

**THE RELATIONSHIP BETWEEN WORKING ALLIANCE, PATIENT
ACTIVATION, HOPE, AND DEPRESSION IN COMMUNITY MENTAL
HEALTH CARE**

by

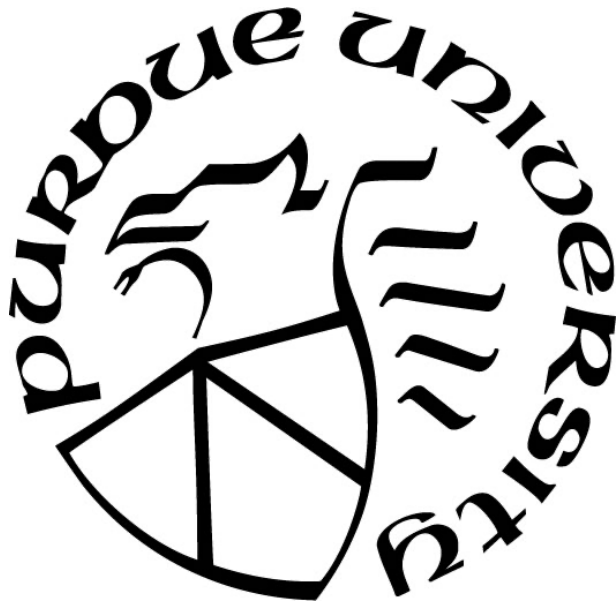
Emily L. Bass

A Thesis

Submitted to the Faculty of Purdue University

In Partial Fulfillment of the Requirements for the degree of

Master of Science



Department of Psychology at IUPUI

Indianapolis, Indiana

August 2021

**THE PURDUE UNIVERSITY GRADUATE SCHOOL
STATEMENT OF COMMITTEE APPROVAL**

Dr. Michelle P. Salyers, Chair

Department of Psychology

Dr. Kyle Minor

Department of Psychology

Dr. Kevin Rand

Department of Psychology

Approved by:

Dr. Stephen L. Boehm

Dedicated to my family

ACKNOWLEDGMENTS

I am extremely appreciative of the endless support from my mentor, Dr. Michelle Salyers, during this project and throughout my graduate school experience thus far. I am also grateful for the invaluable guidance, insight, and suggestions my committee members have given me throughout the development of this project. Finally, I want to thank my family and partner for their support and comfort.

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ABSTRACT

Objectives: Previous research suggests an association between working alliance, the collaborative and affective bond between patient and therapist, and improved therapeutic treatment outcomes within treatment of severe mental illness (SMI). However, little is known about the mechanisms through which working alliance improves outcomes in this population. Through investigating key elements of recovery within SMI, two possible mediators—patient activation and hope—appear particularly relevant to the relationship between working alliance and improved treatment outcomes. The current study aimed to examine patient activation and hope as potential mediators in the relationship between working alliance and improved depression in individuals with SMI. Additionally, the current study investigated whether or not the patient’s evaluation of which provider is most important to their recovery significantly moderated the relationship between working alliance and patient activation/hope.

Methods: The current study was a secondary analysis of longitudinal (baseline, 6-month, and 12-month) data comparing two interventions aimed at reducing treatment provider burnout in community mental health settings primarily serving individuals with SMI. Participants (maximum N for analyses = 346) completed measures of working alliance with a linked provider on their treatment team, patient activation, hope, and depression at baseline, 6 months, and 12 months. Using moderated mediation analysis, 6-month patient activation and 6-month hope were examined as mediators in the relationship between baseline working alliance and 12-month improved depression (change score between 12-month and baseline depression). Additionally, whether or not the patient deemed their linked provider as most important to their recovery was tested as a moderator in the relationship between baseline working alliance and 6-month patient activation/hope.

Results: Overall, the current study’s hypothesized model was not supported. Baseline working alliance did not significantly predict improved depression 12 months later. Further, both patient activation and hope measured at month 6 in the study did not significantly mediate the relationship between working alliance quality at baseline and improved depression at month 12. Additionally, whether or not the patient believed their linked provider was most important to their recovery did not significantly moderate the relationship between baseline working alliance

and 6-month patient activation or 6-month hope. However, results indicate that better quality working alliance at baseline did significantly predict higher patient activation at 6 months. Lastly, the current study found a significant positive correlation between importance of provider and baseline working alliance.

Discussion: Results suggest that improvement in depression may not be a key SMI treatment outcome that relates to working alliance, patient activation, and hope. Further, fostering a positive working alliance (e.g., collaboratively developing goals/tasks in-session) may increase patient's ability, willingness, and confidence in managing their own mental health care. Additionally, a positive working alliance may also contribute to how important the patient believes the provider is to their recovery. However, those that have seen their provider for longer (e.g., more chronically ill) may be less active in managing their own mental health care. Limitations and possible future directions are discussed.

INTRODUCTION

According to the National Institute of Mental Health, 18.9% of all US adults experience mental illness. This equates to 46.6 million adults who may be in need of treatment in the US alone (National Institute of Mental Health, 2019). Despite the large demand, the average performance on measures for behavioral health quality of care in the US is at 48% compared to 72% for cardiovascular and diabetes care (Pincus et al., 2016). Further, trends from 2006 to 2014 indicate that the average quality of care in behavioral health has declined for two out of three healthcare payers in the United States (Pincus et al., 2016). One aspect of behavioral health, psychotherapy, has proven to be an effective form of treatment across a variety of mental health disorders (Lambert, 2013). However, data on quality of care show room for improvement, highlighting the pressing need to discover ways to maximize treatment outcomes in therapy.

One key area for improvement may be the relationship between patient and therapist. For example, the American Psychological Association's Resolution on the Recognition of Psychotherapy Effectiveness asserts that different forms of psychotherapy are largely equivalent in effectiveness, and therapeutic processes such as the working alliance—the collaborative and affective bond between patient and therapist—are crucial in facilitating treatment outcomes (Straten & Oppen, 2013). Previous research suggests a clear association between working alliance and improved therapeutic treatment outcomes (Kidd et al., 2017), yet little is known about the mechanisms through which working alliance improves outcomes. Through studying these mechanisms, we may be better able to identify and target pathways that improve psychotherapy outcomes and optimize treatment quality for those in need. The present study aims to examine patient activation and hope, two key constructs related to therapeutic change processes, as potential mediators in the relationship between working alliance and treatment outcomes in individuals with severe mental illness.

What is working alliance?

The early conceptualization of working alliance stems from Freud's psychodynamic theory of positive transference which recognized the unconscious projections of the patient that

allows them to persist in therapy while simultaneously addressing difficult material (Horvath et al., 2011). In studying the relationship between patient and therapist in psychoanalysis, Greenson (1965) first coined the term “working alliance” as a phenomenon that was different from the concept of transference. Greenson (1965) differentiated the working alliance as the rational rapport that existed between the patient and the therapist whereas transference was inappropriate repetitions of the past reflected on the therapist in the present.

As the number of different psychotherapies proliferated, researchers sought to conceptualize the theory behind working alliance to apply across psychotherapies (Horvath et al., 2011). One theory, developed by Lester Luborsky in 1976, identifies two types of alliance: 1) Type 1: present in the beginning stages of therapy, alliance is characterized as the patient’s experience of the therapist as supportive, warm, and helpful and 2) Type 2: present in later phases of therapy, alliance is characterized by a sense of collaboration between the patient and therapist working towards a common goal and the patient’s investment in the core concepts underlying the therapy (Horvath & Luborsky, 1993). In an effort to broaden the definition of working alliance even further, Bordin (1979) identified three components: the collaborative bond, the agreement of goals of psychotherapy, and the agreement of the tasks of psychotherapy between patient and therapist. Bordin (1979) believed that in order to reach a positive working alliance between patient and therapist, there must be a collaborative bond between them that facilitates goal and task agreement in psychotherapy. Collaborative bonds, goals, and tasks will appear different and are utilized in different ways depending on the psychotherapy that is employed. Although no concise definition exists across pantheoretical models of the alliance, all encompass the idea of collaboration between patient and therapist and emphasize the conscious, rather than unconscious, processes of the relationship (Horvath et al., 2011). In addition to the development of pantheoretical models of alliance, research suggests therapists’ contributions to maintaining the working alliance are critical (Horvath et al., 2011). Specifically, therapists’ personal attributes such as flexibility, warmth, and trustworthiness, combined with techniques such as understanding, support, and reflection can positively influence the working alliance (Ackerman & Hilsenroth, 2003). Research also suggests that certain patient characteristics (i.e. psychological mindedness, secure attachment, expectation for change, interpersonal skills) are associated with maintaining a positive working alliance (Castonguay et al., 2006; Mallinckrodt & Jeong, 2015; Zilcha-Mano, 2017).

Working alliance and treatment outcomes

There is a wide body of literature supporting the relationship between a positive working alliance and improved therapeutic outcomes both cross-sectionally and longitudinally (Kidd et al., 2017). Specifically, a positive working alliance is associated with improved well-being, life satisfaction, medication adherence, reduced symptoms and hospitalizations, and improved functioning, engagement, and recovery (Andrade-González et al., 2020; Goldberg et al., 2019; Hicks et al., 2012; Kidd et al., 2017; Osborn & Stein, 2019; Priebe et al., 2011). A recent meta-analysis revealed the overall positive effect of alliance on outcomes in therapy is robust, though moderate in size ($r = .28$; Flückiger et al., 2018). Similarly, when examining the relationship between working alliance and depressive symptoms, a meta-analytic review found that working alliance was moderately related to outcome in Cognitive Behavioral Therapy for depression ($r = .26$; Cameron et al., 2018). In contrast, some researchers have argued that improved working alliance is a product of previously improved symptomology rather than the predictor of symptom improvement (Hendriksen et al., 2014; Strunk et al., 2010; Webb et al., 2014). When examining whether the level of working alliance across the course of treatment precedes symptom changes while controlling for previous symptomology, Zilcha-Mano (2017) determined that studies using more advanced modeling suggest that alliance does precede changes in symptoms.

Although research suggests a distinct relationship between working alliance and improved therapeutic outcomes, there is little research on the mechanisms that connect these two variables—how does a positive working alliance contribute to treatment outcomes in therapy? Zilcha-Mano (2017) proposed that the relationship between changes in the “state-like component” of alliance (i.e., the development of alliance throughout therapy) and symptom reduction in therapy is mediated by changes in “trait-like components” of the individual patient (i.e., the patient’s general ability to form positive relationships). Additionally, Coyne et al. (2019) investigated interpersonal change as a potential mediator between changes in within-patient working alliance and reduced levels of worry—improvements in alliance with the patients’ provider were associated with reduced distress from interpersonal problems, which, in turn, was associated with reduced worry. Beyond these studies, research on factors mediating the relationship between working alliance and outcomes is sparse. Elucidating new pathways that connect working alliance to outcomes may provide additional target areas for intervention to provide better quality care in psychotherapy and maximize recovery outcomes.

