Demonstration to Maintain Independence and Employment in Texas: Long-Term Follow-Up of Health Service Utilization and Employment Outcomes

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Demonstration to Maintain Independence and Employment (DMIE)

- Authorized under the Ticket to Work and Work Incentives Improvement Act of 1999 and administered by the Centers for Medicare and Medicaid (CMS) from 2006-2009.
- Awarded funds to 4 states to develop, implement, and evaluate interventions for workers with potentially disabling health conditions, such as diabetes, HIV, and mental illness.
- Under the DMIE, states could provide health insurance coverage that is equivalent to their standard Medicaid benefit package or “wrap-around” coverage, which supplements public or employer-sponsored coverage.
- States also could offer employment support and case management services.

Texas DMIE: “Working Well’

- Designed to address the health, employment, and social needs of employed adults at risk of disability
- Person-centered approach incorporating motivational interviewing, along with enhanced access to healthcare and employment supports
- Integrated case management – vocational support model
- Approach intended to improve individuals’ physical and mental health, enhance quality of life, and promote sustained employment.
- Goal of forestalling or preventing application for federal disability benefits.

Target Population

- Working adults aged 21–60, employed at least 40 hours per month, without access to employer-based health insurance, and with income below federal poverty level.
- Diagnosis of either serious mental illness (bipolar disorder, schizophrenia or major depression), or a combination of a behavioral condition (e.g., anxiety, non-clinical depression, substance abuse) with a physical health condition (e.g., diabetes, heart disease)
- Not receiving Medicaid, and not currently having applied for or certified eligible for SSA disability benefits (SSI, SSDI)
- Enrolled in Harris County Health Department (Houston, Texas) program providing Medicaid-like health services on a sliding scale

Long-term Follow-Up Evaluation

- Assess long-term effects of DMIE early intervention services
- 5 years of post-intervention follow-up, 2010-2014
- Outcomes include healthcare utilization (outpatient, inpatient/emergency, and pharmacy), Medicaid eligibility due to disability, and employment status

Data Sources

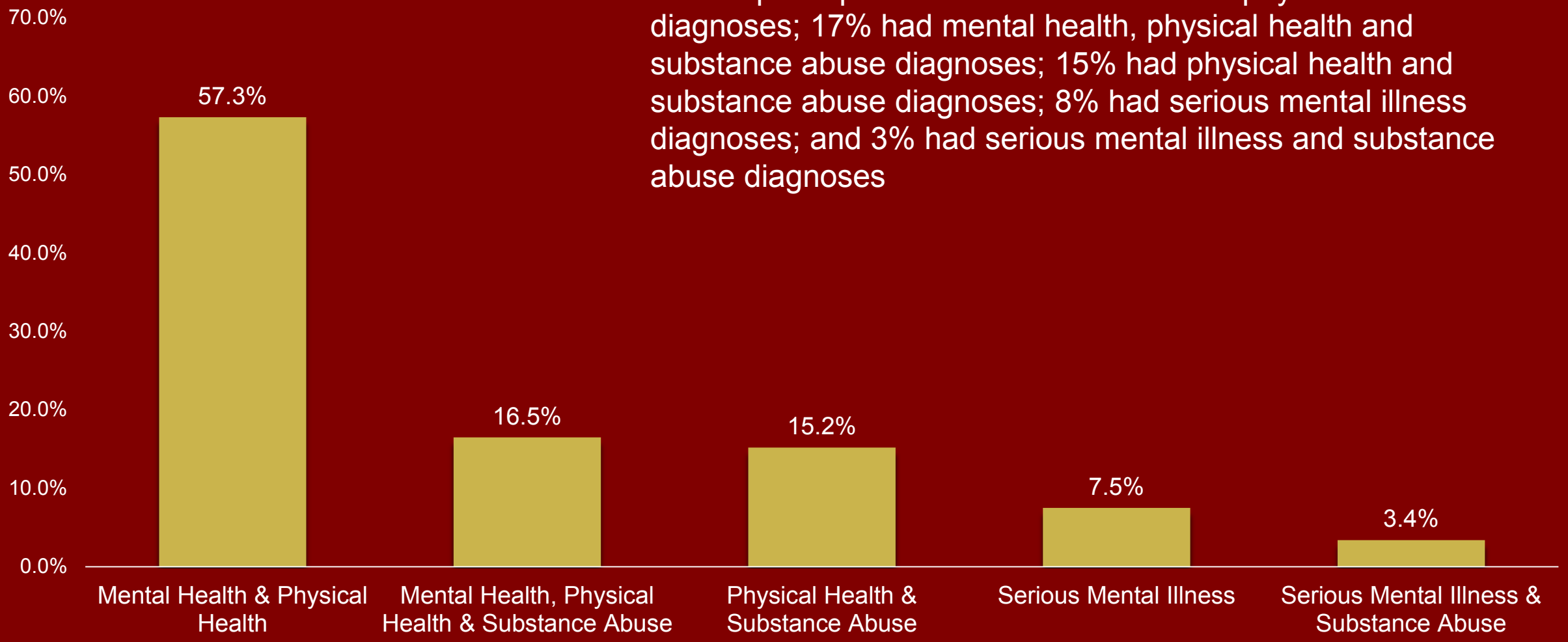
- Texas DMIE original evaluation baseline data, enrollment April 2007-May 2008, N=1,616
- Harris County Health Systems indigent care health services claims and utilization
- Texas Workforce Commission quarterly employment and wage information
- Texas Department of Health and Human Services monthly Medicaid eligibility

