Differential Impact of Enhanced Health and Employment supports on Patient Health Utilization

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INTRODUCTION

The Texas Demonstration to Maintain Independence and Employment (DMIE) examines whether or not working people with mental and/or behavioral health conditions can remain independent and employed if they are provided with health benefits and employment services.

OBJECTIVE

The following questions related to change in whether DMIE study participants experienced and the number of in-patient, emergency, and outpatient visits 12 months pre and post enrollment into study:
• Did the intervention group receiving health and employment supports differ from control group?
• Where there differences due to participant's behavioral health diagnostic status?
• Did intervention group show differential change from control group depending on their behavioral health diagnostic status?

METHODS

Population: Texas DMIE participants (N=1229) are working adults, between 21-60 years-old, and enrolled in HCHD's Gold Card program. Participants also have a serious mental illness or other mental or substance abuse condition, coupled with a physical health condition that could lead to disability.

Data Collection: Data in this poster come from participants' HCHD medical records.

Key Measures: Based on ICD-9 behavioral health diagnoses, participants were classified into three groups::
1. Mental Health: Diagnosis of schizophrenia, bi-polar, depression anxiety, ADHD, reaction disorder
2. Dual-Diagnosis **(DD)**: Same as Mental Health with addition of Alcohol or Drug abuse or dependence diagnosis.
3. Substance Abuse **(AOD)**: Alcohol or Drug abuse or dependence diagnosis alone

Medical Encounters: Unique medical visits were defined by unique medical record number, data of visit, site of visit, and type of encounter (Provider visit, medical office visit, lab visit, and

Intervention: The intervention comprised a case manager who provided health navigation and employment supports, expedited health appointments, dental , vision, and no co-payments for medications or healthcare visits.

RESULTS

Table 1: DMIE Participant Demographic Characteristics

	Mental Health	Dual Diagnosis	Alcohol/Drug Diagnosis
Gender	$\chi^2(2)=37.3, p<.001$		
Male	17	23	34
Female	83	77	66
Occupation	$\chi^2(4)=4.5$, ns		
Sales/Service	54	53	49
Home Health	15	18	19
Admin., Prof., Trade	31	29	33
Race/Ethnicity	$\chi^2(6)=100.6, p<.001$		
White	23	42	20
African American	32	42	53
Hispanic	39	13	23
Asian/Mixed/Other	5	3	4
SMI	$\chi^2(2)=88.1, p<.001$		
SMI	18	26	0
Not SMI	82	74	100
Age	$F(2,1226)=3.8, p < .05$		
Mean	46.4	47.7	47.8
ACG Score	$F(2,1226)=20.4, p < .001$		
Mean	1	1.3*	0.93

*Note: Mean ACG score for Dual-diagnosis groups was higher than other two groups

Table 2: Descriptive statistics for health care visits to Outpatient, Emergency and Inpatient clinics

		Non-Zero descriptives			
Prior 12 months to enrollment	Percentage Zero's	N	Mean	SD	Max Value
Outpatient	3%	1197	11.1	7.3	63
Emergency	76%	294	2.3	1.7	15
Inpatient	90%	119	2.2	0.9	6
Post 12 Months to Enrollment					
Outpatient	9%	1113	11.1	8.5	65
Emergency	79%	255	2.4	2.2	22
Inpatient	91%	113	2.3	1.3	9

Statistical Analysis:

Based on the initial review of the outcome distributions, zero-inflated Poisson (ZIP) or zero-inflated negative binomial (ZINB) regression analysis were chosen to test whether there was a relationship between experimental group status and behavioral health status with health care utilization, adjusting for age, gender, race/ethnicity, ACG score (health morbidity), occupational status, and Serious Mental Illness (SMI) status. Both models jointly estimate predicting zero visits versus one or more visits and then the number of visits (Long 1997). The ZINB model adds an additional parameter to account for additional variation (overdispersion). The regression coefficient parameter estimates in each model were exponentiated to aid in interpretation and were adjusted for all of the other predictors in the models (adjusted odds ratios (AOR) and adjusted incidence rate ratios (AIRR).