Important factors for recovery

Investigating key elements of severe mental illness recovery can determine possible mechanisms through which working alliance is connected to better treatment outcomes. While there is no single operational definition, recovery can be conceptualized as both a process and an outcome consisting of multiple components including (but not limited to): hope for the future, taking personal responsibility for illness management, developing meaningful interpersonal relationships, symptom improvement, community integration, and empowerment in one's life (Bond et al., 2004; Corrigan et al., 1999; Liberman & Kopelowicz, 2005; Noordsy et al., 2002; Resnick et al., 2005). There are two aspects of recovery present in multiple conceptualizations—taking personal responsibility for illness management and the instilment of hope in patients (Bond et al., 2004; Mueser et al., 2002; Noordsy et al., 2002; Resnick et al., 2005)—that appear particularly relevant for working alliance as pathways to change.

Patient activation

One way to operationalize personal responsibility for managing one's illness is through patient activation. Patient activation is defined as the client's ability, confidence, and willingness to manage their health and healthcare and is associated with the movement toward consumer-oriented care in mental healthcare (Hibbard et al., 2004; Hibbard & Greene, 2013). Research has demonstrated a positive relationship between working alliance and patient activation in mental health clinics across the US (Allen et al., 2017; Eliacin et al., 2018). Further, higher patient activation is associated with better health outcomes in the medical field and illness self-management/symptom reduction in individuals with severe mental illness (Green et al., 2010; Hibbard & Greene, 2013; Salyers et al., 2009). One theory behind the working alliance postulates that successful treatment occurs when the patient is active in their own treatment (patient activation) while the therapist also works to adapt treatment based on the client's goals (Horvath et al., 2011). Quality communication between patient and provider is associated with patient empowerment and agency to manage their health (Street et al., 2009). Additionally, the relationship between patient and provider is associated with whether or not the patient feels comfortable taking on an active role in their treatment (Alexander et al., 2012; Eliacin et al., 2015). Given the relationship between working alliance and patient activation, the next step in

research concerning these constructs is to formally elucidate whether patient activation is a mediating factor between the working alliance and therapeutic outcomes.

Hope

Developing hope is essential to recovery to increase positive change in patients and has been conceptualized as a common factor that underlies the recovery process (Noordsy et al., 2002; Snyder, Lehman, et al., 2006). Hope consists of three components: 1) identification of goals, 2) agency: an individual's perceived goal-directed motivation, and 3) pathways: the planning the individual engages in to meet those goals (Snyder et al., 1991, 1996; Snyder, Lehman, et al., 2006). Hope theory assumes that most human behavior is driven by the pursuit of goals (Snyder, Ritschel, et al., 2006), and a person with high hope will have more positive emotions during the goal-pursuit process whereas a person with low hope will have more negative emotions surrounding their goals (Snyder, Lehman, et al., 2006). Hope can be measured as a trait variable—an enduring type of determination—or a state variable that measures a snapshot of an individual's current level of hope and is more susceptible to environmental influencers (Snyder et al., 1991, 1996). Trait and state hope are highly correlated, suggesting that an individual's trait hope (a more stable, cross-situational form of goal-directed thinking) sets the interval that their state hope fluctuates between in the present (Snyder, Lehman, et al., 2006).

Working alliance has been positively associated with trait hope such that improvements in working alliance predicted improved hope and vice versa (Hicks et al., 2012), and ruptures in alliance are associated with decreased hope for change in therapy (Bartholomew et al., 2017). Additionally, higher levels of trait hope are associated with positive outcomes for both physical and mental health (Snyder, Lehman, et al., 2006). Further, evidence suggests that trait hope can be taught in therapy through developing stretch goals and pathways to achieve these goals while making sure the goals are valued by the patient (Snyder, Lehman, et al., 2006). Thus, the collaborative development of goals and tasks of therapy in a positive working alliance closely maps on to the process of fostering hope in clients. While research connects working alliance to hope and hope to positive outcomes, the formal relationship between all three variables has yet to be established.

Additional variables to consider

When examining the relationship between working alliance and treatment outcomes via patient activation and hope, it is important to consider other factors that could contribute to these relationships. Research suggests that racial/ethnic minority patients are less likely to engage in treatment and often have poorer performance on activities linked to engagement such as communication with their provider (Eliacin et al., 2016). Eliacin et al. (2018) found that compared to their White counterparts, African Americans scored lower on patient activation, working alliance, and medication adherence. Evidence suggests a relationship between the quality of the working alliance and race such that minority patients show less stable increases in alliance over time compared to Whites (Walling et al., 2012). Further, racial microaggressions and biases present in therapy against minority patients can negatively affect the working alliance and treatment outcomes (Burriss, 2012; Constantine, 2007). Thus, it is important to control for minority status of the patient in analyses to account for potential differences in working alliance and patient activation observed between races.

In addition to patient characteristics, the structure of services provided may impact the relationship between provider and client. Many community mental health services for people with severe mental illness, such as Assertive Community Treatment (ACT), use an interdisciplinary team approach to treatment with shared caseloads across multiple providers (Bond et al., 2001). Because patients are often seeing more than one provider for their recovery, it is likely that the quality of the working alliance with each provider is different and therefore may have a different impact on outcomes. For example, a patient may work with a psychiatrist, nurse, psychologist, and employment specialist in treatment. If the patient believes that one of these is more important for his or her recovery, it is likely that the working alliance with that person would have the greatest impact on the patient. In contrast, if the working alliance is measured based on the relationship with a provider who the patient deems as less important to their recovery, the working alliance with that provider may not be a driving mechanism influencing increased patient activation, hope, and eventually better treatment outcomes. For the current study, the patient's evaluation of which provider is most important to their recovery and whether the working alliance is measured with that provider may serve as a moderating variable impacting the degree to which working alliance influences patient activation and hope.

Another variable to consider in this model is the amount of time the client has been receiving treatment from their provider. Research suggests that a positive working alliance established early in treatment (within the first 5 sessions) is most predictive of improved treatment outcomes (Horvath & Luborsky, 1993). Additionally, working alliance can fluctuate throughout therapy (Horvath et al., 2011). Horvath and Marx (1990) suggest that patient-rated working alliance tends to develop in a relatively positive linear pattern from beginning to end of therapy whereas therapist-rated working alliance reflects positive development in early sessions, a slight decay in middle sessions, then rebuilding towards the end of therapy. Because working alliance may fluctuate throughout therapy, controlling for the months the patient has been seeing their provider is crucial in parsing out the effect of working alliance on outcome in community mental health care (a setting where amount of therapy visits often fluctuates between patients).

Current study

In order to maximize treatment outcomes across different forms of psychotherapy, it is necessary to understand the mechanisms behind the relationship between therapeutic processes and outcomes. The relationship between the working alliance and treatment outcomes is well-established, while the mechanisms through which working alliance improves outcomes is less known. Given the theoretical overlap and research on the working alliance, patient activation, and hope, the current study seeks to establish patient activation and trait hope as mediators of the relationship between working alliance and depression in a sample collected from community mental health clinics serving individuals primarily with severe mental illnesses. Depression was chosen as the outcome variable for this study due to its status as the leading cause for disability around the world (Friedrich, 2017). Further, many individuals with severe mental illness, such as schizophrenia, often have comorbid depression (Buckley et al., 2009); therefore measuring depressive symptom severity as a treatment outcome for this study allows us to follow symptomatic improvement as it relates to working alliance across patients with a variety of presenting diagnoses.

The current study is a secondary analysis of data comparing two interventions aimed at reducing treatment provider burnout in community mental health settings (Salyers et al., 2019). Although the interventions were largely ineffective for the treatment providers, the study

collected longitudinal data from a large sample of patients that can address questions of mechanisms connecting alliance and treatment outcomes across time. Using baseline, 6-month, and 12-month follow-up data, I hypothesize that a better patient-rated working alliance with their provider at baseline will be associated with improved patient-rated depression at the 12-month follow-up. Secondly, I hypothesize that this relationship will be mediated by higher patient-rated patient activation and trait hope levels at 6-months while controlling for patient minority status and months the patient has seen the provider at baseline. Thirdly, I hypothesize that the strength of the relationship between working alliance and patient activation/hope will depend on how integral the patient believes the provider is to their recovery. The overall model depicting these relationships is shown in Figure 1.

Hypotheses

1. Working alliance at baseline will be positively associated with improved patient-rated depression at the 12-month follow-up.
2. The relationship between working alliance and improved depression will be mediated by higher patient-rated patient activation and trait hope levels at 6-months.
 - 2a. This mediated relationship will remain significant after controlling for patient minority status and months the patient has seen the provider at baseline.
3. The strength of the relationship between working alliance and patient activation/hope will depend on how integral the patient believes the provider is to their recovery (higher-rated importance of provider will lead to higher patient activation/hope).
 - 3a. This moderated relationship will remain significant after controlling for patient minority status and months the patient has seen the provider at baseline.

METHODS

Procedures

This is a secondary analysis of data that were collected as part of a Patient Centered Outcomes Research Institute (PCORI) funded “Comparative Effectiveness Trial to Reduce Burnout and Improve Quality of Care” (Salyers et al., 2019). This three-year trial compared two interventions for providers—the Burnout Reduction: Enhanced Awareness, Tools, Handouts, and Education (BREATHE) program and motivational interviewing (MI)—aimed at improving provider burnout and patient care in two Midwestern community mental health centers. Although this study collected data from both providers and patients, the current study focused on data collected from the patients.

Adult patients in both community mental health centers were recruited to assess changes in patient-centered care and outcomes in response to provider interventions. As providers were recruited, electronic medical records were used to identify patients seen by the provider in the past month. These patients (up to five linked to each provider) were randomly selected for recruitment. Patients, who were at least 18 years old and agreed to participate, were then scheduled with a researcher to complete the informed consent process and an intake interview. Patients were interviewed at baseline, 6 months, and 12 months and were given \$20 for completion of each interview. Of the 470 patients in the sample, the current study’s sample varied depending on the variables included in the model (N= 319 and N= 346). Specifically, some variables did not have complete data at all 3 time points. Many measures were included in each interview; however, the current study focused on a subset of patient-rated questionnaires measuring demographic characteristics, working alliance, patient activation, hope, and depression. Examples of each questionnaire used for the current study can be found in the Appendix.