Participant Characteristics, N=1,616

- Randomized to intervention (56%) or control (44%) condition
- Conditions did not vary significantly (p>.05) on baseline characteristics:
  - Mean age 48 years (sd=9)
  - 76% female
  - 31% Hispanic/Latino; 41% African American
  - 31% < High School education; 31% HS/GED
  - 25% currently married
  - 80% were parents
  - 52% in sales/service occupations; 17% health support workers
  - Average household income ~$18,000/year
  - 58% recruited by mail (versus in-person study recruitment)

Participant Diagnostic Characteristics, N=1,616

57% of participants had mental health and physical health diagnoses; 17% had mental health, physical health and substance abuse diagnoses; 15% had physical health and substance abuse diagnoses; 8% had serious mental illness diagnoses; and 3% had serious mental illness and substance abuse diagnoses



Intervention exposure and follow-up

- Intervention participants had a minimum of 15 months of intervention exposure, a maximum of 29 months, and an average of 21 months of exposure (sd = 3.8 months).
- Among all participants, there was an average of 24.1 months between the time participants were enrolled in the DMIE and the start of the long term follow-up period (January 1, 2010), with no difference between study conditions (p=.918).
- Loss to long-term follow-up due to death or relocation could not be ascertained.

Long term follow-up Outcomes

Outcomes (2010-2014 combined)	Total % (N) 100% (1,616)	Intervention % (n) 56% (904)	Comparison % (n) 44% (712)	Chi-square, p-value
Use of any outpatient services		15.2% (137)	14.6% (104)	0.09, p=.779
Use of any pharmacy claims	80.3% (1,298)	82.1% (742)	78.1% (556)	4.01, p=.051
Use of any inpatient or emergency services	7.9% (127)	7.5% (68)	8.3% (59)	0.32, p=.578
Medicaid eligible due to disability (SSI or SSDI enrollees)	18.5% (299)	18.6% (168)	18.4% (131)	0.01, p=.949
Any earned income	76.8% (1,241)	78.4% (709)	74.7% (532)	3.08, p=.079

Analysis Strategy

- Multivariable models adjusting for baseline characteristics

- 3 Models:

  1) first year of long term follow-up only (2010) (logistic regression)

  2) all long term follow-up years (2010-2014) combined (logistic regression)

  3) longitudinal models over 5 years (2010-2014) including time and time by study condition interaction effects (random effects logistic regression models)

- Subgroup Analysis:

  Limited to participants with serious mental illness diagnoses, n=177

Results – Outpatient, Pharmacy, and Inpatient/Emergency Services Use, N=1,616

		Model 1 Outcome in 2010	Model 2 Outcome Summary 2010-14	Model 3 Outcome Longitudinally by Year 2010-14
Outcome	Model Term[1]	OR (95% CI), p-value	OR (95% CI), p-value	OR (95% CI), p-value
Outpatient Healthcare Services	Study Condition	0.97 (0.63, 1.48), p=.883	1.01 (0.77, 1.34), p=.929	0.95 (0.45, 2.03), p=.206
	Time (Year)	NA	NA	1.06 (0.96, 1.16), p=.304
	Study condition * Time	NA	NA	0.95 (0.83, 1.07), p=.292
Pharmacy Services	Study Condition	1.34 (1.0, 1.67), p=.010	1.33 (1.03, 1.71), p=.029	1.30 (0.90, 1.89), p=.056
	Time (Year)	NA	NA	0.62 (0.57, 0.64), p<.001
	Study condition * Time	NA	NA	0.92 (0.88, 1.97), p=.132
Inpatient or emergency room services	Study Condition	1.01 (0.49, 2.06), p=.988	0.88 (0.61, 1.27), p=.497	1.09 (0.39, 3.02), p=.387
	Time (Year)	NA	NA	1.07 (0.68, 1.71), p=.005
	Study condition * Time	NA	NA	0.58 (0.26, 1.32), p=.547

[1]Models control for participant gender, race/ethnicity, education, marital status, occupation, age, recruitment location, and time since study enrollment.

Results –Medicaid eligibility due to disability; any earned income, N=1,616

		Model 1 Outcome in 2010	Model 2 Outcome Summary 2010-14	Model 3 Outcome Longitudinally by Year 2010-14
Medicaid eligibility due to disability[2]	Study Condition	0.94 (0.70, 1.25), p=.660	0.94 (0.66, 1.31), p=.659	1.32 (0.79, 2.22), p=.359
	Time (Year)	NA	NA	0.61 (0.57, 0.65), p<.001
	Study condition * Time	NA	NA	0.43 (0.02, 9.70), p=.938
Employment (any earned income)[2]	Study Condition	1.10 (0.88, 1.37), p=.414	1.18 (0.92, 1.50), p=.194	1.38 (0.75, 2.53), p=.300
	Time (Year)	NA	NA	0.61 (0.57, 0.65), p=.001
	Study condition * Time	NA	NA	1.26 (0.68, 2.33), p=.723

[1]Models control for participant gender, race/ethnicity, education, marital status, occupation, age, recruitment location, and time since study enrollment.
[2]Models also control for use of outpatient, pharmacy and inpatient/emergency room services.

Evaluation Comparisons

	Original Evaluation, 13-18 months post-baseline	Long term follow-up, 1-5 years post intervention
Any outpatient services	Higher proportion of intervention than control used any outpatient services in 13-18 months post-baseline (72% vs 58%, p<.01).	No notable difference in outpatient services use (15.2% of intervention and 14.6% of controls, p=.779).
Any pharmacy services	Utilization not assessed. A significantly lower proportion of intervention than control participants reported difficulty accessing prescription services (13% vs 26%, p<.01), suggesting that intervention enhanced use of pharmacy services.	High proportions of both groups used pharmacy services; 82% of intervention participants and 78% of controls had pharmacy claims, a difference that fell just short of significance (p=.051).
Any inpatient/ emergency	No difference inpatient (4% intervention vs 3% control, p=.66) or use of emergency services (7% in both conditions, p=.84).	No difference inpatient/emergency services (7.5% intervention vs 8.3% control, p=.578).

Evaluation Comparisons - 2

Outcome	Original Evaluation, 13-18 months post-baseline	Long term follow-up, 1-5 years post intervention
Disability benefit	Intervention less likely to report new SSI/DI benefit than control (6% vs 8%, p=.02).	No difference in Medicaid disability eligibility (SSI or Medicare assumed to be SSDI) 18.6% vs 18.4%, p=.949).
Employment	No difference in recent unemployment (10% in both groups, p=.99).	Limited difference in employment 78% of intervention and 75% of controls had any earned income, (unadjusted p=.079).

