



HHS Public Access

Author manuscript

AIDS Behav. Author manuscript; available in PMC 2018 November 01.

Published in final edited form as:

AIDS Behav. 2017 November ; 21(11): 3194–3201. doi:10.1007/s10461-017-1857-8.

TELEPHONE-DELIVERED MINDFULNESS TRAINING FOR PEOPLE LIVING WITH HIV: A QUALITATIVE 360° INQUIRY

Rochelle K. Rosen^{1,2}, Larissa McGarrity^{1,6}, Elena Salmoirago-Blotcher^{1,3,4}, Carla Rich¹, Aadia Rana^{3,5}, and Michael P. Carey, PhD^{1,2,6}

¹Centers for Behavioral and Preventive Medicine, The Miriam Hospital, Providence, RI

²Department of Behavioral and Social Sciences, School of Public Health, Brown University, Providence, RI

³Department of Medicine, Alpert School of Medicine, Brown University, Providence, RI

⁴Department of Epidemiology, School of Public Health, Brown University, Providence, RI

⁵Immunology Center, The Miriam Hospital, Providence, RI

⁶Department of Psychiatry and Human Behavior, Alpert School of Medicine, Brown University, Providence, RI

Abstract

For people living with HIV and AIDS (PLWHA), life stress often undermines quality of life and interferes with medical care. Mindfulness training (MT) may help PLWHA to manage stress. Because standard MT protocols can be burdensome, we explored telephone delivery as a potentially more feasible approach. We used an innovative 360° qualitative inquiry to seek input regarding telephone-delivery of MT for PLWHA in advance of a planned intervention trial. We also sought input on a time- and attention-matched control. 25 HIV providers, advocates, and patients were recruited to five focus groups. Participants understood the construct of mindfulness and recognized its potential benefits for stress management and improving medication adherence. Patients preferred the term “mindfulness” to meditation. Telephone-delivery appealed to all patients but several challenges were raised. Topics for the control intervention included nutrition, sleep, and aging. The 360° approach allowed three groups (patients, providers, advocates) to influence intervention development.

Keywords

Mindfulness; stress; qualitative; HIV; telephone-delivered intervention

Corresponding Author. Rochelle K. Rosen, PhD, Centers for Behavioral and Preventive Medicine, CORO West, Suite 309, 164 Summit Avenue, Providence RI 02903, United States, 401-793-8182.

Compliance with Ethical Standards:

Ethics approval: All procedures performed in studies involving human participants were in accordance with the ethical standards of the institutional and/or national research committee and with the 1964 Helsinki declaration and its later amendments of comparable ethical standards.

Informed consent: All participants completed informed consent prior to study participation

Conflicts of interest: the authors declare that they have no conflict of interest

INTRODUCTION

Living with HIV is often stressful (1). Like many chronic illnesses, HIV requires regular medical care and faithful adherence to prescribed medications (2). Further, because HIV is sexually transmitted, it creates unique stressors associated with interpersonal relationships (e.g., disclosure, sexual intimacy) (3, 4). In addition, because HIV disproportionately affects people from impoverished backgrounds (5), people living with HIV/AIDS (PLWHA) face additional stressors, including poverty (6) and food insecurity (7). PLWHA are also more likely to be members of racial/ethnic and sexual minority groups who often face discrimination, stigma, isolation, and other stressors.

The deleterious effects of stress on health outcomes are well-established. In the context of HIV, life stress has been consistently associated with anxiety, depression, and substance misuse (3, 8), undermining quality of life. Further, the distress associated with HIV as well as maladaptive coping with alcohol and other drugs undermine medication adherence (9, 10) and compromise immune function (11), both of which can accelerate HIV disease progression.

Stress management interventions seek to help PLWHA to cope more adaptively with life stressors (12–14). Recently, mindfulness-based interventions have been implemented in the context of chronic illness. Mindfulness training (MT) involves teaching people to focus their attention on both internal (e.g., sensations, thoughts, emotions), and external (e.g., sounds) events unfolding in the present, in a non-judgmental way (15). The cultivation of this particular way of paying attention can improve self-regulation and strengthen individuals' ability to avoid absorption in maladaptive mental patterns, behaviors, and emotional reactions, which can lead to depression and anxiety (16–18). When mindfulness is used in daily life, it can allay some of the negative effects of stress. Indeed, MT has already been shown to be effective for management of stress with other chronic disease populations (19).

Clinical researchers have begun to explore the utility of MT in the context of HIV, most often to address stress and coping processes, affective responses, and overall quality of life (20, 21). Riley and Kalichman (22) reviewed 11 preliminary studies of MT with PLWHA. The results from these early studies were encouraging, and suggested that MT may help to reduce emotional distress. Other possible benefits, such as promoting healthier behaviors, reducing sexual risk behaviors, or improving medication adherence have been less well-studied.

