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FINAL RESEARCH REPORT

Does a Training Program for Mental Health Counselors Help Reduce Burnout and Improve Patient Care?

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ABSTRACT

Background: Clinician burnout (emotional exhaustion, cynical attitudes, and reduced personal accomplishment) has long been thought to negatively affect the quality of health care, yet little is known about the specific mechanisms of action. Guided by theory and previous research, we postulate that clinician burnout may negatively affect both the processes and outcomes of patient-centered care—ie, it may interfere with the ability to build a strong working alliance, involve patients in treatment, and improve patient outcomes (eg, depression and anxiety symptoms in mental health care settings). We developed an intervention—Burnout Reduction: Enhanced Awareness, Tools, Handouts, and Education (BREATHE)—that has shown promise in reducing burnout in mental health clinicians but has yet to be linked with patient-centered processes and outcomes.

Objectives: The specific aims of this mixed-methods study were the following:

1. Understand the patient and clinician experience of burnout in mental health clinicians.
2. Test BREATHE using a randomized comparative effectiveness design to reduce clinician burnout and patient-centered processes and outcomes.
3. Test a conceptual model linking clinician burnout to patient-centered processes and outcomes.

Methods: Participants included clinicians (ie, staff who provided direct clinical care) and patients at 2 community mental health centers (1 rural and 1 urban). For aim 1, we conducted focus groups with clinicians (3 groups, 27 participants) and with patients (5 groups, 45 participants). For aims 2 and 3, we enrolled 192 clinicians and a random sample of 470 adult patients recently seen by these clinicians. Clinicians were randomly assigned to receive either BREATHE or motivational interviewing (MI) training, an active control that could affect patient-centered care but was not expected to directly reduce burnout. We then surveyed clinicians and interviewed patients over a 12-month period to examine changes in burnout (using the Maslach Burnout Inventory[1]) and patient-centered processes (perceived support for autonomy, working alliance), engagement (appointments missed, patient satisfaction), and outcomes (patient activation, depression/anxiety, and functioning). Finally, we tested a conceptual model linking clinician burnout to these patient-centered processes, engagement, and outcomes.

Results: In aim 1, patients noticed clinician burnout and stress; patients perceived most impacts as negative (eg, poor communication), although some patients identified positive impacts (eg, sense of connectedness/equality, feeling helpful). In aim 2, we found no comparative effectiveness for BREATHE or MI on burnout, patient-centered processes, or other outcomes; clinicians did not improve significantly in either condition, although a number of clinicians interviewed for a qualitative evaluation reported reduced burnout from BREATHE. Several patient-centered processes and outcomes significantly improved over time but not differentially by condition. Models tested for aim 3 suggested that clinician burnout did not reduce perceived patient-centeredness. In one model, higher baseline emotional exhaustion was related to more improvement of patient-rated quality of care over time.

Conclusions: Although burnout was perceived to have predominantly negative effects on patient-centered care and outcomes, analyses testing the conceptual models did not support this, and neither intervention was effective. Alternative methods are needed to effectively address clinician burnout.

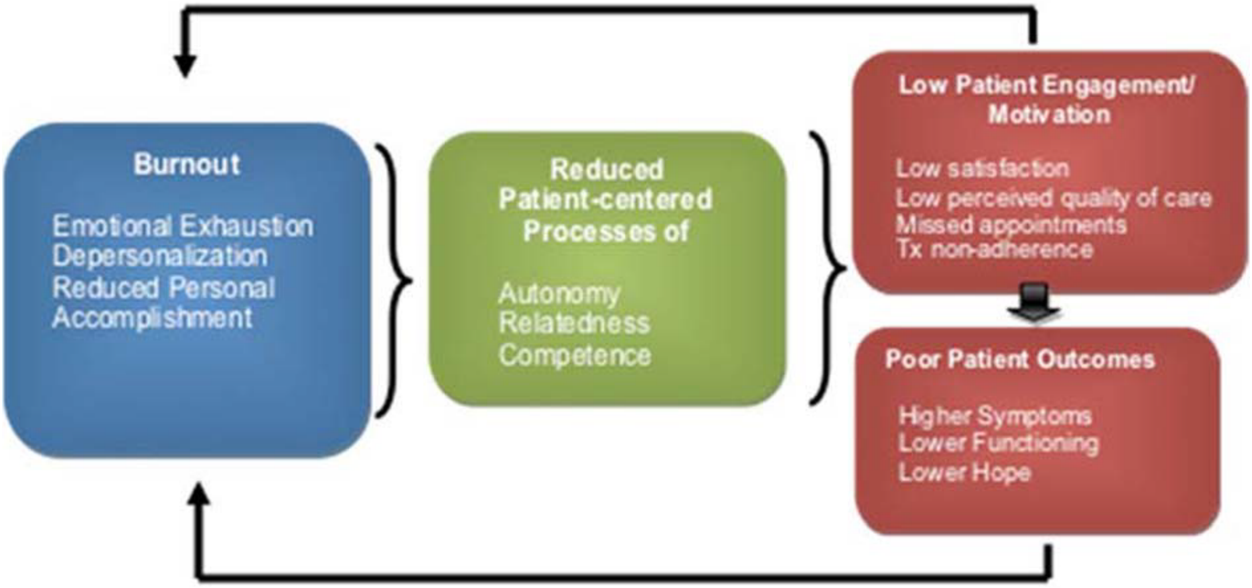
Limitations: Clinicians had generally low levels of burnout at baseline and might have been less in need of intervention. However, study sites did have high levels of turnover (including study dropout), which may have interfered with finding intervention effects. Another limitation was in our ability to meaningfully link clinicians and patients. Patients were recruited based on having seen a particular clinician according to agency records; however, patients might not have known that clinician well, might have seen him or her infrequently, or could have been affected by the burnout of other clinicians, which could limit our ability to assess the impact of clinician burnout.

BACKGROUND

Professional burnout is commonly defined by Maslach's conceptualization of high levels of emotional exhaustion and depersonalization (negative or cynical attitudes about patients), and a diminished sense of personal achievement.[2] Burnout is very common among mental health care providers, with up to 67% of mental health workers reporting high levels of burnout on the Maslach Burnout Inventory.[3-6] Research also indicates that burnout is associated with a number of problems not only for mental health workers (eg, insomnia, relationship problems, poor mental health)[4,7-13] but also for their employer organizations, patients, and the mental health system as a whole.

Burnout can affect quality of care in a number of ways; patient-centered care processes can be particularly damaged by burnout. Systematic reviews show that when patients and clinicians work together to identify problems, set goals, and make decisions, the result for patients is greater satisfaction and trust, reduced emotional burden, and improved biomedical markers, such as blood sugar and blood pressure control.[14,15] Guided by the self-determination theory of human motivation[16] and the Job Demands–Resources model of burnout,[17-22] we tested a conceptual model of how burnout can affect patient-centered care, engagement, and patient outcomes (see Figure 1).

Figure 1. Conceptual Model Linking Burnout to Patient-Centered Care, Patient Engagement, and Patient Outcomes



Abbreviation: Tx, treatment.

Self-determination theory asserts that people are at their best when their needs for autonomy, competence, and relatedness are met.[16] In clinical domains, Williams and colleagues[23] found that perceived autonomy support from health care clinicians predicted patients' level of perceived competence in managing diabetes 3 months later. Competence predicted self-management behaviors and a change in glucose level as well. Similar support has been found for smokers, where autonomy support predicted perceived competence, which was further associated with smoking cessation.[24] Patients should be most motivated and engaged in treatment when they feel supported to make choices, feel connected to their treatment provider, and feel competent to work toward better health. These patient-centered care processes are jeopardized by staff burnout.

According to the Job Demands–Resources model of burnout,[19,21,25,26] job demands (eg, interacting with patients with intensive needs, balancing competing priorities) require effort over time and can result in costs to the staff member (eg, emotional exhaustion). As clinicians become exhausted, they conserve resources and pull back, which leads to depersonalization. This conservation of resources can also lead to spending less time with patients and to being more directive and less supportive of patients' autonomy. Depersonalization (cynical attitudes, treating patients like objects) also leads to lower expectations of patients' abilities (seeing them as less competent) and makes clinicians less able to form relationships with patients (less relatedness). The lack of these therapeutic processes (low autonomy, relatedness, and competence support) leads to reduced patient engagement and, ultimately, worse outcomes.

Empirically, burnout has been associated with cognitive impairments in employees, including decreased attention,[27] which can lead to errors and less engagement with patients. Burnout has also been associated with decreased empathy[28]; in a recent study of residents, reduced empathy mediated the relationship between burnout and lower self-ratings of patient-centered care.[29] In a systematic review and meta-analysis of the literature, we found consistently negative relationships between burnout and quality ($r = -0.26$; 95% CI, −0.29 to −0.23) as well as safety ($r = -0.23$; 95 % CI, −0.28 to −0.17]).[30] Although less research has directly assessed the link between provider burnout and actual patient outcomes, some studies have found detrimental effects of burnout. Halbesleben and Rathert[31] surveyed 178 matched pairs of physicians and patients who had recently been hospitalized; path analyses showed that the depersonalization component of physician burnout was related to lower patient satisfaction and longer patient-reported recovery times. In the mental health field, Priebe and colleagues[32] studied 24 assertive outreach teams working with people with severe mental illness and found that team-level burnout was associated with increased hospitalization of patients 9 months later.

Solid theoretical reasons and growing empirical evidence suggest that by targeting clinician burnout we can improve patient-centered processes, patient engagement, and patient outcomes. Yet despite the high prevalence of burnout, relatively few interventions or prevention programs have been implemented in health care settings, especially in mental health care, and very few have been adequately evaluated.[9,33-36] Before this study, we reviewed the intervention literature[37] and found 8 studies that focused specifically on reducing burnout in mental health workers. Only 2 involved a randomized controlled trial (RCT); only 2 were conducted in the United States, and only 1 focused on community mental health staff.[38] Five of the 8 studies (including 1 RCT) found significant reductions in burnout. The type of intervention varied; they included communication training, empathy building, worksite social support development, and managerial support. The small number of studies and their methodological limitations make generalization difficult.

To supplement the small number of intervention studies in mental health, we also considered findings from the general literature on burnout. Most burnout programs have focused on the individual employee, with the goal of reducing work stress by improving personal coping skills or social support.[35,39] A variety of techniques have been tried, many of which fall within the broad category of cognitive-behavioral interventions, including providing educational information, cognitive restructuring, progressive muscle relaxation, social skills training, and skills to enhance social support.[39,40] Evaluations of individual-level interventions suggest that coping skills programs are often effective for reducing emotional exhaustion. Some of these programs have even led to positive physiological results (eg, lower blood pressure) for employees (see reviews[35,39]). Booster sessions are important to sustain positive outcomes.[41]

In addition to general coping skills, an important set of interventions falls within the broad rubric of "third-generation cognitive-behavioral interventions,"[42] which often incorporate methods derived in part from Eastern spiritual traditions such as meditation and mindfulness practice. In a review of work-based stress management programs, Murphy[40] found that meditation programs most consistently reduced stress and that programs offering a combination of intervention strategies tended to be most effective. Recently, Krasner and colleagues[43] developed a program for primary care physicians that used mindfulness practices, appreciative inquiry, and narrative exercises. They found that physicians experienced significant reductions in all facets of burnout as well as improvements in mood over 15 months. In a more recent meta-analysis of burnout interventions in mental health, Dreison and colleagues[44] identified 27 studies that had assessed the impact of an intervention on burnout. They found that interventions, particularly those directed at the individual, had positive but small effects on provider burnout (overall, Hedges' $g = 0.13$, $P = .006$). The studies were limited in rigor of design, length of follow-up, and breadth of outcomes assessed.

Drawing from the literature and clinical experience, we designed the Burnout Reduction: Enhanced Awareness, Tools, Handouts, and Education (BREATHE) program to reduce burnout in community mental health clinicians.[38] This program integrates a combination of strategies designed to enhance clinician resources to deal with stressful work situations, including traditional cognitive-behavioral techniques, mindfulness practices, social skills training, and other self-care strategies in a workshop setting. At the core, participants learn stress management and relaxation skills they can apply to various stressful situations. In addition, BREATHE targets more specific domains. For example, high caseloads and competing demands are common among mental health clinicians. BREATHE includes a module on time management and setting boundaries to help participants reduce demands and work more efficiently. Interpersonal issues can also contribute to burnout; a BREATHE module targets relationships at work, including conflict management. Our pilot test of the BREATHE intervention[38] showed significant reductions in emotional exhaustion and depersonalization (cynicism) along with significant increases in optimistic attitudes regarding patients. A second study tested BREATHE in a more rigorous design, randomizing participants to either BREATHE or a person-centered planning intervention that helps providers learn inclusive treatment planning techniques.[45] Although we found no significant differences between groups, BREATHE participants did experience significant improvements in depersonalization at 6 weeks and in emotional exhaustion and positive expectations for patients at 6 months. However, both of those previous studies assessed only clinician outcomes; we did not examine patient-centered processes of care or patient outcomes in relation to burnout or in response to the BREATHE intervention.

The purpose of the current study was to test an alternative paradigm for health care administration, practice, and research: the idea that providing effective interventions for the health and well-being of clinicians can systematically improve the quality of care they provide and, ultimately, patient outcomes. First, we partnered with patients and clinicians to understand the experience of clinician burnout. We then tested BREATHE using a randomized comparative effectiveness design to lessen clinician burnout and improve patient-centered processes and outcomes. Finally, we tested a conceptual model linking clinician burnout to patient-centered processes and outcomes (see Figure 1).