Subgroup Results – Outpatient, Pharmacy, and Inpatient/Emergency Services Use, N=177

		Model 1 Outcome in 2010	Model 2 Outcome Summary 2010-14	Model 3 Outcome Longitudinally by Year 2010-14
Outcome	**Model Term[1]**	**OR (95% CI), p-value**	**OR (95% CI), p-value**	**OR (95% CI), p-value**
Outpatient Healthcare Services Use	Study Condition	1.63 (0.45, 5.93), p=.456	1.43 (0.61, 3.34), p=.411	1.19 (0.17, 8.26), p=.656
	Time (Year)	NA	NA	1.16 (0.45, 3.00), p=.936
	Study condition * Time	NA	NA	2.49 (0.38, 16.50), p=.456
Pharmaceutical healthcare services	Study Condition	1.69 (0.87, 3.27), p=.122	2.81 (1.32, 5.94), p=.007	3.67 (0.86, 15.64), p=.079
	Time (Year)	NA	NA	1.85 (0.96, 3.55), p=.104
	Study condition * Time	NA	NA	3.76 (0.88, 16.19), p=.683
Inpatient or emergency room services	Study Condition	5.29 (0.43, 65.43), p=.195	1.39 (0.50, 3.82), p=.528	2.15 (0.11, 42.08), p=.346
	Time (Year)	NA	NA	0.35 (0.09, 1.34), p=.284
	Study condition * Time	NA	NA	1.38 (0.14, 13.28), p=.372

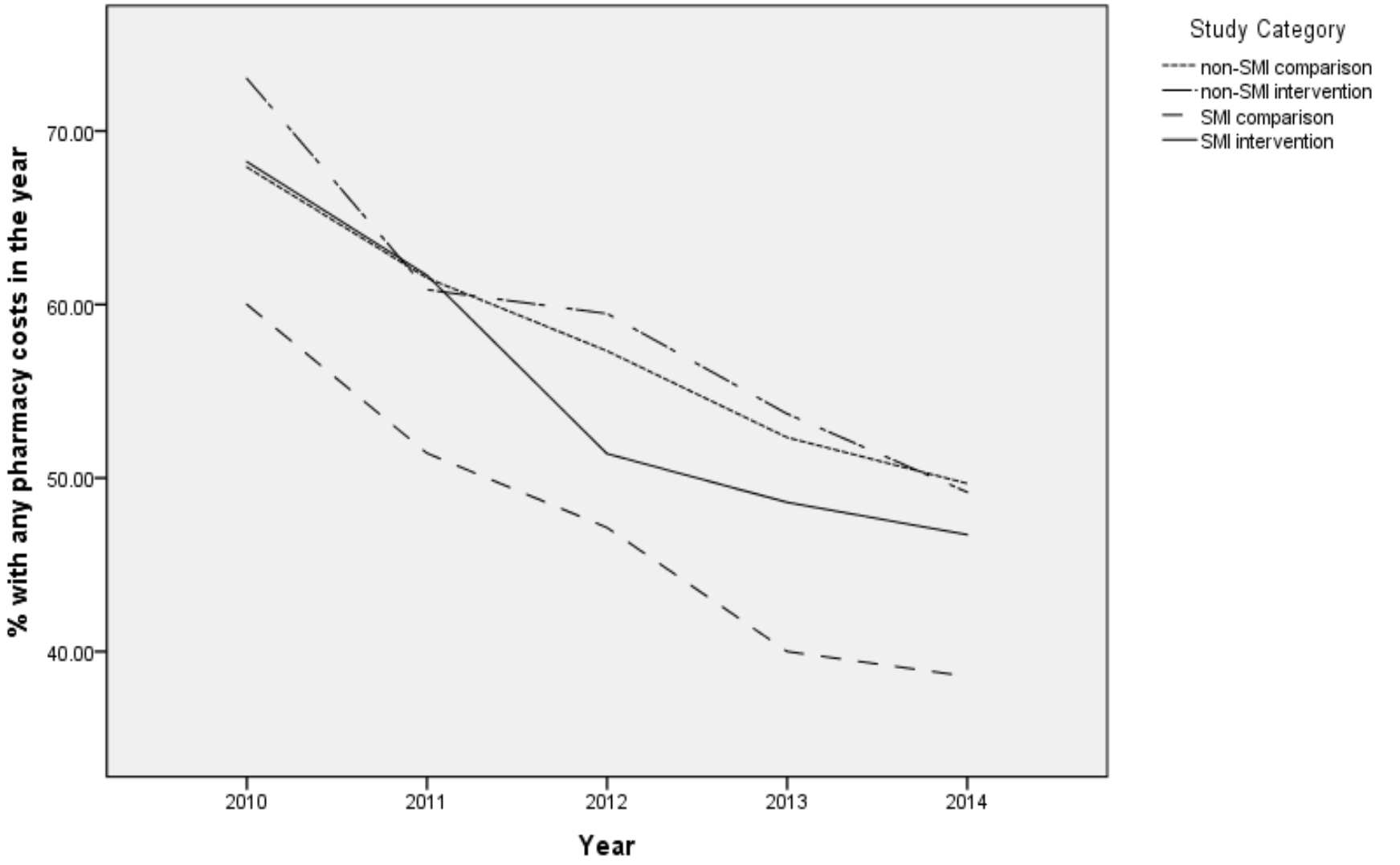
[1]Models control for participant gender, race/ethnicity, education, marital status, occupation, age, recruitment location, and time since study enrollment.