Measures

Demographics questionnaire

All participants completed a questionnaire assessing demographic information. Participants were asked about their age, race, ethnicity, gender, marital status, education level, employment status, current residential status, children, and whether or not they were required to attend treatment.

Working alliance

Patient-rated working alliance was measured using the short form version of the Working Alliance Inventory (WAI; Tracey & Kokotovic, 1989). This 12-item questionnaire measures three aspects of the alliance: agreement on goals (*e.g.* “_____ and I are working towards mutually agreed upon goals.”), tasks (*e.g.* “We agree on what is important for me to work on.”), and bond (*e.g.* “I feel _____ appreciates me.”) between patient and therapist. The WAI-Short Form patient version is rated by the patient about their provider on a 7-point Likert scale from 1 (Never) to 7 (Always). The current study used the total score of the WAI-Short Form. Previous research indicates that patient-rated working alliance is more predictive of treatment outcomes than therapist-rated (Horvath & Luborsky, 1993). This scale’s total score demonstrates good internal consistency and reliability in previous research (alpha estimates range from .92 to .98; Hanson et al., 2002; Tracey & Kokotovic, 1989) and for the current study ($\alpha = .92$).

Patient activation

Patient-rated patient activation was measured using the 13-item Patient Activation Measure-Mental Health (PAM-MH; Green et al., 2010; Hibbard et al., 2005). Example questions include “I know what each of my mental health medication does” and “I am confident that I can follow through on mental health treatment I need to do at home.” Questions are rated on a Likert scale of 1 (Disagree Strongly) to 4 (Agree Strongly) and then total scores are calibrated on a 0-100 scale. This measure has been used in severe mental health samples in previous studies (Druss et al., 2010; Salyers et al., 2009). Additionally, this scale demonstrates good test-retest

reliability (Pearson's $r = .74$) and is correlated to measures of similar constructs (Green et al., 2010). Lastly, the internal consistency was good for the PAM-MH in the current study ($\alpha = .85$).

Hope

Hope was measured using the 12-item Adult (Trait) Hope Scale (Snyder et al., 1991). Hope is measured through 4 items that assess agency (e.g. *"I energetically pursue my goals."*) and 4 items that assess pathways (e.g. *"I can think of many ways to get out of a jam."*) with an additional 4 distractor items (e.g. *"I feel tired most of the time."*). Questions are rated on a Likert scale of 1 (Definitely False) to 8 (Definitely True). Snyder et al. (1991) recommends to call this scale the "Goals Scale" when administering it to participants to avoid biased responses. The total score was utilized for the current study. The scale's total score has demonstrated good internal consistency (alpha estimates range from .74 to .84) and temporal stability in previous research (Snyder et al., 1991), and good internal consistency for the current study ($\alpha = .81$). Additionally, this scale has been used in mental health settings (Snyder, Lehman, et al., 2006).

Depression

Depression was measured using 9-item Patient Health Questionnaire (PHQ-9; Kroenke et al., 2001). The PHQ-9 was developed for use in primary care and is a brief, widely used self-report measure designed to assess symptoms of major depressive disorder (e.g. *"Little interest or pleasure in doing things"*, *"Feeling down, depressed, or hopeless"*). Items are based on the patients' experiences over the past two weeks and are rated on a 4-point Likert scale from 0 (Not at all) to 3 (Nearly every day). The scale demonstrates good internal consistency in previous research ($\alpha = .89$; Kroenke et al., 2001) and in the current study ($\alpha = .85$).

Data analyses

Computing variables

Variables were computed using SPSS statistical software (version 27.0). Total scores were calculated for the WAI-SF (baseline), PAM-MH (6-month), Adult (Trait) Hope Scale (6-

month), and PHQ-9 (12-month). The PAM-MH (6 month) total score was calibrated on a 0-100 scale. The importance of provider variable was computed into a categorical, dichotomous variable (Yes/No). If the patient identified the provider for whom they completed the WAI-SF as most important to their recovery, this variable was coded as “Yes” (coded as 1). If the patient identified a different provider that is not linked to their WAI-SF as most important to their recovery, this variable was coded as “No” (coded as 0). Patient minority status was determined using the variables describing the patients’ race and ethnicity. If the patient identified as a minority race/ethnicity (Black or African American, Hispanic/Latinx, Native American, Alaskan Native, Asian, Native Hawaiian, or Pacific islander) minority status was coded as “Yes” (coded as 1), and if they identified as White and not Hispanic/Latinx, this variable will be coded as “No” (coded as 0). As suggested by Castro-Schilo and Grim (2018), difference scores were calculated to measure improved depression (12-month PHQ-9 scores – baseline PHQ-9 scores) given the non-randomized nature of the data (i.e., true baseline values of variables in the model are unknown—patients could have received treatment prior to enrollment in the study).

Missing data analysis

The current study’s sample size was reduced from 470 to 350 participants when accounting for missing data within key variables (baseline working alliance, 6-month hope and patient activation, and improved depression scores). Further, when accounting for additional missing cases in months the patient has seen the provider prior to baseline, the sample reduced from 350 to 346. Lastly, with the inclusion of the “importance of provider” variable, the sample reduced from 346 to 319. Little’s MCAR (missing completely at random) Test (Little, 1988) was computed using SPSS missing values analysis with continuous, key variables of the current study (baseline working alliance, 6-month patient activation and hope, and 12-month improved depression). Results provide evidence that the current study’s missing data is MCAR (failed to reject the null hypothesis; $\chi^2 = 33.52$, $df = 40$, $p = .756$), which lends support for using listwise deletion in main analyses (Schafer & Graham, 2002).

Additionally, a missing data analysis was conducted (i.e., independent samples t tests assuming unequal variance) to compare the baseline means of the current study’s continuous, key variables (baseline working alliance, patient activation, hope, and depression) between

individuals who had complete data for all variables in the model ($n = 319$) and individuals who were excluded from analyses due to missing 1 or more of the variables of interest (n ranged based on missing values per variable from 132 to 151). Results indicated that there were no significant differences in means of baseline working alliance, hope, patient activation, or depression between those with complete data for all variables of interest in the current study's model and those who were excluded from the model for missing data (See Table 1).

Lastly, chi-squares were conducted to determine whether missingness in the sample (0 = missing, 1 = present) was independent of the original study experimental condition, minority status, gender, and importance of provider to patients' recovery variables. The current study failed to reject the null hypothesis for the original study experimental condition, gender, and importance of provider to patient's recovery variables meaning that these variables were independent of whether or not the data was missing. For minority status, results indicated that there were more White participants with missing data than expected and less minority patients with missing data than expected ($\chi^2 = 20.61$, $df = 1$, $p = <.001$). The current study accounts for this association between missingness and minority status given that minority status is a covariate in the model.

Sample demographics and descriptive statistics

Demographic characteristics (age, gender, minority status, employment status, education, mental health diagnosis) and descriptive statistics for WAI -SF (baseline), PAM-MH (6 months), Adult (trait) Hope Scale (6 months), 12-month improved depression (difference score), importance of the linked provider to the patient's recovery (Yes/No) and months the patient saw their linked provider prior to baseline were analyzed using SPSS descriptive statistics (See Tables 2 and 3 for demographics and descriptive statistics). Lastly, a correlation matrix was calculated using Pearson's bivariate correlations (continuous variables) and Point-Biserial correlations (dichotomous variables) to examine relationships among variables in the hypothesized moderated mediation model (i.e., baseline working alliance, 6-month hope, 6-month patient activation, 12-month improved depression, months patient saw their linked provider prior to baseline, minority status, and original study experimental condition; See Table 3).

Power analysis

To determine whether the current study's sample was sufficient to detect significant mediated effects, previous literature that used Monte Carlo simulation was examined to determine the required sample size to detect a significant indirect effect with a power of .80 and alpha level of .05. Thoemmes, MacKinnon, and Reiser (2010) found that when both the *a*-path and *b*-path have medium effect sizes (.39), the sample size required to detect a significant indirect effect is 92. However, if either the effect of the *a*-path and *b*-path are small (.14), sample sizes larger than the current study's sample are required (Thoemmes, MacKinnon, & Reiser, 2010). To determine the minimum effect the current study's sample size could detect in the moderated *a*-path, a G*power sensitivity analysis was conducted (using multiple regression, fixed model, R^2 increase. The 6 total predictors specific to the *a*-path in the model include working alliance, patient minority status, months the patient has seen the provider, linked provider experimental group, importance of provider, and the interaction between working alliance and importance of provider. The number of tested predictors was 1 (the interaction between working alliance and importance of provider). Given the current study's minimum sample size (N=319), power of .80, and alpha of .05, the current study has the power to detect a small to medium effect (Cohen's $F = .16$).

Data analyses for hypotheses

To test the current study's hypotheses, a moderated mediation model (model 7) of Hayes (2018) PROCESS macro with 10,000 bootstrap samples was utilized. Syntax included baseline working alliance as the predictor, 6-month patient activation and hope as parallel mediators, baseline importance of provider as a moderator, 12-month improved depression difference scores as the criterion, and patient minority status and baseline months the patient has seen the provider as covariates. The linked provider's experimental group from the original study (burnout intervention vs motivational interviewing) was also included as a covariate in the model. First, PROCESS explored whether there was a significant interaction between importance of provider and working alliance predicting increased hope and patient activation. This interaction was then probed at both levels of the moderator (provider is important and provider is not important). Then PROCESS tested the indirect effect of working alliance on improved depression via hope

and patient activation at both levels of the moderator. This model was run once including and once excluding the covariates (minority status/months patient has been seeing provider at baseline).

RESULTS

Preliminary analyses

The current study's sample size was dependent on variables included in the model. Specifically, when the moderating variable (importance of provider) was included, the sample included 319 participants. However, when this variable was removed in later analyses, the sample size increased to 346 participants. Demographic characteristics and descriptive statistics were run using the maximum sample size ($N=346$). In this sample, 167 (48.3%), identified as female and the average age was 46.4 years old. One hundred ninety-five participants (56.4%) identified as a minority race/ethnicity (Non-White and/or Hispanic/Latinx). Additionally, 275 participants (79.5%) identified as unemployed, and the majority of the sample ($n = 223$, 64.5%) reported an educational status of high school diploma/GED or less. The majority of the sample was diagnosed with either bipolar disorder, schizophrenia, or schizoaffective disorder ($n = 233$, 67.3%). Lastly, mean scores were calculated for all key variables in the model. The sample's average score for working alliance at baseline was 66.3 ($SD = 14.3$). Depression scores at baseline ($M = 9.07$, $SD = 6.24$) and at the 12-month follow-up ($M = 8.12$) are considered mild based on PHQ-9 scoring criteria (9 is mild and not clinically significant, 10 is moderate and clinically significant; Kroenke & Spitzer, 2002). For further breakdown of demographic characteristics and descriptive statistics of the variables used in main analyses, see Table 2 and 3.

