Working toward Wellness:
Early Results from a Telephone Care Management Program for Medicaid Recipients with Depression

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August 2009

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MDRC is conducting the Enhanced Services for the Hard-to-Employ Demonstration and Evaluation Project under a contract with the Administration for Children and Families (ACF) and the Office of the Assistant Secretary for Planning and Evaluation (ASPE) in the U.S. Department of Health and Human Services (HHS), funded by HHS under a competitive award, Contract No. HHS-233-01-0012. The project officers are Girley Wright (ACF) and Peggy Halpern and Amy Madigan (ASPE). Additional funding has been provided by the U.S. Department of Labor (DOL). Group Health Cooperative, our partner organization, assisted with site development and implementation research. DataStat, a subcontractor, fielded the six-month client survey.

Dissemination of MDRC publications is supported by the following funders that help finance MDRC's public policy outreach and expanding efforts to communicate the results and implications of our work to policymakers, practitioners, and others: The Ambrose Monell Foundation, The Annie E. Casey Foundation, Carnegie Corporation of New York, The Kresge Foundation, Sandler Foundation, and The Starr Foundation.

In addition, earnings from the MDRC Endowment help sustain our dissemination efforts. Contributors to the MDRC Endowment include Alcoa Foundation, The Ambrose Monell Foundation, Anheuser-Busch Foundation, Bristol-Myers Squibb Foundation, Charles Stewart Mott Foundation, Ford Foundation, The George Gund Foundation, The Grable Foundation, The Lizabeth and Frank Newman Charitable Foundation, The New York Times Company Foundation, Jan Nicholson, Paul H. O'Neill Charitable Foundation, John S. Reed, Sandler Foundation, and The Stupski Family Fund, as well as other individual contributors.

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Overview

Although many public assistance recipients suffer from depression, few receive consistent treatment. This report presents results through six months of a one-year telephonic care management program in Rhode Island that tried to encourage depressed parents who were receiving Medicaid to seek treatment from a mental health professional. The program, called "Working toward Wellness," represents one of four strategies being studied in the Enhanced Services for the Hard-to-Employ Demonstration and Evaluation to improve employment for low-income parents who face serious barriers to employment. The project is sponsored by the Administration for Children and Families and the Office of the Assistant Secretary for Planning and Evaluation in the U.S. Department of Health and Human Services, with additional funding from the Department of Labor.

In Working toward Wellness, master's-level clinicians ("care managers") called the study participants in the program group to encourage them to seek treatment, to make sure that they were complying with treatment, and to provide telephonic counseling. The effects of the program are being studied by examining 499 depressed Medicaid recipients with children, who were randomly assigned to the program group or the control group from November 2004 to October 2006. Participants were given a list of mental health professionals in the community from whom they could receive treatment.

Key Findings

- **Care managers effectively engaged people with depression via telephone.** Overall, 94 percent of those assigned to the program group had at least one discussion with a care manager, and care managers called program group members once a month, on average.

- **The program increased the use of mental health services.** The program group was more likely than the control group to see psychiatrists, psychologists, and clinical social workers, and program group members made twice as many visits to mental health professionals. They were also more likely to fill prescriptions for antianxiety medications, but these effects are fairly modest in size.

- **Early effects on depression severity are mixed.** The program did not significantly reduce the average depression level, but it did significantly change the distribution of depression severity, particularly reducing the number of people who were very severely or mildly depressed while increasing the number who were moderately depressed.

- **Impacts are concentrated among Hispanic sample members.** The program increased visits to mental health professionals, increased the filling of antidepressant medications, and reduced depression more for Hispanic sample members than for others. Although this result is consistent with prior studies, it should be interpreted with caution because the Hispanic sample is small and Spanish-speaking participants were served by one Spanish-speaking care manager and a small number of health care providers.

The program was designed to last a year, and a second follow-up study will examine its effects at 18 months on depression severity and on employment, earnings, and work productivity.

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The evaluation of the Working toward Wellness project in Rhode Island would not have been possible without the cooperation and hard work of many individuals from United Behavioral Health (UBH) and Group Health Cooperative (GHC). Funding from the U.S. Department of Health and Human Services — specifically, the Administration for Children and Families and the Office of the Assistant Secretary for Planning and Evaluation — with additional funding from the Department of Labor, made the evaluation of this project possible.

We are grateful to Dr. Greg Simon at GHC for sharing his expertise and for providing guidance about the treatment of depression. We are thankful to Dr. Evette Ludman at GHC for her support and for providing valuable insight about the program. Also due thanks at GHC are James Savarino and Chester Pabiniak, computer programmers who were responsible for the development of the management information system used to support the intervention. We also acknowledge Belinda Operskalski for her help on this project.

At UBH, Dr. Francisca Azocar took the lead to ensure program operations at UBH, and we thank her and the care managers Maria Sekac, Thalia Genes, Susan Epstein, Curtis Wilkins, Kathleen Sweet, and Stephanie Ridgeway, who worked closely with program participants. We are thankful to Robert Branstrom for providing the data, to Gregory Greenwood for preliminary analytics, and to Patrice Cooper from AmeriChoice for helping connect us to the State of Rhode Island's RiteAid account.

We are also grateful to Dr. Phil Wang and Dr. Ron Kessler for first suggesting that we use the Harvard study as a model for this evaluation.