Two recent studies have addressed the use of mindfulness specifically to promote medication adherence. In one study with HIV-infected adults, an 8-week Mindfulness Based Stress Reduction (MBSR) program reduced patient reported symptoms and distress; however, no improvements in ART adherence were observed when compared to a wait list control group (23). In a second study with HIV-infected youth, those receiving MBSR were more likely to have a lower viral load at follow-up ($p = .04$) compared to the control group, possibly because of ART adherence (24). Thus, in these two studies, the effects of MT on adherence has been mixed. A third study is now under way to determine efficacy of MT on ART adherence among HIV-infected youth ([ClinicalTrials.gov](https://clinicaltrials.gov/ct2/show/study/NCT02624193) NCT02624193).

Overall, extant studies of MT in the context of HIV disease provide some evidence of benefit. However, many of these studies have been limited methodologically by small sample sizes, low numbers of female participants, non-random assignment, inadequate comparison conditions, and relatively short follow-ups. In addition, the feasibility of MT as typically implemented is questionable given the poor attendance and high attrition rates that have been observed (22, 25). A likely explanation for the attrition observed in extant studies is the use of an intensive, group-based format that may be infeasible for many PLWHA; that is, the traditional Mindfulness-Based Stress Reduction protocol (15) involves attending group-based sessions for 8 weeks as well as a weekend workshop. Travel and attendance requirements may be particularly difficult for PLWHA, who are disproportionately low-income, and who may not have access to reliable transportation and/or child care. In addition, the expectation that trainees complete 45 minutes of daily mindful practice may seem initially overwhelming to many PLWHA.

Given these feasibility challenges, we were interested in exploring the adaptation of MT to the unique needs of PLWHA. One particularly promising alternative involves the delivery of MT via one-on-one telephone sessions, an approach that has been tried with other patient populations (26, 27). Telephone delivery is appealing because it does not require internet access or smartphones and it reduces patient-related barriers such as transportation, childcare, and work conflicts. In addition, telephone delivery reduces the burden on HIV clinical sites for space and staffing. Telephone administration is also easily delivered and is likely to be more scalable compared to group-based and in-person instruction. One-on-one phone delivery allows for greater individualization (relative to group-based sessions), a feature that might appeal to beginning trainees and to persons living with a stigmatized medical condition. We were encouraged by a preliminary study that sampled patients with implantable cardioverter defibrillators, and that found that phone delivery of MT was well-accepted by patients (e.g., only 7% patients dropped out) and had encouraging results (i.e., lower anxiety scores) (26). These results suggest the possibility of using telephone-based MT with PLWHA with less participant burden; however, no prior research has investigated telephone-delivered MT for medication adherence among PLWHA.

Prior to adapting an intervention for a new format and/or a new patient group, it is prudent to conduct preliminary research to determine if adjustments or modification are needed. Qualitative research, in particular, can help to reveal unique issues that may affect intervention acceptance and use (28–30). Typically, such qualitative work is done with the target population; this is especially valuable when patients have some knowledge about the intervention or relevant experiences. However, when the intervention and the delivery method are novel, as we expect telephone-delivered mindfulness training to be, it can be helpful to also involve others (i.e., providers, patient advocates) who know the patient population well, to tailor the intervention.

Therefore, for the present research, we implemented a 360° qualitative inquiry to gain insight from multiple sources and perspectives. We invited PLWHA, infectious disease (HIV) physicians, non-physician HIV providers, and community-based HIV advocates to participate in focus groups to gain a more comprehensive understanding of how we would need to adapt phone-delivered MT for PLWHA. We interviewed patients, providers, and

advocates because all perspectives were considered key to designing and conducting this research. Patients, of course, represented the target population for the intervention. Providers and advocates provide broad knowledge of the patient population they serve; some had years working with PLWHA and could reflect on experience with scores of patients. They are also key gatekeepers for research trial participation in our clinic site because they connect patients with possible research opportunities. We wanted to know what they knew, and to partner with them as we developed an adherence intervention for their patient population.

In addition, because we planned to conduct a pilot clinical trial to explore the feasibility and efficacy of telephone-delivered MT for PLWHA, we were also interested in receiving input on possible topics to be included in an “attention control” comparison condition. We used a semi-structured research agenda to elicit strategies for adapting the mindfulness intervention, finalizing the content and protocol of the control condition, and optimizing recruitment and retention efforts. This manuscript presents the results of this research to inform both the intervention adaptation and the planned trial.