A correlation matrix was computed to examine the relationships between all key variables in the model based on the majority sample size for main analyses ($N=346$) (See Table 3). Firstly, baseline working alliance was not significantly correlated with change in depression at 12 months ($r = .02$, $p = .78$). However, baseline working alliance was weakly, positively correlated with 6-month patient activation ($r = .20$, $p < .001$). Additionally, patient activation and trait hope at 6 months were moderately, positively correlated with each other ($r = .42$, $p > .001$). Further, minority status was weakly, positively correlated with change in depression (difference scores) at month 12 ($r = .14$, $p < .05$). Given the calculation of change scores, a positive correlation between minority status and improved depression indicates those that identified as minority showed less improvement in depression. Specifically, minority participants began the study with lower baseline depression scores ($M = 8.6$) compared to White participants ($M = 9.6$)

and ended the study with similar scores at 12 months ($M = 8.4$) whereas White participants showed slight improvement ($M = 7.7$). Additionally, length of time the patient had seen their linked provider prior to baseline was weakly, negatively correlated with patient activation at 6 months ($r = -.13, p < .05$). Lastly, importance of provider was weakly, positively correlated with baseline working alliance ($r = .14, p < .05$) such that patients' rating of their linked provider as most important to recovery was associated with better quality working alliance.

Moderated mediation analysis

Results from the moderated mediation analysis revealed that importance of provider (i.e., whether or not the patient identified their linked provider as most important to their recovery) did not significantly moderate the relationship between baseline working alliance and 6-month hope or baseline working alliance and 6-month patient activation controlling for minority status, months patient has seen the provider prior to baseline, and original study experimental condition (for unstandardized coefficients, see Figure 2 and Figure 3). Additionally, 6-month patient activation and 6-month hope did not significantly mediate the relationship between baseline working alliance and 12-month improved depression controlling for minority status, months patient has seen the provider prior to baseline, and original study experimental condition (for conditional indirect effects, see Table 4). Further, all paths in the model (a-paths, b-paths, direct effect (c' path) and total effect (c path)) were not significant with the exception of the a-path between baseline working alliance and 6-month patient activation ($b = .204, SE = .07, t(312) = 2.74, p < .001$). Specifically, as baseline working alliance quality increased by 1 unit, patient activation at 6 months increased by .204 units when the importance of provider was 0 ("Not important" condition) and controlling for patient minority status, length of time patient has seen provider prior to the study, and the original study experimental condition. Additionally, a moderated mediation analysis was conducted excluding the covariates in the model (i.e., minority status and length the patient as seen the provider prior to baseline). Results did not change when covariates were excluded. Specifically, importance of provider was not a significant moderating variable, 6-month hope and patient activation did not significantly mediate the relationship between baseline working alliance and 12-month improved depression,

yet the a-path between baseline working alliance and 6-month patient activation remained significant ($b = .193$, $SE = .07$, $t(317) = 2.58$, $p < .05$).

Parallel mediation analysis

Given that importance of provider was not a significant moderator and, in an effort, to create a parsimonious model investigating the relationship between working alliance and improved depression, importance of provider was removed from the model and the model was re-run using parallel mediation (model 4 of Haye's (2018) PROCESS macro with 10,000 bootstrap samples). Results from this analysis are shown in Figure 4. Following the removal of the moderator, results stayed consistent with findings from the moderated mediation model. Specifically, patient activation and trait hope at 6 months did not significantly mediate the relationship between baseline working alliance and improved depression at 12-months controlling for patient minority status, length of time patient has seen provider prior to the study, and the original study experimental condition. Additionally, the a-path between baseline working alliance and patient activation at 6 months remained significant following the removal of importance of provider—as baseline working alliance quality increased by 1 unit, patient activation at 6 months increased by .23 units, controlling for patient minority status, length of time patient has seen provider prior to the study, and the original study experimental condition ($b = .23$, $SE = .063$, $t(341) = 3.60$, $p < .001$). Lastly, results did not change when covariates were excluded. Specifically, 6-month hope and patient activation did not significantly mediate the relationship between baseline working alliance and 12-month improved depression, yet the a-path between baseline working alliance and 6-month patient activation remained significant ($b = .222$, $SE = .06$, $t(347) = 3.51$, $p < .001$).

DISCUSSION

The primary purpose of the current study was to examine the relationship between baseline working alliance and improved depression at 12 months—specifically, whether patient activation and hope at 6 months significantly mediate this relationship. Additionally, the current study investigated whether patient-rated importance of their linked provider to their recovery would strengthen the relationship between baseline working alliance and patient activation/hope at 6 months (i.e., moderation). Lastly, length of time the patient has seen the provider prior to baseline and minority status were added as covariates to the model to control for any effects these may have on the key variables.

Overall, the current study's hypothesized model was not supported. Baseline working alliance did not significantly predict improved depression 12 months later; indeed, the correlation between them was surprisingly near zero. Similarly, the direct effect between working alliance and improved depression (i.e., controlling for patient minority status, length of time patient has seen provider prior to the study, the original study experimental condition, 6-month patient activation, and 6-month hope) was not significant. Further, both patient activation and hope measured at month 6 in the study did not significantly mediate the relationship between working alliance quality at baseline and improved depression at month 12. Additionally, whether or not the patient believed their linked provider was most important to their recovery did not significantly moderate the relationship between baseline working alliance and 6-month patient activation or 6-month hope. However, results indicate that better quality working alliance at baseline did significantly predict higher patient activation at 6 months.

Sample comparability for key variables

Prior to further discussion of results, understanding the current sample's average working alliance, depression levels, hope, and patient activation as they relate to previous research may aid in interpretation of results. Firstly, the average baseline working alliance was relatively high ($M = 66.3$, $SD = 14.3$; highest possible score is 84), which could have created a ceiling effect—the study did not have adequate variation in baseline working alliance to detect a relationship

with improved outcomes using this one time point. However, the current study's average working alliance is in line with averages from previous research within SMI ($M = 66.8$, $SD = 13.1$, Eliacin et al., 2018) and previous research indicating the majority of patient-rated working alliance tends to be rated highly, either staying stable or even increasing slightly overtime within SMI populations (Loos et al., 2015). Additionally, the current sample had an overall low level of depression at baseline ($M = 9.07$, $SD = 6.24$) and 12 months later ($M = 8.12$, $SD = 6.32$; 9 on PHQ-9 indicates "mild" symptoms that are not clinically significant and whereas 10 indicates "moderate" and is clinically significant; Kroenke & Spitzer, 2002).

Further, the average for hope at 6 months ($M = 46.5$, $SD = 9.8$) is just slightly below what Snyder (2002) indicates as a typical mean score on the Adult Trait Hope Scale ($M = 49$, $SD = 7$) in the general population. Because research within SMI fluctuates between using the State and the Trait Hope Scale and many studies use the 4-item Likert Scale rather than the 8-item scale, it is difficult to ascertain whether the current sample's level of hope is higher or lower than previous research on hope using SMI samples. However, given that the current sample is close to the "typical" level of hope within the general population, it may be that the current sample's level of hope is slightly above what SMI samples typically score. The combination of low levels of depression, and relatively "normal" levels of hope could, in part, contribute to why no relationship was found between hope and depression in the current study. Lastly, the current study's average level of patient activation at 6 months ($M = 62.5$, $SD = 17.1$) is slightly higher compared to previous research on patient activation within SMI ($M = 55.6$, $SD = 16$, Kukla et al., 2013; $M = 60.4$, $SD = 15$, Eliacin et al., 2018). Given that hope and working alliance may also be relatively high in the current sample and depression is low, a slightly higher patient activation is also understandable.

Working alliance and treatment outcomes

The current study did not find a significant relationship between baseline working alliance and improved depression 12 months later. Overall, these results are contrary to previous research demonstrating a relationship between working alliance and treatment outcome improvement in several studies within SMI (Andrade-González et al., 2020; Goldberg et al., 2019; Hicks et al., 2012; Kidd et al., 2017; Osborn & Stein, 2019; Priebe et al., 2011), and

several studies specifically related to depression improvement (Barber et al., 2009; Cameron et al., 2018; Klein et al., 2003; Schwartz et al., 2018). However, prior literature on working alliance and symptomatic improvement within depression is not always consistent (e.g., Strunk et al., 2010; Webb et al., 2014). Because there is little research on the relationship between working alliance and depression within SMI, further discussion of this finding in the following sections is first interpreted in the context of SMI and then in the context of depression.

Working alliance and treatment outcomes in SMI

Within SMI recovery, previous research demonstrates a relationship between working alliance and a variety of treatment outcomes—improved well-being, life satisfaction, medication adherence, reduced symptoms and hospitalizations, etc. (Andrade-González et al., 2020; Hicks et al., 2012; Kidd et al., 2017; Osborn & Stein, 2019; Priebe et al., 2011). Additionally, previous research specific to symptom reduction as a primary treatment outcome in SMI suggests there is a negative relationship between working alliance and symptoms (Priebe et al., 2011). However, many of the studies use measures that capture broader symptom categories rather than solely measuring depression. For example, in a review investigating the relationship between working alliance and outcomes in psychiatric treatment of psychosis, Priebe et al. (2011) reviews multiple studies that used symptom reduction as their primary treatment outcome; however, all of these studies focused on multiple symptoms that could be present within SMI using measures such as the Symptom Check List 90 or the Brief Psychiatric Rating Scale. Although depressive symptoms often coincide with SMI, (Buckley et al., 2009), it is possible that the current study’s use of depression as the main treatment outcome did not adequately capture the most relevant symptoms the sample was experiencing (e.g., delusions, mania, hallucinations, etc.) and, thus, failed to find a relationship with working alliance where one might exist using different symptom measures. Further, because there are multiple treatment outcomes that could be measured within psychiatric rehabilitation (e.g., reduced hospitalizations, housing stability, medication adherence) it is possible that the current study’s measure of depression did not fully capture recovery from SMI.