At MDRC, we thank David Butler for serving as the project director for the evaluation. We are grateful to Gordon Berlin, Barbara Goldman, Dan Bloom, and Cynthia Miller for reviewing early drafts of the report and providing valuable comments and guidance on how best to interpret the findings. We also thank Pamela Morris, Ximena Portilla, Vanessa Martin, and Lauren Cates for being part of the evaluation team. Special thanks go to Christopher Leake and Johanna Walter for processing and analyzing the claims and survey data and to Rachel Pardoe for coordinating the report.

The Authors

Executive Summary

Although low-income individuals are disproportionately likely to suffer from depression, few receive treatment, and even fewer persist with their treatment. Untreated depression can negatively affect employment, job performance, and worker productivity. This report presents six-month interim results of a one-year program that provided telephonic care management to depressed parents receiving Medicaid in Rhode Island to encourage them to seek treatment from a mental health professional. The study, called "Working toward Wellness" (WtW), was conducted in one of four sites in the Enhanced Services for the Hard-to-Employ Demonstration and Evaluation, which is studying strategies to improve employment and other outcomes for low-income parents and others who face serious barriers to employment. The project is sponsored by the Administration for Children and Families and the Office of the Assistant Secretary for Planning and Evaluation in the U.S. Department of Health and Human Services (HHS), with additional funding from the Department of Labor. WtW is being evaluated by MDRC in partnership with United Behavioral Health (UBH) and Group Health Cooperative (GHC). UBH delivered the care management services, and GHC designed the intervention and provided technical assistance and training to UBH staff.

The key findings presented in this report are

- WtW care managers used the telephone to effectively engage people with depression.
- WtW increased the use of mental health services and increased the filling of psychotherapeutic prescriptions.
- The program's early effects on depression severity are mixed. Although WtW did not significantly reduce the average depression level, it did significantly change the distribution of depression severity, particularly reducing the number of people who were very severely or mildly depressed while increasing the number who were moderately depressed.
- Consistent with prior studies, the impacts of WtW are concentrated among Hispanic sample members, but this finding should be interpreted with caution because this research subgroup is small.

Background on the Working toward Wellness Program

Although there is considerable evidence that individuals with depression benefit from psychotherapy and medications, only about one-fifth of depressed individuals currently are in treatment.[1] In low-income communities, there may be less knowledge about depression treatment and lower quality of care than in higher-income communities, and individuals are more likely to be depressed but less likely to receive treatment.

One promising way to help people receive effective depression treatment is through care management. In WtW, master's-level clinicians — "care managers" — call individuals who are suffering from depression to encourage them to seek treatment, help them find and make appointments with mental health professionals, make sure that they are keeping appointments and taking prescribed medications, educate them about how depression will affect them and how treatment can help them, and provide support and counseling by telephone to individuals who are reluctant to seek treatment in the community. It was hoped that encouraging people to seek treatment and alleviate their depression would help more of them return to work or become more productive at jobs they already held. Although telephonic care management has been shown to be effective in treating depression with some populations,[2] this is the first study of the approach with low-income Medicaid recipients who have children. Moreover, because WtW is provided telephonically, it could represent a relatively inexpensive way for social service agencies to aid individuals with depression. It was also hoped that the program might improve work productivity and increase employment if short-term improvements in depression subsequently lead to a greater interest and capacity to seek and retain employment. However, effects on employment were expected to be small at the six-month point.

The Working toward Wellness Evaluation

To study Working toward Wellness, individuals who had children and who were receiving Medicaid in Rhode Island and were eligible for mental health services through United Behavioral Health were screened by telephone for depression. Those who were found to have major depression as defined by a clinical assessment using the Quick Inventory of Depressive Symptomatology-Self Report (QIDS-SR) questionnaire and who agreed to be in the study were randomly assigned to the program group or to the control group. Individuals scoring 6 or higher

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[1] Kessler, Berglund, Demler, Jin, Koretz, Merikangas, Rush, Walters, and Wang, "The Epidemiology of Major Depressive Disorder: Results from the National Comorbidity Survey Replication (NCS-R)," *Journal of American Medical Association* 289, 23: 3095-3105 (2003).

[2] Wang, Simon, Avorn, Azocar, Ludman, McCulloch, Petukhova, and Kessler, "Telephone Screening, Outreach, and Care Management for Depressed Workers and Impact on Clinical and Work Productivity Outcomes: A Randomized Controlled Trial," *Journal of American Medical Association* 298, 12: 1401-1411 (2007).

on the QIDS-SR questionnaire, which is defined as a mild or higher level of depression, were included in the study. Participants in the program group were eligible to receive telephonic care management from master's-level clinicians employed by UBH. The control group received usual care that included referrals to mental health treatment providers in the community. Random assignment ensures that all characteristics are similar for the two groups at baseline so that any substantial differences that later emerge can be attributed to the program with some confidence.

Of the 499 individuals in the study, 245 were randomly assigned to the program group, and 254 were assigned to the control group. The average age of the participants at baseline was 35, and 90 percent are women. About half the participants had a General Educational Development (GED) certificate or a high school diploma, and a quarter had some education beyond high school. A little less than half the participants are white; approximately one-third are Hispanic; and 12 percent are African-American. The study includes individuals who are comparable demographically to previous studies of care management for people suffering from depression. However, the participants in the current study were more severely depressed than studies that have focused on employed populations.[3] In this study, less than half the participants (44 percent) were employed at the time of random assignment.

