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Change in Patient Activation and Mental Illness Symptoms after Communication Training: a Multisite Study with a Diverse Patient Sample

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Changes in patient activation and mental health symptoms: A multisite study of a diverse patient population

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Abstract

Objective: Patient activation involves patients' ability and motivation to communicate about their health and health care. Past research has demonstrated that clinician or patient interventions may improve patient activation. However, no prior study, to our knowledge, has explored the degree to which clinician and patient interventions may improve both patient activation and mental health outcomes. We investigated if this is the case using an ethnically/racially diverse clinical sample.

Methods: Data comes from a randomized clinical trial that included 312 patients and 74 clinicians from 13 Massachusetts community and hospital-based outpatient behavioral health clinics. Patients completed measures of patient activation, depression and anxiety symptoms. Secondary data analyses were conducted to examine the effect of patient and clinician DECIDE interventions on mental health symptoms and patient activation. A multilevel, mixed-effects simultaneous equation model was estimated to assess the relationship between the interventions, changes in patient's mental health symptoms and patient activation.

Results: Greater clinician intervention dosage decreased patient's anxiety symptoms, but with non-significant effects on patient activation or depression. This effect of clinician training dosage on anxiety symptoms was stronger when patients and clinicians were not of the same race/ethnicity. Additionally, the reduction in patient's anxiety symptoms seems to increase patient activation.

Conclusions: Clinician interventions designed to boost patient-clinician communication and alliance may serve to lessen patients' anxiety, and ultimately improve patient activation.

Keywords

Patient activation; mental health; minorities; anxiety; depression

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INTRODUCTION

Patient activation involves patients' capacity and motivation to manage their health and health care (1–3). It is pivotal in improving patient-clinician communication and the overall quality of behavioral health care (4, 5) and health outcomes (6–8). Interventions designed to promote patient activation have involved peer specialists (9) and a brief educational program (10) as part of patient care. Patient interventions have been found to improve patients' self-efficacy (11–13), health management skills (4, 5), and health behaviors (14), with mixed findings on its effect on mental health symptoms (10, 15). The patient intervention, DECIDE-PA program (**D**ecide the problem; **E**xplore the questions; **C**losed or open-ended questions; **I**dentify the who, why, or how of the problem; **D**irect questions to your health care professional; and **E**njoy a shared solution), is the first manual-based patient intervention shown to improve patient activation among behavioral health care patients in a clinical trial (4). This program targets the communication aspects that could influence patient activation, such as patients' ability to learn information about their illness, communicate their needs, discuss treatment options, and ask questions about their care with health care professionals (16).

The clinician intervention is another important but less discussed approach to improve patient activation. Research involving interventions in community mental health clinics demonstrated that therapeutic alliance (i.e., patient-clinician agreement on tasks/goals and bonds (17, 18) is a prerequisite for the prospective development of patient activation (19)). Given the well-documented contribution of therapeutic alliance to mental health outcomes (20, 21), improved patient-clinician communication may lower mental health symptoms due to increased therapeutic alliance. By enhancing clinicians' perspective taking (22), decreasing clinician's attribution error (23), and increasing patient-clinician collaboration, the DECIDE-PC is a clinician intervention, incorporating workshops and individualized coaching, that was found to improve shared decision making (24). However, little is known about the association between patient activation and mental health symptoms as impacted by clinician interventions. The extent to which DECIDE-PA and PC improves patient activation and mental health symptoms has not been previously examined.

Interventions to improve patient activation should be considered within continued efforts to reduce ethnic/racial mental health disparities (25). For example, underestimating less communicative patients' need for information, clinicians sometimes spend less time offering information about illness and treatment options to less activated patients (26), many of whom are minorities (27–29). When holding traditional cultural views of patients' roles, minority patients often feel less comfortable communicating with clinicians. For instance, Vietnamese patients may consider inappropriate questioning an authority (30), while Latino patients may have concerns that expressing their needs will weaken the patient-clinician relationship (16). Poor patient-clinician communication (27) may position racially/ethnically diverse patients at greater risk for treatment non-compliance (31) and treatment dropout (32).