METHODS

Sampling and Recruitment

Five focus groups were conducted at an HIV clinic affiliated with an academic medical center between November 2015 and February 2016. The number of groups reflected what we expected would provide a balanced range of perspectives, stratified by role (i.e., clinicians, advocates, and patients) into groups that would be effective for discussion. We deliberately created groups of persons with similar training and/or experience with HIV. These were: (a) MD-level clinicians, (b) non-MD clinicians, (c) patient advocates, (d) HIV patients who were involved in the local community advisory board (CAB), (e) HIV patients who were not involved in the CAB.

The first two groups consisted of HIV care providers: one with infectious disease physicians ($n = 4$), and a second with non-physician providers (i.e., nurses, social workers; $n = 6$). Next, we recruited HIV patient advocates (i.e., community-based case workers, outreach workers; $n = 5$). HIV providers and advocates were sent an email inviting them to participate based on referral from one of the clinic’s physicians who was a Co-Investigator on the project. The remaining two focus groups consisted of (a) PLWHA who were members of a community advisory board ($n = 4$) and (b) patients recruited from the HIV clinic who were 18 years of age and older and had a detectable HIV-1 Plasma viral load ($n = 6$). Patient participants were recruited at the clinic during their scheduled medical appointments.

All participants completed informed consent prior to study participation and permission to approach patients was obtained from their physician prior to approach. All participants were compensated for their participation and food was provided during the focus groups. Demographic data were collected via self-administered questionnaires. The focus groups lasted approximately two hours. The Institutional Review Board of The Miriam Hospital approved this study.

Qualitative Interview Guide

A semi-structured research agenda was developed to guide focus group discussions consistent with recommendations for adapting an intervention using qualitative research (30). Focus groups were led by a trained qualitative facilitator (a medical anthropologist), along with a co-facilitator from the research team and the project director who also served as the note taker. The agenda included specific objectives and questions tailored to each focus group, a script for introducing the research team and purpose of the study, and assurances regarding confidentiality. The agenda detailed topics that the researchers were most interested in learning about, along with prompts. Topics that were prioritized included (1) implementation of a mindfulness intervention (e.g., prior knowledge and/or understanding of mindfulness, ways to “market” the intervention, ways to adapt the intervention for PLWHA), (2) development of a health coaching (control) condition, and (3) determining how to deliver these interventions by telephone (e.g., patterns of telephone use and telephone-based intervention delivery). To better understand each of these areas, facilitators asked follow-up questions to further probe participant answers. Saturation was assessed after each focus group via a detailed debrief that considered whether we were learning anything new.

Data Analyses

All focus groups were recorded digitally. The recordings were transcribed upon completion of each focus group and checked for accuracy; study research numbers were used to identify speakers. Two members of the research team then reviewed these transcripts independently and recorded general concepts emerging from the data. The researchers met and agreed upon a set of initial codes, which included deductive codes drawn from research questions and the focus group agenda, and inductive codes representing concepts raised by the participants themselves. The codebook was revised continuously throughout the coding process. To ensure credibility, all transcripts were double-coded and disagreements were resolved through discussions and revision of the codebook, as well as consultation with other members of the research team. Finalized codes, and the transcript passages assigned to them, were entered into NVivo 10 qualitative data management software (31). We conducted an Applied Thematic Analysis (ATA) of the focus group data (32). ATA included reviewing key codes in aggregate, that is, all the transcript passages coded to a particular research node were reviewed. Summaries of those codes were written by the qualitative analysts (RKR and LM) and reviewed with the research team. From these data we sought to identify themes both within a particular topic (e.g., understandings of and reactions to the term “mindfulness,” feasibility of telephone delivery) and among the different participant types (i.e., providers, advocates, and patients). Summary statistics (means and standard deviations) were provided to describe the sample.

RESULTS AND DISCUSSION

Across all groups, there were 25 participants. In the provider and advocate groups ($n = 15$), participants had between 1 to 28 years of experience working with PLWHA ($M = 8$, $SD = 8$); 53% reported their highest level of education a bachelor’s degree, 13% master’s, and 33% doctoral. Participants self-identified their race as white/Caucasian (67%), black/African American (13%), Asian (7%), and multiracial (7%); 13% identified as Hispanic.

In the patient groups ($n = 10$), participants included women ($n = 3$) and men ($n = 7$) who ranged in age from 34–79 ($M = 54$, $SD = 13$). The majority reported either a high school education/GED ($n = 3$) or vocational training following high school ($n = 3$). All participants reported that they were either not working outside of the house ($n = 2$) or on disability/unable to work ($n = 8$). Patient participants self-identified as non-Hispanic white ($n = 5$), African American ($n = 2$), Hispanic/Latino ($n = 1$), multiracial ($n = 1$), and other ($n = 1$). Most participants identified their relationship status as either single/never married ($n = 4$) or separated/divorced ($n = 4$).

