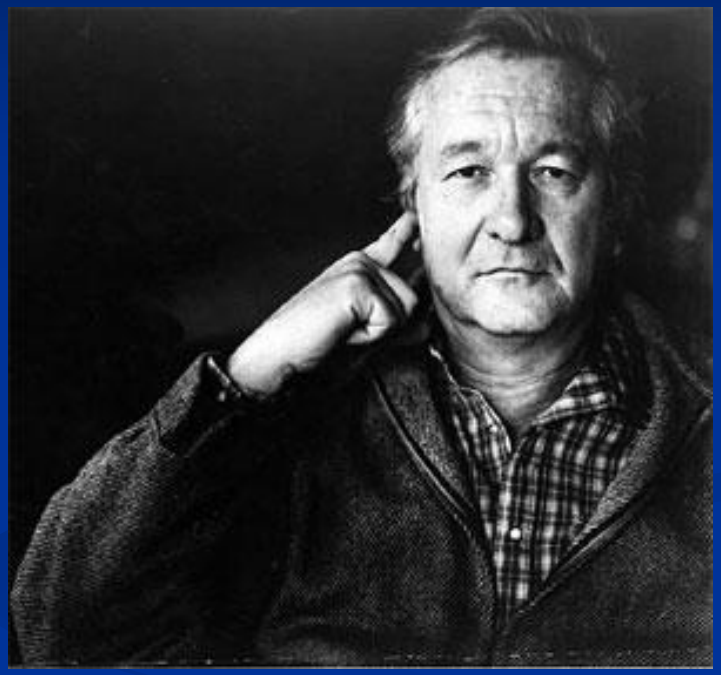
Depression

The pain of severe depression is quite unimaginable to those who have not suffered it, and it kills in many instances because its anguish can no longer be borne. The prevention of many suicides will continue to be hindered until there is general awareness of this pain.

William Styron,
Pulitzer Prize-winning author



Lifetime Prevalence:

Persons in the general population:	15%
People living with HIV:	22-45%

Depression linked to…

- **Symptoms of HIV infection** (Roberts, 2000)
- **Higher viral load or lower CD4+ cell count** (Arnsten et al., 2001; Bangsberg et al., 2000; Burack et al., 1993; Catz et al., 2000; Chan et al., 2003; Gifford et al., 2000; Paterson et al., 2000)
- **HIV disease progression** (Alciati, Gallo, Monforte, Brambilla, & Mellado, 2007; Burack et al., 1993; Leserman et al., 1999; Leserman et al., 2002; Page-Shafer, Delorenze, Satariano, & Winkelstein, 1996)
- **Shorter survival time** (Ickovics et al., 2001; Lima et al., 2007; Mayne, Vittinghoff, Chesney, Barrett, & Coates, 1996).

Depression and Nonadherence

- Depression predicts nonadherence across various medical conditions, including HIV (Catz, Kelly, Bogart, Benotsch, & McAuliffe, 2000; DiMatteo, Lepper, & Croghan, 2000; Gordillo, del Amo, Soriano, & Gonzalez-Lahoz, 1999; Holzemer, 1999).

- Safren et al. (2001) found that depressive symptomatology was negatively associated with adherence over and above additional psychosocial predictors (i.e., social support, adherence self-efficacy, and punishment beliefs about HIV).

Causation is Likely Complex

The association between depression and adherence may be due to the symptoms of depression themselves (e.g., sadness, poor concentration, psychomotor retardation, suicidal ideation) or

to the associated impairments in problem-solving and coping that can be secondary to depression (Safren, Radomsky, Otto, & Salomon, 2002).

Depression and HIV on the Border

- In the border region, about 33% of Latinos living with HIV have a diagnosable mood disorder, predominantly major depression.
- The border area is dramatically underserved by mental health care providers, particularly at the doctoral level.
- Even fewer providers are Spanish-fluent and are familiar with the HIV treatment context.

One Potential Strategy?

- Well-defined, manualized psychosocial treatments can be effectively applied by paraprofessional counselors or health care providers with primary training in other areas.

- There are virtually no well-defined, linguistically and culturally appropriate, empirically supported psychosocial treatment approaches for depression and nonadherence in Latinos.

Safren's Cognitive-Behavioral Therapy for Adherence and Depression

- CBT-AD is an evidence-based intervention (Safren et al., 2009) that addresses the association between depressive symptomatology and poor ART adherence.

- The model hypothesizes that decreasing depression will directly affect biomedical outcomes of VL and CD4 count and indirectly affect them through adherence by improving problem-solving skills, motivation, and memory.

CBT-AD in HIV

- Orientation to Cognitive Behavioral Model of Depression
- Motivational Interviewing
- Life Steps
  - Adherence-focused (e.g., communication, cue control)
- Activity Scheduling
- Adaptive Thinking (Cognitive Restructuring)
- Problem Solving
- Relaxation Training and Diaphragmatic Breathing
- Review, Maintenance, and Relapse Prevention

CDC Map of Adaptation Process

- A systematic approach for adapting evidence-based behavioral interventions.
- This model incorporates input from community members and agencies, and experiences of experts both in research and the target population by integrating continuous feedback through the adaptation process.