Working alliance and treatment outcomes in depression

Previous research on the relationship between working alliance and depression is mixed—a moderate number of studies have found that a better working alliance is related to improved depression (Barber et al., 2009; Cameron et al., 2018; Klein et al., 2003; Schwartz et al., 2018) while a smaller number of studies have found no relationship between working alliance and later improvements in depression (Strunk et al., 2010; Webb et al., 2014). However, these researchers found a different relationship: prior symptom improvement predicted change in working alliance (Strunk et al., 2010; Webb et al., 2014). This direction was not examined in the current study given previous research suggesting symptom change prior to the measurement of working alliance does not fully explain the variance in working alliance and its effect on later treatment outcomes (Castonguay et al., 2006; Zilcha-Mano, 2017).

Differences in sample/treatment compared to previous research using depression

One factor to consider for why the current study found no relationship between working alliance and improved depression 12 months later compared to previous research is the type of providers and services available to the current study's sample. The current study included a variety of mental health care providers (psychologists, psychiatrists, social workers, etc.) who ranged in the services they provided (individual therapy, group therapy, case management, medication management, etc.), for a broad sample of people with mental illness. However, many of the previous studies investigating working alliance and depression measured it within the context of one type of individual therapy (i.e., cognitive behavioral therapy) and/or with non-SMI mental health diagnoses (i.e., depression, generalized anxiety disorder) (Barber et al., 2009; Cameron et al., 2018, Klein et al., 2003, Schwartz et al., 2018). Given these differences and, as mentioned above, the lack of research on the relationship between working alliance and depression as the main treatment outcome in SMI populations, it is possible that the relationship between working alliance and depression within psychiatric treatment for SMI is not as strong as those found in previous research on different mental health populations/treatment settings.

Timing and frequency of measurement of working alliance and depression

If a relationship between working alliance and depression exists, it is possible that the timing of the measures did not capture this relationship. For example, Cameron et al. (2018) suggests that the time at which the working alliance was measured significantly moderates the relationship between working alliance and improved depression. Specifically, the WA-improved depression relationship was stronger later in treatment (Cameron et al., 2018). The current study did not measure the frequency of meetings between patient and provider throughout the study (once a week vs. once a month). It is possible that many of the linked providers met with patients infrequently throughout the study, which could have reduced the impact baseline working alliance had on later-rated symptomology.

Further, Falkenström et al. (2016) found a bidirectional relationship between working alliance and depression (prior symptom reduction predicted future improvement in working alliance and vice versa) and suggests that the relationship between symptoms and working alliance may be more complex than just one predicting the other. It is possible that working alliance and symptom improvement fluctuate throughout treatment, often influencing each other bidirectionally and the current study design did not adequately capture this nuanced relationship (i.e., the current study did not measure fluctuations in working alliance overtime as it is related to changes in symptoms).

Patient activation and hope

The current study found a moderate, positive correlation between hope and patient activation at 6 months. This finding is in line with previous research examining this relationship in psychiatric populations (Green et al., 2010; Kukla et al., 2013; Oles et al., 2015). Additionally, Oles et al. (2015) suggests that there is a bidirectional relationship between hope and patient activation overtime (i.e., increased patient activation is associated with increased hope and vice versa). Although research suggests there is a relationship between patient activation and hope, the current study's moderate correlation between both variables at 6 months and prior research suggesting changes in one do not precede changes in another (bi-directional relationship) suggest the use of parallel mediation was appropriate.

Working alliance, patient activation, and improved depression

Consistent with previous research (Allen et al., 2017; Eliacin et al., 2018), the current study found that increased baseline working alliance significantly predicted increases in 6-month patient activation. Specifically, previous research examining patient activation and working alliance found a positive relationship between working alliance and patient activation after adjusting for sociodemographic factors and length of time patient has seen their provider (Eliacin et al., 2018). Eliacin et al., (2018) suggests that this association is clinically important as it demonstrates that the patient-provider relationship can contribute to the patient's engagement in managing their own mental health care. Indeed, it may be possible for providers to increase their patient's ability, willingness, and confidence in being an active participant in managing their own mental health care through fostering a positive working alliance with them. Further, the temporal difference between measurement of working alliance (baseline) and patient activation (6 months) suggests that fostering a positive working alliance may have lasting effects on patient activation (i.e., as far out as 6 months later).

Additionally, Allen et al. (2017) found that a specific area within working alliance (i.e., goals/tasks factor) significantly predicted greater change in patient activation. Allen et al. (2017) suggests that providers who focus on collaboratively developing goals/tasks of treatment with their patients may also foster confidence in patients to actively manage their own health. Specifically, through modeling how to develop these goals/tasks within the patient-provider relationship, patients may then be able to use these goal/task development skills to implement in the context of managing their own health care. However, although the current study is longitudinal, it also is possible that patients who are more willing to share their desired treatment goals/tasks with their providers are likely to be more active in managing their own health care. Further research is needed to parse out the mechanisms through which working alliance relates to patient activation and vice versa.

Contrary to the current study's hypothesis, 6-month patient activation did not significantly predict improvements in depression at 12 months. This is also contrary to past research suggesting patient activation is associated with improvements in health outcomes in both mental and physical illness (Green et al., 2010; Hibbard & Greene, 2013; Salyers et al., 2009). Additionally, Kukla et al. (2013) found that patients with less severe emotional distress symptoms (factor related to affective symptoms in the Positive and Negative Syndrome Scale;

PANSS) had stronger patient activation. However, beyond Kukla et al. (2013)'s study, there is little research on patient activation and depressive symptoms within the SMI population. Similar to working alliance, it is possible that increased patient activation influences a different treatment outcome in psychiatric rehabilitation rather than improved depression. Much of the research on patient activation and treatment outcomes in psychiatric rehabilitation uses treatment outcomes specifically related to SMI recovery. For example, increased patient activation is related to overall symptom reduction—not just symptoms related to depression (Green et al., 2010); and increased illness self-management (Salyers et al., 2009).

It is also possible that self-reported patient activation may not adequately capture patient activation in practice. Salyers et al. (2009) found that patient-rated patient activation tended to be higher compared to observed activation behaviors during visits between patients and providers. While these differences in ratings could be explained by multiple influencing factors (for further discussion see: Salyers et al., 2009), it is possible that patient self-reports versus how they actually behaved were incongruent in the study, and this has the potential to limit patient activation's effect on improved depression.

Patient activation and length of time patient has seen their provider

The current study also found a significant negative correlation between length of time the patient saw their provider prior to baseline and patient activation at 6 months. Horvath and Marx (1990) suggest patient-rated working alliance tends to follow a positive linear pattern throughout treatment. Additionally, a better-quality working alliance is associated with increased patient activation in the current study and in previous research (Allen et al., 2017; Eliacin et al., 2018). Given these previous findings, the negative correlation between length of time the patient saw their provider and patient activation at 6 months seems contrary to logic. However, it is possible that those that were receiving treatment for longer at the clinic may have had higher functional impairment and felt less empowered to manage their own health compared to those who were less chronically ill. Further, stigma that providers may hold surrounding patients' capability or desire to be involved in health care decisions may interfere with patient activation (i.e., patients may not be given the opportunity), despite research suggesting patients with SMI want to play an active role in their treatment (Hamann et al., 2005). It is possible that providers who see

chronically ill patients for long periods of time grow complacent in managing treatment decisions without giving the patient the chance to learn or practice managing their own mental health care.

Working alliance, hope, and improved depression

The current study found that baseline working alliance did not significantly predict hope at 6 months, and hope at 6 months did not significantly predict improved depression at 12 months. This is contrary to the current study's hypothesis that hope would significantly mediate the relationship between baseline working alliance and 12-month improved depression. These findings are also in opposition to previous literature on the relationship between working alliance and hope (Bartholomew et al., 2017; Hicks et al., 2012) and hope to improved treatment outcomes (Snyder, Lehman, et al., 2006).

One possible explanation for failing to detect a relationship between hope and working alliance/improved depression is that the current study used a measure of trait hope. Snyder, Lehman, et al. (2006) suggest that the Adult Trait Hope Scale was designed to measure more stable, long lasting, cross-situational hope, whereas the Adult State Hope Scale measures hope influenced by situational factors in the present. Although a previous study has demonstrated a relationship between working alliance and trait hope (Hicks et al., 2012), it is possible that fluctuations in the working alliance may be related to state hope rather than trait hope in the current sample. Further, fluctuations in state hope may relate more to fluctuations on the PHQ-9, which measures depression symptoms based on the past 2 weeks. Additionally, the current study's sample was predominately a minority race/ethnicity, unemployed, with a high school education or less, and with severe mental illness. This population of people may be more likely than the general population to face systemic challenges outside of treatment (e.g., food insecurity, housing insecurity, stigma, racism) in addition to possible symptoms from their mental illness. Fluctuations in hope may be more related to navigating these more pressing obstacles rather than symptom reduction in the current study's sample.

Importance of provider to patient's recovery

Contrary to the current study's hypothesis, importance of provider was not a significant moderator of the relationship between baseline working alliance and patient activation and hope at 6 months. One limitation specific to the moderation analysis was that importance of provider was coded as a dichotomous Yes/No variable. It is possible that measuring this on a continuous scale could account for subtle differences in importance that may contribute to the strength of the relationship specifically between working alliance and patient activation (given that no relationship between working alliance and trait hope existed in the current sample). However, the current study did find a significant positive correlation between importance of provider and baseline working alliance. This supports the hypothesis that the quality of the working alliance may differ based on how important the patient believes the provider is to their recovery. Previous research investigating patients' and providers' perspectives on factors contributing to a positive working alliance within SMI treatment suggest that patients value when providers listen to their preferred goals (e.g., housing) and then offer help in attaining tangible services for these goals (e.g., housing programs, health care, etc.) (Easter et al., 2015). It is possible that agreement on goals/tasks in the session (measured through working alliance) also assists providers in connecting patients with these tangible services that they deem as important to their recovery, thus influencing how important the patient believes that provider is to their recovery.

Limitations

The current study has certain limitations. Working alliance/depression scores were not collected each time the patient met with their linked provider, and the frequency of when the patient met with their provider was also not collected. Previous research indicates that a snapshot in time of working alliance in treatment may not be as important as the course of working alliance over treatment with their provider and how this course interacts with treatment outcomes (Falkenström et al., 2016). For example, while Loos et al. (2015) found that the majority of patient-rated working alliance in SMI treatment was rated as high and stable or slightly increasing over the course of treatment, there were smaller groups of individuals who rated working alliance high at first, but then decreased over time or who rated low at first and

continued to rate working alliance as low throughout treatment. It is possible that each subgroup differs in how the working alliance between provider and patient relates to treatment outcomes.