Implementation of a Mindfulness Intervention

Terminology and “marketing.”—A consistent concern that emerged in both the provider and advocate focus groups was that patients would have negative connotations associated with the term mindfulness. For example, one provider noted: *“I don’t want to sound insulting, but mindfulness is sort of a loaded term. Who knows what that means? I’m not sure some patients are going to know what to do with that”* and an advocate stated *“I don’t think that specific word means anything to the majority.”*

Several providers and advocates suggested that we use the term “stress reduction” instead to appeal to patients at this clinic. For example, one provider suggested that, when recruiting patients for the study, *“you could certainly say mindfulness somewhere on the flier, but I think the word that pops out to people is stress, stress reduction. You know: Ways to manage ... stress.”* A few of the community advocates agreed that patients are often focused on basic survival needs and that this makes it difficult for them to relate to mindfulness practice (e.g., *“I think working with clients that I have worked with in the past, mindfulness or stress reduction is not always in the forefront of their minds. The basic needs tend to be what they’re focusing on”*).

Many of the providers cautioned that the concepts of meditation and mindfulness might be unknown to PLWHA, and that limited exposure to meditation, or the lower education levels of some patients, could mean that the argot of mind-body interventions might be problematic: *“just the words themselves, they might not know what meditation means, or stress relief, or they don’t even know what anxiety means, they just know they feel this is how I feel. They don’t know there’s a name to it. And to say, okay, we’re gonna do a ‘body scan’...they’re gonna think they’re goin’ for an X-ray.”*

In contrast, patients reported both an understanding of, and an interest in, mindfulness. A few also had prior exposure to mindfulness practices: *“When I go to my psychologist, she gave me these different programs you can put on YouTube. It has something to do with mindfulness and meditation.”* However, several patients expressed or agreed with the sentiment that *“for some reason, I’m really thrown off by the word ‘meditation.’”* Some suggested that the term *“scares people”* or was *“pretentious.”* The conversation included this interchange among three patients:

Participant 1: When I hear “meditation group,” all I picture is a bunch of people in the basement sitting on mats and going, “[Humming].”

Participant 2: Yes. That's what I was saying. It would be a scary first time for someone.

Participant 3: I pictured two things. I picture—and I hope this doesn't sound offensive—like yoga moms in an exercise room or a businessman sitting on the roof of a building with his own little grass thing. I don't know. I go really yuppie with it.

Facilitator: Do either of those appeal to you?

Participant 3: No.

Participant 2: Nope.

Participant 3: [Laughter] *It's why I'm so resistant.*

Therefore, although the term mindfulness was not problematic for patients, the term meditation raised concerns about the concept of mindfulness that were similar to those raised by providers. Particularly revealing was this sentiment from another patient: *"I think, also, that if you put [together] a meditation group, and somebody goes in there and they try it, and they don't get to that place where everybody else in the room is getting, then you feel like you failed and you did something wrong and you're stupid."* Concerns that were raised, such as (a) feeling stupid in a group engaging in a new and unfamiliar behavior, (b) that the behavior itself is somehow targeted to other kinds of people (e.g., yoga moms and businessmen), and (c) that the language used to describe the behavior (e.g., meditation, body scan) is off-putting or obtuse, illustrate why a phone-delivered mindfulness program might be more appealing.

Understanding of mindfulness as a concept—Despite concerns about the terminology used to label the practice, participants across all categories consistently and correctly associated mindfulness with present moment awareness. For example, when asked what comes to mind when they hear the word mindfulness, one provider stated *"Being in the present moment... Being able to bring yourself back"* and another offered *"Being in the present, being aware of your surroundings, being aware of, you know who – like and what is going on – within you."* Many patients responded similarly, including *"being aware of my surroundings and being aware of myself, my feelings, my emotions, how I'm dealing with certain things at any given moment. Just being here. I'm here sitting in this chair. This table is here. Not worried about what I'm gonna do tomorrow. It's just, to me, mindfulness is just being aware of what's going on in that time."* Another reported *"For me, it just means being in the moment. That's it, really, just being in the moment, to live in the moment."* Yet another referenced *"staying aware, staying up on it, and staying focused."*

Anticipated benefits of mindfulness practice—Focus groups participants across categories also associated mindfulness with stress and anxiety reduction and improved coping. A provider defined mindfulness as *"being aware of your stress, being aware of your anxiety"* and another stated *"I think, you know, having a better – having better control over one's kind of ability to cope comes quickly to mind."* One of the patients reported *"Being mindful, for myself, is trying not to make snap decisions in the heat of anger... Which is usually hurt feelings that I turn into anger because I don't want to show that you hurt me."*

