HHS Public Access

Author manuscript

Cogn Behav Pract. Author manuscript; available in PMC 2016 November 01.

Published in final edited form as:

Cogn Behav Pract. 2015 November 1; 22(4): 430–438. doi:10.1016/j.cbpra.2014.02.001.

Description and Demonstration of Cognitive Behavioral Therapy to Enhance Antiretroviral Therapy Adherence and Treat Depression in HIV-Infected Adults

Michael E. Newcomb,
Massachusetts General Hospital and Harvard Medical School and Northwestern University, Feinberg School of Medicine

C. Andres Bedoya,
Massachusetts General Hospital and Harvard Medical School

Aaron J. Blashill,
Massachusetts General Hospital and Harvard Medical School

Jonathan A. Lerner,
Massachusetts General Hospital and Harvard Medical School

Conall O'Cleirigh,
Massachusetts General Hospital and Harvard Medical School

Megan M. Pinkston, and
Miriam Hospital and Warren Alpert Medical School of Brown University

Steven A. Safren
Massachusetts General Hospital and Harvard Medical School

Abstract

There are an estimated 1.1 million individuals living with HIV/AIDS in the United States. In addition to the various medical comorbidities of HIV infection, depression is one of the most frequently co-occurring psychiatric conditions among HIV-infected individuals. Furthermore, depression has been found to be associated with nonadherence to antiretroviral therapy (ART), as well as HIV disease progression. Cognitive behavioral therapy (CBT) has repeatedly been found to effectively treat depression in adult populations, and CBT for adherence and depression (CBT-AD) is an effective treatment for improving depressive symptoms and medication adherence in the context of various chronic health conditions, including diabetes and HIV-infection. This paper provides a description of the CBT-AD approach to treat depression and ART adherence in HIV-

Address correspondence to Michael E. Newcomb, Ph.D., Department of Medical Social Sciences, Northwestern University, Feinberg School of Medicine, 625 N. Michigan Ave., Suite 2700, Chicago, IL 60611; newcomb@northwestern.edu.

[1] Video patients/clients are portrayed by actors.

Conflict of Interest Statement
The authors have no conflicts of interest to disclose.

infected adults, which we have developed and tested in our clinic, and for which detailed therapist and client guides exist. To augment the description of treatment, the present article provides video component demonstrations of several core modules that highlight important aspects of this treatment, including Life-Steps for medication adherence, orientation to CBT-AD and psychoeducation, and suggestions for adaptation of core CBT modules for HIV-infected adults. Discussion of video demonstrations highlights differences in patient presentations and course of treatment between HIV-infected adults receiving CBT-AD and HIV-uninfected adults receiving traditional CBT for depression. This description and the accompanying demonstrations are intended as a practical guide to assist therapists wishing to conduct such a treatment in the outpatient setting.

Keywords

cognitive behavioral therapy; depression; HIV/AIDS; medication adherence

The Centers for Disease Control and Prevention (CDC) estimates that there are more than 1.1 million individuals living with HIV/AIDS in the United States (CDC, 2012b). Furthermore, rates of new infections have remained relatively stable in recent years at a rate of approximately 50,000 new infections each year (CDC, 2012a). Given that deaths of individuals living with HIV infection have also remained stable at around 20,000 per year (CDC, 2012b), the population of individuals living with HIV in the United States is on the rise. The HIV/AIDS epidemic in the United States carries with it a heavy economic burden (Hutchinson et al., 2006), which is exacerbated by high levels of comorbidity with mental and physical health problems (Safren, Blashill, & O'Cleirigh, 2011), and treatments that aim to reduce mental health problems and optimize health among HIV-infected individuals may help to ease this burden.

Depression is one of the most frequently occurring comorbidities in HIV-infected individuals (Bing et al., 2001; Ciesla & Roberts, 2001). A meta-analysis estimated that 9.4% of HIV-infected adults met DSM criteria for current major depressive disorder (Ciesla & Roberts), and another large nationally representative survey estimated that 36% of HIV-infected adults met criteria for major depressive disorder in the past 12 months (Bing et al.). Further, meta-analyses and systematic reviews have found that depression is not only associated with nonadherence to antiretroviral therapy (ART) among HIV-infected individuals (Gonzalez, Batchelder, Psaros, & Safren, 2011), but it is also independently associated with HIV disease progression (i.e., decreases in CD4 T lymphocytes, increases in viral load; Leserman, 2008). Depressive symptoms may additionally potentiate risk of HIV transmission to HIV-uninfected individuals, as evidence suggests that moderate levels of depressive symptoms may increase engagement in sexual risk behavior (Koblin et al., 2006; O'Cleirigh et al., 2013; Parsons, Halkitis, Wolitski, Gomez, & Seropositive Urban Men's Study, 2003; Stall et al., 2003). Moreover, elevated viral load resulting from depression and ART nonadherence increases infectiousness in the HIV-infected individual, thus increasing likelihood of transmission to HIV-uninfected partners (Attia, Egger, Muller, Zwahlen, & Low, 2009; Cohen et al., 2011; Hull & Montaner, 2011).