Another limitation is related to the timing of the key variables in the model. Although using baseline, 6-month and 12-month data is a strength in establishing temporal precedence between key variables in the model, the year between the predictor and outcome may have reduced the strength of the relationship between working alliance and improved depression. For example, linked providers could have left the community mental health center during this time, and other providers/treatment services could have become more important to the patient's recovery, making baseline working alliance between the patient and linked provider less relevant to treatment outcomes.

Additionally, variance in working alliance, patient activation, hope, and improved depression attributable to provider and site differences is not accounted for in this study design. It is possible that certain characteristics of providers or of the community mental health care facility contribute to variance in the variables measured in this study.

Future Directions

The current study proposes several future directions for research investigating working alliance, patient activation, hope, and treatment outcomes within SMI populations. Firstly, although there is research investigating the relationship between working alliance and a variety of treatment outcomes within SMI (Andrade-González et al., 2020; Goldberg et al., 2019; Hicks et al., 2012; Kidd et al., 2017; Osborn & Stein, 2019; Priebe et al., 2011), there is less research on how these relationships may differ based on different types of providers, services, and treatment outcomes used within SMI recovery. Future research should compare differential effects of working alliance on treatment outcome based on the type of provider (e.g., caseworker vs. psychologist vs. peer support specialist), the type of treatment (e.g., therapy vs. medication management vs. supported employment), and the type of recovery outcome (e.g., housing stability vs. symptom improvement vs. social functioning). Doing so may identify treatment outcomes from particular provider-patient relationships and particular services that are associated with working alliance to better understand processes of change within multidisciplinary teams of providers in psychiatric rehabilitation. Further, given previous research on different courses of

working alliance in SMI (Loos et al., 2015), the working alliance and treatment outcomes should ideally be measured at each visit with provider to also investigate whether the course/fluctuation in the alliance is more predictive of outcome than a static measure.

Secondly, previous research indicates that the relationship between patient-rated working alliance and outcome is often stronger compared to provider-rated alliance (Horvath & Luborsky, 1993). Additionally, Falkenström et al. (2016) suggests that certain components of the working alliance (e.g., emotional bond vs. Goals/Task) may be differentially related to improvements in symptoms when comparing therapist vs. patient-rated working alliance. Given this previous research, another important future direction is investigating working alliance as it relates to patient activation, hope, and treatment outcomes from both the client and the provider's perspective and comparing the two.

Lastly, given the current study's findings on working alliance and patient activation, it is possible that patient activation mediates change in different treatment outcomes unrelated to improved depression. Future research should investigate patient activation as a possible mediator between working alliance and a different treatment outcome in recovery (e.g., quality of life, reduced hospitalization).

Conclusion

Although the current study's results did not support the overall moderated mediation model between working alliance, patient activation, hope, and improved depression, results did indicate that fostering a positive working alliance between patient and provider in recovery from SMI may increase the patient's willingness, confidence, and ability to manage their own mental health care. Further, elements within a positive working alliance (e.g., collaboratively developing goals/tasks of treatment) may contribute to the patient's overall evaluation of how important a particular provider is to their recovery. Lastly, those who have seen a particular provider for a longer period of time rated themselves as less active in managing their own mental health care. Future research is needed to explore other treatment outcomes in SMI as they relate to working alliance, patient activation, and hope as well as how different types of providers or services offered may affect these relationships.

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TABLES

Table 1. Missing values and analysis for baseline key variables

	# Present (M)	# Missing (M)	t (df)	p (2-tail)
BL WAI	319 (66.6)	132 (65.5)	.8 (251)	.449
BL Dep	319 (9.12)	150 (9.19)	-.1 (313)	.140
BL Hope	319 (46.7)	151 (45.2)	1.6 (299)	.112
BL PAM	319 (62.5)	149 (60.4)	1.5 (300)	.140

Note. Missing value analysis is comparing baseline means from minimum sample size used in analyses (n = 319) to cases excluded in study due to having at least 1 missing value from key variables. BL = Baseline; WAI = Working Alliance Inventory; Dep = depression scores (using the PHQ-9); PAM = Patient Activation Measure.

Table 2. Sample demographic information

Variable	N	%	Variable <i>cont.</i>	M	SD
Gender (female)	167	48.3	Age (years)	46.4	12.4
Race			BL DEP	9.07	6.24
White	154	44.5	12M DEP	8.12	6.32
Black or AA	174	50.3			
Asian	1	.3			
American Indian or Alaskan Native	3	.9			
Multiracial	13	3.8			
Unreported	1	.2			
Ethnicity					
Hispanic (Y)	6	1.7			
Education					
Less than high school	102	29.5			
High school/GED	121	35			
Some college	107	30.9			
College degree	13	3.8			
Beyond college	3	.9			
Employment status					
Paid Employment	46	13.3			
Gig/Casual Work	4	1.2			
Student	1	.3			
Unemployed	275	79.5			
Unreported	4	1.2			
Diagnosis					
Anxiety Disorders	19	5.5			
Bipolar Disorder	64	18.5			
MDD	77	22.3			
SCZ/SCZ-A	169	48.8			
Unreported/Other	17	4.9			
Substance Use					
Yes	97	28			
No	239	69.1			
Unreported	10	2.9			

Note. AA = African American; MDD = Major Depressive Disorder; SCZ/SCZ-A = Schizophrenia/Schizoaffective disorder; BL DEP = Baseline depression; 12M DEP = 12-month depression; Condition = Original study burnout intervention condition for linked provider (1 missing value due to provider drop out). Demographics and descriptive statistics are based on N = 346

Table 3. Correlations between all variables in model

	M	SD	1	2	3	4	5	6	7	8
1. BL WAI	66.3	14.3	1							
2. 6M Hope	46.5	9.8	.06	1						
3. 6M PAM	62.5	17.1	.20**	.42**	1					
4. 12M DEP DS	-9.5	6.1	.02	-.02	.05	1				
5. Importance	25%	-	.14*	-.03	.01	-.05	1			
6. Minority	56.4%	-	-.04	.07	-.03	.14*	-.09	1		
7. Length	21.6	36.2	-.03	-.07	-.13*	.03	-.05	-.08	1	
8. Condition	44.2%	-	.04	-.06	.04	.08	-.02	-.05	.04	1

* $\alpha < 0.05$; ** $\alpha < 0.01$

Note. BL WAI = Baseline Working Alliance Inventory; 6M Hope = Adult Hope Scale at 6 months; 6M PAM = Patient Activation Measure – Mental Health at 6 months; 12M DEP CS = 12-month Depression Difference Score (Improved Depression); Importance = Importance of Provider to Recovery (coded as Not Most Important = 0; Yes Most Important = 1); Minority = Minority Status (coded as No = 0; Yes = 1); Length = Length of time seen by provider prior to baseline visit (months); Condition = Burnout intervention condition from original study (coded as Active = 1; Control = 0). Percentages listed are frequency of Yes codes for both Minority Status and Importance of Provider and for active condition for Condition. Correlations are based on N = 346

Table 4. Conditional indirect effects of working alliance on improved depression

WAI (BL) → PAM-MH (6M) → Improved Depression (12M)			
	Effect	Bootstrap SE	95% Bootstrap CI
Less Important	.004	.006	[-.006, .016]
Most Important	.005	.007	[-.007, .023]
WAI (BL) → Hope (6M) → Improved Depression (12M)			
	Effect	Bootstrap SE	95% Bootstrap CI
Less Important	-.001	.003	[-.008, .004]
Most Important	-.002	.005	[-.015, .007]

Note. No significant conditional indirect effects were found. WAI = Working Alliance Inventory; PAM-MH = Patient Activation Measure-Mental Health; BL = baseline; 6M = 6 months; 12M = 12 months; Less Important = Linked provider is not the most important provider to their recovery (coded as 0); Most Important = Linked provider is most important provider to their recovery (coded as 1).

FIGURES

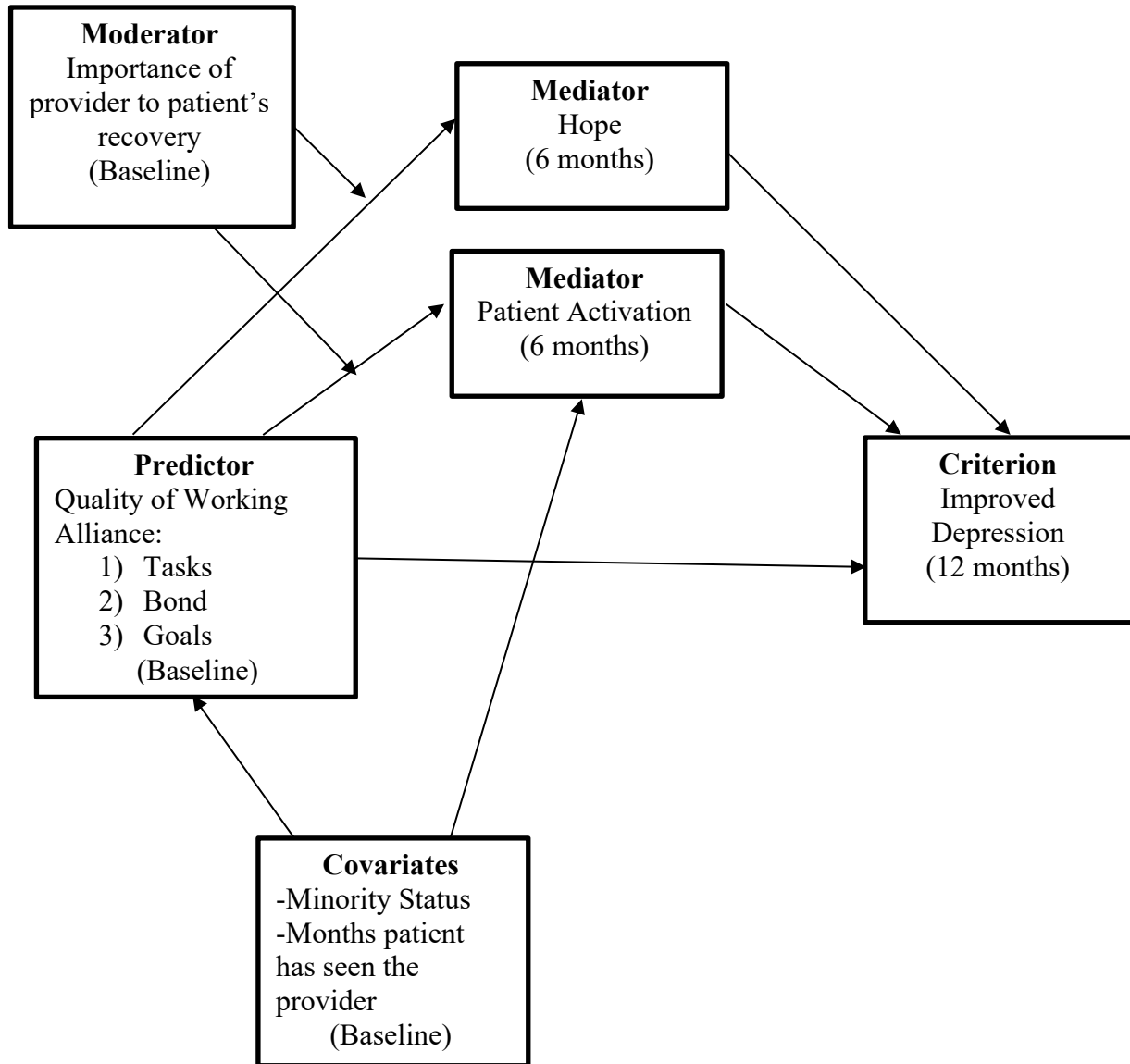


Figure 1. Hypothesized model (moderated mediation)