The random assignment of study participants occurred from November 17, 2004, to October 20, 2006. This report presents results through six months following random assignment, or from May 2005 (for the first clients assigned) to April 2007 (for the last clients assigned). At this early point, the two main purposes of the study are to determine (1) whether a telephone care management model that is focused on low-income parents can successfully get participants into treatment and, if so, (2) whether the model is effective at alleviating depression and increasing employment and earnings.

Key Findings on Program Implementation

The first question addressed by the study is whether care managers were able to engage members of the program group and what challenges they faced in helping individuals seek treatment. To address these issues, data were drawn from multiple sources, including routine staff meetings, a management information system (MIS) that created a record of all care manager-client "contacts," and an in-person site visit with program staff in Rhode island. Key findings on the implementation of the program are presented below.

- **Care managers effectively engaged people with depression via telephone.**

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[3] Wang et al. (2007).

Care managers successfully contacted 94 percent of those assigned to the program group. In addition, they maintained nearly monthly contact with the average client. This high level of contact suggests that care managers have at least begun building telephone relationships with their clients. In doing so, they may ultimately apply their clinical expertise and training to engage, assess, refer, and monitor individuals, as appropriate. Achieving this level of contact, however, required persistence, as evidenced by a very large number of attempted contacts for each successful one. To a large degree, the program appears to have been implemented as planned.

- **The "phone program" played a larger role in WtW than originally expected.**

Individuals in the target population faced many obstacles to entering in-person psychotherapy or seeking antidepressants from a clinician. Their barriers to treatment typically stemmed from personal issues regarding parenting responsibilities and other types of caregiving, their own health, and work-related stressors (such as seeking employment or maintaining a job). Consequently, the "phone program" became a useful tool for engaging those who were not yet willing or able to begin in-person treatment. The phone program was a structured psychoeducational program based on a workbook entitled *Creating a Balance*, which clients worked through under a care manager's telephone guidance. The workbook was designed to help people who are experiencing stress and depression to better recognize and manage their symptoms. The phone program was initially envisioned only as a temporary or "fallback" alternative to in-person treatment, but over time it also was seen as a valuable way to capture a client's attention early on. Therefore, it became standard practice to mail the workbook to all individuals who were assigned to the program group as they began WtW in September 2005, at which point about 40 percent of the study sample had been recruited. With clients in the phone program, the care managers continued to encourage in-person care for those who remained depressed, although for some the phone program became an end in itself.

- **The care managers were rarely able to function as liaisons between clients and clinicians in the community.**

It was originally expected that the care managers would provide feedback to clinicians in the community regarding WtW clients as they progressed in treatment. Such a collaborative approach — whereby care managers and clinicians work together — has been shown to have benefits for depression patients in settings where both care managers and clinicians work for a single organization (such as the U.S. Department of Veterans Affairs [VA] and staff model Health Maintenance Organizations, which employ the clinical staff who serve their memberships). This type of collaboration was difficult in the case of WtW, however, because the care managers worked for UBH and the community clinicians worked in a variety of settings outside

UBH, contracting to offer care not only with UBH but also with a number of other health organizations. To be sensitive to any client concerns about contact between the care managers and the clinicians, it was a requirement that the care managers obtain written permission from both the clients and the providers before performing the liaison function. Unfortunately, this requirement also became an administrative barrier, and consequently the care managers did not perform this role. Instead, they demonstrated ingenuity by acting as coaches, advising or guiding clients on ways to better navigate care and to advocate for themselves. In short, they worked to empower clients to be more proactive in accessing and managing their care.

Key Findings on Program Impacts

This report presents results through the six months following random assignment, using information from Medicaid claims data and a survey conducted with about 74 percent of study participants. At this early follow-up point, the focus of the study is on whether WtW increased treatment in mental health services and whether it alleviated depression. In addition, the report presents an early look at the program's effects on employment and earnings. The key impact findings are presented below.

- **More program group members than control group members received treatment for depression.**

As shown in Table ES.1, at the six-month point, WtW increased the use of any mental health service by about 10 percentage points. About 32 percent of the program group received a mental health service during the six months following random assignment, compared with 22 percent of the control group. Program group members were more likely than control group members to see a psychologist, psychiatrist, or clinical social worker/counselor about a mental health issue. For example, participants in the program group had, on average, about two times more mental health visits than those in the control group. In addition, program group members were more likely to fill prescriptions for psychotherapeutic medications, especially antianxiety medications, which are often prescribed along with antidepressants for people suffering from depression. While this impact on the use of mental health services is slightly higher than that found in a study of a similar intervention serving a non-Medicaid population,[4] it is smaller than the impacts found in studies that were conducted in health care systems where care managers had direct access to health care providers, facilitating easier communication with the providers.[5]

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[4] Wang et al. (2007).

[5] Wells, Sherbourne, Schoenbaum, Duan, Meredith, Unützer, Miranda, Carney, and Rubenstein, "Impact of Disseminating Quality Improvement Programs for Depression in Managed Primary Care: A Randomized Controlled Trial," *Journal of American Medical Association* 283, 2: 212-220 (2000); Simon, Ludman, Tutty, Operskalski, and Von Korff, "Telephone Psychotherapy and Telephone Care Management for Primary Care

(continued)

- **After six months, the program did not significantly reduce depression, on average, but it did significantly change the distribution of depression severity, reducing the number of people who suffered from very severe or mild depression.**

Program and control group members had similar average depression scores six months following random assignment, but there were shifts in the distribution of depression severity. In particular, individuals in the program group were less likely than those in the control group to be very severely depressed, and the program group members were more likely to be moderately depressed at the six-month follow-up. This increase in the share of program group members who were moderately depressed probably reflects movement from both ends of the spectrum — an increase from mild to moderate depression and a decrease from severe to moderate depression.