To the best of our knowledge, no study has investigated the relationship between mental health symptoms and patient activation as influenced by patient and clinician interventions. Here, we explored the effect of patient and clinician interventions on both mental health symptoms and patient activation, as well as the relationship between symptoms and activation in a diverse clinical sample. Since the DECIDE interventions target patient activation with a focus on improving patient-clinician communication, we hypothesized that both interventions would improve patient activation, and consequently, mental health symptoms. One might expect an improvement in patient activation would reduce mental health symptoms, but conversely, it is possible that improvements in mental health have a positive effect on patient activation. This study was exploratory in nature given the mentioned gaps in prior research. We also explored whether the effect of the interventions on mental health symptoms was different in patient-clinician racial/ethnic discordant dyads, linguistic discordant dyads, and by gender given past research on communication (33, 34) for diverse patients.

METHODS

Setting and Sample

The current study uses data from a randomized clinical trial assessing the effectiveness of DECIDE-PA and DECIDE-PC to improve shared decision making and patient-perceived quality of care. For full description of the four arm study (PC and PA, only PA, only PC, neither) and its findings, see Alegría et al. (2018) (24). Eligible patients and clinicians were recruited and randomized for participation in the DECIDE interventions across 13 community and hospital-based outpatient mental health clinics in Massachusetts (September 2013 - September 2016). The majority served predominantly low-income minority patients. Eligible clinicians were behavioral health practitioners (e.g., social workers, psychologists, and psychiatrists). A total of 79 clinicians provided written consent to participate (five withdrew before randomization to the intervention). Eligible patients were 18 to 80 years old; spoke English, Spanish, or Mandarin; and were enrolled in individual behavioral health care treatment (e.g., psychotherapy or psychopharmacology) with a clinician also enrolled in the study. Patients 65 years or older with a positive screening for cognitive impairment, mania, psychosis, and/or active suicidal ideation were excluded from the trial. Following these criteria, 312 consented patients and 74 clinicians participated in cross-level 2 × 2 randomized clinical trial where patients were nested within clinicians. The study was approved by the Institutional Review Boards of the participating institutions. All study staff fully complied with the approved protocol and procedures.

Procedure

After the initial screening and recruitment of participants, patients and clinicians completed three assessments: a baseline assessment within the first 30 days (Time 1); a follow-up assessment in the four following months (Time 2); and a final assessment at the end of the study, 5 to 6 months after recruitment (Time 3). The clinician intervention included a 12-hour workshop taught by behavioral health professionals and communication experts (coaches) at Time 1, followed by up to six coaching calls between Times 1 and 3. The patient intervention included up to three 60-minute training sessions between Times 1 and 3.

All assessments included patient reports on patient activation (identical measures of patient activation at Times 1, 2, and 3), but only the baseline and final assessments included patient reports on mental health (identical measures of mental health symptoms at Times 1 and 3).

Measures

Patient assessments were administered in English (N=205), Spanish (N=89), or Mandarin (N=17) and based on patient preference.

Socio-demographic Characteristics.—Patients and clinicians completed a baseline socio-demographic questionnaire (i.e., gender, age, race/ethnicity, primary language, region of origin, and personal income; education and employment status). Clinicians indicated their professional specialty (psychologist, psychiatrist, social worker, other).

Patient Activation Scale (PAS).—A modified version of the PAS (35–37) contains nine items assessing patient activation during a medical encounter. PAS was utilized given its strength in capturing the communication aspects of patient activation. A representative item included: "*How much have you discussed treatment options for your emotional, mental health or substance abuse problems with your provider?*" Items are rated on a 10-point scale (1 = *not at all*; 10 = *very*) and summed (range = 10–90), with higher scores reflecting better patient activation.

We studied the psychometrics of the PAS version for the present sample (α = .82) and for the translated measures (α = .83, α = .79, α = .84 in English, Spanish and Mandarin, respectively). A factor analysis revealed the one-factor solution to be the most appropriate. The two-factor model in the English and Spanish measures had better fit statistics, but there were no items loading onto a second factor in the Spanish version. More importantly, because only 17 participants were administered the measure in Mandarin, the two-factor model did not converge for this version.