Note. N= 319, Hayes (2018) PROCESS model 7

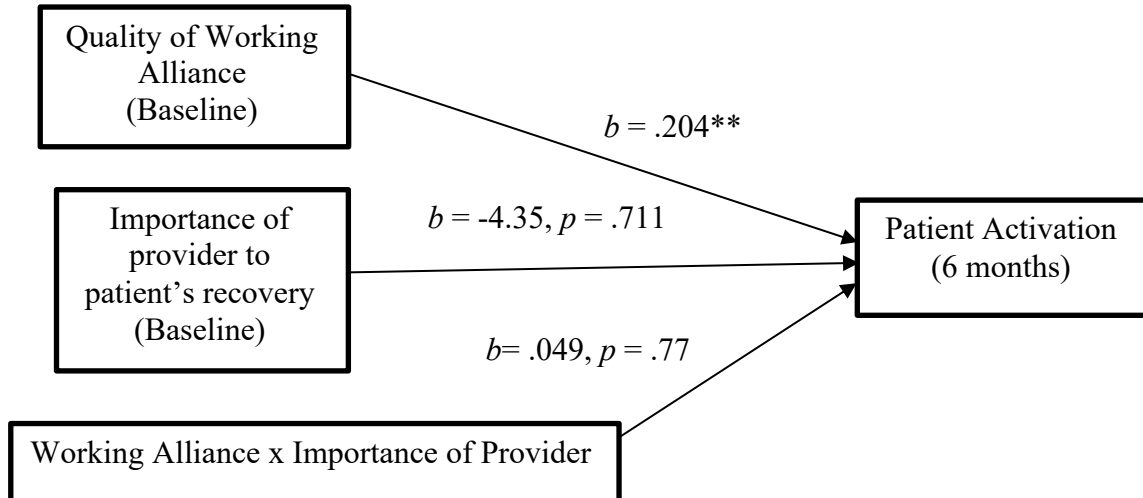


Figure 2. Main effects and interaction effect between working alliance and importance of provider on patient activation.

Note. Results include controlling for covariates (minority status, months patient has seen the provider, and original study condition), b = unstandardized regression coefficients, * $p < 0.05$; ** $p < 0.01$

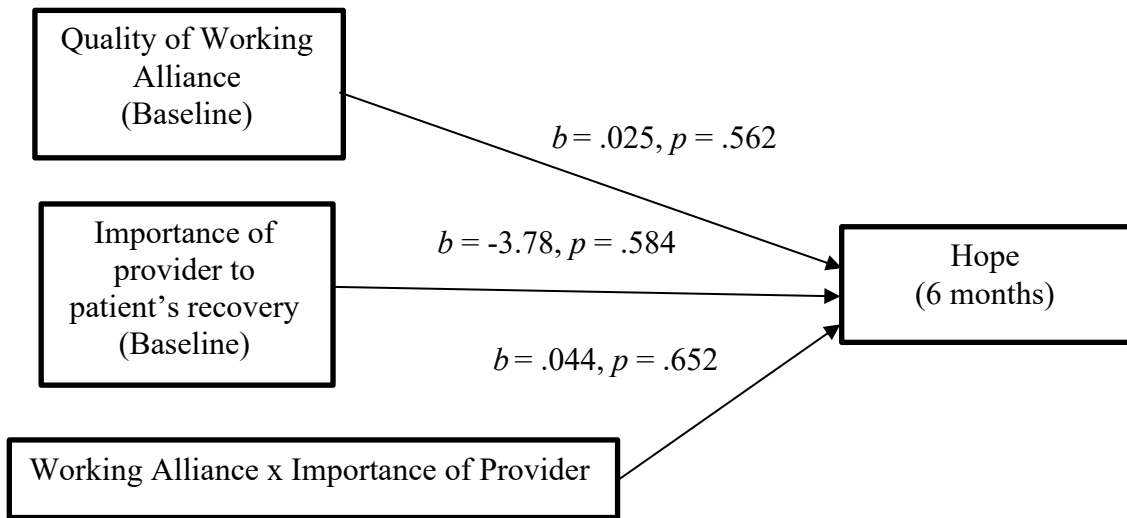


Figure 3. Main effects and interaction effect between working alliance and importance of provider on hope.

Note. Results include controlling for covariates: (minority status, months patient has seen the provider, and original study condition), b = unstandardized regression coefficients.

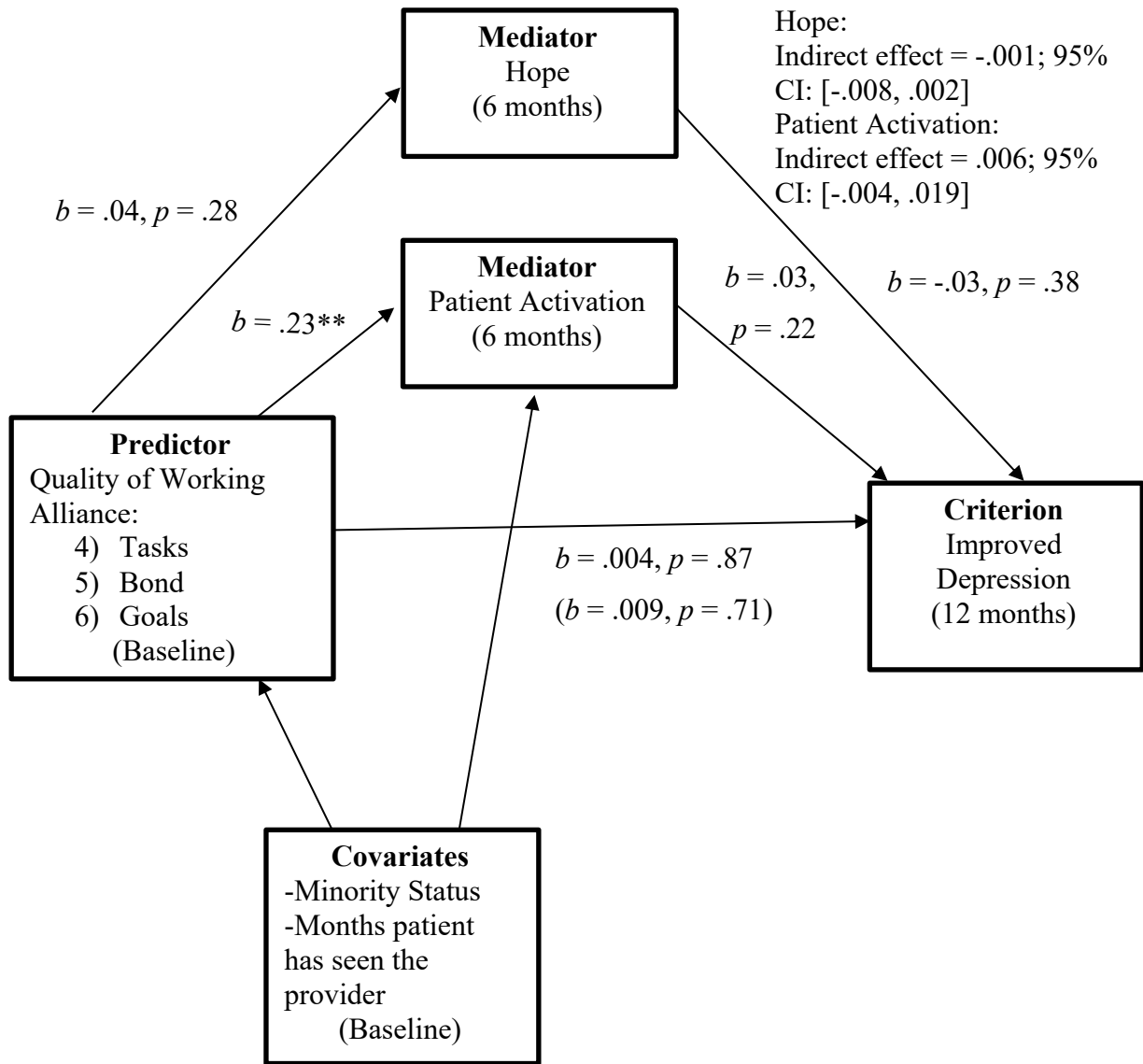


Figure 4. Mediation model testing the indirect effect of baseline working alliance on 12-month improved depression through 6-month patient activation and hope

Note. $N = 346$, Hayes (2018) PROCESS Model 4. the total effect of baseline working alliance on 12-month improved depression is shown in parentheses and the direct effect (i.e., the effect of baseline working alliance on 12-month improved depression controlling for 6-month patient activation and hope) is shown without parentheses. b = unstandardized regression coefficient. $^{**} p < 0.01$

APPENDIX A: SURVEYS

Demographics Questionnaire

Sex 1 = Male 2 = Female

What is your race? *(Circle all that apply)*

- 1 = American Indian or Alaskan Native
- 2 = Asian
- 3 = Native Hawaiian or Other Pacific Islander
- 4 = Black or African American
- 5 = White
- 6 = Unknown or Not Reported

Are you Hispanic or Latino? 1 = YES 2 = NO -6 = Unknown/Refused

What is your date of birth? ____ / ____ / ____

What is your current marital status?

- 1 = single, never married
- 2 = currently married or living with a partner
- 3 = separated or divorced
- 4 = widowed
- 6 = refused

What is the highest grade of school that you completed?