In addition to its impact on HIV disease progression and transmission risk, ART nonadherence has important implications for the emergence of treatment-resistant strains of the virus (Bangsberg, 2008; Wainberg & Friedland, 1998). Although high levels of adherence can be achieved in both resource-rich and resource-limited environments, long-term adherence is more challenging (Nachega et al., 2011). Because the presence of depressive symptoms is a major barrier to optimal ART adherence (Gonzalez et al., 2011), the simultaneous treatment of depressive symptoms and ART nonadherence may minimize disease progression, decrease risk of transmission, and reduce likelihood of drug resistance.

CBT has repeatedly been found to effectively treat depression in adult populations (Butler, Chapman, Forman, & Beck, 2006). Moreover, CBT for adherence and depression (CBT-AD) is an effective treatment for improving depressive symptoms and medication adherence in the context of various chronic health conditions, including diabetes (Gonzalez et al., 2010; Safren et al., in press) and HIV infection (Safren et al., 2009; Safren et al., 2012; Simoni et al., 2013).

The primary aim of the current paper and accompanying video components is to provide an illustration of the CBT-AD approach, with an emphasis on highlighting the components that differ substantially from traditional CBT for depression. Video components show role-play demonstrations by doctoral-level therapists who received CBT-based training and supervision as part of our intervention studies. Abbreviated descriptions of the overall treatment are provided and further detail can be found in our published treatment manual (Safren, Gonzalez, & Soroudi, 2008b) and client workbook (Safren, Gonzalez, & Soroudi, 2008a). Role-play examples provide demonstrations of commonly employed intervention techniques, and are based on typical client presentations. For all demonstrations, specifics were changed sufficiently so as to preserve patient anonymity and patient roles are played by therapists from our program.

Description of CBT-AD for Adults With Co-Occurring Depression and HIV Infection

CBT-AD for HIV-infected adults follows a modular approach that addresses both depression and ART adherence in each session. Self-report questionnaires assess symptoms of depression and ART adherence prior to each session in order to track symptom change over time and tailor intervention content and skills delivery to the specific needs of the patient. Each module corresponds to a set of skills that addresses the cognitive and behavioral patterns that are commonly experienced by adults with co-occurring depression and HIV infection. The treatment begins with a CBT-oriented intervention to address adherence, called Life-Steps (Safren, Otto, & Worth, 1999), which provides psychoeducation about ART adherence and identifies barriers to optimal adherence. The remaining modules are analogous to those delivered in traditional CBT for depression but are tailored to address the specific needs of individuals with chronic illness and, in this manuscript specifically, HIV-infected adults with suboptimal ART adherence. These sessions include: orientation to CBT-AD, activity scheduling, adaptive thinking (two sessions), problem solving (two sessions), relaxation, and relapse prevention. As empirically tested, CBT-AD is approximately 12 sessions long, with three “open sessions” built into treatment, which allows for the patient

and therapist to revisit the modules that are most relevant to the patient's specific needs. In clinical practice, flexibility in the length and selection of each module is encouraged, due to the complex concerns that arise with individuals who have medical and psychological comorbidity.

Session 1: Life-Steps

Life-Steps (Safren et al., 1999) was originally developed as a single-session intervention that utilizes cognitive-behavioral, problem-solving (D'Zurilla, 1986), and motivational interviewing (Miller & Rollnick, 1991) techniques to improve motivation, enhance adherence-related behaviors, and address barriers and solve problems that interfere with adherence to HIV medications. In CBT-AD, we start with this intervention as a way to begin to address adherence, and then all future sessions monitor and build upon strategies discussed during this session. Accordingly, the treatment of depression is integrated into the treatment of problematic adherence. This session begins by conducting a motivational exercise in which patients list their thoughts about taking their medications (both positive and negative), their own personal barriers to optimal adherence, and their primary reasons for staying healthy. This exercise elicits critical information that will be used throughout treatment to anticipate barriers to adherence and enhance motivation to change unhealthy behaviors. The session proceeds with a psychoeducational component (Life-Step 1) that provides information about the importance of medication adherence and the risks associated with nonadherence (e.g., disease progression, treatment resistance).