PARTICIPATION OF PATIENTS AND OTHER STAKEHOLDERS IN THE DESIGN AND CONDUCT OF RESEARCH AND THE DISSEMINATION OF FINDINGS

1. **Types and number of stakeholders involved.** Our primary stakeholders for this project were patients, clinicians, and administrators in community mental health. On the research team, we had 4 patient stakeholders and 12 clinical staff (3 of whom also held administrative positions). Before we collected baseline data, we sought input from focus groups at each site—a total of 45 patients and 27 clinicians.

2. **How we conceived and achieved balance among stakeholder perspectives.** This study was triggered by an administrator stakeholder's comment that clinician well-being has a direct impact on patient well-being. Because of that conversation, we began working with stakeholders from that administrator's center and partners from a more urban community mental health center to design and plan the study. Because clinician burnout has potential negative consequences for clinicians, administrators, and patients, we engaged representatives from all 3 groups. Thus, we have collaborated on all stages of the study.

3. **Methods used to identify and recruit stakeholder partners.** Stakeholder engagement began with a conversation between a researcher and 2 self-selected stakeholders (an administrator and a clinician). The initial stakeholders identified clinicians and a patient at each site as potential partners; they were given information about the project and invited to join. One patient stakeholder was already a member of the university-based research team.

4. **Methods, modes, and intensity of engagement.** We had occasional face-to-face meetings early in the project, sometimes with food, which helped engage stakeholders on an interpersonal level. We allowed time at the beginning of these meetings to get to know one another and to build a sense of "teamness." However, with 3 different cities involved (Indianapolis and Logansport, IN; and St Louis, MO), in-person meetings were infrequent. We had monthly project management conference calls throughout the project for the overall research team and more frequent calls in earlier periods for planning and implementing the intervention. We also held weekly or biweekly recruitment calls with a subset of the research team that included stakeholders. Minutes of these calls were provided to all stakeholders.

5. Perceived or measured impact of the engagement

a. **Relevance of the research question**. The research question initially emerged from stakeholders, which ensured the relevance of the research. Stakeholders helped facilitate focus groups (composed of clinicians and patients) at each site before the collection of baseline data, which further informed the primary research question and measures. As an example of a relevant product, one of our papers on the correlates of working overtime was accepted by a peer reviewed journal.[46] This idea came directly from a clinician stakeholder during one of our monthly meetings.

b. **Study design, processes, and outcomes.** Our research team included paid coinvestigators from each of the stakeholder groups who were involved in designing and modifying the research plan. They provided input on the research design and measurement tools and helped manage the project, interpret results, and write the final report. Stakeholders led discussions of the best ways to recruit and retain clinician and patient participants and were involved in data analysis and interpretation. In aim 1, focus groups were organized and conducted by researchers, clinicians, and patient partners. The team developed the questions, recruited patients for focus groups, and reviewed focus group transcripts. All focus groups were conducted by a researcher with either a patient or clinician cofacilitator. The main themes of the codebook for focus group transcripts were developed by a team that included patients, clinicians, administrators, and researchers who read the transcripts and met to discuss observations. In aim 2 and aim 3, the research team developed surveys for both clinicians and patients using the themes gathered from the patient and clinician focus groups.

   All stakeholders on our team reviewed the documents and made suggestions. In addition, they worked together to develop a plan for recruitment and to create recruitment materials. At both sites, clinician stakeholders led recruitment and data collection. At one site, patient stakeholders recruited patients and completed interviews.

c. **Study rigor and quality.** The most positive impact on study quality was the relevance and importance of the topic. Similarly, input from focus groups at the beginning of the study helped us assess relevant concepts for the effects of clinician work stress on patient-centered care.

d. **Transparency of the research process.** Clear, open communication was critical to the process. Having active clinicians as research partners in recruitment helped engage participants.

e. **Adoption of research evidence into practice.** One positive impact on the 2 clinical agencies in the study is that that both are developing policies and implementing practices to address retention and burnout with staff. As we finalize the report, we are working with each agency to develop a dissemination plan to provide participants with study results.

METHODS

Study Overview and Design

This was a mixed-methods study to address 3 aims related to burnout and patient-centered care in mental health providers. First, we partnered with patients and clinicians in focus groups to understand the experience of clinician burnout; this portion of the study informed the selection of outcomes for aim 2. We then tested BREATHE using a randomized comparative effectiveness design to lessen clinician burnout and improve patient-centered processes and outcomes. Finally, we tested a conceptual model linking clinician burnout to patient-centered processes and outcomes using the data gathered in the RCT portion of the study. We used both a sequential-exploratory approach to mixed methods[47] (qualitative data from the focus groups of aim 1 informed later quantitative data in aims 2 and 3) and a sequential-explanatory approach, in which interviews with clinicians after the primary data collection helped us understand the quantitative findings.

For the RCT, we conducted a prospective, randomized trial comparing the effectiveness of 2 active interventions to improve patient-centered processes of care, patient engagement, and patient outcomes. One approach, BREATHE, works by targeting and reducing staff burnout; the other approach, motivational interviewing (MI) training, works by giving clinicians skills to work in a patient-centered way but was not expected to have a large impact on burnout. By choosing these comparators, we maintained the spirit of comparative effectiveness research—ensuring that patients in a real-world setting would have a good chance of experiencing improved outcomes in either condition[48]—while at the same time testing the theoretical impact of providing an intervention that addressed clinician burnout.

Participants

The target population included clinicians (ie, staff who provided direct care to patients, including psychiatrists, nurses, counselors, case managers) and patients at 2 community mental health centers.

Aim 1

To achieve aim 1 (to understand the impact of burnout and to inform measures used in the RCT), we first conducted focus groups. We recruited adult patients (N = 45, 5 focus groups) through brochures and clinician referral. We recruited clinicians (N = 27) for 3 focus groups across both sites. Inclusion criteria for the focus groups were current patient or clinician at 1 of the 2 centers (Four County Counseling or Places for People), at least 18 years old, and willing to participate in a focus group for 1 hour. We did not restrict the sample on the basis of initial level of burnout for several reasons. First, given our pilot data, we believed that the intervention could help reduce existing levels of burnout in addition to providing staff with the skills to help prevent future burnout. Second, burnout is generally seen as a continuous variable; there are no empirically validated cutoff points for high and low burnout. Finally, in our pilot we did see a reduction in burnout in the overall sample, which we did not screen or restrict on the basis of initial burnout levels.

Aims 2 and 3

For the RCT portion of the study (testing aims 2 and 3), we recruited active clinicians (N = 206) and randomly assigned them to either BREATHE or MI training workshops; 192 completed the baseline measure and were included in our analyses. We created flyers and brochures to describe the study and distributed them to staff or posted them in locations accessed by staff at the agencies. Research staff attended agency staff meetings to distribute recruitment materials and answer questions about the study. Staff who expressed interest in participating met with a research team member to provide informed consent. A subset of clinicians who participated in the RCT and were still active employees at each site also completed a qualitative interview after their participation in the prospective trial (N = 21 from BREATHE and N = 21 from MI).

We also recruited active adult patient participants (n = 473; 470 were enrolled) to assess changes in patient-centered care and outcomes in response to the clinician interventions. As clinicians agreed to participate, we used electronic medical records to create a list of patients each one had seen during the previous month. We randomly selected a subsample of patients for each participating clinician for recruitment (up to 5). Any of those patients who were at least 18 years old were eligible to participate.

Participation was voluntary, and all participants received a modest incentive for participation. For focus groups, patient participants were given $20 gift cards and clinician participants were provided with a meal (focus groups occurred during work hours). For the RCT portion, clinicians were given a $10 gift card with each completed a survey, and patients who completed an interview were given $20. Clinicians who participated in the qualitative interviews were given a $20 gift card.

Setting

This study took place at 2 community mental health centers to allow for a large enough sample of clinicians, to include rural and urban locations, to increase racial diversity, and to be feasible in a 3-year time frame. The rural location was Four County Counseling Center in Logansport, Indiana, a public nonprofit organization that employed approximately 230 staff at the time of the study, providing community-based substance abuse and mental health services to nearly 6000 patients annually in 4 counties. (This is the partner organization that initially developed the idea of studying the relationship between clinician and patient well-being.) The urban location was Places for People in St. Louis, Missouri. Places for People is also a public nonprofit organization; it employed approximately 260 staff at the time of the study. The agency provides community-based substance abuse and mental health services to nearly 4000 patients annually. Both organizations provide case management, home-based and school services, supported employment, outpatient individual and group services (including those that follow evidence-based guidelines), and medication management.

Interventions

At each wave of recruitment, we offered 2 trainings for each condition at each location to give participants a choice of day and time. To limit potential distractions and interruptions and to provide a neutral environment, both the BREATHE and MI trainings typically took place at an offsite location near the mental health center. Both interventions followed the same format to control for time and attention, with an initial workshop of 4 hours, followed by two 2- to 2.5-hour follow-ups. Over the course of the study, we provided 5 BREATHE and 6 MI series at Places for People and 6 BREATHE and 6 MI series at Four County.

BREATHE Intervention

BREATHE synthesizes interventions from the literature— including mindfulness, cognitive restructuring, setting boundaries, and mobilizing social support—within a relapse prevention conceptual framework. Basic information is presented in a workshop setting and participants practice strategies using various individual, dyadic, and group exercises. Within a functional analysis/relapse prevention conceptual framework, participants receive a Burnout Prevention and Work Wellness Toolkit they can use to identify personal burnout warning signs and triggers and to develop a self-care plan to reduce burnout. Although our initial BREATHE workshop was conducted in 1 day, this project split the training into 3 sessions to allow for spaced exposure and practice of the materials, which may be important for sustaining changes.[41] The BREATHE workshop was conducted by Morse (BREATHE developer), Salyers, and (later in the project) by a doctoral student.

MI Training

The comparator condition was MI training for clinicians. MI is a therapeutic approach based on transtheoretical models of change and Rogers' client-centered therapy.[70] Central to MI is a patient-centered clinical orientation[71] that involves both collaborative work with the patient on goals of his or her choosing and the strategic use of certain communication techniques to help patients resolve ambivalence about behavior change—or perhaps to create ambivalence regarding troublesome behaviors when none exists.

MI is grounded in the principles of providing accurate empathy, developing discrepancies between goals and behaviors, rolling with resistance, and avoiding argument. MI often uses a number of specific exercises, such as exploring the importance and confidence of change, looking forward/back, and exploring decisional balance. MI training was provided by Gearhart and Rollins, who have expertise in this approach.

Follow-up Schedule

Clinicians completed online surveys at baseline, 3 months, 6 months, and 12 months to assess clinician and job characteristics, the primary outcome of burnout, other measures of job-related well-being, and perceived quality of care. Because the intervention (BREATHE or MI) was delivered in 3 sessions occurring about a month apart, follow-up exceeded the period of active exposure to the intervention. We interviewed patients on the same schedule as the data collection for clinicians with the exception of the 3-month time point. We assessed patient-reported processes of care and patient outcomes (symptoms, functioning, and hope). Patients did not receive any direct intervention from our research.

Study Outcomes

The primary outcome for the comparative effectiveness trial was the Maslach Burnout Inventory,[1] a widely used measure of 3 components of burnout: emotional exhaustion, depersonalization, and personal accomplishment. The subscales have shown good internal consistency, stability over time, and convergent validity with related constructs.[1] Although the primary outcomes were the sums of each subscale, we did examine the number and percentage of the sample that met criteria for "high burnout" according to the Maslach scoring manual[49] (emotional exhaustion ≥27, depersonalization ≥10, and personal accomplishment ≤33). We included several other outcomes for clinicians that we considered secondary to burnout.

We included job characteristics, asking individual descriptive questions on the program/service type (eg, residential services, case management), length of time on the job and in the mental health field, number of hours worked per week, caseload size, and whether the staff person had supervision responsibilities. These characteristics could change over time and could be associated with work stress and burnout; therefore, we included them in study measures.

Other job-related well-being measures include job satisfaction assessed with 1 item from the Job Diagnostic Survey,[50] which is an efficient yet valid approach to assessing overall job satisfaction.[51,52] We also asked about *turnover intentions* through 2 self-report items: "How often have you seriously considered leaving your job in the past 6 months?" (rated from 1 = never to 6 = several times a week) and "How likely are you to leave your job in the next 6 months?" (rated from 1 = not likely at all to 4 = very likely). We have used these items in several studies, and they correlate with burnout and job satisfaction.[38,53] We assessed work–life balance using 6 items adapted from an 18-item measure developed by Carlson et al.[54] The items assess 3 types of conflict (time-, strain-, and behavior-based) and 2 directions of balance (work conflict with family and family conflict with work) through a series of statements regarding one's work and family situation, to which participants are asked to indicate their level of agreement or disagreement on a 5-point Likert-type scale (*strongly disagree* to *strongly agree*). A sample statement for time conflict is "My work keeps me from my family/home activities more than I would like." We adapted the measure by taking 1 item from each type of conflict for each direction; we also changed "family" to "family/home" to include those who did not live with family. We used the Emotional Labor Scale,[55] which includes 14 questions about the relationship between emotions and interactions with patients. We created 4 questions to assess the importance and confidence in skills to mirror processes in MI; these questions have been shown to have good predictive validity of behavior change in other contexts.[56] We created 1 set of questions for stress reduction (eg, "How important is it for you to/confident are you that you can reduce your work-related stress right now?") and 1 set for working in a patient-centered way (eg, "How important is it for you to/confident are you that you can consistently interact with consumers/clients in a relaxed, nonjudgmental way?"). We used the Perceptions of Supervisory Support Scale to gather information on how supervision can be linked to burnout and patient outcomes.[57]

We assessed perceived quality of care using a clinician scale we refined from a previous study.[58] For the current study, we added items related to information that emerged from the focus groups, including details about interactions with patients and how stress affects patient interactions or outcomes for patients. We created a parallel version of the scale for patients to complete. After factor analysis, both scales had 22 items; the clinician scale had 2 distinct factors (person-centered care and discordant care), while the patient version had 3 (person-centered care, negative staff interactions, and inattentive care). Both versions demonstrated adequate internal consistency and validity with measures related to satisfaction and the therapeutic relationship.[59]

Additional Data Collected to Assess Clinicians

In each follow-up survey, we used a self-report checklist of skills learned tailored for the intervention received (BREATHE or MI) as a rudimentary fidelity check to help us assess the extent to which clinicians perceived the skills as helpful and were implementing them. We used agency records to extract actual turnover at 6 and 12 months. We noted whether clinicians were still employed, transferred to another position, or left employment at their organization altogether. Because data were based on existing administrative records, we were not able to determine the subsequent employment of those who left. We also gathered information on the type of position (exempt from overtime pay versus nonexempt). We conducted qualitative interviews with a subset of clinicians from each intervention arm (21 in each) to obtain feedback about the utility of each intervention; ie, how the intervention might have affected them and their work with patients and coworkers. The interviews were conducted in person or by phone by a research assistant who had not been involved in providing either intervention.