Action Steps

- Action Step 1: Assess factors associated with depression in Latinos living with HIV, identify current evidenced based interventions (EBIs) used in this population, and recruit stakeholders and community agencies for guidance and ideas.
- Action Step 2: Select CBT-AD and develop plan for linguistic and cultural appropriateness through qualitative data.
- Action Step 3: Modify CBT-AD model with information from CABs, consultants, and focus groups, and pre-test all Spanish-language materials.
- Action Step 4: Test the feasibility of the intervention.

Community Advisory Boards

- Scientific and Administrative CAB – medical and social service providers, clinic administrators, researchers from both sides of the border
- Patient CAB – six patients recruited by social workers at La Fe CARE Center
- Semi-annual meetings
- Simultaneous interpretation

Qualitative Pilot Work

- Three focus group were conducted in Spanish.

- Groups comprised:
  - Adult females living with HIV/AIDS
  - Adult gay-identified males living with HIV/AIDS
  - Treatment experienced adults living with HIV/AIDS

- Qualitative analysis was conducted with Atlas.ti software and was guided by the principles of the grounded theory method (GTM).

- Analysis was conducted in Spanish, and illustrative quotes were translated to English for presentation.

Qualitative Findings

- Issues related to disclosure, stigma, family support, religion/spirituality, depression and adherence were common to all groups.

- Financial stress was related to ability to buy medications, pay for medical services and access transportation (median annual household income in this clinic was <$10,000).

Qualitative Findings - II

- Women expressed more difficulty in living with HIV as a results of being infected by spouses, and feeling prohibited from disclosing. Issues related to physical appearance were common.

- Psychosocial intervention efforts may benefit from inclusion of culturally-specific issues and attention to disclosure, stigma, family relationships, and their impact on adherence.

Adaptation

- **Content: Informally assess how relevant culturally specific domains may be, identify most salient concerns, and explore how these overlap with depression and adherence so as to begin working from the same narrative.**

- **Process: Incorporate traditional Latino values (*respeto, confianza, simpatía, personalismo*, *familismo)* and apply them to interaction with clients throughout the intervention.**

Cultural Exploration Session

. . . Layers of stigma

- Disclosure issues
- Stigma and discrimination
- Family issues
- Social support
- Religion and spirituality

Further Adaptation

Both to Hispanic culture and low SES of our patients:

- **Increasing relevance of behavioral activation.**

  low or no cost options that are culturally relevant (e.g., playing "lotería“) and incorporate family interactions, “other” focused activities that may also bring pleasure or mastery (e.g., cooking for family members, volunteering one’s time, donating used items to charity).

- **Adapting stories and metaphors (parenting rather than baseball).**
- **“Adaptive thinking” incorporated information gathered during cultural exploration session.**
- **Using *dichos* and simplifying terminology of cognitive restructuring.**
- **Using session time to complete homework.**

Method

- Participants recruited 10/21/2009 – 8/31/2011 from Centro de Salud Familiar la Fe CARE Center, Inc.
- Inclusion criteria:
  - Age > 18
  - Prescribed HAART for at least 30 days
  - Mexican ancestry and fluency in English or Spanish
  - Evidence of depressive symptoms (BDI-IA > 10) and nonadherence (any patient report or detectable VL)
- Exclusion criteria:
  - Advanced dementia
  - Active psychosis
  - “Hard” drug use in the last month

Control Condition

- Treatment as usual
- Electronic pillbox monitoring
- Monthly check-ins
- Letter to primary care physician

Intervention Condition

- 6-month treatment
  - 14-20 sessions of adapted CBT-AD in preferred language
  - 2 follow-up booster sessions
  - Electronic pillbox monitoring with alarm
  - Letter to primary care physician

Interviewing & Reimbursement Schedule

- Screening interview/ questionnaire: $20
- Run-in procedure/second interview: $20 at baseline
- Each therapy session: $20
- Qualitative and quantitative measures at 6 and 9 month follow ups: $20 each
- Return of pillbox: $20
- Intervention participants earned a total of $240-$300, depending on the number of sessions.

Flow of the Study

Providers/Staff refer patients to study. If interested, patient meets with Nuevo Día staff

Screening - $20

STUDY ENROLLMENT VISIT — Visit 1 - $20

Randomize participant to one of two groups:

- [50%] → Group 1: **STANDARD CARE**
- [50%] → Group 2: **CBT-AD**

LETTER TO PROVIDER, BLIND TO CONDITION

- Pillbox Silent
- Pillbox Alarmed

TRAINING ON PILLBOX

- Monthly Pillbox Check-ins - $20
- Weekly CBT-AD - $20

6-MONTH FOLLOW-UP VISIT - $20

COMPLETE QUANTITATIVE INTERVIEW AND QUESTIONNAIRE MEASURES

- Qualitative Therapy Evaluation
- Monthly Booster Sessions - $20

9-MONTH FOLLOW-UP VISIT - $20

COMPLETE 9-MONTH QUESTIONNAIRE AND INTERVIEW

Return Pillbox

(BONUS - $20 if pillbox returned)

Flow of Participants

- Of the 295 referrals for the screening survey, only 42 were ineligible for it; 33 could not be scheduled and an additional 5, though eligible, declined to participate.