Table 3: Predicting zero encounters for outpatient, emergency, and inpatient visits

	Outpatient Visits		Emergency Visits		Inpatient Visits	
Parameter	AOR	p-value	AOR	p-value	AOR	p-value
Prior 12 Months	.89	.001	.61	.001	.78	.035
Male	.96	.854	.94	.826	1.47	.202
Age at Enrollment	.97	.013	1.00	.782	1.00	.838
African-American versus White	.77	.330	.52	.022	1.40	.270
Hispanic versus White	.80	.433	.73	.284	.85	.592
Asian, Multiracial, Other versus White	1.66	.252	.95	.938	.95	.941
Serious Mental Illness	.67	.257	1.42	.262	1.09	.814
Sales/Service versus Other	.70	.108	.75	.243	.98	.941
Health Support versus Other	.48	.053	1.19	.559	.56	.077
Intervention Group	.40	.001	.66	.044	.93	.734
Health Status (ACG score)	.72	.135	1.22	.159	.67	.002
DD versus Mental Health	.93	.820	.52	.072	1.00	.991
AOD versus Mental Health	1.34	.227	1.28	.296	.78	.388
Interactions						
Intervention by DD*	1.37	.631	2.05	.263	1.68	.409
Intervention by AOD	1.22	.670	.69	.406	1.84	.260
Health morbidity by DD	1.04	.957	1.03	.946	1.08	.820
Health Morbidity by AOD	2.55	.033	1.70	.104	2.24	.010

*DD represents Dual Diagnosis, AOD represents Alcohol or Drug Diagnosis Adjusted Odds ratios (AORs) greater than one indicate a positive relationship. Odds ratios less than one indicate a negative relationship.

Table 4: Predicting one or more outpatient, emergency, and inpatient visits

	Outpatient Visits		Emergency Visits		Inpatient Visits	
Parameter	AIRR	P-value	AIRR	P-value	AIRR	P-value
Prior 12 Months	1.03	.001	1.04	.243	1.18	.040
Male	.91	.001	.85	.442	1.44	.216
Age at Enrollment	1.01	.001	.99	.078	1.00	.910
African-American versus White	.97	.173	1.01	.954	1.53	.067
Hispanic versus White	.99	.829	.90	.645	1.20	.453
Asian, Multiracial, Other versus White	1.00	.934	.58	.312	.76	.670
Serious Mental Illness	.96	.156	1.25	.347	.76	.320
Sales/Service versus Other	1.07	.002	.91	.622	.89	.592
Health Support versus Other	1.14	.001	1.56	.053	.94	.805
Intervention Group	1.10	.001	.81	.159	1.21	.242
Health Status (ACG score)	1.11	.001	1.39	.001	1.33	.001
DDversus Mental Health	1.00	.989	.57	.017	.92	.718
AOD versus Mental Health	.99	.581	1.42	.046	.84	.526
Interactions						
Intervention by DD	1.10	.043	1.25	.606	.73	.511
Intervention by AOD	.88	.004	.64	.210	1.69	.199
Health morbidity by DD	.90	.000	1.03	.901	1.22	.413
Health Morbidity by AOD	.96	.063	1.33	.287	1.69	.044

For the Poisson or Negative Binomial component of the model, the exponentiated regression coefficients represent incidence rate ratios (IRR). The exponentiated value is the change in ratios of visits per one unit increase

DISCUSSION

Demographic Characteristics: Table 1 shows the Mental Health group was more likely to be female and Hispanic. The Dual-Diagnosis group was more likely white, diagnosed with serious mental illness, and have higher health morbidity. The Alcohol and Drug only group was more likely male, Hispanic and African-American.

Zero-prediction: The intervention group was less likely to have zero Outpatient and Emergency visits. Behavioral health status was unrelated to having zero visits. Differences between the intervention and control groups did not depend on behavioral health status. Participants in the AOD group were more likely to have zero visits the greater their health morbidity.

Increased visits: Overall, the intervention group was more likely to have outpatient visits. Participants in the DD group were less likely to experience emergency visits. Participants in the AOD group were more likely to experience emergency visits.

Intervention participants in the DD group were more likely to experience outpatient visits. Intervention groups in the AOD group were less likely to experience outpatient visits. In addition, DD participants with higher health morbidity were more likely to experience fewer outpatient visits. Those participants in the AOD group with higher health morbidity were more likley to have experienced an inpatient visit.

CONCLUSION

The findings indicate that the intervention is linked to increased access to outpatient health care which is expected to help reduce future emergency and inpatient visits across all three behavioral health groups. The finding that intervention group participants were more likely to access emergency services may be due to difficulty in accessing outpatient appointments within the HCHD system.

These findings should inform refinements in design and targeting of services for this both DD and AOD groups by increasing focus of caregivers on AOD issues. In particular, case management involving health navigation can help patients utilize health care more effectively.