In the final component of the Life-Steps session, patient and therapist review the 10 remaining life-steps that affect medication adherence, and address barriers to each life-step using the "AIM" problem-solving approach to address barriers (ARTICULATE the particular adherence goal, IDENTIFY barriers to reaching the goal, and MAKE a plan to overcome the barriers, including a backup plan). In addition to psychoeducation (Life-Step 1), the life-steps reviewed in this session include: (2) getting to appointments; (3) communicating with treatment team; (4) coping with side effects; (5) obtaining medications and other relevant health-related products; (6) formulating a daily medication schedule; (7) storing medications and medical supplies; (8) cue-control strategies for taking medications; (9) handling slips in adherence; (10) life-steps review; and (11) life-steps follow-up (occurs during a follow-up phone call or Session 2 of CBT-AD).

Case Example and Video Clips 1 and 2

The first video clip demonstrates the motivational exercise and psychoeducational components of the Life-Steps protocol with a patient we will call "Robert." Robert is a 38-year-old heterosexual man who lives with his girlfriend, has four children, is on disability, and contracted HIV through injection drug use. On intake, he reported low levels of ART adherence (i.e., frequent days without medication), as well as various symptoms of depression, including low mood, anhedonia, difficulty concentrating, loss of energy, and hopelessness. He reported that he was not injecting drugs upon intake.

At first, Robert has difficulty generating thoughts about HIV and medication adherence, which is not atypical of many depressed HIV-infected adults. The therapist uses various

strategies during the motivational exercise to elicit the patient's thoughts, including asking the patient to view his pill bottle and hold several pills in his hands. The thoughts generated through this exercise are often negative in nature, which are identified as barriers to treatment. Robert identifies several negative thoughts that are barriers to his ART adherence and are common to many medical conditions (e.g., pills are a reminder of being sick, self-blame for HIV acquiring HIV). Robert further identifies several other barriers to adherence that are common to many medical conditions, including forgetting to take doses and having a busy schedule. Next, in order to enhance motivation the therapist helps Robert identify his primary reasons for taking medication. Robert notes that he wants to watch his children grow up, and he states that he feels healthier and better about himself when he takes his medication. By the end of the exercise, the patient and therapist have a rich list of barriers to medication adherence and motivations for staying healthy that will be used throughout the various modules of this intervention. Note that the therapist begins to draw connections between the patient's thoughts and his patterns of ART adherence, which enhances motivation and sets the stage for addressing the 11 life-steps later in the session. In this case, the therapist notes that Robert sometimes stops taking his medications for several days at a time when he feels down or frustrated. Although Robert meets this statement with some resistance, drawing these connections helps familiarize patients with the types of challenging conversations that may arise later in treatment.

Video clip 2 demonstrates the description of the AIM method for problem-solving barriers to medication adherence and the application of this approach to one of the 11 life-steps with a patient called "Jonathan." Jonathan is a 40-year-old heterosexual male who is single, has one daughter who lives with her mother, is unemployed, and contracted HIV about 10 years ago from a female sexual partner. He has a history of chronic depression and alcohol abuse. Similar to the previous case example, he experiences self-blaming negative thoughts about contracting HIV. Jonathan specifically notes that he believes these thoughts to be true and that they are a major barrier to his ART adherence.

In this segment, Jonathan and his therapist discuss cue-control strategies for improving medication adherence. The therapist draws upon the patient's previously listed barriers to medication adherence (i.e., self-blaming thoughts get in the way) and motivations to stay healthy (i.e., watching daughter grow up) in walking through the steps of AIM in order to personalize the skill and demonstrate its effectiveness. The patient and therapist first "articulate" the specific adherence goal, which is to have more balanced thoughts about medication adherence (e.g., "medications help me stay healthy for my daughter"). Next, they "identify" barriers to this goal, including self-blaming thoughts (e.g., "I deserve to be sick"). Finally, they "make a plan" and back-up plan to address these barriers. This video clip illustrates the cue-control strategies life-step, and these two strategies are used for a plan and back-up plan. The first cue-control strategy involves writing down motivations for staying healthy and more balanced thoughts about medication adherence on notecards that can be referenced by the patient when he has negative thoughts. The second strategy involves using colored stickers to trigger the patient to think of his motivations for staying healthy. These stickers can be placed in various locations that will be seen by the patient during his medication target time (e.g., on the TV) and throughout the day (e.g., on cell phone case). Although the notecard or stickers can be placed anywhere in the home, the stickers provide a

more discrete cue-control strategy for patients who are concerned about disclosing their HIV status to others in the home.

Session 2: Orientation to CBT-AD and Psychoeducation

The primary goal of Session 2 is to provide an overview of CBT-AD and to deliver psychoeducation with regard to the co-occurrence of depression, HIV infection, and ART nonadherence. As is the case with traditional CBT for depression (Beck, 1987), the core component of this session is to present a three-part model of depression (i.e., the interaction between cognitions/thoughts, behaviors/actions, and physiological reactions), tailored to the unique experiences of the patient. A detailed overview of this procedure can be found elsewhere (Safren et al., 2008b). Specific to CBT-AD, presentation of a three-part model of depression focuses on eliciting thoughts, behaviors, and physiological reactions that are specific to experiences with HIV infection, as well as ART adherence. By describing these specific aspects of HIV-infection and ART adherence when reviewing the three-part model, the patient is able to draw connections between their depressive symptoms and management of their health.