- **Impacts on treatment are concentrated among Hispanic sample members, for whom the program reduced average depression.**

As indicated in Table ES.2, WtW increased the filling of antidepressant prescriptions for Hispanic sample members significantly more than for other sample members. In addition, the program increased the percentage of Hispanic participants receiving mental health services by 18 percentage points, but it did not significantly increase the use of mental health services for non-Hispanic participants. There are too few African-American participants in the study sample to examine that subgroup separately.

Perhaps because of these differences in impacts on treatment, WtW reduced average depression for Hispanics but not for other sample members. In particular, for Hispanic sample members, the mean depression score of the program group was about 2 percentage points lower than that of the control group at six months. Although these results are consistent with other research that has found stronger treatment effects among minority groups, they should be interpreted with caution because of the small size of the Hispanic subgroup.

- **There was no difference in employment between the program and the control groups, including those who were employed.**

There were also no differences in the number of days of missed work or in hourly wages between the two research groups (not shown). Since there was minimal impact on depression at the six-month follow-up, it is not surprising that there were no differences in employment outcomes.

Patients Starting Antidepressant Treatment: A Randomized Controlled Trial," *Journal of American Medical Association* 292, 8: 935-942 (2004).

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Table ES.1

Estimated Impacts on Use of Mental Health Services, Prescription Medications Filled, and Depression Outcomes in Six Months Following Random Assignment

Rhode Island: Working toward Wellness

Outcome	Program Group	Control Group	Difference (Impact)		P-Value
Use of mental health services, by type (%)					
Received mental health services	32.2	21.7	10.5	***	0.007
Psychiatrist	12.5	7.2	5.3	*	0.053
Primary care physician	10.3	8.1	2.2		0.401
Psychologist	4.1	0.3	3.8	***	0.005
Clinical social worker/counselor[a]	20.1	11.7	8.3	**	0.011
Visited emergency department for mental health services	1.4	0.2	1.3		0.126
Hospitalized for mental health services	4.1	0.0	4.0	***	0.002
Received chemical dependency services	5.2	5.6	-0.4		0.841
Prescriptions filled, by type (%)					
Filled a prescription for psychotherapeutic drugs	44.9	38.2	6.7	*	0.087
Antidepressant drugs	38.5	34.5	4.0		0.299
Other psychotherapeutic drugs	21.0	14.4	6.6	*	0.051
Filled a prescription for adequate therapeutic dosage of antidepressant medication	21.9	21.8	0.2		0.961
Filled a prescription for nonpsychotherapeutic drugs	81.4	80.5	0.9		0.810
Sample size (total = 499)	245	254			
Depression outcomes: QIDS-SR[b] depression scale[c]					
Mean depression score at 6 months	12.5	12.8	-0.4		0.509
Depression level 6 months following random assignment (%)					
Out of depression	12.3	9.9	2.4		0.463
Mildly depressed	22.3	29.7	-7.4		0.115
Moderately depressed	32.8	24.4	8.4	*	0.081
Severely depressed	26.5	24.8	1.7		0.715
Very severely depressed	6.1	11.2	-5.1	*	0.072
Shift in depression, by category[d] (%)					
Depression worsened by 2 categories	2.4	5.8	-3.4	*	0.099
Depression worsened by 1 category	14.5	17.4	-3.0		0.443
No categorical shift in depression	37.9	31.8	6.2		0.235
Depression improved by 1 category	27.9	25.0	2.9		0.546
Depression improved by 2 or more categories	17.3	20.0	-2.7		0.505
Sample size (total = 370)	187	183			

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Table ES.1 (continued)

SOURCES: Measures of health service utilization are based on MDRC calculations using United Behavioral Health medical and prescription claims data. Measures of depression are based on MDRC calculations using data from respondents to the six-month survey.

NOTES: Results in this table are adjusted for pre-random assignment characteristics.

Two-tailed t-tests were conducted to determine statistical significance. Statistical significance levels are indicated as: * = 10 percent; ** = 5 percent; and *** = 1 percent. The significance level indicates the probability that the impact estimated would be this large if the program had zero true effect.

[a] This item includes claims for one program group member who received services at a behavioral health clinic.

[b] Quick Inventory of Depressive Symptomatology-Self Report (QIDS-SR), which determines whether the person meets criteria for being diagnosed with major depression over the past seven days.

[c] A chi-square test was used to test the difference in distribution between the program and control groups (p-value = 0.096).

[d] Scores on the QIDS-SR depression scale fall into the following categories: very severe depression, severe depression, moderate depression, mild depression, no depression.

Implications

High rates of depression combined with low rates of treatment among public assistance recipients present a compelling picture of unmet need. These facts also present a vexing problem for state administrators seeking to help recipients become self-sufficient, because individuals suffering from depression are less likely to work. Early results from the Working toward Wellness study provide some reasons for both optimism and caution. Results indicate that telephonic care management can increase the use of mental health services, but the impacts on treatment were modest, and the effects on depression severity were mixed. Results also suggest some ways in which programs like this could be strengthened.