We considered all patient-reported measures secondary; we describe them in the following paragraphs, along with the rationale for including them. First, we describe measures that assessed the processes of care, then patient outcomes (symptoms, functioning, and hope).

We used 2 measures to assess perceptions of patient-centered processes. For both, we prompted patients to report on the specific clinician from whose caseload they were randomly selected. We assessed perceived autonomy support with a 6-item version of the Health Care Climate Questionnaire.[60] Patients rated how much their clinicians supported autonomy on a 7-point scale (*strongly disagree* to *strongly agree*). We assessed perceived relatedness using the short form of the patient version of the Working Alliance Inventory (WAI).[61] The WAI has 3 subscales: task, bond, and goals.

We assessed competence related to mental health management with the 13-item Patient Activation Measure–Mental Health (PAM–MH)[62] (eg, “I know what each of my prescribed mental health medications does”). Each question is answered on a 4-point Likert-type scale (*strongly disagree* to *strongly agree*). The PAM–MH has been shown to have strong test–retest reliability, correlates with related constructs,[63] and has been used in other samples of people with mental illness.[64,65]

We assessed engagement with patient satisfaction using the Client Satisfaction Questionnaire, an 8-item satisfaction checklist used with good reliability in several large-scale community-based mental health studies (eg, Bond et al[66]). We also assessed engagement according to the proportion of scheduled appointments kept (using medical record information), and rated medication adherence (for patients who were prescribed medications) using the Medication Adherence Rating Scale (MARS), a 10-item scale with established reliability and validity in people with mental illness.[67] We assessed perceived quality of care using the patient version of the quality of care scale.[59]

Patient outcomes included symptoms, functioning, and hope. We selected brief measures of depression and anxiety, as these are common concerns across a variety of patients. The 9-item Patient Health Questionnaire (PHQ-9) is a brief, widely used self-report assessment developed for primary care[68,69] whose 9 items directly reflect the *DSM-IV* diagnosis of major depressive disorder.[70] We assessed anxiety using the 7-item Generalized Anxiety Disorder (GAD-7) tool, which has been validated in large primary care and population-based studies.[71,72] We assessed physical and mental health functioning with the Short Form 12-item Health (SF-12) Survey. The SF-12 is a health-related quality of life measure, derived from the 36-item Medical Outcomes Study survey and containing items yielding a Mental Health Component Score and a Physical Health Component Score. Higher composite scores indicate higher health-related quality of life.[73] The SF-12 has been used extensively, particularly in depression management trials.[74-78] We assessed hope using the 12-item Adult State Hope Scale.[79] The scale’s internal consistency, high levels of convergent and discriminant validity, and sensitivity[79] have been demonstrated in numerous studies, and it has been used in mental health populations.[80,81]

We included open-ended questions in follow-up patient interviews to assess whether patients noticed burnout in clinicians and, if so, how they believe burnout can affect a patient's work with clinicians and progress in treatment. For a subgroup of patients, we added questions to explore whether the intervention might have had an impact. We asked them whether they noticed any changes in (1) quality of care, (2) their own involvement in their care, or (3) their overall mental health. We asked them to describe any changes and to tell us what might have led to those changes.

We used medical records to extract diagnostic information for patients. We extracted the primary psychiatric diagnosis (*ICD* or *DSM* code) for each patient and noted whether a diagnosis of substance use disorder was present. We also extracted appointment data (number of appointments scheduled, missed, and kept) and calculated the number of missed divided by the number scheduled as a measure of disengagement during each period.

Data Collection Procedures

Clinician participants completed 30-minute online surveys. After completing the informed consent process, clinicians received individual emails with a direct link to each survey at each time point. Clinician or staff researchers at the site ensured that clinicians had received the emails and were not experiencing difficulty accessing the surveys. If necessary, we sent additional email reminders or, occasionally, made phone calls to remind clinicians to complete the surveys.

Patient participants typically completed interviews in person, with some follow-up interviews completed by phone. Having clinician or staff researchers at each site gave us access to current contact information (if known) and was the best way to find patients for follow-up interviews. At the rural site in Logansport, we sent IRB-approved letters to some patient participants' last known address if we couldn't reach them by phone.

Randomization

Clinicians were randomized to a treatment group (receiving either BREATHE or MI), and randomization was stratified by site. We used a random number generator to select treatment conditions separately for each site. After the clinicians had completed the baseline survey, we informed them via email which treatment condition they were assigned to and provided alternative dates for the trainings. The clinician could choose from 2 dates for the intervention. While we recognized that clinician-level randomization could result in some spillover or contamination effects (because clinicians who work together might be assigned to different study arms), it was not feasible to randomize entire sites or teams, owing to sharing staffing across program/service lines and variability across the different programs and services in terms of size, clinician discipline composition and education levels, and patient populations. We asked clinicians not to share materials with coworkers outside of their training cohort, but we could not fully control this. However, we believed that the effect of contamination would be low and, if present, would bias toward a null effect. (On the basis of dissemination literature, simply sharing written information is unlikely to result in large behavior changes.[82])

Patients were not randomized to a study arm but were randomly selected from caseload lists and invited to be part of the study. As clinicians agreed to participate, we used electronic medical records to create a list of patients each one had seen in the previous month. Using a random number generator, we selected a subsample of patients for each clinician who served adult patients. We attempted to recruit up to 5 patients for each clinician. If a randomly selected patient did not want to participate, he or she was replaced by the next patient on the list.

Qualitative Analyses

We used qualitative analyses primarily for aim 1 to understand the effect of burnout; however, we also used these methods in aim 2 to assess clinician perceptions of the impact of the interventions. Following other qualitative work we have conducted,[64,83,84] we used an emergent content analytic approach[85] and included elements of immersion and crystallization.[86] Focus group interviews and the open-ended sections of the patient interviews were transcribed, double-checked, and entered into Atlas-ti to store them and facilitate access to data for coding and analysis. For focus group data, a team used an iterative consensus-building process to review the interview transcripts to identify emergent themes related to patient and clinician experiences of staff burnout. Initially, we independently read responses to identify possible categories that would help us understand how patients notice or recognize signs of burnout and how clinician burnout might affect patients. We met several times to discuss our findings and develop a working set of codes. Once we had a defined set of codes, pairs of coders systematically applied them. One person applied the codes to the transcript, highlighting relevant text ("quotes") and labeling the text with a code. The second coder reviewed the coding, and they discussed any discrepancies. The 2 coders then summarized the quotes identified within each code. We used a similar approach for the qualitative interviews conducted with clinicians and for the open-ended questions on clinician surveys and patient interviews.

Quantitative Analyses

We used quantitative analyses for aims 2 and 3. To ensure the demographic comparability of the groups (BREATHE versus MI) at baseline and of all outcomes for both clinicians and patients, we used independent sample *t* tests for continuous variables and chi-square difference tests for categorical variables. To test the effectiveness of the interventions (aim 2), we used growth curve modeling with mixed-effects models to examine BREATHE versus MI intervention effects on clinician burnout and patient processes, engagement, and outcomes after the intervention by adjusting for the baseline scores and the implementation site. We used the same analytical framework to test the intervention effects on patient outcomes. The mixed-effects models accounted for the nested data structure (patient or provider time-dependent outcomes are nested within individuals) and handled nonresponse as well as dropout with full information maximum likelihood (a method that is comparable to multiple imputation).[87] We completed an intent-to-treat analysis as our primary approach. We carefully examined the variables used in the statistical models (eg, means, SDs, outliers, skewness) to confirm that they met the statistical assumptions of the test statistical models. Because those who were more engaged in the BREATHE intervention could be a different population from those who were less engaged and this could have different effects on outcomes, we conducted sensitivity analyses to assess the robustness of our findings (ie, the degree of compliance) regardless of the level of intervention engagement—whether a difference in the level of intervention exposure (workshop attendance and frequency and perceived helpfulness of specific BREATHE or MI strategies) would lead to significantly different conclusions on intervention effectiveness. Finally, we examined whether rates of missed appointments decreased for patients who were served by clinicians in the BREATHE condition after the intervention.

For aim 3, we used parallel growth curve modeling[88] to test the proposed models of burnout and patient-centered care and to examine the mediation effects—whether change in clinician burnout affected change in patient outcomes mediated through change in patient-perceived support and working alliance over time. We conducted each analysis using all samples as well as by each implementation site. We linked patients to clinicians on the basis of the initial random assignment. We did not control for the nested structure (patients within clinicians) for the following reasons. First, we realized that some patients did not work closely with the assigned clinicians or did not even recognize them. Second, services were often provided at the team level. Third, the intraclass correlations were in fact negligible (eg, intraclass correlation coefficient, <0.1). We used SAS version 9.3 for aim 2 and Mplus version 7.3 for aim 3. We applied a *P* value of <5% for significance testing. Our a priori power analysis indicated that 150 clinicians with 450 patients provide greater than 0.80 power to detect a moderate direct effect (regression coefficient $\beta = .2$)[89] of intervention on clinician burnout and indirect effect on patient outcomes. We determined the effect size on the basis of our BREATHE pilot study (ie, Cohen's *d* = 0.43 and 0.65[38]).

Study conduct

Initial IRB approval was granted on September 30, 2013, with renewals approved annually. Amendments included mostly minor changes during the course of the project (eg, clarifications, wording changes). Substantial changes were adding clinician focus groups early in the project and collecting additional qualitative data later in the project. The clinician focus groups enabled us to gather additional data to use in adding or adjusting outcome measures for aim 2. All changes were approved by the IRB.

RESULTS

Aim 1. Understand the Patient and Clinician Experience of Clinician Burnout

We conducted 3 focus groups with clinicians (27 participants: 5 males and 22 females; 5 identified as Black/African American and 22 identified as White). We conducted 5 focus groups with patients (45 participants: 16 males and 29 females; 13 Black/African American, 30 White, and 2 who did not report race).

Content analysis of focus group transcripts revealed that patients do notice when clinicians are experiencing burnout and work stress. Moreover, both patients and clinicians perceived the impacts of provider burnout to be predominantly negative. Participants described specific mechanisms affecting both the quality of care provided and patient outcomes.

Regarding the negative impacts on quality of care, clinicians experiencing burnout are perceived to have diminished communication skills (eg, being confrontational, not listening); to withdraw from providing care (eg, not engaged, rushing, avoiding working with patients, canceling or not showing up, and—at the extreme end—leaving the organization); and to be less effective in providing care (eg, less enthusiasm, energy, and creativity). The impacts on patients were perceived as predominantly negative outcomes (eg, anger, negative attitudes toward treatment, withdrawal from treatment, increased symptoms, feeling bad about themselves “like we’re doing something wrong,” not learning skills, or getting into trouble). Somewhat surprisingly, 4 patient groups and 1 provider group discussed positive responses to clinician burnout, including increased empathy and trust, a sense of shared experience, equality, and connectedness through knowing, for example, that a clinician is “human just like me . . . and that I’m in the real world like everybody else.” Clinician burnout also provided opportunities for patients to show greater independence and to feel helpful. For example, as one patient said, “Here’s the part where the peer counseling comes in, because they need a sounding board just as much as we do with their stress in their lives. So, we can sit there and listen, too. If they have problems, we can give them advice just as much as they give us advice.” Participants also discussed some caveats, such as that disclosure of work stress by clinicians should be limited and purposeful. (These results are described in more detail in a recent publication.[90])

Aim 2. Test BREATHE Using a Randomized Comparative Effectiveness Design to Improve Clinician Burnout and Patient-Centered Processes and Outcomes

We recruited 206 clinicians, and 192 were randomized (89 to BREATHE and 103 to MI). As shown in the CONSORT diagram (Figure A), we experienced substantial attrition in the clinician sample. The largest reason for clinicians lost to follow-up was that they left their agencies, which we ascertained from the agencies. Some clinicians withdrew; most said they did not have the time to participate, others did not give a reason. At the final data collection point (12 months), 61 (69%) of BREATHE clinicians and 66 (64%) of MI clinicians remained in the study. Dropouts did not differ on demographic characteristics at baseline from those who remained.