Several participants also expressed expectations that mindfulness could improve medication adherence. For example, one of the providers noted that mindfulness would be helpful for his/her patients “*basically to make the patient understand better how their disease or their problems will affect them in order for them to make the appropriate changes or be compliant to the treatment that will make a difference.*” When asked what comes to mind when hearing the word mindfulness, one of the patients reported “*medicine adherence, being on it. I’m mindful that I should take my medications whenever I’m supposed to. I’m saying that from a personal sense...I’m thinking now, as you say that, that mindfulness for me is to be mindful of getting out of bed and taking my medication.*”

Summary—Although the terms used to describe mindfulness differed among the providers, advocates, and patients, we found that most patients did understand the construct of mindfulness. Some patients agreed with the providers and advocates that the term meditation (not mindfulness) could be problematic because people would not know what it is, might feel that it was associated with religious beliefs, and that it could be intimidating or even off-putting. Despite these concerns, participants recognized the potential benefits of mindfulness for stress management, allaying anxiety, and improving medication adherence.

Health Coaching Topics

Another goal of the focus groups was to develop a time- and attention-matched control intervention. In addition to this important methodological challenge, it was critically important that we identify health topics that would be both interesting and relevant for PLWHA that would not target the key outcomes in a future randomized controlled trial. Thus, we sought to design a health coaching intervention that patients would benefit from and that could serve as a comparison (attention control) condition.

The health topic raised most often, and discussed at length in each focus group, was nutrition. In addition to providing general nutrition information, such as healthy carbohydrate and sugar consumption levels, participants also suggested topics like healthy eating for weight loss, as well as for HIV-related and other specific medical conditions (e.g., diabetes, congestive heart failure). Providers and advocates also stressed the importance of addressing food access issues, such as healthy food options for individuals who, due to financial constraints, often eat at fast food chains and soup kitchens and/or get their groceries at neighborhood corner stores, food banks, or food pantries.

Two other potential health topics that were discussed in each focus group were co-morbid medical conditions and sleep. The latter was raised in each group as a potential topic by the facilitator and participants endorsed it; several providers specifically suggested that sleep hygiene and insomnia were highly relevant topics for their patients and clients. Other potential health coaching topics that were endorsed in four or more of the five focus groups included: alcohol and other substance use, physical activity, and smoking cessation. The issue of aging with HIV was raised in a providers group, an advocates group, and discussed in some detail in one of the patient groups.

Summary—The enthusiastic response to the various nutrition topics, and the thoughtful advice about including healthy choices when eating out at fast food restaurants and soup

kitchens, has been included in the health coaching sessions, as have physical activity and sleep hygiene. Details of the health coaching attention control condition, as well as design and methods for the entire study are published elsewhere (33).

Intervention Delivery by Telephone

In each focus group we asked participants to think about the issues we might encounter in delivering mindfulness training (and health coaching) over the telephone. We explored whether and how providers/advocates already communicate with patients over the telephone; patient telephone use patterns, including the variety of telephone types and service plans; access issues, including limited minutes on mobile plans; and specific suggestions for a phone-delivered intervention.

Providers, advocates and patients all reported that most clinic patients rely on mobile (i.e., cell) phones but that the kinds of phones, and the ways they are used, varied. We heard that “Obama phones” (i.e., phones provided at no or limited cost to qualified low-income individuals) are very common among PLWHA. These phones have a limit of 250 minutes a month, and we heard several accounts of people running out of minutes, particularly at the end of a month. One patient said: “*there might be a large segment that cannot utilize the phone for whatever the reasons... that knocks out maybe a lot of HIV people... When I look around, I ain’t got enough to put \$10 or \$20 to extend my [amount of minutes]. If you’ve got medical issues, it’s used up just on prompts on a medical call and trying to get through*”. Many participants suggested that weekly study phone calls would be difficult for users of these limited plans and advised that we consider ways to provide additional phone minutes.

Not all clinic patients have such limited plans and many own (more expensive and functional) “smartphones.” Others reported having more than one mobile phone with multiple, and sometimes changing numbers. Landlines, when people have them, were recommended for intervention delivery because using them is not dependent on available minutes, and because participants will be at home when they answer those numbers.