Results –Medicaid eligibility due to disability; any earned income, N=177

		Model 1 Outcome in 2010	Model 2 Outcome Summary 2010-14	Model 3 Outcome Longitudinally by Year 2010-14
Outcome	**Model Term[1]**	**OR (95% CI), p-value**	**OR (95% CI), p-value**	**OR (95% CI), p-value**
Medicaid eligibility due to disability[2]	**Study Condition**	**1.00 (0.40, 249), p=.999**	**0.81 (0.24, 2.68), p=.725**	**2.09 (0.26, 16.61), p=.487**
	Time (Year)	**NA**	**NA**	**0.01 (0.00, 0.08), p=.001**
	Study condition * Time	**NA**	**NA**	**1.69 (0.35, 8.19), p=.851**
Employment (any earned income)[2]	**Study Condition**	**1.41 (0.71, 2.79), p=.325**	**1.52 (0.69, 3.32), p=.300**	**4.91 (1.11, 21.86), p=.037**
	Time (Year)	**NA**	**NA**	**0.69 (0.58, 0.81), p=.002**
	Study condition * Time	**NA**	**NA**	**4.04 (0.91, 17.91), p=.659**

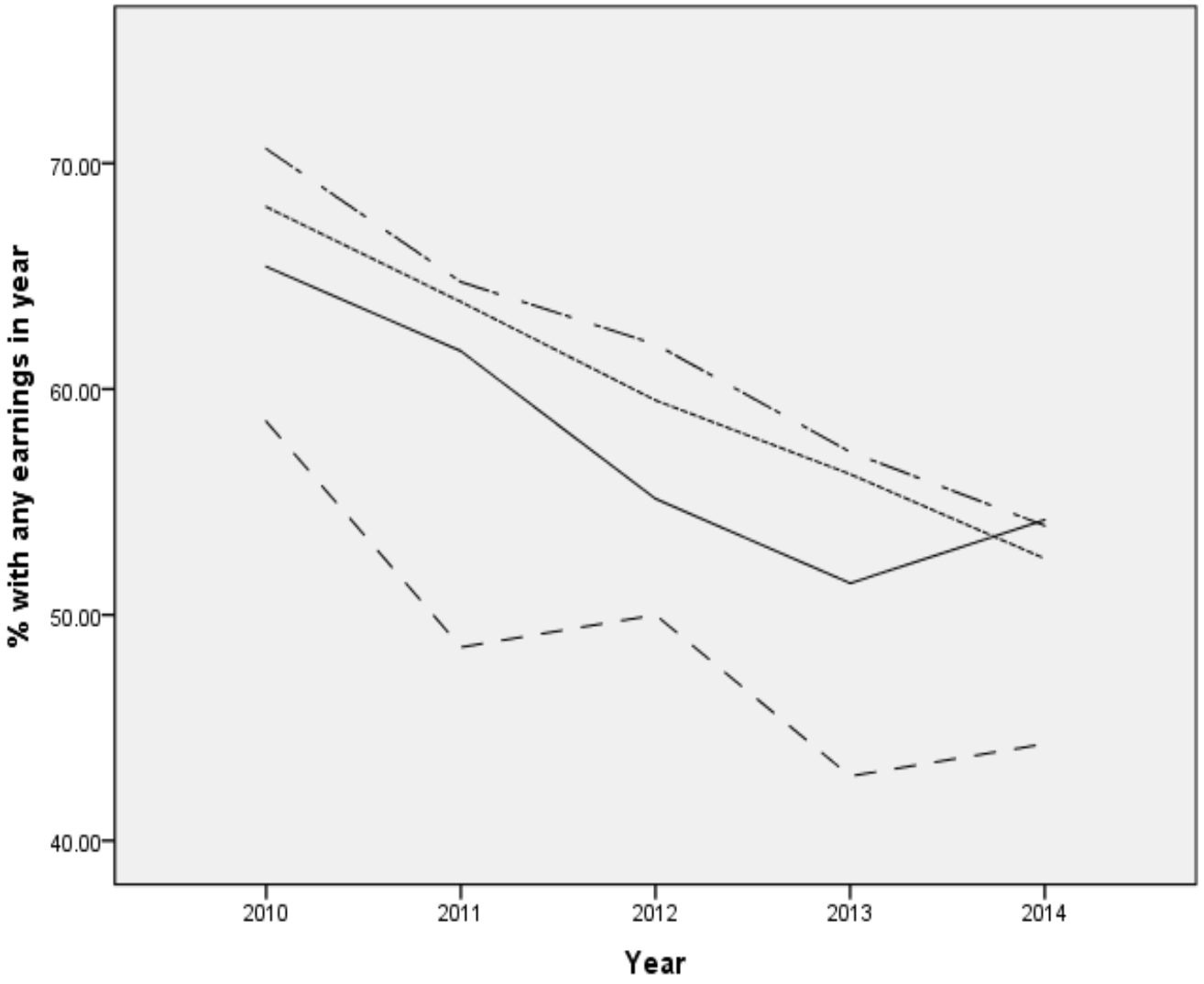
[1]Models control for participant gender, race/ethnicity, education, marital status, occupation, age, recruitment location, and time since study enrollment.
[2]Models also control for use of outpatient, pharmacy and inpatient/emergency room services.