We examined background characteristics at baseline for the total randomized sample and between clinicians assigned to BREATHE and those assigned to MI (see Table 1). The sample was primarily female (80%) and White (84%) and had at least a Bachelor's degree (82%). We asked a number of questions to characterize work experience. Most had worked in the mental health field, for their current organization, and in their current position for at least several years (mean, of 8.9, 5.0, and 3.3, respectively). The participants generally worked full time (mean, 41.6 hours/week). At baseline, clinicians reported low levels of burnout overall (eg, mean emotional exhaustion of 2.45, which corresponds roughly to less than a few times a month). Only 14 (7.3%) were above the cut point on all 3 subscales, indicating high overall burnout. In our samples, the BREATHE group had almost twice as many males more males (n = 25 [28%]) than the MI group (n = 14 [14%]) (P = .013) and a trend toward less emotional exhaustion at baseline (P = .068), but they did not differ significantly on any other background variable. Within each site we found no gender differences; owing to the imbalance in the proportion of females overall (80%), we did not control for gender in addition to site.

Treatment completion (ie, participated in all sessions) differed significantly between the 2 groups: BREATHE = 72% and MI = 50% (χ^2 = 9.97; P = .002). Among the 89 clinicians randomized to BREATHE, 64 (72%) attended all sessions, 10 (11%) attended 2 of the 3 sessions, 6 (7%) attended only 1 session, and 9 (10%) did not attend any sessions. Among the 103 clinicians randomized to MI, 51 (50%) attended all sessions, 23 (22%) attended 2 of the 3 sessions, 16 (16%) attended only 1 session, and 13 (13%) did not attend any sessions.

Figure A. PCORI CONSORT Diagram: February 24, 2014-March 18, 2016

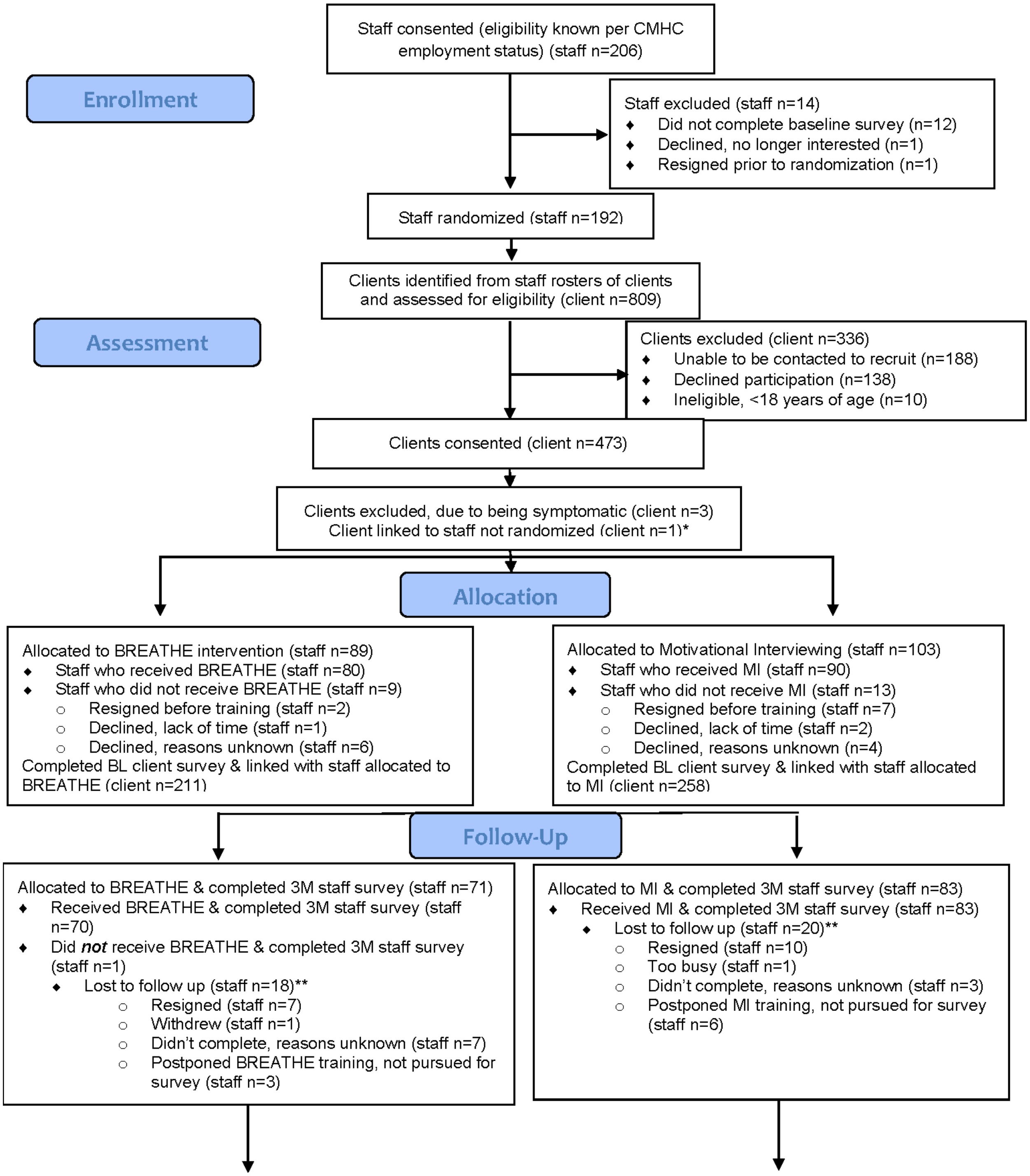
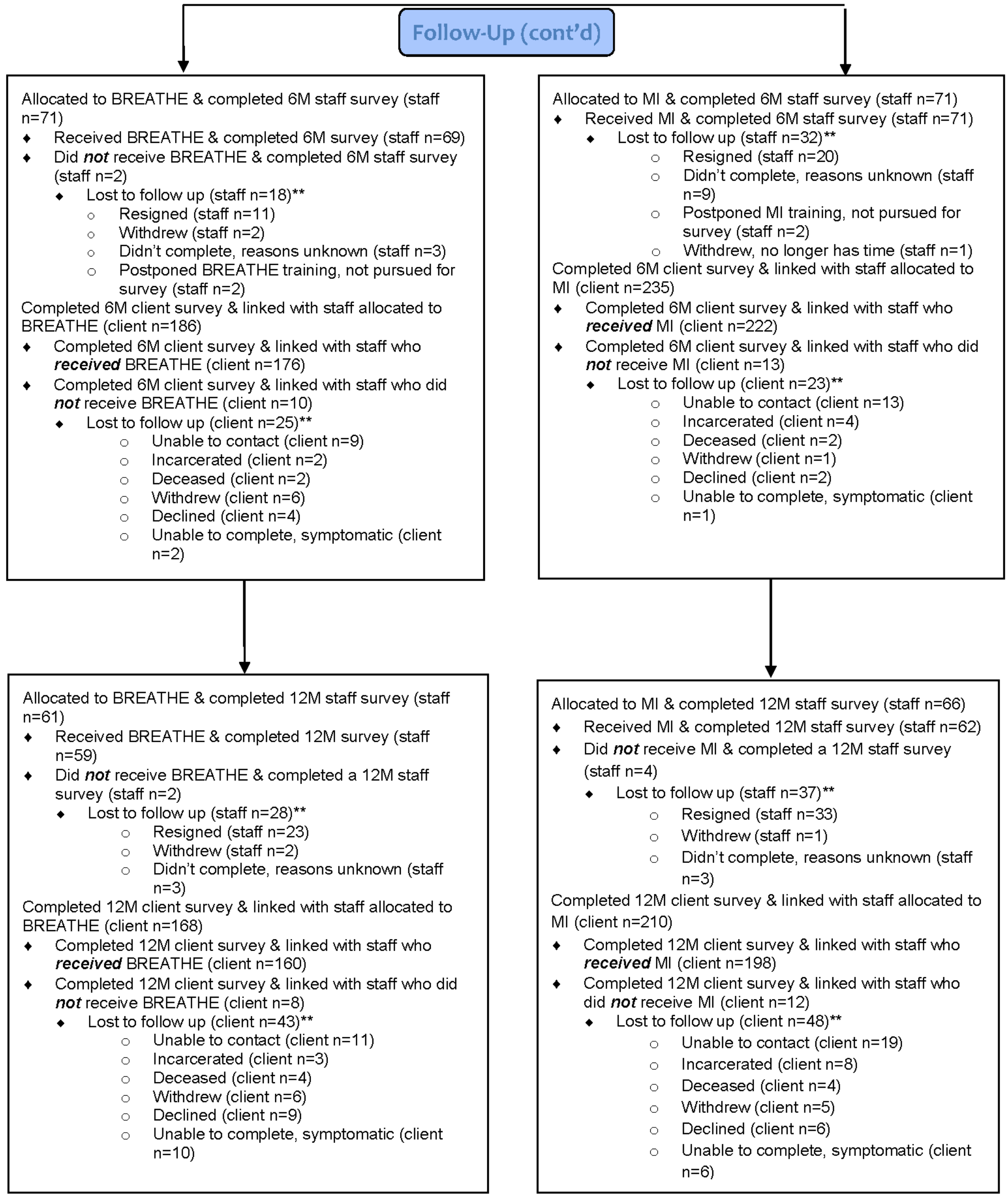


Figure A: PCORI CONSORT Diagram: February 24, 2014-March 18, 2016(cont'd)



Follow-Up (cont'd)

Allocated to BREATHE & completed 6M staff survey (staff n=71)
- Received BREATHE & completed 6M survey (staff n=69)
- Did ***not*** receive BREATHE & completed 6M staff survey (staff n=2)
  - Lost to follow up (staff n=18)**
    - Resigned (staff n=11)
    - Withdrew (staff n=2)
    - Didn't complete, reasons unknown (staff n=3)
    - Postponed BREATHE training, not pursued for survey (staff n=2)

Completed 6M client survey & linked with staff allocated to BREATHE (client n=186)
- Completed 6M client survey & linked with staff who ***received*** BREATHE (client n=176)
- Completed 6M client survey & linked with staff who did ***not*** receive BREATHE (client n=10)
  - Lost to follow up (client n=25)**
    - Unable to contact (client n=9)
    - Incarcerated (client n=2)
    - Deceased (client n=2)
    - Withdrew (client n=6)
    - Declined (client n=4)
    - Unable to complete, symptomatic (client n=2)

Allocated to MI & completed 6M staff survey (staff n=71)
- Received MI & completed 6M staff survey (staff n=71)
  - Lost to follow up (staff n=32)**
    - Resigned (staff n=20)
    - Didn't complete, reasons unknown (staff n=9)
    - Postponed MI training, not pursued for survey (staff n=2)
    - Withdrew, no longer has time (staff n=1)

Completed 6M client survey & linked with staff allocated to MI (client n=235)
- Completed 6M client survey & linked with staff who ***received*** MI (client n=222)
- Completed 6M client survey & linked with staff who did ***not*** receive MI (client n=13)
  - Lost to follow up (client n=23)**
    - Unable to contact (client n=13)
    - Incarcerated (client n=4)
    - Deceased (client n=2)
    - Withdrew (client n=1)
    - Declined (client n=2)
    - Unable to complete, symptomatic (client n=1)

Allocated to BREATHE & completed 12M staff survey (staff n=61)
- Received BREATHE & completed 12M survey (staff n=59)
- Did ***not*** receive BREATHE & completed a 12M staff survey (staff n=2)
  - Lost to follow up (staff n=28)**
    - Resigned (staff n=23)
    - Withdrew (staff n=2)
    - Didn't complete, reasons unknown (staff n=3)

Completed 12M client survey & linked with staff allocated to BREATHE (client n=168)
- Completed 12M client survey & linked with staff who ***received*** BREATHE (client n=160)
- Completed 12M client survey & linked with staff who did ***not*** receive BREATHE (client n=8)
  - Lost to follow up (client n=43)**
    - Unable to contact (client n=11)
    - Incarcerated (client n=3)
    - Deceased (client n=4)
    - Withdrew (client n=6)
    - Declined (client n=9)
    - Unable to complete, symptomatic (client n=10)

Allocated to MI & completed 12M staff survey (staff n=66)
- Received MI & completed 12M staff survey (staff n=62)
- Did ***not*** receive MI & completed a 12M staff survey (staff n=4)
  - Lost to follow up (staff n=37)**
    - Resigned (staff n=33)
    - Withdrew (staff n=1)
    - Didn't complete, reasons unknown (staff n=3)

Completed 12M client survey & linked with staff allocated to MI (client n=210)
- Completed 12M client survey & linked with staff who ***received*** MI (client n=198)
- Completed 12M client survey & linked with staff who did ***not*** receive MI (client n=12)
  - Lost to follow up (client n=48)**
    - Unable to contact (client n=19)
    - Incarcerated (client n=8)
    - Deceased (client n=4)
    - Withdrew (client n=5)
    - Declined (client n=6)
    - Unable to complete, symptomatic (client n=6)

Abbreviations: BL, baseline; BREATHE, Burnout Reduction: Enhanced Awareness, Tools, Handouts, and Education; CMHC, community mental health center; M, month; MI, motivational interviewing.