- Among the resulting 252 who completed the screening survey, most were excluded because they were not of Mexican descent (48; 23%) or failed to meet the criterion for depressive symptomatology (105; 43%). **Only one individual declined to participate.**

Outcome Measures

- Depression:
  - Beck Depression Inventory (21 items minus 7 somatic items).
  - Montgomery-Ásberg Depression Rating Scale (MADRS, clinician administered), a semi-structured interview designed to capture the severity of ten symptoms over the past seven days.
    - Weekly group supervision using audio recording of MADRS administrations was conducted to prevent rater drift, and recordings of 20% of all interviews were reviewed in this fashion.

Outcome Measures

- Visual Analog Scale for Adherence (7-day)
  - 10-cm line on which participants indicate how much of their medication they have taken over the past 30 days (Amico et al., 2006).

Outcome Measures

- **Electronic Pillbox Monitor**
  - **Past 2-week adherence = "valid" bin openings (within 12 or 6 hours of an alarm for once or twice a day dosing, respectively) divided by prescribed doses.**
  - **Duplicate openings within each alarm window were discarded to restrict adherence to a maximum of 100%.**
  - **Baseline adherence was calculated for the two-week period after monitoring was initiated, with 6 and 9-month adherence calculated for the two weeks prior to each of the follow-up assessments.**

Outcome Measures

- **Biomarkers**
  - **VL and CD4 cell counts were extracted from patient medical records.**
  - **For baseline, we used samples drawn prior to, or no later than 14 days after, study enrollment.**
  - **We used 6 and 9-month lab results in closest temporal proximity to the 6 and 9-month follow-up appointment dates.**
  - **A log transformation was performed to account for the non-normal distribution of VL.**

Participants by Arm

- **Baseline assessment data are available for the 40 participants allocated to the intervention (*n*=20) and TAU (*n*= 20) arms.**
- **83% of participants had complete data, 3% missed a single additional assessment, and 14% missed both additional assessments.**
- **Intervention participants completed an average of 10.8 sessions (*SD* = 7.5).**
- **There were no significant differences in retention by study arm.**

Demographics

	Total *N* = 40 **Frequency** (%)	**TAU** *n*= 20 Frequency (%)	**CBT-AD** *n*= 20 Frequency (%)
Preferred Language			
-English	**19** (47%)	10 (50%)	9 (45%)
-Spanish	**21** (53%)	10 (50%)	11 (55%)
Gender			
-Male	**29** (72.5%)	14 (70%)	15 (75%)
-Female	**11** (27.5%)	6 (30%)	5 (25%)
Sexual Orientation			
-Heterosexual	**16** (40%)	8 (40%)	8 (40%)
-Bisexual	**8** (20%)	3 (15%)	5 (25%)
-Gay Male	**16** (40%)	9 (45%)	7 (35%)

Demographics

	Total *N* = 40 **Frequency** (%)	**TAU** *n*= 20 Frequency (%)	**CBT-AD** *n*= 20 Frequency (%)
Relationship Status			
-Partnered	**14** (35%)	4 (20%)	10 (50%)
-Not Partnered	**26** (65%)	16 (80%)	10 (50%)
Employment			
-Unemployed	**24** (60%)	13 (65%)	11 (55%)
-Part-time/odd jobs	**15** (37.5%)	7 (35%)	8 (40%)
-Full-time	**1** (2.5%)	0 (0%)	1 (5%)

Demographics

	Total *N* = 40 **Mean** (SD)	**TAU** *n*= 20 Mean (SD)	**CBT-AD** *n*= 20 Mean (SD)
Age (years)	**44.8** (11.1)	43.5 (12.3)	45.3 (9.8)
Household Income*	**$10,360** ($4,524)	$9,480 ($4,995)	$11,134 ($4,002)
Time Since HIV Diagnosis (years)	**9.4** (6.6)	9.0 (7.3)	9.8 (6.4)

*Median and semi-interquartile range reported, due to positive skew.

Analytic Strategy

- Preliminary RCT to ascertain approximate effect sizes – not powered for statistical tests of efficacy.
  - Focus on the magnitude and valence of intervention effects, with *p* values provided for reference purposes.
- Intent-to-treat analysis with generalized estimating equations (GEE; Liang & Zeger, 1986).
  - In contrast to traditional repeated measures ANOVA, the GEE approach permits analysis using all available outcome data, allowing for participants with at least one assessment to be retained.