Patient Health Questionnaire-Depression Module (PHQ-9).—The depression module from the PHQ-9 is a self-administered version of the PRIME-MD diagnostic instrument for common mental disorders (35–39). It includes 9 items corresponding to DSM-IV criteria for Major Depression rated on a 4-point scale (0 = *not at all*; 3 = *nearly every day*) that are summed (range = 0–27), with higher scores indicating worse depressive symptoms.

Generalized Anxiety Disorder Screener (GAD-7).—GAD-7 is a self-report screener designed to assess symptom severity of generalized anxiety (40). Participants were asked how often, during the last 2 weeks, they have been bothered by each of the 7 core symptoms of generalized anxiety disorder, using a 4-point scale (0 = *not at all*; 3 = *nearly every day*). These ratings were summed (range = 0–21), with higher scores reflecting worse anxiety symptoms.

Both PHQ-9 (38, 39) and GAD-7 (41) were used in multiple studies, showing good reliability and validity (α = .85 and α = .89, respectively).

Statistical Analysis

We first estimated the effect of the DECIDE patient and clinician interventions on patient activation and mental health symptoms. Using results from this analysis, we then examined the relationship between mental health symptoms and patient activation.

We considered the effect of the DECIDE interventions on four primary outcomes: PAS at Time 2 (see procedure above), PAS at Time 3, PHQ-9 at Time 3, and GAD-7 at Time 3. Each outcome had different amounts of missing information either at Time 2 or at Time 3, with missing outcome data ranging from 46 (14.7%) for PAS at Time 3 to 74 (23.7%) for PAS at Time 2. Analysis of attrition patterns for each outcome revealed no significant differences in either patient or clinician baseline characteristics, except for patient education (online appendix). To account for missing data, we applied multiple imputation using Stata chained equations (42–44), but still decided to control for patient education throughout the analyses.

We used multilevel, mixed-effects models in two types of analysis. First, we estimated effects of the DECIDE interventions (PA and PC) on outcomes based on patient and clinician assignments to intervention or control, independent of treatment receipt (intent-to-treat). We then examined whether the effect of the interventions was a function of training dosage, with dosage defined as the number of completed training sessions divided by the number of intended sessions (3 for patients and 6 for clinicians). We also estimated the effects of training dosage by patient-clinician racial/ethnic discordance, patient-clinician linguistic discordance, and patient gender. Analyses were performed using Stata software version 15.1 (42), with all significance tests adjusted for multiple imputation and small sample size (citation). Regression models accounted for nesting of patients within clinicians and used robust empirical standard errors (45).

The intent-to-treat and training dosage analyses revealed that the DECIDE interventions had no effect on any of the primary outcomes except for GAD-7: the clinician training dosage improved patient's anxiety symptoms. We used this result to examine the relationship between patient's anxiety symptoms (GAD-7 scores) and patient activation (PAS). Examining this relationship is challenging because changes in GAD-7 can influence PAS, but it could also be that changes in PAS impact GAD-7. There might be also other unobservables (e.g., self-motivation) that affect both GAD-7 and PAS at the same time, and changes in these outcomes could be due to such unobserved factors. Since our training dosage analyses revealed that the clinician dosage influenced GAD-7 but did not directly affect PAS at Time 3, we could use the clinician dosage as an instrument for anxiety. Clinician dosage could serve as an instrument since it can only affect patient activation (PAS) through its effect on GAD-7. Thus, we are only interested in the association between "anxiety as affected by clinician dosage" and patient activation.

We estimated a multilevel, mixed-effects simultaneous equation model to assess the effect of improved GAD-7 scores at Time 3 on PAS at Time 3 (46). A multilevel model is used to allow for clustering of patients within clinicians, while a simultaneous equation model is used to adjust for the endogeneity of GAD-7. Patient activation and anxiety are treated as a bivariate response, and a multilevel model is defined for each response (with clinician

random effects included in each). The patient activation model, where PAS at Time 3 is the dependent variable, controls for PAS at Time 1 and baseline patient and clinician characteristics. The anxiety model, where GAD-7 at Time 3 is the dependent variable, controls for GAD-7 at Time 1 and the same baseline patient and clinician characteristics used in the patient activation model (online appendix). The random effects can be correlated across patient activation and anxiety equations. Analyses were performed using reweighted iterative generalized least squares as implemented in MLwiN software version 3.02 (47).