Table 1. Baseline Clinician Characteristics and Burnout Scores

	Total (n = 192)	BREATHE (n = 89)	MI (n = 103)	Test of significance	*P* value
Age, mean (SD), y	40.3 (12.2)	41.3 (12.5)	39.5 (12.0)	*t* = 0.99	.325
Sex, female, No. (%)	154 (80)	64 (72)	89 (86)	χ^2 = 6.20	.013
Race, White, No. (%)	162 (84)	71 (81)	91 (88)	χ^2 = 2.66	.103
Education, Bachelor's degree or above, No. (%)	157 (82)	69 (78)	88 (86)	χ^2 = 2.49	.115
Years in position, mean (SD)	3.3 (4.7)	3.5 (4.7)	3.1 (4.7)	*t* = 0.47	.639
Years at current organization, mean (SD)	5.0 (6.3)	4.8 (5.7)	5.3 (6.7)	*t* = –0.49	.624
Years in field, mean (SD)	8.9 (9.0)	9.4 (9.2)	8.4 (8.8)	*t* = 0.78	.436
Hours of motivational interviewing training in past year, mean (SD)	2.5 (6.5)	3.1 (8.2)	1.9 (4.5)	*t* = –0.83	.410
Hours of burnout training in past year, mean (SD)	0.8 (2.9)	0.7 (3.4)	0.8 (2.4)	*t* = –0.28	.780
Official No. of work hours scheduled, mean (SD)	38.8 (5.0)	39.1 (4.6)	38.5 (5.4)	*t* = 0.83	.410
Actual No. of work hours, mean (SD)	41.6 (6.7)	41.6 (6.4)	41.6 (7.0)	*t* = 0.05	.964
Emotional exhaustion,[a] mean (SD)	2.45 (1.34)	2.27 (1.33)	2.62 (1.33)	*t* = –0.183	.068
Depersonalization, mean (SD)[a]	1.24 (1.03)	1.12 (0.92)	1.35 (1.11)	*t* = –1.57	.119
Personal accomplishment,[a] mean (SD)	4.85 (0.75)	4.85 (0.84)	4.85 (0.66)	*t* = 0.00	.998

Abbreviations: BREATHE, Burnout Reduction: Enhanced Awareness, Tools, Handouts, and Education; MI, motivational interviewing.

[a] Scale: 0 = never, 1 = a few times a year or less, 2 = once a month or less, 3 = a few times a month, 4 = once a week, 5 = a few times a week, 6 = every day.

Clinician-Reported Outcomes

In our main analyses comparing clinicians randomized to BREATHE with those randomized to MI, we found no comparative advantage for either group on burnout (the primary outcome) or any of the secondary outcomes (see Table 2). Within-group changes were noted on a few variables. Contrary to expectations, clinicians in both groups reported trends of marginally more frequent thoughts about turnover (thoughts of leaving the job in the past 6 months) over time. For both groups, thoughts about turnover increased by 0.15 units on average every 6 months. Within the MI study arm, participants showed significant increases in future intent to leave (likelihood to leave in the next 6 months increased by 0.11 units every 6 months; $P = .03$). However, these represent small effect sizes. In terms of quality of care, the MI group reported increased overall quality of care and increased quality on the subscale assessing patient-centeredness. The levels of treatment exposure (BREATHE or MI sessions attended) did not significantly predict the difference in clinician-reported outcomes over time.

Patient-Reported Outcomes

We compared patients linked to clinicians in BREATHE with patients linked to clinicians in MI. As shown in the CONSORT diagram, 469 patients were recruited, met eligibility criteria, and were linked with a clinician who was randomized to either BREATHE or MI. At the final data collection point (12 months), 168 of 211 patients (80%) linked to BREATHE clinicians and 210 of 258 patients (81%) linked to MI clinicians remained in the study. The primary reason for patients lost to follow-up was that research staff were unable to contact them at their last known address or phone number. Either contact information was no longer accurate or the patient participant chose not to make contact after receiving communication to schedule a follow-up interview. Other reasons for not completing follow-up interviews were that patients were incarcerated, deceased, or symptomatic. We ascertained this information from the research staff at the agency. Other patient participants withdrew or declined for unknown reasons.

Table 2a. Clinician Outcomes

	BREATHE				Time effect		Initial effect		MI				Time effect	
	Baseline, mean (SD)	3 mo, mean (SD)	6 mo, mean (SD)	12 mo, mean (SD)	B	*P* value	B	*P* value	Baseline, mean (SD)	3 mo, mean (SD)	6 mo, mean (SD)	12 mo, mean (SD)	B	*P* value
MBI: Emotional Exhaustion Scale: 0 (never), 1 (a few times a year or less), 2 (once a month or less), 3 (a few times a month), 4 (once a week), 5 (a few times a week), 6 (every day)	2.3 (1.3)	2.3 (1.2)	2.5 (1.4)	2.4 (1.2)	0.00	.98	–0.02	.80	2.7 (1.3)	2.7 (1.4)	2.6 (1.3)	2.5 (1.3)	–0.02	.74
MBI: Depersonalization Scale: 0 (never), 1 (a few times a year or less), 2 (once a month or less), 3 (a few times a month), 4 (once a week), 5 (a few times a week), 6 (every day)	1.3 (.9)	1.2 (.8)	1.3 (.9)	1.3 (1.1)	–0.02	.69	0.01	.80	1.5 (1.1)	1.4 (1.)	1.5 (1.2)	1.3 (.9)	–0.01	.91
MBI: Personal Accomplishment Scale: 0 (never), 1 (a few times a year or less), 2 (once a month or less), 3 (a few times a month), 4 (once a week), 5 (a few times a week), 6 (every day)	4.9 (.8)	4.9 (.7)	4.9 (.9)	4.8 (.8)	–0.03	.48	0.03	.54	4.9 (.7)	4.9 (.7)	4.9 (.7)	4.8 (.8)	0.00	.99
Job satisfaction Scale: 1 (strongly disagree) to 7 (strongly agree)	5.7 (1.4)	5.4 (1.6)	5.3 (1.7)	5.6 (1.4)	0.01	.91	–0.01	.94	5.2 (1.6)	5.1 (1.5)	4.9 (1.7)	5.2 (1.5)	0.00	.98

	BREATHE				**Time effect**		**Initial effect**		**MI**				**Time effect**	
	Baseline, mean (SD)	**3 mo, mean (SD)**	**6 mo, mean (SD)**	**12 mo, mean (SD)**	**B**	***P* value**	**B**	***P* value**	**Baseline, mean (SD)**	**3 mo, mean (SD)**	**6 mo, mean (SD)**	**12 mo, mean (SD)**	**B**	***P* value**
Turnover intentions-considered leaving Scale: 1 (never), 2 (once every few months), 3 (once a month), 4 (several times a month), 5 (once a week), 6 (several times a week)	2.0 (1.2)	2.4 (1.4)	2.5 (1.7)	2.6 (1.5)	0.15	.08	0.00	.96	2.6 (1.7)	2.6 (1.6)	2.8 (1.8)	2.7 (1.6)	0.15	.07
Turnover-likely to leave Scale: 1 (not likely at all), 2 (not very likely), 3 (somewhat likely), 4 (very likely)	1.6 (.8)	1.8 (1.)	1.9 (1.)	1.8 (.9)	0.03	.65	0.09	.17	1.9 (1.)	2.0 (1.)	2.2 (1.)	2.1 (1.1)	0.11	.03

Abbreviations: BREATHE, Burnout Reduction: Enhanced Awareness, Tools, Handouts, and Education; MBI, Maslach Burnout Inventory.

Table 2b. Clinician Outcomes

	BREATHE				Time effect		Initial effect		MI				Time effect	
	Baseline, mean (SD)	**3 mo, mean (SD)**	**6 mo, mean (SD)**	**12 mo, mean (SD)**	**B**	***P* value**	**B**	***P* value**	**Baseline, mean (SD)**	**3 mo, mean (SD)**	**6 mo, mean (SD)**	**12 mo, mean (SD)**	**B**	***P* value**
Work interference with home life Scale: 1 (strongly disagree) to 5 (strongly agree)	2.7 (.9)	2.7 (.9)	2.7 (1.)	2.7 (.8)	–0.02	0.64	0.04	0.47	2.9 (1.)	2.9 (1.1)	2.9 (1.)	2.9 (1.)	0.02	0.71
Home life interference with work Scale: 1 (strongly disagree) to 5 (strongly agree)	1.9 (.7)	1.8 (.7)	1.9 (.8)	1.9 (.7)	–0.01	0.76	0.02	0.60	1.9 (.7)	1.9 (.7)	1.8 (.7)	1.8 (.7)	–0.04	0.33
Emotional Labor Scale: Surface Acting Scale: 1 (strongly disagree) to 5 (strongly agree)	2.1 (.8)	2.2 (.8)	2.1 (.9)	2.2 (.9)	0.00	0.93	–0.05	0.37	2.2 (.8)	2.3 (.9)	2.2 (1.)	2.1 (.9)	–0.04	0.32
Emotional Labor Scale: Deep Acting Scale: 1 (strongly disagree) to 5 (strongly agree)	3.4 (.9)	3.4 (.7)	3.1 (.9)	3.2 (.8)	–0.04	0.44	–0.01	0.83	3.2 (.9)	3.1 (1.)	3.2 (1.)	3.0 (1.)	–0.05	0.29
Emotional Labor Scale: Genuine Emotions Scale: 1 (strongly disagree) to 5 (strongly agree)	4.0 (.8)	4.1 (.8)	3.9 (.7)	4.0 (.7)	0.00	1.00	0.02	0.64	4.0 (.6)	4.0 (.7)	4.0 (.8)	4.1 (.7)	0.02	0.57
Importance: reduce work-related stress Scale: 1 (not at all important) to 10 (extremely important)	6.5 (3.)	6.4 (2.9)	6.5 (3.)	6.6 (2.8)	0.01	0.93	0.16	0.37	6.4 (2.8)	7.3 (2.6)	7.5 (2.6)	6.6 (3.)	0.17	0.24
Confidence: reduce work-related stress Scale: 1 (not at all important) to 10 (extremely important)	7.0 (2.3)	6.5 (2.6)	6.6 (2.5)	6.5 (2.8)	0.09	0.50	–0.24	0.13	6.0 (2.6)	6.3 (2.5)	5.7 (2.5)	5.5 (2.6)	–0.15	0.24

	BREATHE				**Time effect**		**Initial effect**		**MI**				**Time effect**	
	Baseline, mean (SD)	**3 mo, mean (SD)**	**6 mo, mean (SD)**	**12 mo, mean (SD)**	**B**	***P* value**	**B**	***P* value**	**Baseline, mean (SD)**	**3 mo, mean (SD)**	**6 mo, mean (SD)**	**12 mo, mean (SD)**	**B**	***P* value**
Importance: client interaction Scale: 1 (not at all important) to 10 (extremely important)	9.4 (1.)	9.5 (.9)	9.3 (1.2)	9.3 (1.2)	–0.07	0.36	–0.01	0.93	9.5 (1.2)	9.3 (1.3)	9.2 (1.8)	9.3 (1.7)	–0.08	0.29
Confidence: client interaction Scale: 1 (not at all important) to 10 (extremely important)	8.5 (1.5)	8.5 (1.5)	8.5 (1.4)	8.8 (1.4)	0.09	0.29	–0.17	0.11	8.3 (1.7)	8.1 (1.7)	8.1 (1.7)	8.2 (1.9)	–0.07	0.38
Quality of care: person-centered care Scale: 0 (never) to 5 (always)	3.7 (.8)	3.8 (.6)	3.8 (.6)	3.8 (.6)	0.02	0.51	0.04	0.21	3.6 (.6)	3.7 (.6)	3.8 (.6)	3.8 (.6)	0.06	0.03
Quality of care: discordant care Scale: 0 (never) to 5 (always)	3.8 (.5)	3.8 (.5)	3.9 (.5)	3.8 (.6)	0.01	0.79	0.02	0.49	3.8 (.5)	3.8 (.6)	3.8 (.7)	3.9 (.5)	0.03	0.27
Quality of care: total (22 items) Scale: 0 (never) to 5 (always)	3.8 (.5)	3.8 (.4)	3.8 (.5)	3.8 (.5)	0.01	0.67	0.04	0.17	3.7 (.5)	3.7 (.5)	3.8 (.5)	3.9 (.4)	0.05	0.03
Perceptions of supervisory support Scale: 1 (never) to 6 (always)	4.1 (1.1)	4.0 (1.2)	3.9 (1.2)	4.0 (1.1)	–0.06	0.32	0.08	0.24	3.9 (1.)	3.9 (1.)	3.8 (1.)	4.0 (1.2)	0.02	0.70

Abbreviations: BREATHE, Burnout Reduction: Enhanced Awareness, Tools, Handouts, and Education; MI, motivational interviewing.

Table 3 shows the baseline characteristics of patients. Overall, they averaged 45.2 years of age. Approximately half were female, half were White, and most had completed high school (70%), but few were in paid employment (13%). Patients linked to BREATHE clinicians did not differ significantly from those linked to MI clinicians on any background variables. At baseline, the vast majority of patients had been working with the clinician with whom they had been randomly linked; however, 13 (2.8%) reported not having known the clinician before. For the remainder, the range of time seeing the clinician at baseline ranged from 0.5 months to 23 years (mean, 1.6 years; SD, 2.8).

As shown in Table 4, we found no patterns of comparative effectiveness; that is, while a few interactions were significant, no pattern suggested a clear benefit for one study arm or the other. Two variables did show significant interactions (intervention by time) in which the patients associated with BREATHE clinicians had higher medication adherence than the patients associated with MI clinicians by 0.20 units (*P* = .04). However, the patients associated with BREATHE clinicians also had greater decreases in patient-centered care by 0.11 units (*P* = .05). Both patient groups improved over time on a number of variables, including patient activation (the increase rate per 6 months was 2.99 [*P* < .001] for the BREATHE group and 3.10 [*P* < .001] for the MI group); mental health functioning (the increase rate per 6 months was 0.81 [*P* = .08] for the BREATHE group and 1.01 [*P* = .02] for the MI group); depression (the decrease rate per 6 months was 0.70 [*P* = .05] for the BREATHE group and 0.80 [*P* = .02] for the MI group); and anxiety (the decrease rate per 6 months was 0.79 [*P* = .01] for the BREATHE group and 0.96 [*P* < .001] for the MI group). Patients reported increased satisfaction over time (the increase rate per 6 months was 0.07 [*P* = .02] for the BREATHE group and .08 [*P* < .001] for the MI group). Patients associated with MI clinicians reported increased quality of care over time, while patients associated with clinicians in the BREATHE condition reported slightly decreased quality of care (the decrease rate per 6 months was 0.11 [*P* = .05]). Finally, we found no comparative effectiveness of BREATHE versus MI on the proportion of missed treatment appointments over time.