Intervention Fidelity

- **Fidelity was independently rated from audio recordings for two sessions per treatment group participant, using a multidimensional rating scale with behavioral anchors.**

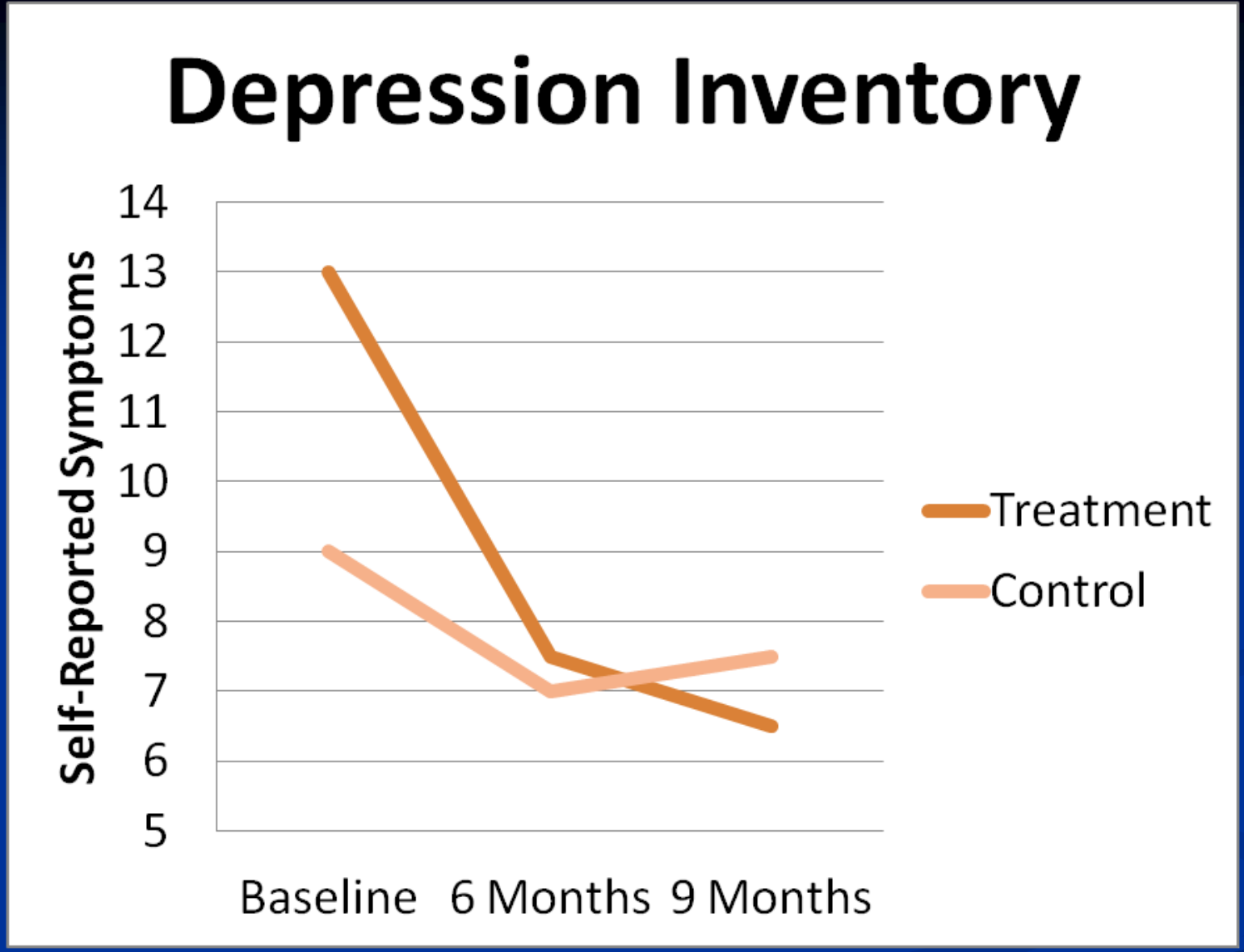
- **Therapists achieved an average of 93% coverage of prescribed content, suggesting close adherence to the manualized intervention protocol.**

Feasibility and Acceptability

- Attrition was less than 20%.
- Very few eligible patients declined outright to participate.
- Exit interviews were highly positive about the experience of therapy.
  - Most universally “helpful” components were psycho-education and activity scheduling.
  - Several participants reported cognitive restructuring to be difficult and intrusive.
- Therapist-reported challenges included literacy and language issues, with cognitive restructuring and thought records homework requiring adaptation.

