

Integrated Care and Psychological Symptoms in a Federally Qualified Health Center in Rural Idaho

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Abstract:

Patients living in underserved areas have unique barriers to accessing mental health care. While regional federally qualified health centers (FQHCs) may assist in overcoming barriers, more research is needed to understand how health care service type and quantity are related to mental health to inform best practices. Archival data from 404 patients presenting to a rural FQHC within a health provider shortage area for mental health and primary care was used to examine changes in depression (PHQ-9) and anxiety (GAD-7) symptoms over treatment and key sociodemographic variables in relation to type of care received (i.e., behavioral health and/or medical interventions). Patients receiving behavioral health care (with or without medical treatment) had a greater decrease in reported depression symptoms, as did those receiving integrated care. There were no consistent patterns of association between type of care utilized and reported gender or age. Results suggest that in rural, underserved settings, it is important to screen for and refer patients who report mental health concerns to behavioral health providers and that the integration of behavioral health and medical care may improve patient mental health outcomes.

Key Words: integrated care; mental health; rural; underserved; health provider shortage area; federally qualified health center

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Integrated care is defined as, "...a broad and multi-component set of ideas and principles that seek to better co-ordinate care around people's needs (Goodwin, 2016, p.1)." Patients are more likely to receive mental health services when offered in an integrated primary care setting, as opposed to a mental health care facility (Funk et al., 2008). This may be in part due to convenience, care coordination, familiarity, and a less salient association with stigma accompanying psychological services, particularly in smaller communities (Gamm et al., 2010). Integrated health care programs have also been effective at improving mental health care quality, patient and provider care satisfaction, and cost-effectiveness (Funk et al., 2008). However, there is still limited literature examining the extent to which federally qualified health center (FQHC) services relate to improvements in common psychological outcomes (i.e., depression and anxiety) in rural, underserved settings. Therefore, the current study included examination of data from patients presenting to a FQHC located in rural Idaho in which behavioral health care was integrated within a primary care clinic via a common electronic medical record, co-located facilities, informal consultations, and warm handoffs, when possible. Investigators sought to test the following hypotheses (1) those who receive behavioral health services (alone or with medical care) will have greater decreases in depression and anxiety symptom severity over time, (2) those who receive integrated care will have greater decreases in depression and anxiety symptom severity than those only receiving behavioral or medical treatment, and (3) there will be significant relationships between sociodemographic variables and service utilization (i.e., type of care).

Method

This study was approved by the Idaho State University Human Subjects Committee and Health West, Inc. Office of Human Research Ethics. Archival data from electronic



medical records were extracted from a large clinic and cleaned by a trained doctoral student under the supervision of a Licensed Psychologist.

The present study included 404 adults who met only with a primary care provider ($N=397$), only with a behavioral health provider ($N=30$), or both ($N=77$) within the clinic from January to August 2018. To be included in data analyses, patients had to be adults (18+ years) who completed a primary care depression (e.g., PHQ-9; Kroenke et al., 2001) or anxiety screener (e.g., GAD-7; Spitzer et al., 2006) on two or more occasions with a primary care and/or behavioral health provider. Patients seeking primary care are asked to complete a PHQ-9 at each visit and the PHQ-9 and GAD-7 every 6 months, while patients who meet with a behavioral health provider complete the PHQ-9 and GAD-7 at each visit. Table 1 provides a summary of participants' demographic characteristics. The largest percentage of patients were Caucasian/White (83%), female (41%), and 26 to 30 years of age (13%). Approximately half reported insurance coverage (e.g., 53%) with the remaining patients opting into the clinic's sliding fee scale. The majority of patients received a DSM-5 diagnosis (81%) and active psychotropic medications (72%).