One advocate related challenges from a prior experience with weekly phone counseling: “... *a lot of times the feedback you would get is we called this person, they never answered. You know, they didn’t have minutes, maybe the phone wasn’t working, they didn’t know who was calling*.” There were additional concerns about working by telephone; for example, one advocate stated: “*There’s an issue with reliable phone numbers. There’s a segment of our population, [for whom that is] no problem, but another segment where we can’t even call them to tell ‘em to come in to see us, you know, because can’t get ahold of ‘em*”. Other challenges that were anticipated included lost phones, not answering calls received from unrecognized numbers, and receiving calls at times or in places that are not conducive to a private conversation (e.g., when catching the bus, or in a homeless shelter).

The importance of building trust between participant and research staff was discussed at multiple focus groups with a high level of importance ascribed to it. As one patient aptly said: “*All of us like to be treated courteous and like we’re individuals and to be looked at when we’re spoken to and to feel like a person*.” Building rapport was identified as crucial for a phone-delivered intervention because, once established, this sense of connectedness

would make it less likely for participants to ignore calls from study staff with whom they have a strong connection. In our training and supervision of mindfulness coaches, who come from a less clinical context, we have emphasized the importance of building an initial rapport.

Summary—The convenience of phone-delivered interventions was recognized, and some providers and patients already had experience with this delivery mode. However, all participants identified potential concerns that were likely to arise, including limited minutes, use of multiple phones, and changing phone numbers. The importance of establishing initial trust and rapport was seen as essential. To address these challenges, focus group participants made several recommendations including (a) establishing a pre-arranged and regular protected time for telephone appointments, (b) setting up the telephones to recognize a call from the coaches, and (c) providing headphones so calls could be private and easier to hear. Nearly all agreed that establishing trust between a patient and a coach was essential.

CONCLUDING COMMENTS

This research was conducted with a small sample at a single site to guide development of a telephone delivered intervention. We labeled our method a “360° inquiry,” an approach borrowed from industrial psychology (34–37), that refers to the use of multi-sources to solicit information to optimize workplace performance. In the fields of human resources, management and leadership development, a 360° approach places colleagues’ perceptions of the person being reviewed alongside that person’s own reflection. Self-ratings are considered along with ratings of peers, managerial superiors and those managed by the person being evaluated to deliberately reveal any discrepancies between these perspectives. In our approach, the person being evaluated is replaced by the research idea, in this case, the intervention being adapted. We also solicited feedback from those who surround our future intervention and its participants, paying attention to discrepancies among the various groups. Therefore, we sought input from clinicians (i.e., physicians, psychologists, nurses), HIV patient advocates (i.e., social workers, case managers), and persons living with HIV. Each group provided unique input; collating and integrating the input from these sources has helped the research team to make specific intervention development and marketing decisions, and avoid mistakes that reliance upon a single source may have triggered.

The 360° approach revealed differences between providers and participants regarding the understanding of mindfulness. We found this especially interesting and helpful. The participants’ perspectives are essential for marketing to and adapting the intervention for PLWHA. The provider perspectives help us understand the perspective of key gatekeepers for referral to the study, including their support of the approach and of its possible utility for this population. Of course, one challenge of this approach is reconciling differences between groups and determining which perspectives should receive priority for intervention adaptation. In this regard, we typically privileged patient preferences. A 360° approach can be particularly useful precisely because it can reveal when understandings are and are not aligned.

An additional benefit of the 360° approach is that it also allowed us to introduce the research project and the research team to clinic staff, clinicians, counselors and patients, several of whom serve on community advisory boards. Partnering with each of these groups has benefits that go beyond the practical experience and advice they share; it gives everyone from doctors to patients the opportunity to shape and improve our research and to partner with us by providing feedback and advice that shape intervention design and implementation. These two benefits make 360° formative research a valuable component of behavioral intervention development and design. We recommend this 360° inquiry method to others engaged in the development, implementation, and evaluation of behavioral interventions.

Prior research on MT with PLWHA has reported challenges with patient recruitment and retention (22, 25). Therefore, in advance of a randomized clinical trial, an important goal of our research was to anticipate and proactively address these challenges. Our formative work helped us to develop, label, and market both a mindfulness intervention (i.e., the “experimental” intervention) and a time- and attention-matched health coaching intervention (i.e., the “control” intervention). Based on the formative research described in this report, we are using the language suggested by focus group participants (e.g., “mindfulness” instead of “meditation”), anticipating and developing proactive solutions to the challenges of telephone-delivery, and providing topics in the health coaching control intervention that are most interesting and relevant to study participants. We anticipate that these plans will facilitate the recruitment and retention of participants, a need that is evident from prior research.

In conclusion, we expect that providing MT and health coaching with one-on-one telephone sessions will lessen the participation burden for those patients who would not attend a traditional in-person class due to barriers (e.g., transportation issues, discomfort attending group classes). Effective scheduling of telephone MT and health coaching sessions is important because PLWHA often have unpredictable and stressful lives, multiple medical and social service appointments, and non-private living conditions (e.g., homeless shelters) that require flexibility.