Outcomes

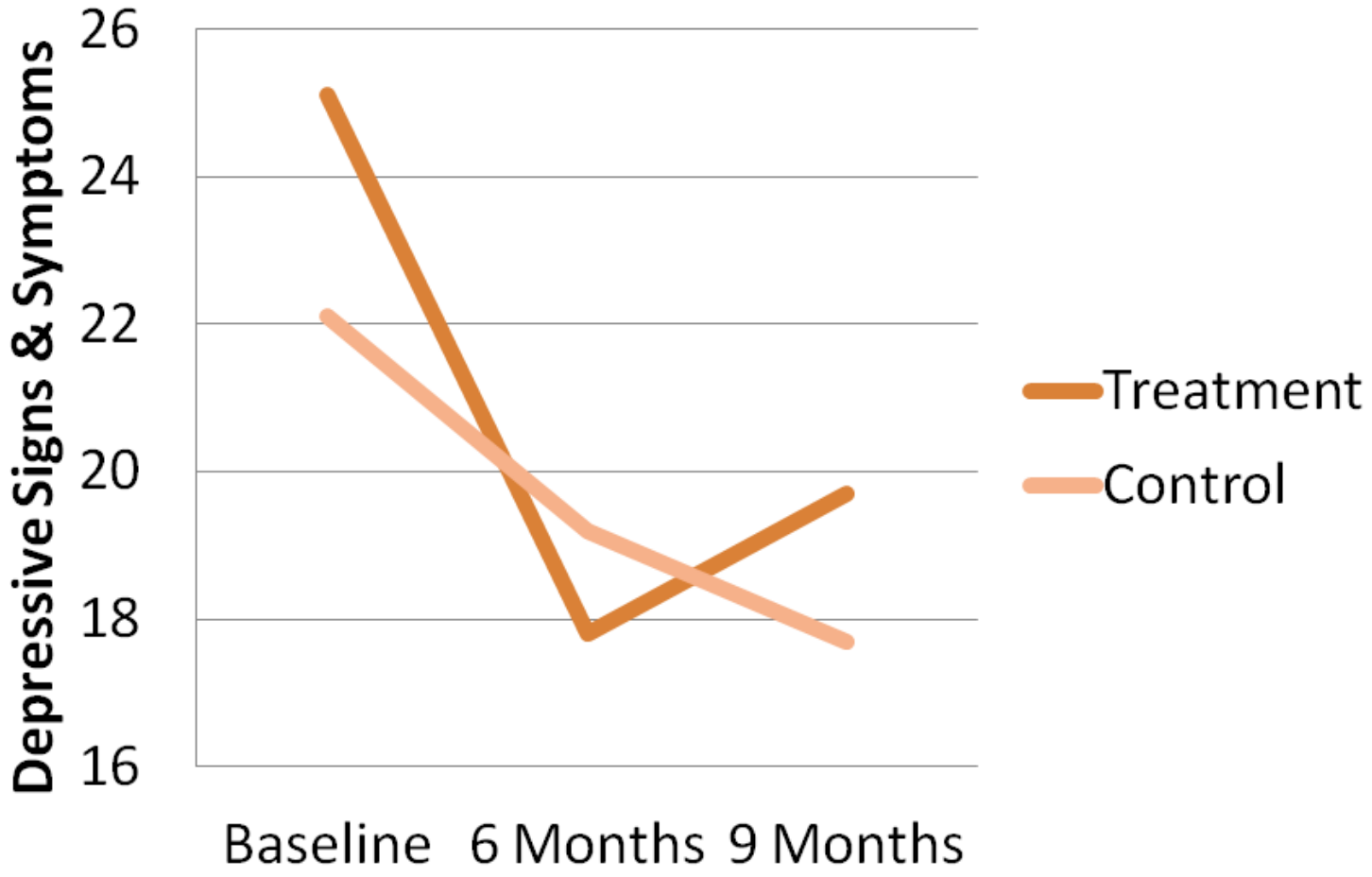
- Depression
- Adherence
- Biomarkers



6 months: *OR* = 3.64, *SE* = 1.85, *95% CI* = -7.26 – -0.01, *p* = .05

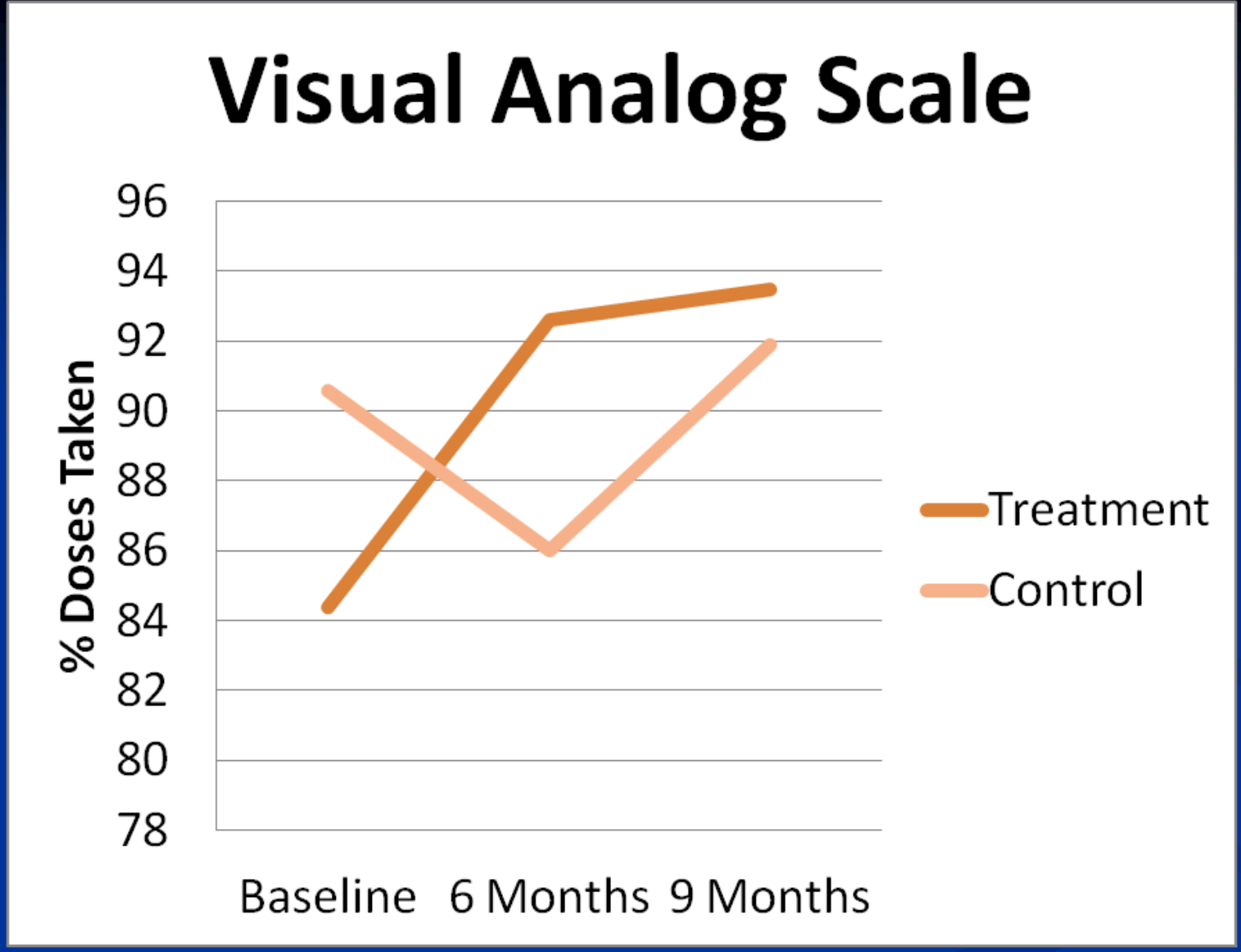
9 months: *OR* = 4.80, *SE* = 1.87, *95% CI* = -8.46 – -1.14, *p* = .01