RESULTS

Analysis of DECIDE Interventions on Patient Activation and Mental Health Symptoms

Table 1 presents results of intent-to-treat and training dosage analyses. There were no significant differences in the baseline outcome measures between control and treatment patients. Hence, changes in PAS and mental health symptoms between baseline and Time 2 or Time 3 were interpreted as an effect of the DECIDE interventions. The omnibus test in the intent-to-treat analysis was not significant for any outcome (all p-values > .05), but the omnibus test for training dosage was significant for GAD-7 ($F = 3.62$, $df = 3$ and 1843.1, $p = 0.013$). On a 21-point scale (7.3 ± 5.39), GAD-7 scores in the final assessment were 1.43 points lower when clinicians received more of the recommended sessions compared with clinicians without coaching (b = −1.43; SE = 0.60; $p = 0.017$; Cohen $d = -0.27$). No other omnibus test or individual test was significant.

Moderation Analyses

We conducted moderation analyses to test whether the effect of the DECIDE training dosage on GAD-7 was different for patient-clinician racial/ethnic discordant dyads, linguistic discordant dyads, and by gender (Table 2). There were no moderation effects with respect to linguistic discordance or patient gender, but there were significant moderation effects for patient's anxiety symptoms with respect to racial/ethnic discordance ($F = 3.19$, $df = 3$ and 3619.5, $p = 0.023$). When patients and clinicians were not of the same race/ethnicity, the clinician dosage had a stronger effect (b = −2.80; SE = 1.17; $p = 0.017$; Cohen $d = -0.38$) while the patient and clinician dosage together seemed to have weaker effect on patient's anxiety symptoms (b=5.76; SE=2.77; p=0.037; Cohen d=1.07).

Simultaneous Equation Analyses

We analyzed whether the improvement in GAD-7 because of greater clinician dosage influenced PAS at Time 3. Because the clinician dosage did not have an effect on PAS scores, the clinician dosage can only be correlated with PAS through the effect of dosage on GAD-7. Comparing the standard model with the simultaneous equation model showed that without an instrument, the coefficient on GAD-7 is biased upwards. That is, the effect of GAD-7 on PAS would be overestimated without the instrument. Using the clinician dosage as an instrument (b = −0.30; SE = 0.12; $p = 0.013$; Cohen $d = -0.03$) indicates that a 1-point decrease in the GAD-7 score increases patient activation by 0.30 points on a 10 to 90-point scale (72.3 ± 12.83).

Analysis of all simultaneous equation model coefficients (online appendix) revealed that neither patient characteristics nor clinician characteristics predicted PAS in the patient activation model. Only one clinician characteristic (Asian race/ethnicity) was significant in the anxiety model, but the omnibus test for all categories in the race/ethnicity group was not significant ($F = 1.64$, $df = 3$ and 1210.8, $p = 0.179$).

DISCUSSION

Although the effects of patient and clinician interventions on mental health symptoms and patient activation were non-significant, clinicians receiving more of the DECIDE-PC intervention were significantly better at easing patients' anxiety. Clinicians receiving more training may be better able to ally with patients (48) by encouraging their feedback (49, 50). Patients' reduced anxiety may correspond to feeling heard and understood by the clinician (24). Offering clinicians opportunities to naturally and routinely practice the principles of patient-clinician communication, vis-à-vis the DECIDE-PC, may benefit patients, lessening their anxiety.

The present finding further indicates that the effect of clinician dosage on reducing patient's anxiety symptoms was stronger for race/ethnic discordant patient-clinician pairs than for concordant pairs. DECIDE-PC can be an integral part of efforts to reduce mental health disparities considering evidence documenting that minority patients are more likely to receive care from a racially/ethnically discordant provider and that these therapeutic dyads are more associated with patient-clinician miscommunication (51, 52) and patients' attrition (33, 53) compared to race/ethnic concordant dyads. The finding that improved anxiety appears to improve patient activation suggests that alleviation of anxiety could facilitate the development of patients' motivation to manage their health and health care.