Table 3. Baseline Patient Characteristics

	Total	**BREATHE**	**MI**	**Test of significance**	***P* value**
	(n = 469)	**(n = 211)**	**(n = 258)**		
Age, mean (SD), y	45.2 (13.1)	45.2 (13.6)	45.2 (12.7)	*t* = 0.03	.998
Sex, female, No. (%)	227 (48)	107 (51)	120 (47)	χ^2 = 0.82	.365
Race, White, No. (%)	244 (52)	115 (55)	129 (50)	χ^2 = 0.94	.332
Education, completed high school/GED or higher, No. (%)	328 (70)	150 (71)	178 (69)	χ^2 = 0.24	.622
Paid employment, No. (%)	62 (13)	26 (12)	36 (14)	χ^2 = 0.27	.604
Housing, independent living, No. (%)	304 (65)	143 (68)	161 (62)	χ^2 = 1.47	.226
Required to attend treatment, No. (%)	80 (17)	30 (14)	50 (19)	χ^2 = 2.17	.139
Wants to attend treatment, No. (%)	433 (92)	197 (93)	236 (92)	χ^2 = 0.59	.444

Abbreviations: BREATHE, Burnout Reduction: Enhanced Awareness, Tools, Handouts, and Education; GED, general education development; MI, motivational interviewing.

Table 4a. Patient Outcomes

	BREATHE			Time effect		Initial effect		MI			Time effect	
	Baseline, mean (SD)	6 mo, mean (SD)	12 mo, mean (SD)	B	*P* value	B	*P* value	Baseline, mean (SD)	6 mo, mean (SD)	12 mo, mean (SD)	B	*P* value
Adult State Hope Scale Scale: 1 (definitely false) to 8 (definitely true)	5.8 (1.3)	5.8 (1.3)	5.8 (1.3)	0.08	.21	0.03	.67	5.8 (1.2)	5.9 (1.2)	5.9 (1.1)	0.11	.07
MARS - Medication Adherence 4-item Subscale Scale: medication adherence (for clients who are prescribed medications for their mental health) was rated with a subset of 4 items from the MARS. The item scores were summed and averaged. Scale: 0 (no) to 1 (yes)	1.9 (1.)	1.8 (1.)	1.6 (.9)	–0.34	.00	0.20	.04	2.0 (1.)	2.0 (1.1)	1.9 (1.1)	–0.14	.14
MARS - Medication Attitudes 10-item Subscale Scale: medication attitudes (for clients who are prescribed medications for their mental health) was rated using a 10-item scale assessing attitudes toward medication. The item scores were summed and averaged. Scale: 0 (no) to 1 (yes)	3.0 (1.7)	2.9 (1.9)	2.8 (1.7)	–0.35	.01	0.12	.34	3.3 (1.9)	3.2 (2.1)	3.1 (1.9)	–0.23	.05
Health-care Climate Questionnaire Scale: 1 (strongly disagree) to 7 (strongly agree)	6.0 (1.2)	5.8 (1.5)	6.0 (1.2)	–0.10	.33	0.04	.71	5.9 (1.1)	5.9 (1.2)	5.9 (1.3)	–0.06	.51
WAI mean Scale: 1 (never) to 7 (always)	5.6 (1.2)	5.4 (1.4)	5.7 (1.3)	–0.08	.40	0.12	.22	5.5 (1.2)	5.6 (1.2)	5.6 (1.3)	0.03	.72

	BREATHE			Time effect		Initial effect		MI			Time effect	
	Baseline, mean (SD)	**6 mo, mean (SD)**	**12 mo, mean (SD)**	**B**	***P* value**	**B**	***P* value**	**Baseline, mean (SD)**	**6 mo, mean (SD)**	**12 mo, mean (SD)**	**B**	***P* value**
WAI-Tasks Subscale This outcome is for the tasks subscale. Clients were prompted to report on the specific clinician from whose caseload they were randomly selected. The item scores were summed and averaged (range: 428). Scale: 1 (never) to 7 (always)	22.0 (5.4)	21.3 (6.4)	22.6 (5.6)	–0.21	.63	0.66	.11	21.5 (5.3)	22.2 (5.3)	22.4 (5.1)	0.45	.26
WAI-Goals Subscale This outcome is for the goals subscale. Clients were prompted to report on the specific clinician from whose caseload they were randomly selected. The item scores were summed and averaged (range: 428). Scale: 1 (never) to 7 (always)	21.8 (5.1)	21.0 (5.4)	22.4 (5.)	–0.28	.50	0.59	.14	21.4 (4.8)	21.8 (4.9)	21.7 (5.3)	0.31	.42
WAI-Bonds Subscale This outcome is for the bonds subscale. Clients were prompted to report on the specific clinician from whose caseload they were randomly selected. The item scores were summed and averaged (range: 428). Scale: 1 (never) to 7 (always)	23.2 (5.1)	22.6 (6.5)	23.3 (5.5)	–0.33	.47	0.27	.55	23.0 (5.1)	23.0 (5.4)	22.8 (6.1)	–0.07	.88

Abbreviations: BREATHE, Burnout Reduction: Enhanced Awareness, Tools, Handouts, and Education; MARS, Medication Adherence Rating Scale; MI, motivational interviewing; WAI, Working Alliance Inventory.

Table 4b. Patient Outcomes

	BREATHE			Time effect		Initial effect		MI			Time effect	
	Baseline, mean (SD)	6 mo, mean (SD)	12 mo, mean (SD)	B	*P* value	B	*P* value	Baseline, mean (SD)	6 mo, mean (SD)	12 mo, mean (SD)	B	*P* value
Patient Activation Measure-Mental Health 0 to 100 Scale Each question was answered on a 4-point Likert-type scale: 1 (strongly disagree) to 4 (strongly agree). Higher scores = greater activation	62.5 (15.6)	63.6 (16.8)	64.8 (15.4)	2.99	0.00	0.11	0.91	61.3 (14.8)	62.1 (17.3)	65.2 (16.9)	3.10	0.00
SF-12 Physical Health Functioning[a]	41.4 (8.7)	42.3 (8.3)	42.0 (7.9)	0.32	0.43	–0.28	0.48	41.9 (7.9)	41.8 (7.8)	41.7 (7.8)	0.04	0.93
SF-12 Mental Health Functioning[a]	42.6 (7.8)	42.7 (7.7)	43.2 (7.2)	0.81	0.08	0.20	0.67	42.0 (8.1)	43.0 (8.)	43.4 (8.)	1.01	0.02
Patient Health Questionnaire 9-item Scale: 0 (not at all), 1 (several days), 2 (more than half the days), 4 (nearly every day). when problems are identified, the difficulty of those problems are rated on 4-point scale (not difficult at all to extremely difficult).	9.6 (5.9)	8.8 (6.1)	9.1 (6.)	–0.70	0.05	–0.10	0.77	10.0 (6.)	9.8 (6.3)	9.4 (5.8)	0.80	–0.02
Generalized Anxiety Disorder Scale: 0 (not at all), 1 (several days), 2 (more than half the days), 3 (nearly every day)	9.4 (5.7)	8.5 (5.7)	8.5 (5.8)	–0.79	0.01	–0.17	0.59	9.7 (5.9)	8.4 (5.6)	8.8 (5.5)	0.96	–0.00
Client Satisfaction Questionnaire Scale: 1 to 4 with response text dependent on the question (eg, 1 = poor to 4 = excellent, 1 = no, definitely not to 4 = yes, definitely, or 1 = quite dissatisfied to 4 = very satisfied).	3.4 (.6)	3.4 (.6)	3.5(.5)	0.07	0.02	0.01	0.64	3.5 (.5)	3.5 (.5)	3.5 (.5)	0.08	0.00

	BREATHE			Time effect		Initial effect		MI			Time effect	
	Baseline, mean (SD)	6 mo, mean (SD)	12 mo, mean (SD)	B	*P* value	B	*P* value	Baseline, mean (SD)	6 mo, mean (SD)	12 mo, mean (SD)	B	*P* value
Quality of Care-Person Centered Care Subscale Person-centered care was measured with a subset of questions from this scale. The item scores were averaged. Scale: 0 (never) to 5 (always)	3.8 (1.1)	3.7 (1.1)	3.6 (1.1)	0.10	0.10	0.11	0.05	3.8 (1.)	3.8 (1.1)	3.9 (1.1)	0.21	0.00
Quality of Care-Negative Interactions Subscale Negative Interactions were measured with a subset of questions from this scale. Item scores were averaged. Scale: 0 (never) to 5 (always)	4.3 (.9)	4.3 (.8)	4.3 (.8)	0.08	0.11	0.00	0.06	4.3 (.8)	4.3 (.9)	4.4 (.9)	0.08	0.09
Quality of Care-Inattentive Care Subscale Inattentive care was measured with a subset of questions from this scale. Item scores were	4.2 (.9)	4.3 (.7)	4.2 (.8)	0.08	0.08	0.01	0.84	4.2 (.8)	4.2 (.8)	4.3 (.8)	0.09	0.04
Quality of Care-Total Scale: 0 (never) to 5 (always)	4.0 (.8)	4.0 (.8)	3.9 (.9)	0.09	0.05	0.06	0.14	4.0 (.8)	4.0 (.8)	4.1 (.8)	0.15	0.00

Abbreviations: BREATHE, Burnout Reduction: Enhanced Awareness, Tools, Handouts, and Education; MI, motivational interviewing; SF-12, 12-item Short Form Health Survey.

[a] The SF-12 is a health-related quality of life measure, derived from the 36-item Medical Outcomes Study survey and containing items yielding a Mental Health Component Score and a Physical Health Component Score. Higher composite scores indicate higher health-related quality of life. Items are weighted and then transformed into norm-based scores (range: 0 to 100).

Qualitative Findings From Clinician Interview

For this report, we focus on 3 themes that were coded to better understand whether the interventions had any perceived impact on burnout, the clinician's personal life, and interactions with patients. In terms of impact on burnout, despite the lack of group differences in the quantitative evaluations, we did find differences in qualitative interviews. In the BREATHE group, most clinicians interviewed (17 of 21) described reduced burnout in response to the intervention, compared with only 6 of 21 in the MI group. BREATHE clinicians emphasized that the intervention helped them recognize the importance of noting early signs of burnout and of being intentional in self-care and in clinical work. "It was a way of taking care of myself . . . and just being kind of more mindful of it and . . . of the things that I really need to do to be able to kind of keep everything working and to be productive and to kind of reduce that burnout . . . knowing that that's part of what we're going to experience, because I think a lot of times people coming into this kind of work, they don't realize that. So actively taking action on it. It really can be really helpful" (respondent No. 20). BREATHE also helped clinicians implement self-care tools more effectively, which reduced subjective feelings of burnout (eg, "I'm able to kind of stop and think when I get really overwhelmed . . . some of the specific techniques for the breathing. And like the nostril one [a relaxation breathing exercise] and some things like that" (respondent No. 11). Others focused on the feeling that they are not alone or that the training helped remind them to use skills they already knew. Four participants did not report reduced burnout in BREATHE. Some said that the skills were not new or they did not use them: "And I was trying to remember some of these things and then I didn't get to go back to yoga, so then I kind of relapsed, I guess. So, I didn't really take the time to [do exercises regularly] like I do laundry every day" (respondent No. 26). But most clinicians who did not describe a positive impact said it was because they experienced low burnout to begin with: "I really hadn't had much burnout before the training. I mean there's always stress involved in social work and working with clients. But I don't think that I was experiencing any level of burnout. And that really hasn't changed" (respondent No. 41).

For participants in the MI group, the few who did mention reduced burnout described an indirect effect of making patient interactions easier. For example, in responding to a question about reductions in burnout, a clinician said, “I think it made my some of my interactions with my clients easier . . . this is kind of a new approach to have the conversations that I need to be able to have for my job. But you know, also to help them progress, so I would definitely say it’s made my work easier” (respondent No. 40). Reasons for the lack of impact were similar to those in BREATHE (eg, the skills were not new, they did not use the skills, or they were not burned out to begin with). In addition, several clinicians (N = 6) said that MI did not directly address burnout or the factors that cause burnout. For example, one participant said, “And in terms of me feeling burnt out and using some of the skills that we talked about there—I guess I don’t necessarily relate the 2. Like, we didn’t talk a lot about self-care, so I don’t think it really had any effect either way” (respondent No. 28). Another said, “The level of stress can be pretty high. And a lot of stress that I feel at my job is not related to clients changing per se. It’s more related to the situation that they are currently in” (respondent No. 10).