The modest effects of WtW do not reflect a failure of care managers to reach participants. Indeed, almost everyone talked with a care manager at least once, and care managers talked with each person once a month, on average. Rather, many participants faced barriers to seeking treatment, including their own health, having to care for other family members, and work. Thus, programs like this might be strengthened by having care managers devote additional resources to helping parents overcome these barriers. Although care managers used more telephone counseling than expected, even earlier and greater reliance on telephone counseling might also have produced larger effects on depression symptoms because it would have provided a form of treatment that did not require individuals to leave their homes.

Results for the Hispanic population highlight the importance of anticipating and addressing language barriers when using interventions based on telephonic care management. To overcome language difficulties that might have discouraged Spanish-speaking individuals from engaging with a care manager and seeking treatment, WtW employed one care manager who

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Table ES.2

Selected Estimated Impacts in Six Months Following Random Assignment, by Ethnicity

Rhode Island: Working toward Wellness

Subgroup and Outcome	Program Group	Control Group	Difference (Impact)		P-Value	
Hispanic subgroup						
Use of mental health services during the 6 months following random assignment						
Received mental health services (%)	39.2	21.6	17.6	**	0.019	
Number of visits for mental health services	2.7	0.9	1.8	**	0.012	
Prescription medications filled during 6 months following random assignment						
Filled a prescription for an antidepressant (%)	43.7	29.3	14.3	*	0.055	†
Filled a prescription for adequate therapeutic dosage of antidepressant medication (%)	25.9	18.4	7.4		0.263	
Sample size (total = 166)	86	80				
Mean depression score at 6 months following random assignment	12.6	14.9	-2.3	**	0.049	††
Depression level at 6 months following random assignment (%)						
Out of depression	11.7	-2.0	13.7	***	0.005	†††
Mildly depressed	29.1	27.1	2.0		0.839	
Moderately depressed	25.4	25.5	-0.1		0.990	
Severely depressed	24.5	30.6	-6.0		0.538	
Very severely depressed	9.3	18.8	-9.5		0.206	
Sample size (total = 110)	60	50				
Non-Hispanic subgroup						
Use of mental health services during 6 months following random assignment						
Received mental health services (%)	27.7	22.4	5.4		0.268	
Number of visits for mental health services	1.7	1.0	0.7	*	0.092	
Prescription medications filled during 6 months following random assignment						
Filled a prescription for antidepressant (%)	36.2	36.5	-0.3		0.956	†
Filled a prescription for adequate therapeutic dosage of antidepressant medication (%)	19.9	23.2	-3.3		0.455	
Sample size (total = 333)	159.0	174.0				

(continued)

Table ES.2 (continued)

Subgroup and Outcome	Program Group	Control Group	Difference (Impact)		P-Value	
Mean depression score 6 months following random assignment	12.4	12.0	0.4		0.531	††
Depression level 6 months following random assignment (%)						
Out of depression	11.8	15.1	-3.3		0.458	†††
Mildly depressed	20.2	29.5	-9.3		0.104	
Moderately depressed	36.3	24.0	12.2	**	0.043	
Severely depressed	27.1	23.0	4.0		0.461	
Very severely depressed	4.6	8.4	-3.7		0.218	
Sample size (total = 260)	127	133				

SOURCES: Measures of health service utilization are based on MDRC calculations using United Behavioral Health medical and prescription claims data. Measures of depression are based on MDRC calculations using data from respondents to the six-month survey.

NOTES: Results are adjusted for pre-random assignment characteristics.

Two-tailed t-tests were conducted to determine statistical significance. Statistical significance levels are indicated as: * = 10 percent; ** = 5 percent; and *** = 1 percent. The significance level indicates the probability that the impact estimated would be this large if the program had zero true effect.

An f-test was applied to differences between the subgroups for each characteristic. Statistical significance levels are indicated as: † = 10 percent; †† = 5 percent; and ††† = 1 percent.

was fluent in both English and Spanish and who could refer clients as needed to a small number of clinics in the community that serve many Spanish-speaking clients. Perhaps as a result, the program had substantially larger effects on treatment and depression for this group.

Finally, it should be noted that many participants were still in early stages of treatment during the six-month follow-up period covered in this report and that the program's effects on depression and employment might grow over time.

Chapter 1

Introduction

Although low-income individuals are disproportionately likely to suffer from depression, few receive treatment, and even fewer persist with their treatment. Untreated depression can negatively affect employment, job performance, and worker productivity. This report presents six-month results from a random assignment evaluation of a one-year program that provides telephonic care management to depressed parents who are Medicaid recipients in Rhode Island, to encourage them to seek treatment from mental health professionals. The study includes individuals who were randomly assigned to either the program group or the control group from November 2004 to October 2006.

The program, called "Working toward Wellness" (WtW), represents one of four strategies being studied in the Enhanced Services for the Hard-to-Employ Demonstration and Evaluation to improve employment and other outcomes for low-income parents and others who face serious barriers to employment. The evaluation is sponsored by the Administration for Children and Families and the Office of the Assistant Secretary for Planning and Evaluation in the U.S. Department of Health and Human Services (HHS), with additional funding from the Department of Labor.