Session 2 ends with a motivational exercise, based on strategies outlined by Miller and Rollnick (1991). The “Pros and Cons of Changing” exercise asks the patient to detail the pros and cons of changing their thoughts and behaviors, as well as the pros and cons of *not* changing, in order to address the patient’s primary motivations for change and the barriers that might be encountered during treatment. Following this exercise, the patient is asked to rate their motivation to change on a scale of 1 to 10, with higher numbers indicating greater motivation. Based on this score, the patient is asked to describe both (a) why the score is not higher, and (b) why the score is not lower. This allows the patient to observe their ambivalence about behavior change, which often pushes the patient toward being more strongly motivated to make changes while acknowledging the barriers they may encounter in making changes. Typically, asking about why they did not score a lower number facilitates positive change talk about wanting to change, and asking about why they did not score a lower number facilitates a discussion about barriers. In some cases, after eliciting all the pros and cons of both changing and not changing, therapists may want to only ask why they did not score a lower number to keep the focus of the conversation on motivations for change versus reasons for not wanting to change.

Case Examples and Video Clips 3–5

“Aaron” is a 25-year-old bisexual male who is in a relationship with another male, has a long history of depression, and was infected with HIV by a male partner 2 years ago. His experiences with depression pre-date his HIV-infection, but his acquisition of the virus substantially impacted his symptoms. His depressive symptoms are maintained by various patterns common to many individuals with depression, including cognitive distortions (e.g., mind-reading, catastrophic thinking) and maladaptive behavioral patterns (e.g., inactivity, getting into arguments).These patterns further manifest themselves in terms of his thoughts and behaviors associated with his HIV infection. For example, Aaron notes that when he has negative thoughts and feels hopeless, he does not feel motivated to stay healthy and often skips ART doses.

In video clip 3, the therapist describes the three components of depression and elicits personalized examples of thoughts, behaviors, and physiological reactions by asking Aaron to recall a specific and recent day when his depression was especially pronounced. In this example, Aaron recently had an art show that he perceives did not go well because attendees did not purchase his work. First, the therapist identifies several negative thoughts related to the situation (e.g., “I’m worthless”; “I’m never going to have the success I had before”), and Aaron notes that these thoughts triggered additional thoughts related to his HIV status (e.g., “I’m a loser for having HIV”; “I’m going to be alone”). Next, the therapist asks Aaron to identify his behaviors or what he did following the event, and Aaron states that he slept into the afternoon the next day, got into arguments with his boyfriend, and failed to take his ART dose because he did not go out to get his prescription refilled. Finally, the therapist elicits examples of physiological reactions, and Aaron describes having no appetite, difficulty concentrating, and no interested in sex.

Upon obtaining these examples, the therapist formally draws connections between the three components of depression, describing how Aaron’s thoughts, behaviors, and physiological reactions interact with one another. The therapist begins to highlight patterns that may be maintaining Aaron’s depression, and the therapist begins to lightly challenge some of the patient’s thoughts and behavior patterns in order to demonstrate the potential benefits of treatment on depression and ART adherence. For example, the therapist points out that someone who has the thought “I’m a loser” is likely to avoid getting out of bed and leaving the apartment. Aaron then notes that staying in his apartment all day triggers additional thoughts (e.g., “I’m lazy”). Additionally, note that the therapist draws connections that are specifically relevant to HIV infection and ART adherence. He highlights that an individual with the thought “I’m a loser” is unlikely to want to take care of him/herself, which may result in missing ART doses.

After presenting a three-part model of depression and drawing connections between the components, the therapist moves on to a more formal discussion with Aaron about of the course of treatment, which is illustrated in video clip 4. In this part of the session, the therapist specifically describes the upcoming modules and corresponding skills that will be addressed in future sessions and specifically maps those skills onto the three components of depression. Additionally, the therapist addresses any concerns the patient has about treatment. In this clip, Aaron notes concerns about the difficulty of learning these skills, which is a common concern in CBT and CBT-AD. When complete, the patient should have a comprehensive idea of the course of treatment, how treatment may specifically impact him or her, and should begin to feel some hope that symptoms will alleviate. Of note, this portion of the session does not differ substantially from traditional CBT. However, patients in CBT-AD often have questions about how adherences relates to the course of treatment, and it is important for therapists to point out that the skills learned to treat depression are also helpful for improving ART adherence.