Clinical Interview



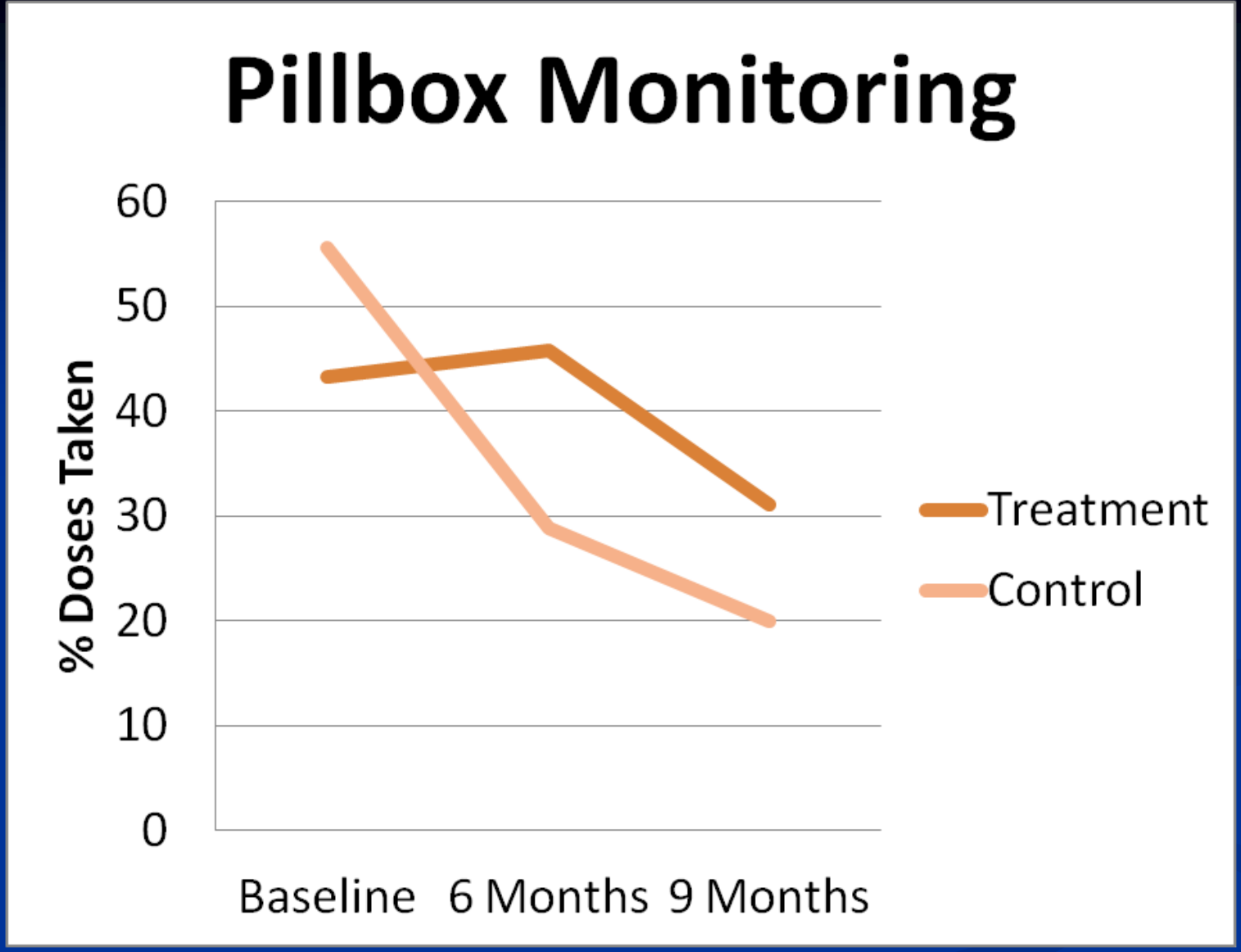
6 months: OR = -5.14, p = .14

9 months: OR = -1.41, p = .68



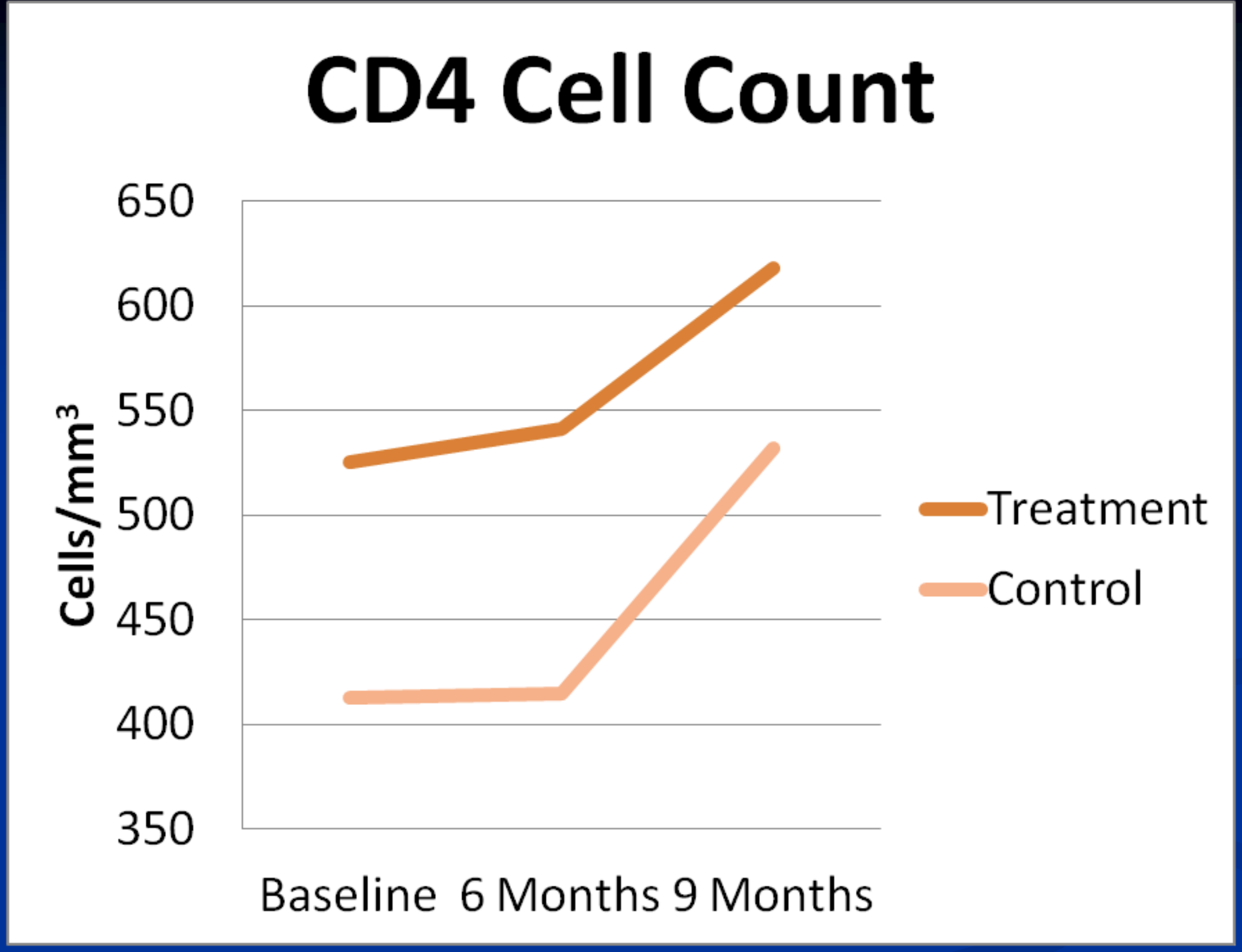
6 months: *OR* = 3.43, *SE* = 1.31, *95% CI* = 1.62 – 7.26, *p* = .001