One promising way to encourage engagement in effective depression treatment is through care management. In WtW, master's-level clinicians — "care managers" — call individuals who are suffering from depression to encourage them to seek treatment, to help them find and make appointments with mental health professionals, to make sure that they are keeping appointments and taking prescribed medications, to educate them about how depression will affect them and how treatment can help them, and to provide counseling by telephone to individuals who are reluctant to seek treatment in the community. Although telephonic care management has been shown to be effective in treating depression with some populations, this is the first study of the approach with low-income parents who are Medicaid recipients.

WtW is being evaluated by MDRC in partnership with United Behavioral Health (UBH) and Group Health Cooperative (GHC). UBH delivers the care management services, and GHC designed the intervention and provided technical assistance and training to UBH staff. A 2007 introductory report pertaining to this study indicates that WtW had been implemented with overall fidelity to the intervention design and that care managers were successfully encouraging individuals to receive treatment.[1] This report describes results through six months

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[1] Bloom et al. (2007).

— halfway through the program — on recipients' use of mental health services and other health services, use of medications, depression severity, and employment. Results at six months were analyzed because a study of a similar intervention for working people who were suffering from depression showed significant effects on treatment and depression at six months.[2]

This chapter presents information on the incidence of depression among low-income people, defines care management, offers a brief review of the research literature, and explains the connection between depression and employment. Chapter 2 then describes the research design and characteristics of the sample members involved in the study. Chapter 3 discusses the implementation of the intervention, including a description of the program administration and how participants engaged in treatment. Finally, Chapter 4 presents WtW's impacts on participants' treatment, depression, health, and employment.

Depression Treatment: Background and Policy Relevance

Depression is a serious problem for recipients of public assistance.[3] According to the National Comorbidity Survey and National Household Survey on Drug Abuse, about 20 percent of Medicaid recipients suffer from depression — a rate twice as high as among the general population.[4]

Although psychotherapy and medications are effective at reducing depression, as few as one in five depressed individuals seek treatment.[5] In low-income communities, where there may be less knowledge about depression treatment and lower quality of care than in higher-income communities, rates of treatment are even lower. Even among those individuals who do seek treatment, depression can be episodic, and many patients relapse, suggesting the importance of maintaining treatment continuity,[6] including an ongoing relationship with a mental health professional.[7]

Care Management

Care management is designed to encourage individuals to seek and continue to receive treatment, with particular emphasis on encouraging them to seek care from psychiatrists and other mental health providers. Care management's goals include coordinating health care

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[2] Wang et al. (2007).
[3] Corcoran, Danziger, and Tolman (2003).
[4] Adelmann (2003).
[5] Kessler et al. (2003).
[6] Belsher and Costello (1988).
[7] American Psychiatric Association (2000).

services to ensure that patients are in regular contact with their health care providers, that patients receive treatment and medication in accordance with best-practice guidelines, and that patients comply with treatment protocols. Care management also aims to educate patients about how best to manage their own health conditions. Such terms as “care coordination,” “disease management,” and “case management” have also been used to describe interventions that are similar to care management.

A strong body of evidence has shown that care management can improve some aspects of the quality of care for patients who have particular kinds of chronic health conditions, such as diabetes mellitus, asthma, coronary artery disease, congestive heart failure, and depression. For instance, studies have shown that care management helps to better control diabetes, reduces problems from cardiovascular disease, and reduces hospitalization for patients with congestive heart failure.[8] Care management has also increased the use of preventive care, such as cancer screening,[9] and has improved the overall health of the elderly while reducing the number of their emergency room visits.[10]

Care management has also been shown to be effective for patients with major depression who are receiving treatment from primary health care providers.[11] It has been found to encourage patients to talk with mental health specialists, increase their use of antidepressants, reduce their depression, improve their health, and even improve their work performance and job retention.[12] One study showed that providing a depression management program in a primary care setting — where treatment coordinators monitored depressed individuals and provided feedback to the primary care physicians — led to better clinical outcomes and improved general health status, compared with outcomes for patients receiving usual care.[13] The usual care group did not receive additional monitoring, case management, or assistance in getting psychiatric services. Another study found that long-term care management was cost-effective: participants had a greater number of days free of depression over a two-year follow-up period than a comparison group receiving usual care, resulting in cost savings.[14]

Care management appears to be particularly effective in alleviating depression for disadvantaged and minority populations. For instance, 6-month and 12-month follow-up findings from “Partners in Care” — a randomized clinical trial that evaluated intensive care management by nurses in primary care settings — suggests that care management can decrease depression

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[8] Fireman, Bartlett, and Selby (2004).
[9] Dietrich et al. (2006); Dietrich et al. (2007).
[10] Counsell et al. (2007).
[11] Katzelnick et al. (2000).
[12] Wang et al. (2004).
[13] Katzelnick et al. (2000).
[14] Rost, Pyne, Dickinson, and LoSasso (2005).

and unemployment, particularly for minority groups.[15] Impacts on depression and other health outcomes endured five years later,[16] especially for Latinos and African-Americans. Other types of interventions for depression in primary care settings have also alleviated depression for low-income and minority populations.[17] Together, these findings suggest the value of a public health approach to mental health treatment for depression for minority populations, including active outreach and vigorous efforts to improve access to and motivation for treatment.

A 2004 study supports the use of telephonic care management to treat depression. Simon and colleagues[18] evaluated the effects of three intervention programs on depression: usual primary care, telephone care management, and telephone care management plus telephone psychotherapy. The participants were primary care patients beginning antidepressant treatment for depression. Compared with usual primary care, only telephone care management plus telephone psychotherapy improved patients' depression scores and their self-reports of improvement and satisfaction. Overall, results of this study suggest that telephone-based outreach, medication monitoring, and brief, structured psychotherapy over the telephone were well accepted by patients and significantly improved their clinical outcomes when compared with usual primary care.