Regarding impact on personal life, even more clinicians described a positive effect of the training, again with more BREATHE participants (19) than MI participants (11) reporting impact. BREATHE participants described using self-care strategies at home: “I can kind of live in that moment and be in that moment at that time instead of letting outside stressors or work stress kind of invade that personal time” (respondent No. 20). For some, the training was more helpful for personal stressors than specifically for burnout: “I think personally because when you are stressed, whether it’s about work or your personal things, learning how to de-stress is important. So, I think for me personally, it helped probably more than professionally” (respondent No. 11). MI clinicians who reported a positive personal impact described using the skills at home, frequently mentioning the use of MI with family members and friends; for example, using value cards to deepen relationships: “Well, when I did it on my husband, I was surprised at what his choices were because they were way different than mine”(respondent No. 15). Some mentioned improving communication: “There’s some personal relationships that I have that I found the techniques that were discussed and way to approach conversations with them, I found to be helpful” (respondent No. 16). However, for many in the MI group the impact on personal life was minimal: “Not especially. I mean I felt like it was useful for my job to some degree but personally, not so much” (respondent No. 22).

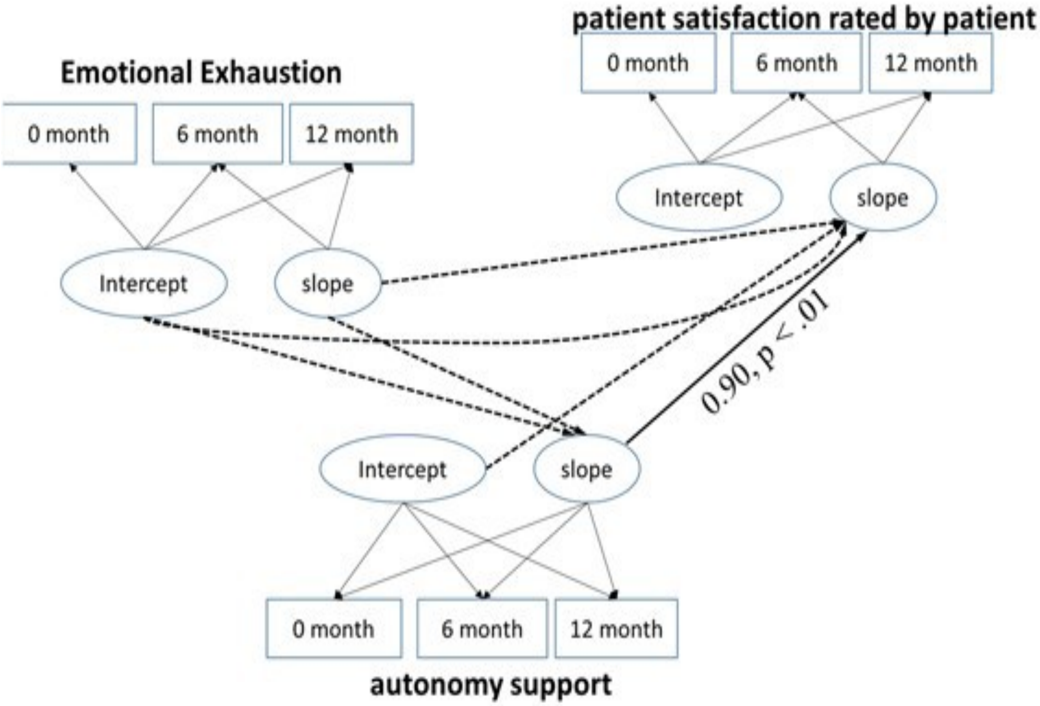
For the third area of impact—interaction with patients—almost all clinicians, 19 in both groups, described positive effects from their respective training. In the BREATHE group, some described using strategies on themselves to be better prepared or more attentive to patients; for example, “Sometimes when I know I’m going to go be with a particularly difficult client, I pause before I go in. I do a little breathing” (respondent No. 7). Others described using the skills they learned with patients: “I think it was really helpful. I was able to get a lot out of it—able to use a lot of the intervention for myself as well as with the clients that I see” (respondent No. 23). Some participants described indirect effects of BREATHE; for example, by being less stressed themselves, they would be more effective with patients. “I think for me, as my distress levels go up and my burnout levels go up. I’m less connected to them. Am I less empathetic? Maybe. So, that’s a good thing that anytime I can be less distressed, feeling less burned out, I think I’m going to be better, more helpful for my clients” (respondent No. 18). The MI group cited similar reasons but gave more direct examples of using specific tools or skills with patients, like the value cards, developing discrepancy, or confidence rulers. (This would be expected given the focus of the training.) Some participants talked about indirect effects on patients as well; for example, “And how they respond to you because you’re not just going in there and asking a bunch of yes or no questions. It’s different. And I think it helps them maybe feel more engaged in like conversation and maybe more open to share sometimes” (respondent No. 16).

Aim 3. Test a Conceptual Model Linking Clinician Burnout to Patient-Centered Processes and Outcomes

To identify variables that might transmit the longitudinal effect of provider emotional exhaustion on patient satisfaction or patient-perceived quality of care, we tested 8 mediation models in the combined sample across study arms. These analyses tested aspects of the conceptual model shown in Figure 1. In mediation models, a series of causal chains is tested in which a change in provider emotional exhaustion (assessed by the Maslach Burnout Inventory) is hypothesized to lead to a change in patient-perceived autonomy support or working alliance, which in turn results in a change in patient satisfaction or patient-perceived quality of care. If a causal chain is established, a mediation effect is said to occur and the intermittent variable is said to be a mediator of the longitudinal relationship between provider emotional exhaustion and patient satisfaction or patient-perceived quality of care.

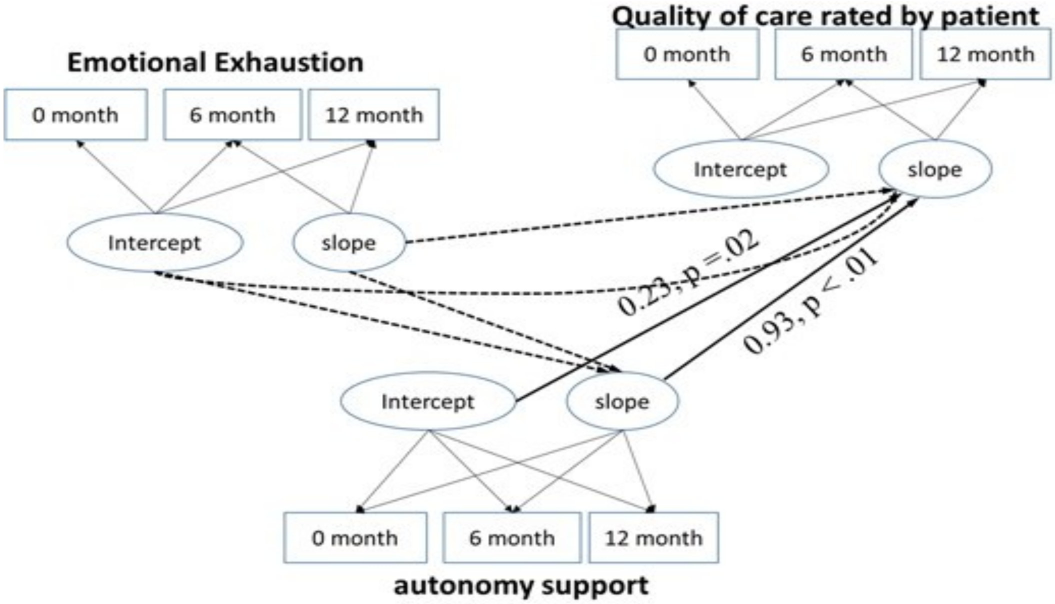
Because of collinearity problems, we ran 4 separate models (see Figures 2-5) to test the effect of the primary burnout measure (emotional exhaustion) on 2 patient-centered care indexes (patient satisfaction and patient-perceived quality of care), mediated by 2 patient-centered processes (autonomy support and working alliance as a measure of “relatedness” in the model). We then ran 4 additional models to test the effect of the primary burnout measure (emotional exhaustion) on 2 patient outcomes (depression and patient activation), mediated by 2 patient-centered processes (autonomy support and working alliance). We assessed the 2 patient-centered process measures by the patient in relation to the clinician for whom the patient was randomly selected (patient N = 470; clinician N = 126). The data used in the analyses included measures at baseline, 6 months, and 12 months. In these models, we regressed the slope of autonomy support/working alliance on the intercept and slope of emotional exhaustion and regressed the slope of patient satisfaction/quality of care/depression/patient activation on the intercept and slope of emotional exhaustion and autonomy support/working alliance. The results from the first 4 models are shown in Figures 2 through 5; dashed lines in the figures represent nonsignificant effects and solid lines represent significant effects. Only the standardized estimates for the significant effects are reported. The intercepts represent baseline status of the outcomes. The slopes represent 6-month change rates of the outcomes. Model 1 tested **emotional exhaustion → autonomy support → patient satisfaction** (see Figure 2). We found a significant effect of the slope of autonomy support on the slope of patient satisfaction (the standardized effect was 0.90 with $P < .01$), indicating that a larger increase in autonomy support predicted a larger increase in patient satisfaction over time.

Figure 2. Model 1 for Aim 3 Analyses



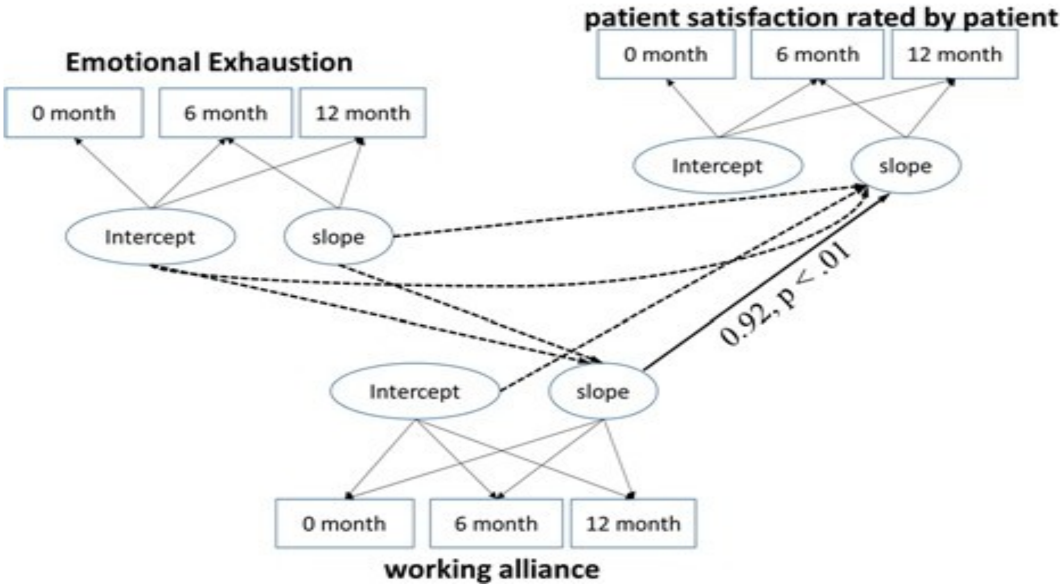
However, burnout was not significantly related to either autonomy support or patient satisfaction.

Figure 3. Model 2 for Aim 3 analyses



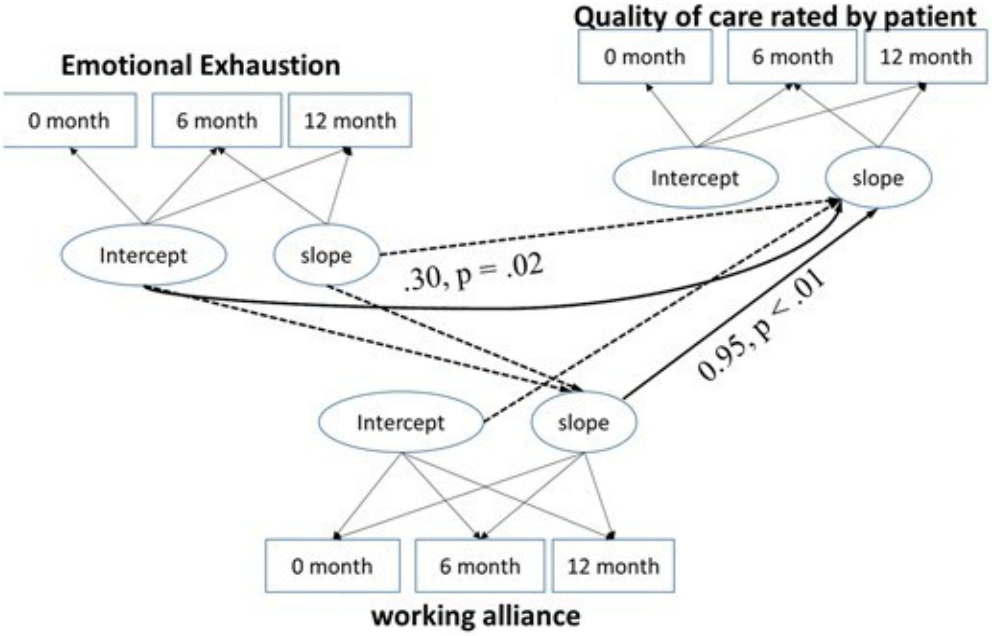
Model 2 tested **emotional exhaustion → autonomy support → quality of care** (Figure 3). We found a significant effect of autonomy support on quality of care (the standardized effect was 0.93 with *P* < .01), indicating that a larger increase in autonomy support predicted a larger increase in quality of care over time. In addition, the baseline autonomy support predicted the change in quality of care. Specially, a higher level of autonomy support at baseline predicted a larger increase in quality of care over time. However, burnout was not significantly related to either autonomy support or quality of care.

Figure 4. Model 3 for Aim 3 Analyses



Model 3 tested **emotional exhaustion → working alliance → patient satisfaction** (Figure 4). We found a significant effect of the slope of working alliance on the slope of patient satisfaction (the standardized effect was 0.92 with *P* < .01), indicating that a larger increase in working alliance predicted a larger increase in patient satisfaction over time. Burnout was not significantly related to either working alliance or satisfaction.