Finally, video clip 5 demonstrates the “Pros and Cons of Change” exercise. “Steve” is a 43-year-old gay male who is unemployed, lives alone, has a history of crystal methamphetamine use, and was infected by a male sexual partner in the context of drug use. As is common of many patients with depression, Steve is ambivalent about changing the

thoughts and behaviors that are maintaining his depression. Specifically, he notes that he struggles to remove himself from the cycle of drug use that fuels his depression. He is able to describe his core motivations for working on depression and improving his health (e.g., spending more time with his nephews), but he is aware of how difficult it will be to engage in change. Again, note that the therapist continues to elicit examples from the patient that are related to his depression, his health status and ART adherence, and the interrelationships among these conditions. Steve's presentation also provides an illustration of the frequent co-occurrence of depression, drug use, and HIV infection, and research has found that this comorbidity drives transmission of HIV, particularly among men who have sex with men (Stall et al., 2003).

Sessions 3–12

Sessions 3 through 12 address the core skills and concepts that are taught as part of traditional CBT for depression, including (3) activity scheduling (i.e., behavioral activation), (4–5) adaptive thinking (i.e., cognitive restructuring), (6–7) problem-solving, (8) relaxation, (9–11) flexible sessions, and (12) relapse prevention. Two sessions are devoted to both adaptive thinking and problem solving, leaving 3 additional sessions in the 12-session protocol to tailor treatment to the needs of the individual patient and spend more time reviewing and practicing the skills that are most relevant to the patient's experiences with depression and ART adherence. While the skills addressed in each one of these sessions are analogous to those found in traditional CBT for depression, CBT-AD emphasizes treatment of depressive symptoms in the context of HIV/AIDS illness and ART adherence. As such, patient and therapist review depressive symptoms and ART adherence at the beginning of each session, and the therapist is responsible for guiding discussion to include content relevant to the patient's health status and ART adherence, as is relevant to the specific needs of the patient.

Case Example and Video Clip 6

Video clip 6 provides a demonstration of how the core sessions of CBT can be adapted to the needs of HIV-infected adults in CBT-AD. "Jennifer," a 35-year-old heterosexual woman, is single and was recently infected with HIV by a male partner. She presented to therapy with moderate levels of ART adherence and many symptoms of depressions, including low mood, anhedonia, loss of energy, guilt, and suicidal ideation. Jennifer has experienced an improvement in her ART adherence and symptoms of depression during the course of treatment, but she continues to experience various cognitive distortions related to her HIV status that are a barrier to further improvement in her mental health.

This video clip demonstrates the second session of adaptive thinking (i.e., cognitive restructuring) in the CBT-AD protocol. Jennifer's presentation illustrates a pattern of distorted thinking that is both similar to and distinct from those of patients without HIV infection (see Table 1). Many patients with depression experience loneliness and distress related to lack of a romantic partner, and cognitive distortions subsequently often reflect the belief that the patient will never be able to find a significant other. In our case example, Jennifer notes the thought that she will not be able to find a partner because she has HIV. In working to restructure this thought, it is important for the therapist to acknowledge the

potential truth that it may be more difficult for Jennifer to find a romantic partner due to the stigma associated with HIV infection. Across all sessions of CBT-AD, it is important for the therapist to have an appreciation for the various ways in which HIV infection may alter the day-to-day life of the patient and therefore changes the approach to intervention. Applied to cognitive restructuring, certain negative thought patterns may be more difficult to challenge for an individual with HIV (e.g., “I am going to die young”; “I will never have children”; “My family will reject me”), because although these thoughts are still distorted, certain aspects of these thoughts may be true. For example, a more realistic thought for “I am going to die young” may be: “I may have more medical struggles due to my HIV infection, but taking my medication will help me stay healthy as long as possible.”

Advanced Skills in CBT-AD

Patients with chronic illness often experience multiple co-occurring mental health and psychosocial problems that necessitate flexibility in the delivery of CBT-AD (Safren et al., 2011; Stall et al., 2003). Specific to HIV-infected individuals, depression often co-occurs with substance use, violence, poverty, stigma, and sexual risk behavior (Safren et al., 2011; Stall et al., 2003). While CBT-AD may not be able to treat each one of these conditions fully, the skills delivered in this protocol to manage depression and ART adherence may be generalizable to coping with other mental health symptoms and psychosocial stressors. Importantly, the presence of these multiple comorbidities and psychosocial conditions can be a barrier to effective treatment in CBT-AD. As such, it is critical that therapists working with this population thoroughly assess all co-occurring conditions prior to initiation of treatment. Furthermore, while it is of the utmost importance to maintain treatment fidelity by not substantially altering intervention content, we have purposely built additional sessions into the protocol so the patient and therapist can choose to alter the course of treatment based on the needs of the patient. Being able to respond to the needs of the patient as they arise is not only important in providing the highest quality of care, but it builds trust and rapport with the patient that will facilitate the effective delivery of the CBT-AD protocol as treatment continues. We illustrate below a scenario in which substance use leads to an alteration to the course of treatment. Various other patient comorbidities and stressors may also lead to such changes in the protocol, including domestic violence, housing instability, and experiences with HIV-related stigma and victimization. In general, therapists should attempt to maintain treatment fidelity by not altering the course of therapy. However, it may be in the best interest of treatment to make an adaptation when the severity of the comorbidity or stressor threatens therapeutic alliance or the ability of the patient to stay in treatment.

