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Mindfulness therapy is an effective adjunctive treatment for adolescents living with HIV

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ABSTRACT A clinical decision report appraising Webb L, Perry-Parrish C, Ellen J, Sibinga E. Mindfulness instruction for HIV-infected youth: a randomized controlled trial. *AIDS Care*. 2018;30(6):688–695. <https://doi.org/10.1080/09540121.2017.1394434>

Keywords: *mindfulness, HIV, youth, adolescent, mental health*

Clinical Context

Mr. Matthew Davis [pseudonym], a 17-year-old Black male (pronouns he/him/his) with a history of anxiety, presents to our clinic requesting an HIV test after unprotected sex 10 days ago with an individual living with HIV. Mr. Davis is asymptomatic and has no other complaints. He was successfully treated 3 years ago for anxiety with medication and cognitive-behavioral therapy (CBT) with adjunctive mindfulness therapy. Mr. Davis has no other medical problems. He does not smoke cigarettes, drinks 3-5 beers on weekends, denies use of illicit substances, and is sexually active with other males but does not consistently use condoms. He does not have a long-term partner and has not previously known anyone living with HIV. Mr. Davis is a first-year college student performing well academically. He lives in an urban center and has health insurance, reliable transportation, a stable living environment, food security, and strong family support.

After consenting to HIV testing, Mr. Davis's results indicate that he has HIV. His diagnosis, medical therapy, and appropriate basic counseling for the patient were compassionately addressed. Mr. Davis is very overwhelmed with his diagnosis, unsure of how to cope while maintaining his mental health and high grades in college. Mr. Davis is quickly amenable to CBT, but he is hoping that there are also opportunities for structured mindfulness practices to deal with the stress and stigma associated with living with HIV.

Our multidisciplinary team discussed which forms of therapy or support groups would be most beneficial to Mr. Davis given his insurance, family support, and transportation. Our social worker mentioned that they have heard of a practice called Mindfulness-Based Stress Reduction (MBSR) therapy. The team wondered if Mr. Davis would benefit from this therapy to allow him to accept his diagnosis, have a positive quality of life, and maintain his physical and psychological health.

Clinical Question

Is mindfulness-based therapy effective as an adjunctive treatment for improved physical and psychological health for urban youth with HIV?

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Research Article

Webb L, Perry-Parrish C, Ellen J, Sibinga E. Mindfulness instruction for HIV-infected youth: a randomized controlled trial. *AIDS Care.* 2018;30(6):688–695. <https://doi.org/10.1080/09540121.2017.1394434>.

Related Literature

A PubMed search was conducted to search for articles containing the keywords “HIV”, “youth”, “stress”, and “mindfulness”, yielding 5 results.¹⁻⁵ Results regarding diagnoses other than HIV were excluded (Van der Gucht et al.¹), leaving four primary research results which are reviewed below.

A pilot study in 2007 by Sibinga et. al. investigated the feasibility and acceptability of Mindfulness-Based Stress Reduction therapy (MBSR) with 11 urban adolescents living with HIV, finding self-reported improvements in self-efficacy and psychological well-being.² Through interviews with these participants, the researchers concluded that MBSR would be useful in future studies, but the lack of control group, small sample size, high attrition rate, and qualitative design of this study did not warrant its selection for Mr. Davis’s case.

Based on the previous pilot study, another study was conducted in 2011 to determine the effect of MBSR on at-risk adolescents in urban areas.³ Thirty three at-risk urban adolescents aged 13-21 years of age participated in the MBSR intervention, 11 of whom were living with HIV, and the researchers found a statistically significant reduction in participant hostility, but no significant difference in general discomfort or emotional discomfort. This study did not have a control group or specifically address the benefits of MBSR on youth with HIV and therefore was not selected for Mr. Davis.

Kerrigan et. al. conducted a qualitative study through interviews with participants 13-24 years of age living with HIV to determine the relationship between MBSR, managing stress, and adherence to antiretroviral therapy.⁴ The researchers found that participation in the MBSR program allowed participants to better cope with living with HIV and improved adherence to antiretrovirals. Qualitative studies help understand the topic and this demonstrated that we should continue to explore this topic.

The study that was selected to answer our question for Mr. Davis, published by Webb et. al., is a randomized control study which examined the effect of MBSR on psychological symptoms and HIV disease management for adolescents living with HIV.⁵ The study found that at a 3 month follow up, participants in MBSR reported improvements in coping skills and disease management when compared to the control group.⁵ The results from this study have a high degree of consensus to the other three articles from the search.. This study was selected for its larger sample size, utilization of a control group, similar attrition rates to previous studies on similar topics, and an MBSR program that was well-adapted to an adolescent population. The body of evidence discussed above has a B-level recommendation according to the Strength of Recommendation Taxonomy.⁶

Critical Appraisal

The selected study carries Level 2 Evidence according to the Oxford Centre for Evidence-Based Medicine.⁷ Seventy-two participants being treated for HIV were selected from clinics through either Johns Hopkins or Children’s Hospital of Pennsylvania by a site coordinator. This carries a risk of participation bias due to exclusion of patients who are lost to follow up or do not have a regular provider. Participation criteria included treatment at these clinics, no cognitive, behavioral, or psychiatric disorders that would prevent participation in the group activities, and a CD4 count above 200 to ensure ability to attend group sessions.