To test the use of telephonic care management outside a primary care setting, a telephonic care management program developed by researchers from GHC was previously evaluated in the Workplace Depression Study.[19] That study focused on active employees of large corporations, including workers at various income levels who were covered by employer-sponsored health insurance. The results indicate that telephonic care management can modestly reduce depression severity and increase employment productivity for a working population. Those results encouraged the creation of a model adapted for the WtW intervention, given the considerably different target population. WtW focused on nondisabled Medicaid recipients and provided telephonic outreach and care management for depression that was offered by master's-level clinicians.

Although many studies have evaluated care management for depression, much of the previous research on depression focused on broader population samples from primary care clinics without specifically targeting low-income groups. This study examines whether an aggressive telephonic outreach and care management program can engage harder-to-reach, more disadvantaged groups, such as Medicaid recipients, who also have a higher risk for depression than the general population.

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[15] Wells et al. (2000).
[16] Wells et al. (2004).
[17] Smith et al. (2002); Smith et al. (2002).
[18] Simon et al. (2004).
[19] Wang et al. (2007).

Given the difficulty of engaging Medicaid recipients in treatment for depression, care management may provide patients with the support, motivation, and education that they need to enter and persist in treatment. The evaluation of a telephone care management program like WtW can inform researchers, managed care organizations, and policymakers on the effectiveness of a structured intervention for Medicaid recipients.

Depression and Employment

The ultimate goal of the interventions being studied in the Enhanced Services for the Hard-to-Employ Demonstration and Evaluation is to help individuals who have significant barriers to employment — especially those on public assistance or at risk of dependency — to work and be more productive at work. Depression can significantly limit an individual's employability. For instance, in one study, about one-quarter of women ages 18 to 54 reported depression as a barrier to employment, and 61 percent of women without depression worked 20 or more hours per week, compared with 48 percent of women with depression.[20] The same study found that female welfare recipients with depression were less likely to work than their nondepressed counterparts. Besides the detrimental effects experienced by those suffering from depression, the poor job performance, lost productivity, and lack of employment resulting from depression and other mental health disorders create an economic burden for society. In the past decade, various studies have started to focus on the impact of depression and other psychiatric disorders on work impairment and productivity.

Some studies have shown that treating depression can reduce job loss and work-related impairments;[21] however, no studies about the effects of treatment on employment have been completed specifically among low-income, hard-to-employ populations, such as Temporary Assistance for Needy Families (TANF) or Medicaid recipients.

One study that examined employed patients with depression found that those receiving a primary care depression intervention with a care manager had higher rates of employment a year later than those receiving usual primary care without care managers.[22] Another study, called "the STAR*D trial," which examined the effectiveness of antidepressants among a representative clinical sample of depressed patients, showed a significant association between employment status and depression remission, after controlling for baseline characteristics.[23] This study found that employed study participants were more likely to be in remission than

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[20] Danziger et al. (2002).

[21] Mintz, Mintz, Arruda, and Hwang (1992).

[22] Smith et al. (2002b).

[23] Trivedi et al. (2006).

unemployed or retired participants.[24] It is not clear from these studies whether this finding reflects only a significant association between successful intervention and being employed.

RAND's "Partners in Care" study examined the effect of primary care depression treatment (including medication or psychotherapy) on clinical status and employment for a mixed sample of white and minority participants.[25] At six months, among those receiving appropriate care, white participants were more likely to be employed than minority participants. The lack of employment findings for the latter group could reflect additional barriers to employment faced by minority populations. However, given that the individuals receiving appropriate or inappropriate care may not be comparable groups, these findings may not suggest that appropriate care increases employment.

The Workplace Depression Study — a random assignment test of the telephonic care management treatment on which WtW is modeled[26] — found that workers in the research group that was offered treatment showed improvement in depression and in work productivity outcomes, as measured by increases in hours worked and job retention. The main difference between the two studies rests in the populations that they targeted. The Workplace Depression Study focused on working individuals, a group that is relatively well-off compared with the Medicaid sample targeted by WtW. Nevertheless, results from the Workplace Depression Study offer promise that reducing depression among Medicaid recipients through a telephonic care management intervention might help them return to work or become more productive at jobs they already hold.

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[24] Remission was defined by a Hamilton depression rating scale (HAM-D) score of 7 or less and a Quick Inventory of Depressive Symptomatology-Self-Report (QIDS-SR) score of 5 or less; both of these tools are commonly used to assess depression.

[25] Miranda et al. (2004).

[26] Wang et al. (2007).

Chapter 2

Research Method and Characteristics of Participants

Research Design

At this early point, the two main purposes of the Working toward Wellness (WtW) evaluation are to determine (1) whether a telephone care management model that is focused on low-income parents can get participants into treatment and, if so, (2) whether the model is effective at alleviating depression and increasing employment and earnings. The study thus provides a unique opportunity to determine whether this relatively inexpensive type of outreach can be an effective model for state systems.

For the period covered by this report — the first six months of a yearlong program — the focus has been on assessing the success of program efforts to contact participants and encourage them to enter depression treatment. The main hypothesis at this point is that more program group members than control group members would be in treatment and that the program group would suffer from fewer depression symptoms. WtW might also affect work-related outcomes if short-term improvements in depression subsequently lead to a greater interest and capacity to seek and retain employment, but effects on employment were expected to be small at the six-month point.

