



# *Brief Exposure to Cognitive Behavioral Therapy Reduces Side-Effect Symptoms in Patients on Antiretroviral Therapy*

R. Eric Doerfler, PhD, CRNP\*

Linda Goodfellow, PhD, RN, FAAN

*No study has tested the effectiveness of individualized cognitive behavioral therapy (CBT) interventions to reduce persistent nausea, pain, anxiety, and fatigue in patients on continuous antiretroviral therapy (ART). Our objective was to determine if CBT could reduce nausea, pain, anxiety, and fatigue in patients with HIV on ART. Men ages 40 to 56 years on ART (n = 18) at a suburban HIV clinic were randomly assigned to a control group or the CBT intervention. Usual adherence education and side-effect management were provided to both groups. Symptoms, health perception, medication adherence, and side-effect-reducing medication use were measured at four time points over 3 months. Participants in the intervention group rated usual fatigue and worst fatigue at 60 days, and nausea duration at 90 days significantly lower than controls ( $p < .05$ ). Brief CBT training may reduce fatigue and nausea in patients with HIV undergoing ART.*

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Side effects can occur from the use of any drug. As with all medicines, antiretroviral treatment (ART) for HIV may result in side effects that limit patients' abilities to continue treatment (Al-Dakkak et al., 2013; Chesney et al., 2000). Disease progression is more likely when patients are less than 90% adherent (Machtinger & Bangsberg, 2006).

Persons living with HIV (PLWH) who are on ART may miss medication doses or discontinue the regimen for many reasons. Reasons for nonadherence include substance use, forgetfulness, scheduling difficulties and lifestyle interference, and misconceptions about the use of the elements of ART (Chesney et al., 2000). A significant reason for ART discontinuation by patients is side effects, including side effects not responsive or only partially responsive to side-effect-reducing medication (SERM; Chesney et al., 2000) notwithstanding the fact that once-daily and less toxic regimens have significantly contributed to adherence improvement (Nachega et al., 2014). Anecdotally, the principal investigator (PI) had listened to PLWH on ART describe themselves as feeling "toxic" or "sick on the meds." Observations in the PI's clinical HIV practice were that, despite treatment with SERM, some patients' symptoms grew worse. Patients on ART made statements such as, "I know this is all in my head." Some patients indicated that their own mental framing of ART influenced their experiences of side effects.

Our study sought to evaluate the effect of an individualized cognitive behavioral therapy (CBT) regimen, along with usual care (standard in-clinic adherence assessment and education), compared to

*R. Eric Doerfler, PhD, CRNP, is an Instructor, The Pennsylvania State University College of Nursing, Penn State Harrisburg, Middletown, Pennsylvania, USA. (\*Correspondence to: [red1012@psu.edu](mailto:red1012@psu.edu)). Linda Goodfellow, PhD, RN, FAAN, is a Associate Professor, Duquesne University School of Nursing, Pittsburgh, Pennsylvania, USA.*

usual care alone, on the reduction of persistent side effects in patients taking ART in a randomized clinical trial. Primary measures were nausea, fatigue, anxiety, and pain. Secondary measures included perception of health status, medication adherence, and laboratory indicators of HIV disease activity (CD4+ T lymphocyte counts and serum viral load [VL]).

## Literature Review

We examined PubMed, CINAHL, Google Scholar, and ProQuest databases from the mid-20th century to the present (mainly examining how CBT had been used in side-effect management in cancer patients), and from 1981 to the present (focused on psychological strategies to aid PLWH, including CBT, in managing side effects, if it existed). In the latter case, a small number of studies were returned and included, and these are summarized below.

### CBT Management of Side Effects of Cancer Chemotherapy

In the 1970s, as cancer treatment was improving through the use of antineoplastic chemotherapy, patients suffered functional side-effect symptoms such as nausea and vomiting, pain, anxiety, and fatigue. Dempster, Balson, and Whalen (1976) described a case utilizing hypnotherapy to reduce anticipatory nausea and anxiety in a woman undergoing antineoplastic therapy with nitrogen mustard for Hodgkin's disease. Later studies using progressive muscle relaxation training (Burish & Lyles, 1979), systematic desensitization (Morrow et al., 1992), and a combination of relaxation and cognitive distraction (Vasterling, Jenkins, Tope, & Burish, 1993) contributed to a body of research that supported the use of cognitive behavioral techniques to reduce side-effect symptom burdens in cancer patients (Redd, 1994). Morrow, Roscoe, Hickok, Andrews, and Matteson (2002) showed that techniques such as progressive muscle relaxation, directed at reducing nausea in cancer patients undergoing antineoplastic therapy, were generally safe and effective even when delivered by nurses or oncologists, and thus, a

psychologist or therapist did not have to be present to deliver such interventions.

### ART Poses Unique Challenges to PLWH

In treating cancer, the most side-effect-intensive antineoplastic chemotherapy is generally an episodic intervention, with doses given intermittently in cycles for specified durations to achieve tumor lysis. ART today is life long (Panel on Antiretroviral Guidelines for Adults and Adolescents, 2015). Cancer chemotherapy is delivered mostly by professionals in controlled clinical settings (notwithstanding longer-duration regimens such as aromatase inhibitors). ART is self-administered by patients, with limited opportunities for professional oversight at office visits or when patients are hospitalized.

Ammassari and colleagues (2001) found that patients' levels of side effects inversely correlated with levels of adherence. Brook and colleagues (2001) found that patients chose to skip doses and/or discontinue otherwise successful regimens due to lack of motivation. Side effects were also a statistically significant factor in discontinuation of ART. Today, despite lower pill burdens and less toxic drugs, side effects continue to pose a risk to quality of life and adherence (Al-Dakkak, et al., 2013). The discomforts of side effects pose risks to both patient comfort and adherence, and the continuous nature of HIV treatment creates challenges for the patient's lifetime. The question arises: Would CBT be effective at reducing persistent side effects in such patients?

### CBT in PLWH on ART

The studies on HIV and CBT have tended to focus on improving self-efficacy (Ironson et al., 2005; Murphy, Lu, Martin, Hoffman, & Marelich, 2002), coping (Harding, Liu, Catalan, & Sherr, 2011; Jones et al., 2003), and education (Chiou et al., 2004; Molassiotis et al., 2002; Molassiotis, Lopez-Nahas, Chung, & Lam, 2003). Other studies have examined depression (Sherr, Clucas, Harding, Sibley, & Catalan, 2011) and anxiety (Clucas et al., 2011) in patients with HIV, without specifically focusing on ART as a causative factor for

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