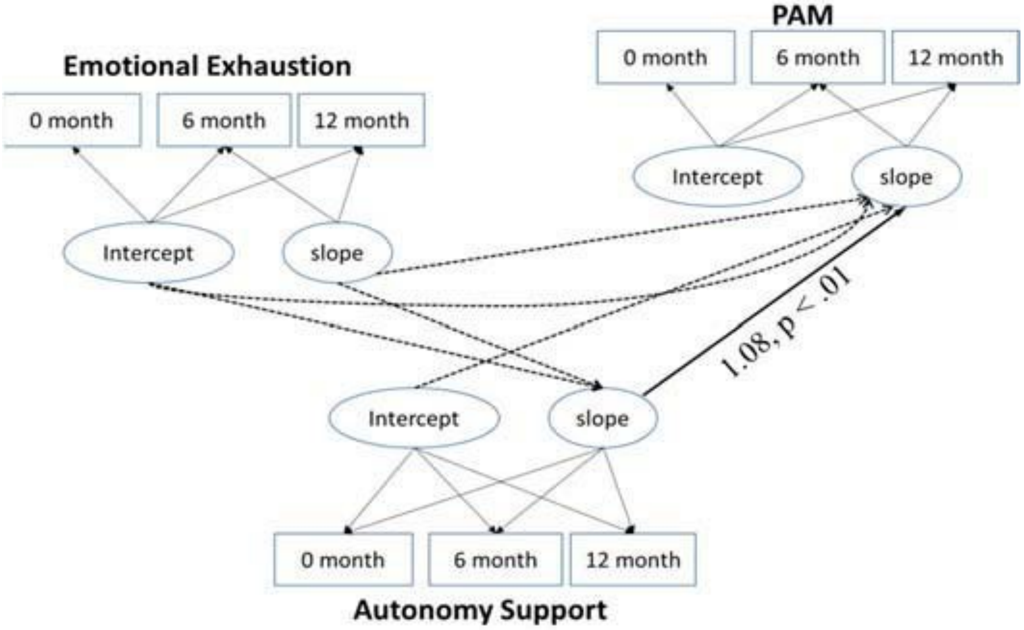
Figure 5. Model 4 for Aim 3 Analyses



Model 4 tested **emotional exhaustion → working alliance → quality of care** (Figure 5). We found a significant effect of the slope of working alliance on the slope of quality of care (the standardized effect was 0.95 with *P* < .01), indicating that a larger increase in working alliance predicted a larger increase in quality of care over time. In addition, baseline emotional exhaustion predicted change in quality of care over time. Contrary to hypotheses, a *higher* level of emotional exhaustion at baseline led to a larger increase in quality of care over time (the standardized effect was 0.30 with *P* < .05.

We repeated models 1 through 4, replacing quality of care and patient satisfaction with 2 different patient outcomes. For this report, we chose 2 primary patient outcomes— depression (PHQ-9) and patient activation measure (PAM)—because both showed significant improvements over time on average, and they were fairly independent of each other. Of the 4 additional models tested, only 1 showed a significant relationship (Figure 6).

Figure 6. Model 6 for Aim 3 Analyses



Abbreviation: PAM, Patient Activation Measure.

The model testing **emotional exhaustion → autonomy support → PAM** showed a significant effect of the slope of autonomy support on the slope of PAM (the standardized effect was 1.08 with *P* < .01), indicating that a larger increase in autonomy support predicts a larger increase in PAM over time; however, emotional exhaustion was not a significant predictor of PAM.

Summary of Aim 3

The results from the 8 models indicated that change in provider emotional exhaustion did not affect change in patient satisfaction, quality of care, or patient outcomes via change in autonomy support or working alliance over time. However, the baseline status of provider emotional exhaustion had a positive direct effect on quality of care perceived by the patient (model 4), indicating that higher emotional exhaustion at baseline was associated with faster improvement in patient-perceived quality of care over time. Both patient-perceived working alliance and autonomy support consistently and strongly predicted a change in patient-perceived satisfaction and quality of care over time. In addition, patient-perceived autonomy support was associated with improved patient activation over time.

DISCUSSION

Decisional Context

The context of this study for health care was to test an alternative paradigm that providing effective interventions for the health and well-being of clinicians might be another way to improve the quality of care they provide and, ultimately, to improve patient outcomes. We learned more about how clinicians and patients perceive burnout and its effects on patient-centered care; however, the main hypothesis (that the BREATHE intervention would reduce burnout and therefore improved patient-centered care processes and outcomes) was not supported.

Study Results in Context

The lack of statistically significant changes in clinician burnout over time (aim 2) was surprising and disappointing, given previous work with similar populations that showed improvements in burnout over time.[38] However, in a recently completed RCT, BREATHE did not show comparative effectiveness in improving burnout relative to a person-centered planning workshop, although the BREATHE participants did show significant reductions over time in cynicism and emotional exhaustion.[45] The lack of significant findings in this study could involve several factors (including both methodological issues and the interventions themselves) that should be considered further.

First, the qualitative evaluation (in contrast to the quantitative analyses) suggested that participants in both conditions found the interventions, especially the BREATHE intervention, to have positive effects, including reducing burnout. Our quantitative measures might not have been sensitive enough to reflect the changes people experienced, or the positive effects might have been too mild to be detected by the quantitative scales. Interestingly, some clinicians noted in the qualitative interviews that benefits were stronger in their personal lives than on the job. This raises the question of whether our measures were not sensitive enough to capture personal changes occurring in people’s lives. However, it is also possible that participants might have felt a need to report positive findings in the qualitative interviews.

A second issue concerns the nature of the intervention. The BREATHE program draws on a number of clinical techniques (eg, mindfulness, deep breathing, cognitive strategies) that are already familiar to many mental health clinicians. It may be that clinicians were already using some of these techniques to manage their stress and burnout. If so, the BREATHE program would be less likely to show a significant impact. (This issue would probably be more likely to arise in this study than in our initial study,[38] which was open to all employees, not just clinicians.)

A third issue involves the type of intervention used to reduce burnout. The BREATHE program focuses on individual change, but in many cases the field is moving toward employing organizational-level interventions for burnout; for example, interventions related to communication and teamwork, protected time for meaningful work tasks, improving workload or scheduling, and shifting administrative tasks to nonphysician team members.[93] One recent review of burnout interventions in medicine emphasized the utility of both individual and organizational interventions, particularly in combination,[91] while another favored organizational interventions over individual ones.[92]

A fourth consideration is that clinician participants in this study had a generally low level of burnout at baseline; their baseline burnout scores were much lower than those of participants in our original study of BREATHE, which showed significant reductions in emotional exhaustion and cynicism over time. For example, baseline emotional exhaustion was 3.7 in the original pilot compared with 2.3 for BREATHE in the current study. In the qualitative interviews, several people said they did not recognize themselves as having been burned out before the training. It may be that participants in the current study were less in need of intervention, but they did have high levels of turnover. While not all turnover can be attributed to burnout, work-related stress is probably linked to turnover. We are examining predictors of turnover to better understand that phenomenon in this study. We will also examine different levels of baseline burnout to better understand whom to target for BREATHE interventions (ie, clinicians who score above the floor of burnout but not so high that they do not engage). In our recent VA study of the intervention,[45] we experienced similar issues; in that study, participants experienced relatively low levels of burnout at baseline (emotional exhaustion = 2.8), but they showed some improvement over time.

A fifth consideration is that our research design did not include a no-treatment control group. It is possible that the natural course of burnout for clinicians in these agencies involves a worsening over time. If this is the case, the steady rate of burnout in both conditions over time could actually represent a positive treatment effect. Although few studies have followed the natural course of burnout, some research suggests that certain moderators or subgroups respond differentially over time. For example, people with both burnout and fatigue tend to have more stable problems over time compared with employees with either condition alone.[94] Other studies have indicated that men and women may develop burnout differentially over time.[95] Future intervention studies could include a no-treatment condition and could examine subgroups of participants to better understand the course of burnout over time. Our modeling analyses (aim 3) did not show the expected relationships between burnout and patient-centered care. The uniformly lower levels of burnout in our sample may have affected our ability to link burnout to these processes of care. Theoretically, an extreme level of burnout would be more likely to affect these processes. Another limitation in adequately testing the models in aim 3 was the difficulty of linking patients with clinicians. In our study, patients were recruited because they had recently seen a specific clinician according to agency records. However, during interviews, the patients sometimes reported that they did not know that particular clinician well or at all. Although we did ask about clinicians the person saw frequently or who were important to their mental health, we could not always link patients to those clinicians—they might not have been in the study or the study team could not identify them. In addition, we did not examine actual interactions between specific patients and specific clinicians over time; actual time spent together might affect the relationship between clinician burnout and potential effects on patients.

While the models showed little connection between provider burnout and processes of care and patient outcomes, they did show significant relationships between patient-centered processes (autonomy support/working alliance) and quality of care. Patients who perceived higher levels of autonomy support and a better working alliance with their providers reported greater increases in satisfaction and quality of care. In addition, autonomy support was related to improved patient activation. These findings extend the self-determination theory[16] to mental health services. Although not related to burnout, these secondary findings might be important contributions from this study, and we plan to examine these relationships in more detail in future studies.

Implementation of Study Results

Given the lack of comparative effectiveness or improvement over time in clinician burnout, we recommend refining the intervention before it is further implemented. In the previous section we listed several factors that might have affected our ability to identify positive effects. Although we did not perceive barriers to implementing the intervention, this particular sample might not have needed it (owing to low burnout or familiarity with the skills involved) or the intervention might not have effectively addressed the causes of their burnout. Until we can demonstrate the effectiveness of this intervention, we would not recommend using the scarce resources in public mental health to focus on implementing it. Future work is best directed toward improving our ability to target people in most need of a burnout intervention and improving the intervention.

Generalizability

The purpose of this study was to address burnout in mental health clinicians. It was not designed to address burnout in other health care providers, who may have different work-related demands and resources. In addition, because the findings regarding lack of change over time were different from those of 2 previous studies (which showed improvements using BREATHE in community mental health providers), generalizability of the findings to other health care providers might be limited. We have little empirical data that we could use to directly compare the providers or sites in this study with other community mental health centers to determine representativeness, although the baseline level of burnout in the current sample was similar to a sample in one of our previous studies and we have no reason to believe that these settings are very different from other community mental health centers.

Subpopulation Considerations

We examined burnout in mental health clinicians in 2 community mental health settings, 1 rural and 1 urban. There were no site differences in effectiveness of the interventions, suggesting no geographical disparities. Because of the lack of variance in burnout improvement over time, we did not pursue additional subpopulation analyses; given the level of turnover, we might have been underpowered to find group differences had we explored more.

Study Limitations

A key limitation of this study was the low level of clinician burnout at baseline. We conceptualized the BREATHE intervention as one that might reduce or prevent burnout and therefore did not require a minimal burnout level to participate. However, the low initial levels made it difficult to demonstrate significant improvement. We were also limited by the lack of a no-treatment control. We chose 2 active comparators, both of which might have a reasonable chance to improve patient-centered care. However, without a no-treatment control, we cannot identify the natural course of burnout among the clinicians in these settings or whether the interventions might have prevented a worsening of burnout. The study was also limited by high attrition in the clinician sample, primarily owing to staff leaving their agency. Using intent-to-treat analyses, we analyzed all data available, regardless of whether they received the full interventions. However, the high attrition might have affected our ability to fully assess the effectiveness of the intervention. For example, although dropouts did not differ on baseline characteristics, they might have differed in other characteristics that could have affected burnout and response to the intervention. For aim 3 (modeling the impact of burnout on patient-centered care) we were hampered by our inability to meaningfully link patients to clinicians, and we did not capture the level of contact over time.

Future Research

We are examining supplemental data collected in this study (eg, clinician interviews, feedback from training sessions, predictors of positive responses to BREATHE in this sample and others) to explore ideas for strengthening the BREATHE intervention. However, even if we can strengthen BREATHE, the field is moving toward focusing on organizational issues to effectively address problems with staff well-being.[91-93] Future research should examine both individual and organizational interventions to support clinician well-being. Future studies might also target those in most need of a burnout intervention; for example, by specifying a minimal level of burnout to participate. However, recruiting the most burned out clinicians poses practical dilemmas, as high levels of emotional exhaustion and cynicism would likely make clinicians less likely to take on additional training or research tasks.

Methodologically, we need better ways to link patients and clinicians to study patient-centered care and how clinician well-being influences relationships, care provided, and outcomes. We had difficulty linking patients in meaningful ways with clinicians who might have had the greatest impact on them. In addition, in community mental health, patients often see multiple providers, and health care is increasingly incorporating team approaches to patient care. Researchers in the field will have to develop effective ways of examining the relationships between teams of clinicians and the patients they serve. Linking staff well-being with patient well-being is an important area for research in burnout and quality of care.

CONCLUSIONS

BREATHE was not better or worse than MI in this comparative effectiveness randomized controlled trial for reducing burnout or affecting patient-centered care or outcomes. BREATHE intervention was well received and well attended. Qualitative interviews of clinicians suggested perceived benefits for burnout, clinicians’ personal lives, and how they worked with patients. However, turnover was problematic, particularly at one site, where 40% of participating clinicians left in 1 year. For the study, this turnover resulted in a loss to follow-up and some uncertainty as to whether the results apply to the study population as a whole. For the organizations, these high rates of turnover (despite provision of BREATHE and MI interventions) suggest that organization-level approaches to reducing burnout might be required to address burnout more comprehensively than either of these individual-level interventions can.

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