The information, strategies, and intervention topic ideas provided by participants directly shaped the two interventions and the delivery approach. Our innovative 360° approach generated a variety of practical and strategic suggestions about presenting mindfulness, interesting health coaching topics, and telephone delivery strategies. We are currently conducting a small RCT to evaluate the feasibility, acceptability, and efficacy of these interventions (33), and look forward to reporting these results in a future paper.

Acknowledgments

Funding: This project was funded by a grant from the National Center for Complementary and Integrative Health (R34-AT008930) to Drs. Carey and Salmoirago-Blotcher. The funding agency had no involvement in the study design; in the collection, analysis and interpretation of data; in the writing of this report; and in the decision to submit this article for publication. We gratefully acknowledge the study participants as well as the clinical and research staffs.

References

1. Blashill AJ, Perry N, Safren SA. Mental health: a focus on stress, coping, and mental illness as it relates to treatment retention, adherence, and other health outcomes. *Curr HIV/AIDS Rep.* 2011 Dec; 8(4):215–22. [PubMed: 21822626]
2. Bangsberg DR. Preventing HIV antiretroviral resistance through better monitoring of treatment adherence. *J Infect Dis.* 2008 May 15; 197(Suppl 3):S272–8. [PubMed: 18447613]
3. Leserman J. Role of depression, stress, and trauma in HIV disease progression. *Psychosom Med.* 2008 Jun; 70(5):539–45. [PubMed: 18519880]
4. Koopman C, Gore-Felton C, Marouf F, et al. Relationships of perceived stress to coping, attachment and social support among HIV-positive persons. *AIDS Care.* 2000 Oct; 12(5):663–72. [PubMed: 11218551]
5. El-Sadr WM, Mayer KH, Hodder SL. AIDS in America--forgotten but not gone. *N Engl J Med.* 2010 Mar 18; 362(11):967–70. [PubMed: 20147707]
6. Farmer, P.Connors, M., Simmons, J., editors. *Women, Poverty, and AIDS: Sex, Drugs, and Structural Violence.* Monroe, ME: Common Courage Press; 1996 Mar.
7. Anema A, Vogenthaler N, Frongillo EA, Kadiyala S, Weiser SD. Food insecurity and HIV/AIDS: current knowledge, gaps, and research priorities. *Curr HIV/AIDS Rep.* 2009 Nov; 6(4):224–31. [PubMed: 19849966]
8. Stoskopf CH, Kim YK, Glover SH. Dual diagnosis: HIV and mental illness, a population-based study. *Community Ment Health J.* 2001 Dec; 37(6):469–79. [PubMed: 11504140]
9. Kalichman SC. HIV transmission risk behaviors of men and women living with HIV/AIDS: prevalence, predictors, and emerging clinical interventions. *Clin Psychol-Sci Pr.* 2000 Mar; 7(1):32–47.
10. Centers for Disease Control and Prevention (CDC). Vital signs: HIV prevention through care and treatment--United States. *MMWR Morb Mortal Wkly Rep.* 2011 Dec 02; 60(47):1618–23. [PubMed: 22129997]
11. Cohen S, Janicki-Deverts D, Miller GE. Psychological stress and disease. *JAMA.* 2007 Oct 10; 298(14):1685–7. [PubMed: 17925521]
12. Scott-Sheldon LA, Kalichman SC, Carey MP, Fielder RL. Stress management interventions for HIV+ adults: a meta-analysis of randomized controlled trials, 1989 to 2006. *Health Psychol.* 2008 Mar; 27(2):129–39. [PubMed: 18377131]
13. Brown JL, Vanable PA. Cognitive-behavioral stress management interventions for persons living with HIV: a review and critique of the literature. *Ann Behav Med.* 2008 Feb; 35(1):26–40. [PubMed: 18347902]
14. Antoni MH, Cruess DG, Cruess S, et al. Cognitive-behavioral stress management intervention effects on anxiety, 24-hr urinary norepinephrine output, and T-cytotoxic/suppressor cells over time among symptomatic HIV-infected gay men. *J Consult Clin Psychol.* 2000 Feb; 68(1):31–45. [PubMed: 10710838]
15. Kabat-Zinn, J. *Full Catastrophe Living: Using the Wisdom of your Body and Mind to Face Stress, Pain, and Illness.* New York: Dell Publishing; 1990.
16. Malinowski P. Neural mechanisms of attentional control in mindfulness meditation. *Front Neurosci.* 2013; 7:8. [PubMed: 23382709]
17. Shapiro SL, Carlson LE, Astin JA, Freedman B. Mechanisms of mindfulness. *J Clin Psychol.* 2006 Mar; 62(3):373–86. [PubMed: 16385481]
18. Carmody J. Evolving conceptions of mindfulness in clinical settings. *J Cognitive Psychother.* 2009; 23(3)
19. Goyal M, Singh S, Sibinga EM, et al. Meditation programs for psychological stress and well-being: a systematic review and meta-analysis. *JAMA Intern Med.* 2014 Mar; 174(3):357–68. [PubMed: 24395196]
20. Sibinga EM, Stewart M, Magyari T, Welsh CK, Hutton N, Ellen JM. Mindfulness-based stress reduction for HIV-infected youth: a pilot study. *Explore (NY).* 2008 Jan-Feb;4(1):36–7. [PubMed: 18194789]