Demographic Variable	N	%
Age		
21-25	40	9.9
26-30	53	13.1
31-35	34	8.4
36-40	36	8.9
41-45	29	7.2
46-50	33	8.2
51-55	31	7.7
56-60	26	6.4
61-65	28	6.9
66-70	27	6.7
71-75	20	5.0
76-80	3	0.7
80+	6	1.5
Gender		
Female	164	40.6
Male	74	18.3
Unspecified	165	40.8
Race/Ethnicity		

White/Caucasian	337	83.4
Black/African American	4	1.0
Asian/Asian American	2	0.5
Other	2	0.5
Unspecified	58	14.4

Note: None of the demographic variables were systematically related to type of care utilized (i.e., behavioral health and/or medical care).

Table 1: Summary of Demographic Data across Participants

Procedure

De-identified participants records were categorized as receiving behavioral health services or not with services defined as meeting with a specialty behavioral health provider (e.g., clinical psychologist, licensed clinical social worker, and/or clinical psychology doctoral student). Participants were also identified as receiving primary care services or not with services defined as meeting with a primary care provider (e.g., family medicine attending physician, family medicine resident, nurse practitioner, and/or physician assistant). Additionally, the number of visits for each service was coded for each participant.

Depressive and anxiety-related symptom severity change were calculated by subtracting the last available depression (i.e., Patient Health Questionnaire-9; PHQ-9) and anxiety (i.e., Generalized Anxiety Disorder-7; GAD-7) screener score from the first available score during the sampling time period. Participants were also classified based on whether they received a diagnosis from the *Diagnostic and Statistical Manual of Mental Disorders* (5th ed.; DSM-5; American Psychiatric Association, 2013) or psychotropic medications. Sociodemographic variables were also extracted from the chart based on patients' self-identification on clinic paperwork. These variables included participant age, sex, and ethnicity/race.

Measures

Patient Health Questionnaire-9 (PHQ-9)

The PHQ-9 (Kroenke et al., 2001) is a 9-item scale that assesses severity of depression symptoms based on DSM (4th ed.; DSM-IV; American Psychiatric Association, 1994) diagnostic criteria. Participants are asked to rate the frequency of depression symptoms in the last 2 weeks on a Likert scale ranging from 0 (not at all) to 3 (nearly every day), and a total score is calculated. Using two clinical samples ($N=3,000$ each), the PHQ-9 has been shown to have high internal consistency (Cronbach's $\alpha=.86-.89$) and 48-hour test-retest reliability ($r=.84$), as well as receiver operating characteristic curve area under the curve for diagnosing major depression (0.95; Kroenke et al., 2001). Regarding construct validity, PHQ-9 scores are highly correlated with the Medical Outcomes Study Short-Form General Health Survey scales ($r=0.33-0.73$; Kroenke et al., 2001).

Generalized Anxiety Disorder-7 (GAD-7)

The GAD-7 (Spitzer et al., 2006) is a 7-item scale that assesses severity of GAD symptoms as defined by the DSM-IV (American



Psychiatric Association, 1994). Participants are asked to rate how often they have been bothered by anxiety symptoms in the last 2 weeks on a Likert scale ranging from 0 (not at all sure) to 3 (nearly every day), and a total score is calculated. The GAD-7 possesses high internal consistency (Cronbach's $\alpha=.89$) and good construct validity in reference to the Rosenberg Self-Esteem Scale ($r=.64$; Löwe et al., 2008).

Data Analyses

Data were analyzed using descriptive and inferential methods in SPSS statistical software, version 26. Spearman's rank-order correlations were used to quantify relations between health care type and changes in PHQ-9 and GAD-7 scores. Relations between sociodemographic variables and service utilization were examined utilizing chi-square tests of independence. Independent samples t -tests were used to examine group differences in changes in PHQ-9 and GAD-7 scores including comparing those who had received behavioral health services (with or without other medical care) and those who did not, as well as those who received integrated care compared to those who received individual treatment (either behavioral health or medical interventions).