Figure 1. Relationship of study condition, SMI and any pharmacy services use over time (observed, unadjusted)



The figure shows years 2010-2014 on the x-axis and percentage of participants with pharmacy services on the y-axis. Four lines represent each study condition by serious mental illness (SMI) group. All groups decline over time from 60-75% in 2010 to 40-55% in 2014. The group with lowest pharmacy use is the SMI comparison group. The other 3 groups are closer together with SMI intervention below both non-SMI groups.

Figure 2. Relationship of study condition, SMI and any earned income over time (observed, unadjusted)



The figure shows years 2010-2014 on the x-axis and percentage of participants with earned income on the y-axis. Four lines represent each study condition by serious mental illness (SMI) group. All groups decline over time from 60-75% in 2010 to 45-60% in 2014. The group with lowest employment is the SMI comparison group. The other 3 groups are closer together with SMI intervention below both non-SMI groups.

Discussion

- Compared to controls, intervention participants were no more likely to be employed, they were equally likely to be eligible for Medicaid due to disability, and they showed similar patterns of medical service utilization, differing only in pharmacy service utilization which was lower for the control than experimental group.
- In the subgroup analysis of DMIE participants with serious mental illness, the positive effect of the intervention on prescription drug use persisted. In addition, there was a significant association of study condition with a greater likelihood of employment in this population.
- Observed outcomes suggest that although intervention participants with serious mental illness had lower levels of employment over time than non-serious mental illness participants in either study condition, they still were considerably more often employed than control participants with serious mental illness who did not receive the early intervention services.

Study Limitations

- Unknown status of participants over the study period in terms of loss to follow-up.
- Small number of participants in the serious mental illness subgroup.
- Study population limited to Harris County uninsured employed, and many not be representative of general population of employed individuals with potentially disabling conditions.

Conclusions

- Minimal support for long-term effectiveness of early intervention model.
- Changes to federal policies regarding both health care coverage and employment services alters context of program and findings
- Initial positive effects of DMIE along with some long-term effects suggest potential utility
- Future studies could assess more recent evidence-based models with established fidelity

References

- Bohman, T. M., Wallisch, L., Stoner, D., & Pittman, A. (2008). Health Care Support Workers at Risk: Texas Working Well Highlights. Austin, TX: Texas Department of State Health Services.
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