Case Example and Video Clip 7

Video clip 7 demonstrates a scenario in which an acute stressor leads to a shift in the order in which the therapist moves through the modules of the CBT-AD protocol. “Michael” is a 30-year-old gay male who lives with his boyfriend, has a history of crystal methamphetamine dependence, and was infected with HIV by a male partner 10 years ago. Michael is midway through the CBT-AD protocol. He has responded well to treatment, including reductions in depressive symptoms and improvement in ART adherence, and he

and his therapist have established a good rapport. While reviewing homework from the "Adaptive Thinking" module, Michael reveals that his boyfriend of 2 years has recently re-initiated use of crystal methamphetamine, which has caused Michael significant distress and worry that he himself will also re-initiate use. The therapist initially views this as an opportunity to demonstrate the effectiveness of cognitive restructuring for addressing these multiple stressors. However, Michael's distress due to his boyfriend's substance use becomes a barrier to moving forward with this module, and the therapist decides to alter the course of treatment in order to address the acute problem. In this case, the therapist chooses to skip forward to the first "Problem Solving" session in order to help the patient address the acute problem. The therapist will return to the second session of "Adaptive Thinking" later in treatment.

We note that it may not always be in the best interest of the patient to break treatment fidelity and alter the course of treatment based on acute problems that may arise. In many cases, these stressors can be used as examples to illustrate the utility of various modules of CBT-AD. For example, in video clip 7, Michael was likely experiencing many cognitive distortions relating to his acute stressor that could have been restructured by sticking with the "Adaptive Thinking" module, and the therapist attempted to do so. We encourage therapists to attempt to maintain the fidelity of the treatment by addressing patient struggles in the current module as is possible. However, this video clip illustrates a scenario in which the severity of the distress the patient was experiencing became a barrier to continuing with treatment as planned. Had the therapist forced Michael to address the acute stressor through cognitive restructuring, it may have threatened the therapeutic alliance.

Conclusions

This paper with case illustrations provides a brief description of cognitive-behavioral therapy for adherence and depression (CBT-AD; Safren et al., 2008a, 2008b) for HIV-infected adults, as developed and tested by our team. For therapists who have not worked with this population before, the video components that accompany this article also provide examples of the types of problems typically reported by adults with co-occurring HIV-infection and depression—both in their daily lives and during treatment sessions—and demonstrates how CBT can integrate the treatment of a psychiatric disorder with interventions related to self-care. We emphasize, however, that HIV-infected individuals with depression have varied experiences, and the case examples provided herein are not representative of this population as a whole. When working with this population, it is important that the therapist is aware of co-occurring mental health, medical, and psychosocial problems experienced by their patients. Therapists can optimize treatment response in CBT-AD by either helping to address these varied conditions or facilitating treatment referrals to other health professionals. Similarly, it is important that the therapist consider the role of patients' sociodemographic characteristics, such as race and gender, when developing the treatment plan. We acknowledge that our role-play demonstrations are limited to certain patient presentations and reflect those with which the contributing therapists had the most experience.

CBT-AD was developed and tested to treat medication adherence in the context of depression, and this protocol has been found to be efficacious in enhancing adherence and reducing depression in patients with diabetes (Gonzalez et al., 2010; Safren et al., in press), injection drug-users with HIV infection (Safren et al., 2012), racially diverse HIV-infected adults in an urban setting (Safren et al., 2009), and HIV-infected Mexican Americans (Simoni et al., 2013). However, we also note that the majority of the patients in each of these prior trials of the protocol had additional psychiatric comorbidities, including (but not limited to) anxiety, PTSD, and substance use. When working with patients with multiple comorbidities, practitioners may want to depart somewhat from the CBT-AD protocol in order to treat these comorbidities with other empirically supported treatments. However, therapists should only depart from the CBT-AD protocol when it becomes clear that a patient's comorbid conditions are either more severe than their depression and nonadherence, or when the comorbid condition interferes with treatment such that it compromises the ability to complete the protocol or threatens therapeutic alliance. Furthermore, as noted above, this intervention does not specifically address HIV transmission risk behavior. Research among men who have sex with men, the largest group at risk for HIV infection in the U.S., has shown that transmission risk behavior co-occurs with various psychiatric and psychosocial conditions, such as depression, childhood sexual abuse, domestic violence, and substance use (Safren et al., 2011; Stall et al., 2003). As such, future research should consider developing integrated approaches to intervention in order to build upon the CBT-AD approach to address multiple comorbidities.