Different from previous findings (4, 35), the current study did not find a significant effect of the patient intervention on patient activation. This may be related to the double-blind design of the original trial—some patients in the intervention group did not receive the full benefit of the entire intervention at the time of the final assessment (see the original study (24) for further explanation). Another methodological consideration concerns the fact that the present sample was highly educated with a higher baseline level of activation, raising questions of a potential ceiling effect. However, the significant finding that a reduction in anxiety symptoms appeared to improve patient activation speaks to the importance of lowering anxiety for ethnic/racial minority patients. Given that clinician dosage was effective in lowering patients' anxiety, clinicians who received coaching sessions in the intervention may be able to improve patient activation even in a highly activated patient population. Due to the design, we were unable to assess the effect of the interventions on patient activation and mental health symptoms beyond three observation periods. Future studies examining the relationship between the development of patient activation and mental health symptoms may consider a longer longitudinal design that allows for observation of this relationship over time.

While the current study examined the relationship between mental health symptoms and patient activation in the context of the DECIDE interventions, this was not a treatment study

of mental health outcomes; the results do not imply the therapeutic effect of these interventions. The baseline symptomatic distribution of participants is consistent with the sample of patients receiving community behavioral health care, though the included measures do not indicate diagnoses. The results, therefore, cannot be generalized to patients with specific mental health diagnoses. Future studies examining the association between patient activation and mental health symptoms with mental health patients may consider examining treatment-related factors (e.g., clinical diagnoses, time in treatment) that contribute to the association between patient activation and reduced mental health symptoms.

CONCLUSIONS

Behavioral health clinicians face new demands connecting with patients of diverse backgrounds with different customs and values. The DECIDE-PC is a clinician intervention that was found to lessen patients' anxiety, and reduced anxiety was associated with improved patient activation. Clinicians working with diverse behavioral health patients are encouraged to obtain regular trainings to routinely integrate into their practice a collaborative style of open-communication with patients with the goal of improving patient activation.

Supplementary Material

Refer to Web version on PubMed Central for supplementary material.

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Highlights:

1. Greater DECIDE-PC clinician training dosage improves patient's anxiety symptoms in a diverse sample of mental health patients.
2. The effect of clinician's training dosage on patient's anxiety was stronger for ethnic/race discordant clinician-patient pairs than for concordant pairs.
3. The improved anxiety symptoms appeared to improve patient activation in an ethnically diverse clinical sample treated by a mostly white provider sample.

Table 1.

Effect of the DECIDE Interventions on Patient Activation and Mental Health Symptoms

	Patient Group				
	Control	**Intervention**	***t***	***df***	***p* value**
Baseline Outcome Measure (Time 1)					
PAS	70.70	70.70	−.06	310	.95
PHQ-9	9.54	10.40	1.25	309	.21
GAD-7	7.80	8.77	1.53	310	.13

	Coeff.	***SE***	**Cohen *d***	***p* value**
Intent-to-treat				
PAS (Time 2)				
Patient Intervention	−.83	1.17	−.07	.48
Clinician Intervention	−.42	1.21	−.03	.73
Patient & Clinician Intervention	2.56	2.35	.21	.28
Intervention joint significance test	$F_{3, 1178.7} = .62$			.60
PAS (Time 3)				
Patient Intervention	.17	1.20	.01	.89
Clinician Intervention	−.17	1.36	−.01	.90
Patient & Clinician Intervention	3.65	2.41	.28	.13
Intervention joint significance test	$F_{3, 1949.2} = .78$			.50
PHQ-9 (Time 3)				
Patient Intervention	−.20	.59	−.03	.73
Clinician Intervention	−.44	.61	−.07	.47
Patient & Clinician Intervention	.21	1.15	.03	.86
Intervention joint significance test	$F_{3, 2365} = .27$			.84
GAD-7 (Time 3)				
Patient Intervention	−.69	.46	−.13	.13
Clinician Intervention	−.90	.46	−.17	.05
Patient & Clinician Intervention	−.28	.92	−.05	.77
Intervention joint significance test	$F_{3, 2014.3} = 2.1$			.10
Training Dosage				
PAS (Time 2)				
Patient Dosage	−.38	1.67	−.03	.82
Clinician Dosage	−2.74	2.65	−.23	.30
Patient & Clinician Dosage	10.85	6.20	.89	.08
Intervention joint significance test	$F_{3, 1741} = 1.29$			.28
PAS (Time 3)				
Patient Dosage	2.14	1.33	.17	.11
Clinician Dosage	.33	1.99	.03	.87
Patient & Clinician Dosage	4.78	3.64	.37	.19
Intervention joint significance test	$F_{3, 2228} = 1.25$			.29