Participants ranged from 14-22 years old, consented personally or with parental consent, and were reimbursed \$160 and given transportation assistance for their participation, which is reasonable for the time commitment of the study. 80% of participants were African American and the remaining distribution of race was not reported. 55% of participants provided data at the three-month follow up, which introduces attrition bias but is consistent with other studies on mindfulness in individuals with HIV. Mr. Davis meets the age range, race, and inclusion and exclusion criteria for this study.

Participants were randomized into the MBSR program (n=38) or a control group called Healthy Topics (n=34). The MBSR group used didactic material on mindfulness, practicing mindfulness techniques, and group discussion for application of mindfulness to everyday



life. The Healthy Topics group discussed general health including nutrition, exercise, and puberty. Both programs had an equal number of sessions, group members, and session duration, and all sessions were conducted at the same location with similar group attendance. The instructors for the programs were trained through the University of Massachusetts and had no affiliation with the research study, which allows minimal observer and sponsor bias. The study did not include further information regarding blinding, which introduces further observational bias.

All participants completed three sets of surveys at baseline, post-program, and at a 3-month follow up. Validated surveys were used, including the Mindful Attention and Awareness Scale, The Perceived Stress Scale, Children's Response Style Questionnaire, Aggression Scale, HIV Quality of Life Scale, Cognitive Assessment System Stroop task, and Color-Word Stroop. A self-report HIV medication adherence scale asked about prescribed medications and adherence in the past 4 days and 4 weeks. These questionnaires were found to have reliability within the study sample ($\alpha=.76-.92$). The group sessions and surveys would be feasible to perform in our outpatient practice after recruiting instructors.

All results were controlled for gender, age, site, and baseline variability. Participants were analyzed in the groups to which they were randomized. Compared to the control group, MBSR participants had higher levels of mindfulness ($p=0.03$), higher levels of problem-solving skills ($p=0.03$), improved life satisfaction ($p=0.05$), and lower levels of aggression ($p=0.002$). There were no significant differences in perceived stress, illness related anxiety, or illness burden compared to the control group. Self-reported medication adherence was not significantly different, which may have been impacted by parental pressures, recall bias, or lack of independence in handling one's medications. A McNemar's statistical test compared pre- and post-test surveys for those who participated in the MBSR program, demonstrating lower viral loads of HIV for 44% of youth at 3-month follow up ($p=0.04$), and those with lower viral loads at baseline were less likely to have a higher viral load at the 3-month follow up. This could imply that the MBSR helped reduce side effects⁸ and improve adherence.⁹

The study did not include any information on duration of illness, which could place the adolescents at varying stages in their acceptance of disease. This may potentially impact the participant's ability to cope and manage their medications. The duration of antiretroviral therapy and comorbidities were excluded, which could also impact CD4 counts and medication adherence, as well as illness burden if some participants were healthier at baseline. Follow up studies beyond 3 months would help assess retention of MBSR benefits.

There is limited but still positive and significant evidence that an MBSR program or similar mindfulness practices could improve symptoms and quality of life for many adolescents living with HIV. This particular study has Level 2 evidence using the SORT criteria because of its limited sample size and risk of bias.

Clinical Application

Mr. Davis experienced the stress and emotion that is to be expected when receiving an HIV diagnosis. While we aimed to discuss medical management with Mr. Davis, we also wanted to provide age appropriate resources that will assist him socially and psychologically. He previously benefitted from mindfulness therapies for anxiety, and evidence demonstrates that a MBSR program can be beneficial to adolescents living with HIV.

We counselled him regarding the benefits of MBSR, including improved mindfulness practice, life satisfaction, problem-solving skills, and medical management of his HIV. We also discussed the limitations of the study, including perceived stress and illness burden. After answering his questions, Mr. Davis agreed to participating in MBSR and was grateful that we were able to listen to his previous experiences with mindfulness-based therapy and apply it to his new diagnosis. Ideally, we could provide information on how to access MBSR programming, or better yet, provide the program at our clinic with trained instructors given that the implementation of this programming is very feasible.

The study limitations and the small sample size may prevent other providers from recommending MBSR to their adolescent patients with HIV. Our team learned that patient preference and accessibility must be considered before recommending MBSR, as it may become burdensome due to time commitment, transportation barriers,



stigma, or lack of commitment. In the era of telemedicine, it would be beneficial to investigate whether virtual MBSR sessions could eliminate many of these obstacles.

The minimal risks of MBSR are outweighed by the numerous benefits mindfulness meditation can provide to adolescents with HIV. Mr. Davis's positive experience with mindfulness meditation highlights the importance of our recommendation for MBSR to improve his mental and physical health outcomes given his new HIV diagnosis.

New Knowledge Related to Clinical Decision Science

By gathering a detailed history from Mr. Davis, including his experience with mindfulness therapy, reliability of transportation, insurance status, and family support for undergoing MBSR therapy, our multidisciplinary team was better able to support him with this difficult diagnosis. Because MBSR may not currently be accessible or desirable to all patients, providers should aim to know their patients well and incorporate patient preferences into treatment plans. Knowledge of this intersection between patient identity and patient preferences can allow optimal health outcomes for both Mr. Davis and future patients. Indeed, this perspective allowed an affirmative decision to be made with high degree of confidence using Strength of Recommendation B, Level of evidence 2 clinical research. This demonstrates how Clinical Decision Science can explore further research into the interaction between the quality of the clinical research and the patient perspective when making clinical decisions.

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