Supplementary Material

Refer to Web version on PubMed Central for supplementary material.

Acknowledgments

Funding for creation of the video role-plays came from a grant from the National Institute of Mental Health (R01MH084757; PI: Safren). During the preparation of this manuscript, Steven A. Safren was supported by a career development award from the National Institute of Mental Health (K24MH094214; PI: Safren), and Aaron J. Blashill was supported by a career development award from the National Institute of Mental Health (K23MH096647; PI: Blashill). The content is solely the responsibility of the authors and does not necessarily represent the official views of the National Institute of Mental Health. We acknowledge the important contributions of all study therapists on the trial from which this manuscript was based (in alphabetical order): C. Andres Bedoya, Aaron J. Blashill, Adam Gonzalez, Mark L. Hatzenbuehler, Ellen S. Hendriksen, Laura E. Knouse, Allison K. Labbe, Jonathan A. Lerner, Michael E. Newcomb, Megan M. Pinkston, Christina Psaros, Kelly Smith, and Lara Traeger.

References

Attia S, Egger M, Muller M, Zwahlen M, Low N. Sexual transmission of HIV according to viral load and antiretroviral therapy: Systematic review and meta-analysis. AIDS. 2009; 23(11):1397–1404. [PubMed: 19381076]

Bangsberg DR. A paradigm shift to prevent HIV drug resistance. PLoS Medicine. 2008; 5(5):e111. [PubMed: 18494556]

Beck, A. Cognitive therapy of depression. New York: Guilford Press; 1987.

Bing EG, Burnam MA, Longshore D, Fleishman JA, Sherbourne CD, London AS, Shapiro M. Psychiatric disorders and drug use among human immunodeficiency virus-infected adults in the United States. Archives of General Psychiatry. 2001; 58(8):721–728. [PubMed: 11483137]

Butler AC, Chapman JE, Forman EM, Beck AT. The empirical status of cognitive-behavioral therapy: A review of meta-analyses. Clinical Psychology Review. 2006; 26(1):17–31. [PubMed: 16199119]

Centers for Disease Control and Prevention. Estimated HIV incidence in the United State, 2007–2010. HIV Surveillance Supplemental Report. 2012a; 17(No. 4)

Centers for Disease Control and Prevention. Monitoring selected national HIV prevention and care objectives by using HIV surveillance data - United States and 6 U.S. dependent areas - 2010. HIV Surveillance Supplemental Report. 2012b; 17(3 Part A)

Ciesla JA, Roberts JE. Meta-analysis of the relationship between HIV infection and risk for depressive disorders. The American Journal of Psychiatry. 2001; 158(5):725–730. [PubMed: 11329393]

Cohen MS, Chen YQ, McCauley M, Gamble T, Hosseinipour MC, Kumarasamy N, Fleming TR. Prevention of HIV-1 infection with early antiretroviral therapy. The New England Journal of Medicine. 2011; 365(6):493–505. [PubMed: 21767103]

D'Zurilla, TJ. Problem solving therapy: A social competence approach to clinical interventions. New York: Springer; 1986.

Gonzalez JS, Batchelder AW, Psaros C, Safren SA. Depression and HIV/AIDS treatment nonadherence: A review and meta-analysis. Journal of Acquired Immune Deficiency Syndromes. 2011; 58(2):181–187. [PubMed: 21857529]

Gonzalez JS, McCarl LA, Wexler DD, Cagliero E, Delahanty L, Soper TD, Safren SA. Cognitive Behavioral Therapy for Adherence and Depression (CBT-AD) in Type 2 Diabetes. Journal of Cognitive Psychotherapy. 2010; 24(4):329–343. [PubMed: 23667294]

Hull MW, Montaner J. Antiretroviral therapy: A key component of a comprehensive HIV prevention strategy. Current HIV/AIDS Reports. 2011; 8(2):85–93. [PubMed: 21445551]

Hutchinson AB, Farnham PG, Dean HD, Ekwueme DU, del Rio C, Kamimoto L, Kellerman SE. The economic burden of HIV in the United States in the era of highly active antiretroviral therapy: Evidence of continuing racial and ethnic differences. Journal of Acquired Immune Deficiency Syndromes. 2006; 43(4):451–457. [PubMed: 16980906]

Koblin BA, Husnik MJ, Colfax G, Huang Y, Madison M, Mayer K, Buchbinder S. Risk factors for HIV infection among men who have sex with men. AIDS. 2006; 20(5):731–739. [PubMed: 16514304]

Leserman J. Role of depression, stress, and trauma in HIV disease progression. Psychosomatic Medicine. 2008; 70(5):539–545. [PubMed: 18519880]

Miller, WR.; Rollnick, S. Motivational interviewing: Preparing people to change addictive behavior. New York: Guilford Press; 1991.