9 months: *OR* = 2.11, *SE* = 0.90, *95% CI* = 0.91 – 4.85, *p* = .08



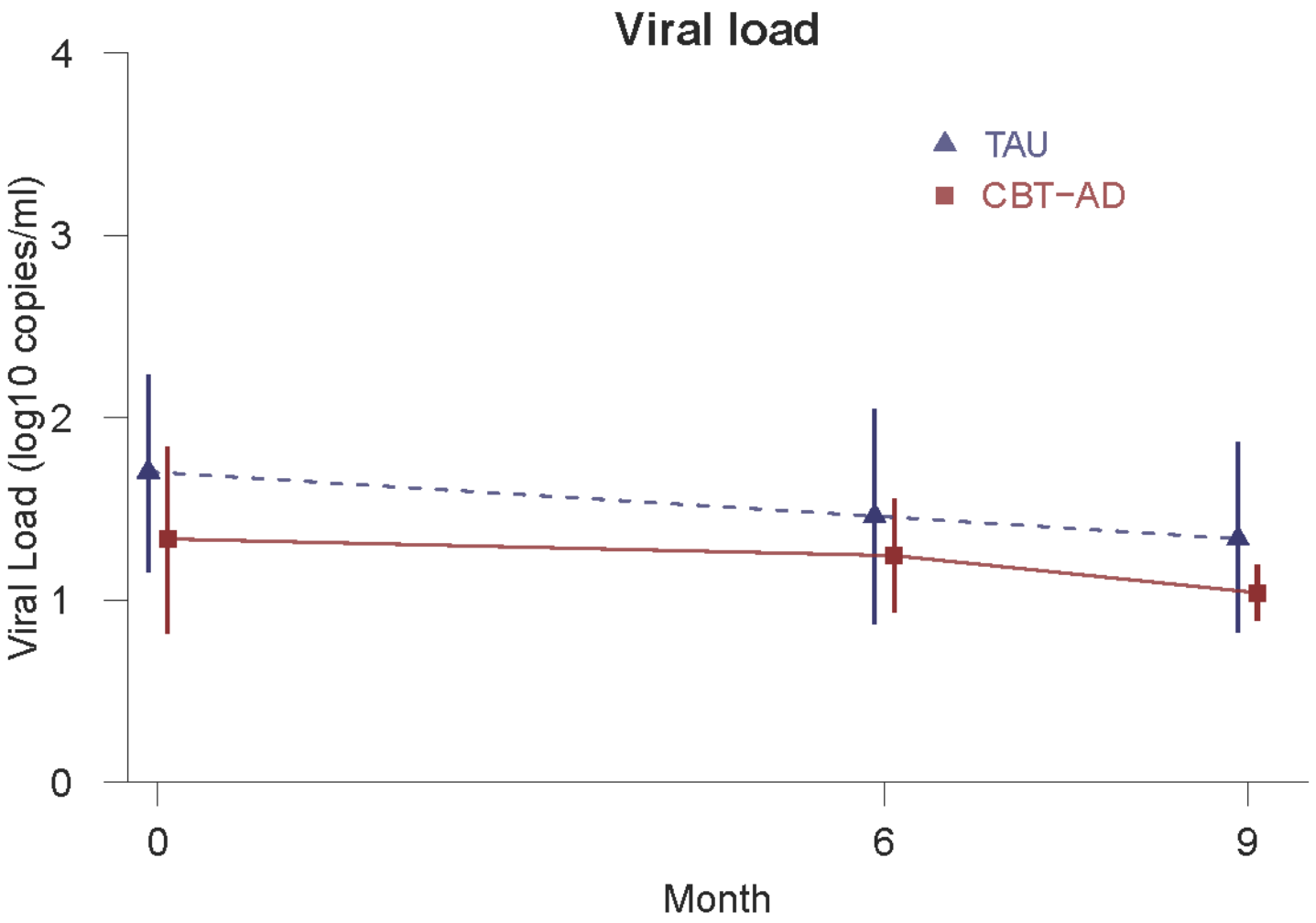
6 months: *OR* = 3.78, *SE* = 2.26, *95% CI* = 1.17 – 12.18, $p = .03$

9 months: *OR* = 3.44, *SE* = 2.96, *95% CI* = 0.64 – 18.56, $p = .15$



6 months: *Beta* = 69.45, *SE* = 38.57, *95% CI* = -6.16 – 145.05, *p* = .07

9 months: *Beta* = 25.71, *SE* = 43.17, *95% CI* = -58.91 – 110.32, *p* = .55



Results were not significant, but over 80% of viral loads were undetectable, rendering this analysis largely uninterpretable.

Limitations

- Small sample size
- Abbreviated follow-up period
- No time or attention control
- The combined delivery of the therapy intervention with the electronic pillbox reminder precludes our being able to distinguish the most efficacious component of the intervention.

Conclusions

- Can adapt an intervention developed and tested in a non-Hispanic White context for Latinos on the border
  - Intervention feasible, with high interest and low attrition
- Challenges:
  - Literacy and language issues with some CBT content and homework
- Must take into account context: stigma of HIV and homosexuality, importance of family and religion, multiple other stressors
- Can train graduate students to implement the therapy

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Thank you

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