21. Jam S, Imani AH, Foroughi M, SeyedAlinaghi S, Koochak HE, Mohraz M. The effects of mindfulness-based stress reduction (MBSR) program in Iranian HIV/AIDS patients: a pilot study. *Acta Med Iran*. 2010 Mar-Apr;48(2):101–6. [PubMed: 21133002]
22. Riley KE, Kalichman S. Mindfulness-based stress reduction for people living with HIV/AIDS: preliminary review of intervention trial methodologies and findings. *Health Psychol Rev*. 2015; 9(2):224–43. [PubMed: 26209210]
23. Duncan LG, Moskowitz JT, Neilands TB, Dilworth SE, Hecht FM, Johnson MO. Mindfulness-based stress reduction for HIV treatment side effects: a randomized, wait-list controlled trial. *J Pain Symptom Manage*. 2012 Feb; 43(2):161–71. [PubMed: 21925831]
24. Sibinga EM, Perry-Parrish C, Thorpe K, Mika M, Ellen JM. A small mixed-method RCT of mindfulness instruction for urban youth. *Explore (NY)*. 2014 May-Jun;10(3):180–6. [PubMed: 24767265]
25. SeyedAlinaghi S, Jam S, Foroughi M, et al. Randomized controlled trial of mindfulness-based stress reduction delivered to human immunodeficiency virus-positive patients in Iran: effects on CD4(+) T lymphocyte count and medical and psychological symptoms. *Psychosom Med*. 2012 Jul-Aug;74(6):620–7. [PubMed: 22753635]
26. Salmoirago-Blotcher E, Crawford SL, Carmody J, et al. Phone-delivered mindfulness training for patients with implantable cardioverter defibrillators: results of a pilot randomized controlled trial. *Ann Behav Med*. 2013 Oct; 46(2):243–50. [PubMed: 23605175]
27. Gross CR, Reilly-Spong M, Park T, Zhao R, Gurchich OV, Ibrahim HN. Telephone-adapted Mindfulness-based Stress Reduction (tMBSR) for patients awaiting kidney transplantation. *Contemp Clin Trials*. 2017 Mar 22;57:37–43. [PubMed: 28342990]
28. Morse, JM. *Qualitative Health Research: Creating a New Discipline*. Walnut Creek, CA: Left Coast Press; 2012.
29. Green, J., Thorogood, N. *Qualitative Methods for Health Research*. Thousand Oaks, CA: Sage; 2013.
30. Rosen RK, Kuo C, Gobin R, et al. How qualitative methods contribute to intervention adaptation: an HIV risk reduction example. *Qual Psychol*. 2017 in press.
31. NVivo for Windows. Version 10. QSR International Pty Ltd; 2012. NVivo qualitative data analysis software.
32. Guest, G., Macqueen, KM., Namey, EE. *Applied Thematic Analysis*. Thousand Oaks, CA: Sage; 2012.
33. Salmoirago-Blotcher E, Rich C, Rosen R, et al. Mobile-delivered mindfulness training to promote ART adherence and risky sex behaviors among persons living with HIV: Design and methods. *Contemporary Clinical Trials*. 2017; 53(162–170)
34. Brett JF, Atwater LE. 360 degree feedback: accuracy, reactions, and perceptions of usefulness. *J Appl Psychol*. 2001 Oct; 86(5):930–42. [PubMed: 11596809]
35. Atkins PWB, Wood RE. Self versus others' ratings as predictors of assessment center ratings: validation evidence for 360-degree feedback programs. *Pers Psychol*. 2002; 55(4):871–904.
36. Tomo WW. Editor's note: Introduction to special issue on 360-degree feedback. *Hum Resource Manage*. 1993; 32(2–3):211–9.
37. Lepsinger, R., Lucia, AD. *The Art and Science of 360 Degree Feedback*. Hoboken, NJ: John Wiley & Sons; 2009.