- 1 = less than high school
- 2 = completed high school or GED
- 3 = some college (includes receiving an Associates, 3-year trade degree, or certificate)
- 4 = completed 4 yrs. of college (received a Bachelors Degree)
- 5 = beyond 4 year college degree (received a Masters or higher professional degree)
- 6 = refused

Are you currently employed? *(If “disabled or retired”, specify 4 or 5)*

- 1. Paid Employment
- 2. Casual Work (i.e., babysitting, side jobs, etc.)
- 3. Student
- 4. Unemployed and looking for work
- 5. Unemployed and not looking for work
- 6. Other: _____
- 6. Refused

(If working) **How many hours a week do you work?** _____

Current Residence:

What type of housing do you currently live in? Housing Code: _____ *(see codes below)*

How long have you lived there? _____

In the past year, how many different places have you lived? _____

Housing Codes:

- 1 = Homeless – on streets or in shelter
- 2 = Staying w/friends or family temporarily
- 3 = Structured congregate living (e.g., Nursing Home; Group Home; Residential Facilities)
- 4 = Semi-independent living (staff member lives on site, or foster family care)
- 5 = Living with family (not spouse)
- 6 = Own apartment or house – with spouse, living as married, with friends
- 7 = Own apartment or house – alone (includes boarding homes, hotels)

Children:

How many children have you had? (Include living, deceased, adopted, step, etc.) _____

-6 = Unknown/Refused

How often do you see them in a month? *(Read these options, choose the amount for the child they see most frequently)*

- 1 = Less than 7 days a month
- 2 = 7-14 days a month (1-2 weeks)
- 3 = 15-21 days a month (2-3 weeks)
- 4 = More than 21 days a month

How many of your children are younger than 18? _____

Do you have legal custody of these children? *(Note: If custody or visitation varies by child, write a note explaining.)*

1 = YES 2 = NO 3 = Some -6 = Unknown/Refused

Do these children live with you most of the time? (Most days in a week)

1 = YES 2 = NO -6 = Unknown/Refused

Are you required to attend treatment at *Insert CHMC name* due to involuntary commitment, court order, or other legal requirement?

1 = YES 2 = NO -6 = Unknown/Refused

Do you want to attend treatment?

1 = YES 2 = NO -6 = Unknown/Refused

Working Alliance Inventory-Client Short Form (Client)

Instructions:

On the following page there are sentences that describe some of the different ways you might think or feel about your provider. For the following statements, please think about _____ (insert name of staff person participant linked to). Below each statement there is a seven-point scale:

1	2	3	4	5	6	7
Never	Rarely	Occasionally	Sometimes	Often	Very Often	Always

If the statement describes the way you *always* feel (or think) circle the number 7; if it never applies to you circle the number 1. Use the numbers in between to describe the variations between these extremes.

1. _____ and I agree about the things I will need to do in counseling to help improve my situation.

1	2	3	4	5	6	7
Never	Rarely	Occasionally	Sometimes	Often	Very Often	Always

2. What I am doing in counseling gives me new ways of looking at my problem.

1	2	3	4	5	6	7
Never	Rarely	Occasionally	Sometimes	Often	Very Often	Always

3. I believe _____ likes me.

1	2	3	4	5	6	7
Never	Rarely	Occasionally	Sometimes	Often	Very Often	Always

4. _____ does not understand what I am trying to accomplish in counseling.

1	2	3	4	5	6	7
Never	Rarely	Occasionally	Sometimes	Often	Very Often	Always

5. I am confident in _____'s ability to help me.

1	2	3	4	5	6	7
Never	Rarely	Occasionally	Sometimes	Often	Very Often	Always

6. _____ and I are working towards mutually agreed upon goals.

1	2	3	4	5	6	7
Never	Rarely	Occasionally	Sometimes	Often	Very Often	Always

7. I feel that _____ appreciates me.

1	2	3	4	5	6	7
Never	Rarely	Occasionally	Sometimes	Often	Very Often	Always

8. We agree on what is important for me to work on.

1 2 3 4 5 6 7
Never Rarely Occasionally Sometimes Often Very Often Always

9. _____ and I trust one another.

1 2 3 4 5 6 7
Never Rarely Occasionally Sometimes Often Very Often Always

9

10. _____ and I have different ideas on what my problems are.

1 2 3 4 5 6 7
Never Rarely Occasionally Sometimes Often Very Often Always

11. We have established a good understanding of the kind of changes that would be good for me.

1 2 3 4 5 6 7
Never Rarely Occasionally Sometimes Often Very Often Always

12. I believe the way we are working with my problem is correct.

1 2 3 4 5 6 7
Never Rarely Occasionally Sometimes Often Very Often Always

PAM 13

Below are some statements that people sometimes make when they talk about their health. Please indicate how much you agree or disagree with each statement as it applies to you personally by circling your answer. If the statement does not apply to you, circle N/A. *Your answers should be what is true for you and not just what you think the doctor wants you to say.*

When all is said and done, I am the person who is responsible for managing my mental health condition.	Disagree Strongly	Disagree	Agree	Agree Strongly	N/A
Taking an active role in my own health care is the most important factor in determining my mental health and ability to function.	Disagree Strongly	Disagree	Agree	Agree Strongly	N/A
I am confident that I can take actions that will help prevent or minimize some symptoms or problems associated with my mental health condition.	Disagree Strongly	Disagree	Agree	Agree Strongly	N/A
I know what each of my prescribed mental health medications does.	Disagree Strongly	Disagree	Agree	Agree Strongly	N/A
I am confident that I can tell when I need to go get mental health care and when I can handle a mental health problem myself.	Disagree Strongly	Disagree	Agree	Agree Strongly	N/A
I am confident I can tell my mental health clinical concerns I have even when he or she does not ask.	Disagree Strongly	Disagree	Agree	Agree Strongly	N/A
I am confident that I can follow through on mental health treatments I need to do at home.	Disagree Strongly	Disagree	Agree	Agree Strongly	N/A
I understand the nature and causes of my mental health condition(s).	Disagree Strongly	Disagree	Agree	Agree Strongly	N/A
I know the different medical treatment options available for my mental health condition.	Disagree Strongly	Disagree	Agree	Agree Strongly	N/A

I have been able to maintain the lifestyle changes that I have made for my mental health.	Disagree Strongly	Disagree	Agree	Agree Strongly	N/A
I know how to prevent further mental health problems.	Disagree Strongly	Disagree	Agree	Agree Strongly	N/A
I am confident I can figure out solutions when new situations or problems arise with my mental health.	Disagree Strongly	Disagree	Agree	Agree Strongly	N/A
I am confident that I can maintain lifestyle changes, like diet and exercise, even during times of stress.	Disagree Strongly	Disagree	Agree	Agree Strongly	N/A

Goals Scale

Read each item carefully. Using the scale shown below, please select the number that best describes how you think about yourself right now and circle that number. Please take a few moments to focus on yourself and what is going on in your life at this moment.

1) I can think of many ways to get out of a jam.	1 Definitely False	2 Mostly False	3 Somewhat False	4 Slightly False	5 Slightly True	6 Somewhat True	7 Mostly True	8 Definitely True
2) I energetically pursue my goals.	1 Definitely False	2 Mostly False	3 Somewhat False	4 Slightly False	5 Slightly True	6 Somewhat True	7 Mostly True	8 Definitely True
3) I feel tired most of the time.	1 Definitely False	2 Mostly False	3 Somewhat False	4 Slightly False	5 Slightly True	6 Somewhat True	7 Mostly True	8 Definitely True
4) There are lots of ways around any problem.	1 Definitely False	2 Mostly False	3 Somewhat False	4 Slightly False	5 Slightly True	6 Somewhat True	7 Mostly True	8 Definitely True
5) I am easily downed in an argument.	1 Definitely False	2 Mostly False	3 Somewhat False	4 Slightly False	5 Slightly True	6 Somewhat True	7 Mostly True	8 Definitely True
6) I can think of many ways to get the things in life that are most important to me.	1 Definitely False	2 Mostly False	3 Somewhat False	4 Slightly False	5 Slightly True	6 Somewhat True	7 Mostly True	8 Definitely True
7) I worry about my health.	1 Definitely False	2 Mostly False	3 Somewhat False	4 Slightly False	5 Slightly True	6 Somewhat True	7 Mostly True	8 Definitely True
8) Even when others get discouraged, I know I can find a way to solve the problem.	1 Definitely False	2 Mostly False	3 Somewhat False	4 Slightly False	5 Slightly True	6 Somewhat True	7 Mostly True	8 Definitely True
9) My past experiences have prepared me well for my future.	1 Definitely False	2 Mostly False	3 Somewhat False	4 Slightly False	5 Slightly True	6 Somewhat True	7 Mostly True	8 Definitely True
10) I've been pretty successful in life.	1 Definitely False	2 Mostly False	3 Somewhat False	4 Slightly False	5 Slightly True	6 Somewhat True	7 Mostly True	8 Definitely True
11) I usually find myself worrying about something.	1 Definitely False	2 Mostly False	3 Somewhat False	4 Slightly False	5 Slightly True	6 Somewhat True	7 Mostly True	8 Definitely True
12) I meet the goals that I set for myself.	1 Definitely False	2 Mostly False	3 Somewhat False	4 Slightly False	5 Slightly True	6 Somewhat True	7 Mostly True	8 Definitely True

PATIENT HEALTH QUESTIONNAIRE (PHQ-9)

NAME: _____ DATE: _____

Over the last 2 weeks, how often have you been bothered by any of the following problems?
(use "✓" to indicate your answer)

	Not at all	Several days	More than half the days	Nearly every day
1. Little interest or pleasure in doing things	0	1	2	3
2. Feeling down, depressed, or hopeless	0	1	2	3
3. Trouble falling or staying asleep, or sleeping too much	0	1	2	3
4. Feeling tired or having little energy	0	1	2	3
5. Poor appetite or overeating	0	1	2	3
6. Feeling bad about yourself—or that you are a failure or have let yourself or your family down	0	1	2	3
7. Trouble concentrating on things, such as reading the newspaper or watching television	0	1	2	3
8. Moving or speaking so slowly that other people could have noticed. Or the opposite — being so fidgety or restless that you have been moving around a lot more than usual	0	1	2	3
9. Thoughts that you would be better off dead, or of hurting yourself	0	1	2	3

add columns + +

(Healthcare professional: For interpretation of TOTAL, please refer to accompanying scoring card). TOTAL:

10. If you checked off <i>any</i> problems, how difficult have these problems made it for you to do your work, take care of things at home, or get along with other people?	Not difficult at all	_____
	Somewhat difficult	_____
	Very difficult	_____
	Extremely difficult	_____