	Coeff.	*SE*	Cohen *d*	*p* value
PHQ-9 (Time 3)				
Patient Dosage	−.18	.62	−.03	.78
Clinician Dosage	−.86	.80	−.13	.28
Patient & Clinician Dosage	−1.39	1.68	−.22	.41
Intervention joint significance test	$F_{3, 2648.3} = 1.01$			.39
GAD-7 (Time 3)				
Patient Dosage	−.59	.48	−.11	.22
Clinician Dosage	−1.43	.60	−.27	.02
Patient & Clinician Dosage	−1.54	1.32	−.29	.24
Intervention joint significance test	$F_{3, 1843.1} = 3.62$			.01

Note.

1. All analyses and significance tests were adjusted for multiple imputation and small sample size.

2. All models control for the outcome measure at baseline and patient education level. Results do not change if patient education is excluded.

Table 2.

Moderation analysis of Racial/Ethnic Discordance on Patient and Clinician Intervention on Anxiety Symptoms

Training Dosage	*GAD-7 (Time 3)*			
	Coeff.	**SE**	**Cohen *d***	***p* value**
Racial/Ethnic Discordance				
Patient Dosage	−.77	.59	−.14	.19
Clinician Dosage	−.10	.76	−.02	.89
Patient & Clinician Dosage	−4.09	1.71	−.76	.02
Discordance Coefficient	.00	.51	.00	1.00
Discordance & Patient Dosage	−.06	.99	−.01	.96
Discordance & Clinician Dosage	−2.80	1.17	−.52	.02
Discordance & Patient Dosage & Clinician Dosage	5.76	2.77	1.07	.04
Intervention joint significance test (discordance interactions)	$F_{3,\ 3619.5} = 3.19$			.02
Linguistic Discordance				
Patient Dosage	−1.02	.55	−.19	.06
Clinician Dosage	−.91	.63	−.17	.14
Patient & Clinician Dosage	−2.22	1.50	−.41	.14
Discordance Coefficient	−.31	.57	−.06	.59
Discordance & Patient Dosage	1.27	1.06	.24	.23
Discordance & Clinician Dosage	−2.70	1.64	−.50	.10
Discordance & Patient Dosage & Clinician Dosage	3.67	2.87	.68	.20
Intervention joint significance test (discordance interactions)	$F_{3,\ 3377.7} = 1.59$			.19
Patient Gender				
Patient Dosage	−.83	.55	−.15	.13
Clinician Dosage	−1.19	.65	−.22	.06
Patient & Clinician Dosage	−2.23	1.66	−.41	.18
Gender Main Effect (Female)	−.61	.44	−.11	.17
Female × Patient Dosage	1.26	1.18	.23	.28
Female × Clinician Dosage	−1.31	1.20	−.24	.28
Female × Patient × Clinician Dosage	3.36	3.53	.62	.34
Intervention joint significance test of all female interactions	$F_{3,\ 4,388.0} = 1.01$			.39

Notes:

1. All analyses and significance tests were adjusted for multiple imputation and small sample size.

2. Racial/ethnic discordance: Model controls for the outcome measure at baseline, patient and clinician race, and patient education level.

3. Linguistic discordance: Model controls for the outcome measure at baseline, patient and clinician language, and patient education level.

4. Patient gender: Model controls for the outcome measure at baseline, patient gender, and patient education level.