Nachega JB, Marconi VC, van Zyl GU, Gardner EM, Preiser W, Hong SY, Gross R. HIV treatment adherence, drug resistance, virologic failure: Evolving concepts. Infectious Disorders - Drug Targets. 2011; 11(2):167–174. [PubMed: 21406048]

O'Cleirigh C, Newcomb ME, Mayer KH, Skeer M, Traeger L, Safren SA. Moderate levels of depression predict sexual transmission risk in HIV-infected MSM: A longitudinal analysis of data from six sites involved in a "prevention for positives" study. AIDS and Behavior. 2013; 17(5): 1764–1769. [PubMed: 23605154]

Parsons JT, Halkitis PN, Wolitski RJ, Gomez CA. Seropositive Urban Men's Study. Correlates of sexual risk behaviors among HIV-positive men who have sex with men. AIDS Education and Prevention. 2003; 15(5):383–400. [PubMed: 14626462]

Safren SA, Blashill AJ, O'Cleirigh CM. Promoting the sexual health of MSM in the context of comorbid mental health problems. AIDS and Behavior. 2011; 15(Suppl 1):S30–S34. [PubMed: 21331799]

Safren, SA.; Gonzalez, JS.; Soroudi, N. Coping with chronic illness: A cognitive-behavior therapy approach for adherence and depression. Workbook. New York: Oxford University Press; 2008a.

Safren, SA.; Gonzalez, JS.; Soroudi, N. Coping with chronic illness: A cognitive-behavioral therapy approach for adherence and depression. Therapist guide. New York: Oxford University Press; 2008b.

Safren SA, Gonzalez JS, Wexler DJ, Psaros C, Delahanty L, Blashill AJ, Cagliero EA. A randomized trial of cognitive behavioral therapy for adherence and depression (CBT-AD) in patients with uncontrolled type 2 diabetes. Diabetes Care. (in press).

Safren SA, O'Cleirigh C, Tan JY, Raminani SR, Reilly LC, Otto MW, Mayer KH. A randomized controlled trial of cognitive behavioral therapy for adherence and depression (CBT-AD) in HIV-infected individuals. Health Psychology. 2009; 28(1):1–10. [PubMed: 19210012]

Safren SA, O'Cleirigh CM, Bullis JR, Otto MW, Stein MD, Pollack MH. Cognitive behavioral therapy for adherence and depression (CBT-AD) in HIV-infected injection drug users: a randomized controlled trial. Journal of Consulting and Clinical Psychology. 2012; 80(3):404–415. [PubMed: 22545737]

Safren SA, Otto MW, Worth JL. Life-Steps: Applying cognitive behavioral therapy to HIV medication adherence. Cognitive and Behavioral Practicie. 1999; 6:332–341.

Simoni JM, Wiebe JS, Sauceda JA, Huh D, Sanchez G, Longoria V, Safren SA. A preliminary RCT of CBT-AD for adherence and depression among HIV-positive Latinos on the U.S.-Mexico border: The Nuevo Dia Study. AIDS and Behavior. 2013

Stall R, Mills TC, Williamson J, Hart T, Greenwood G, Paul J, Catania JA. Association of co-occurring psychosocial health problems and increased vulnerability to HIV/AIDS among urban men who have sex with men. American Journal of Public Health. 2003; 93(6):939–942. [PubMed: 12773359]

Wainberg MA, Friedland G. Public health implications of antiretroviral therapy and HIV drug resistance. JAMA. 1998; 279(24):1977–1983. [PubMed: 9643862]

Highlights

- We demonstrate CBT for adherence and depression (CBT-AD) for HIV-infected adults.
- We present video role-plays of various components of CBT-AD with diverse patients.
- We describe commonalities and differences between CBT-AD and traditional CBT.
- We describe common patient presentations for HIV-infected adults with depression.

Table 1

Cognitive Restructuring Thought Log for Cognitive Behavioral Therapy for Adherence and Depression (CBT-AD)

Time and Situation	**Automatic Thoughts (try to identify the specific thoughts that were going through your head)**	**Mood & Intensity (1–10)**	**Cognitive Distortions**	**Rational and Realistic Alternative Thought**
Seeing other people/couples happy or having fun together	- "I'll never find a boyfriend." - "I'll always be alone."	- Depressed (8) - Lonely (9)	- Fortune Telling - All or Nothing Thinking - Disqualifying the Positive	"I don't know what's going to happen in the future but I know I've had boyfriends in the past. I know sometimes I feel lonely and it will be hard to find a boyfriend now because I'm older and I have HIV. I have a lot to offer in a relationship."

Note. The example provided in this table corresponds to Video Clip 6.