Results

Participants

The average baseline scores for the PHQ-9 ($M=10.99$, $SD=7.97$) and GAD-7 ($M=12.13$, $SD=6.04$) across participants were in the moderate range. Patients in the integrated care group received approximately the same numbers of primary care ($M=13.00$, $SD=15.15$) and behavioral health ($M=14.84$, $SD=12.00$) sessions. Patients who solely received primary care services received an average of 12.82 ($SD=9.65$) sessions, and those who solely received behavioral health services received an average of 17.70 ($SD=20.66$) sessions.

Health Care Groups

There was a significant difference in PHQ-9 change scores for individuals who received behavioral health care (alone or with medical care; $M=-3.54$, $SD=6.69$) and those who did not ($M=-1.92$, $SD=8.46$; $t(236.70)=2.00$, $p=0.047$, Cohen's $d=0.212$), with those receiving behavioral health care evidencing a greater decrease in reported depression symptom severity over time. Those receiving behavioral health care (alone or with medical care; $M=-1.91$, $SD=5.72$) did not have a statistically significant difference in GAD-7 change scores when compared to those not receiving behavioral health care ($M=-2.92$, $SD=6.33$; $t(249)=-1.29$, $p=0.199$).

There was a significant difference in PHQ-9 change scores for individuals who received integrated care ($M=-4.13$, $SD=7.19$) and those who did not ($M=-1.93$, $SD=8.19$; $t(398)=2.17$, $p=0.03$, Cohen's $d=0.285$), with those receiving integrated care evidencing a greater decrease in reported depression symptom severity over time. Those receiving integrated care ($M=-1.69$, $SD=-6.27$) did not have a statistically significant difference in GAD-7 change scores when compared to those not receiving integrated care ($M=-2.85$, $SD=6.01$; $t(249)=-1.38$, $p=0.170$).

Demographics and Service Utilization

The relation between age group and type of care was statistically significant ($X^2(24,366)=53.28$, $p=.001$, eta squared=.111), though there was no consistent direction of effect across age groups. The relation between gender and type of care was not statistically significant, ($X^2(4,403)=8.71$, $p=.07$).

Discussion

Results replicated prior literature suggesting that receiving care from a behavioral health provider integrated into a primary care clinic is associated with improvements in patient depression, with the current study extending findings to a rural FQHC (Funk et al., 2008; McFeature & Pierce, 2012). Additionally, results further support the integration of primary care and behavioral health services in FQHCs to improve patient depression, even in understudied rural settings where patients have unique barriers to care (Gamm et al., 2010).

This pattern of findings was not observed when examining anxiety symptom changes, which is inconsistent with prior study findings (Archer et al., 2012). This may be because rural patients are more likely to be undertreated for depression and/or anxiety disorders, though more studies are needed. Additionally, it may be that the GAD-7 does not adequately capture the types of anxiety and other psychological symptoms that improve following behavioral/integrated health care in this population. Therefore, future studies should examine a broader range of mental health outcome variables. The inconsistent and/or non-significant relations between patient care type utilized and sociodemographic characteristics suggest that these factors do not account for current study findings.

While the study fills a gap in the field's understanding of integrated health care in underresourced communities utilizing a relatively large, longitudinal sample, the study methods should be replicated in samples that are more diverse in order to understand the degree to which current study results generalize. Additionally, the correlational nature of the study design does not allow for causal conclusions, which could be addressed in future studies through random assignment of individuals in similar communities to the three patient care groups, including behavioral health and/or medical care. Finally, though there were statistically significant differences between group change scores, the effects sizes were relatively small and may not be as clinically significant (i.e., roughly 2-point reduction in PHQ-9 symptom severity scores between groups) as changes observed over longer periods of time. Therefore, future studies should include a longer sampling time window and perhaps create a standard duration of care as part of their participant inclusion criteria. Despite this limitation, patients receiving behavioral health or integrated care demonstrated an average reduction of approximately 4 or more points on the PHQ-9, which borders the 5-point threshold indicative of clinically significant change.

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