The impacts of WtW are being assessed using a research design whereby individuals who met the study's eligibility criteria were randomly assigned between November 2004 and October 2006 to one of two groups:

- **Program (WtW) group.** Individuals in the WtW program group received intensive outreach from care managers, first to help them enter treatment and then, if treatment began, to remain in it for an appropriate time. Treatment is based on the American Psychiatric Association's Evidence-Based Practice Guidelines for Major Depression, which includes psychotherapy and antidepressant medications. Although all care managers recommended both psychotherapy and medication to all program group members, some of the participants were treated by primary care physicians and received only medications when they refused psychotherapy. In order to reduce expenses, outreach and care management took place by telephone.

- **Control (usual care) group.** Control group members were informed that they may be depressed and were given referrals to three mental health treatment providers in the community that provide Medicaid-covered services.

> Control group members were eligible for the same level of services as any other Medicaid recipient in Rhode Island, but they were not eligible for the telephonic depression care management provided through WtW.

By following the two groups over time and comparing their mental health, employment, and other outcomes, the study will determine the impacts of enhanced telephone-based care management for treating depression. Because random assignment ensures that the program and control groups are comparable when they enter the study, any differences that later emerge between the two groups can confidently be attributed to the WtW program.

Random Assignment and the Sample Intake Process

The target population for the study includes Medicaid recipients in Rhode Island who met the following criteria: (1) They were of working age — 18 to 64 years old — and had children 0 to 18 years old living with them; (2) they appeared to be experiencing major depression; and (3) they had selected the Medical health plan option that makes them eligible to receive behavioral health care through United Behavioral Health (UBH).[1] MDRC and UBH decided to target a working-age population because, in addition to its central focus on improvements in depression, the program also was intended to improve employment outcomes. In addition, the study was limited to individuals with children because of documented links between parental depression and child well-being. Longer-term follow-up will explore whether WtW improved the well-being of the children of program group members. Finally, the study was limited to individuals eligible for services from UBH because the intervention is being offered only by this Medicaid provider in Rhode Island.

Individuals were excluded from the study if they appeared to be at high risk for suicide.[2] These individuals were referred for immediate crisis intervention.[3] (Individuals who exhibited a high risk for suicide after they were enrolled remain in the study but were also referred for immediate assistance.) In addition, those suffering from bipolar disorder, mania, or alcohol or drug dependence were also excluded because the presence of these conditions — even if they were occurring concurrently with major depression — made them inappropriate for a depres-

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[1] Medicaid beneficiaries in Rhode Island who choose United Health Care (UHC) — one of the nation's largest health plans — receive their basic health care through AmeriChoice, another health plan that partners with UHC. Members of AmeriChoice are then eligible to receive behavioral health care through United Behavioral Health, which partners with both UHC and AmeriChoice.

[2] The exclusions were based on protocol of previous studies, and the current study was not developed to treat these individuals. They were given referral to other mental health specialists. Three individuals were excluded because of suicide risk.

[3] These individuals received a "warm" transfer, which occurs when the participant is transferred directly from one counselor to another, without disruption of the telephone connection.

sion-specific intervention. Finally, because they were unlikely to be in need of the outreach being provided by the care managers, individuals who were actively engaged in treatment for depression were also excluded. “Active engagement” is defined as more than two visits to a mental health professional in the past month or more than two visits to psychiatrist in the past 12 months and still in treatment with a psychiatrist.

As shown in Figure 2.1, intake involved the following steps to select and randomly assign the study’s two research groups:

- A cohort of Medicaid recipients eligible for services through UBH was randomly enrolled in the study approximately every two and a half months. The participants entered the study on a rolling basis, ensuring that the care managers maintained reasonable caseload sizes throughout the study.

- Potential study participants were mailed a letter describing the study and containing an initial “screener,” which included the K6 — a widely used, brief summary measure of nonspecific psychological distress that comprises six questions about mental health.[4] A few additional health-related questions were also included in the screener.[5] Letters were sent to a total of 19,120 potential participants. Although the return rate was expected to be low because recruiting participants by mail has proved to be difficult in previous studies, this recruitment mode was the only one viable, given the study’s resources.

- A total of 4,053 people returned the mailed screener, and 1,613 of them were identified as being at risk for depression. Care managers attempted to contact these 1,613 individuals. If an individual was reached by telephone, the care manager would first ask permission to ask a set of questions about how the person was feeling. If the person consented, the care manager administered the Quick Inventory of Depressive Symptomatology-Self Report (QIDS-SR).[6] The care managers were able to reach 1,073 of the 1,613 individuals. They were unable to reach 540 of them because of wrong numbers or no

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[4] See Kessler et al. (2002). The person must have a score of 13 or higher on the K6 to screen “positive” for likely depression and further assessment for potential participation in the research. The highest possible score on the K6 is 24. In addition, people who said that they were ever told by a health professional that they were experiencing depression were screened positive and received further assessment.

[5] Along with the screener and the cover letter, phone cards were mailed to all individuals. The phone card initially had a value of $5, which was increased to $15 for individuals who were sent screeners after May 24, 2005. Those who completed the remainder of the baseline survey had $15 added to their phone card, although this amount was increased to $40 in 2006, in an effort to increase the pace of recruitment.

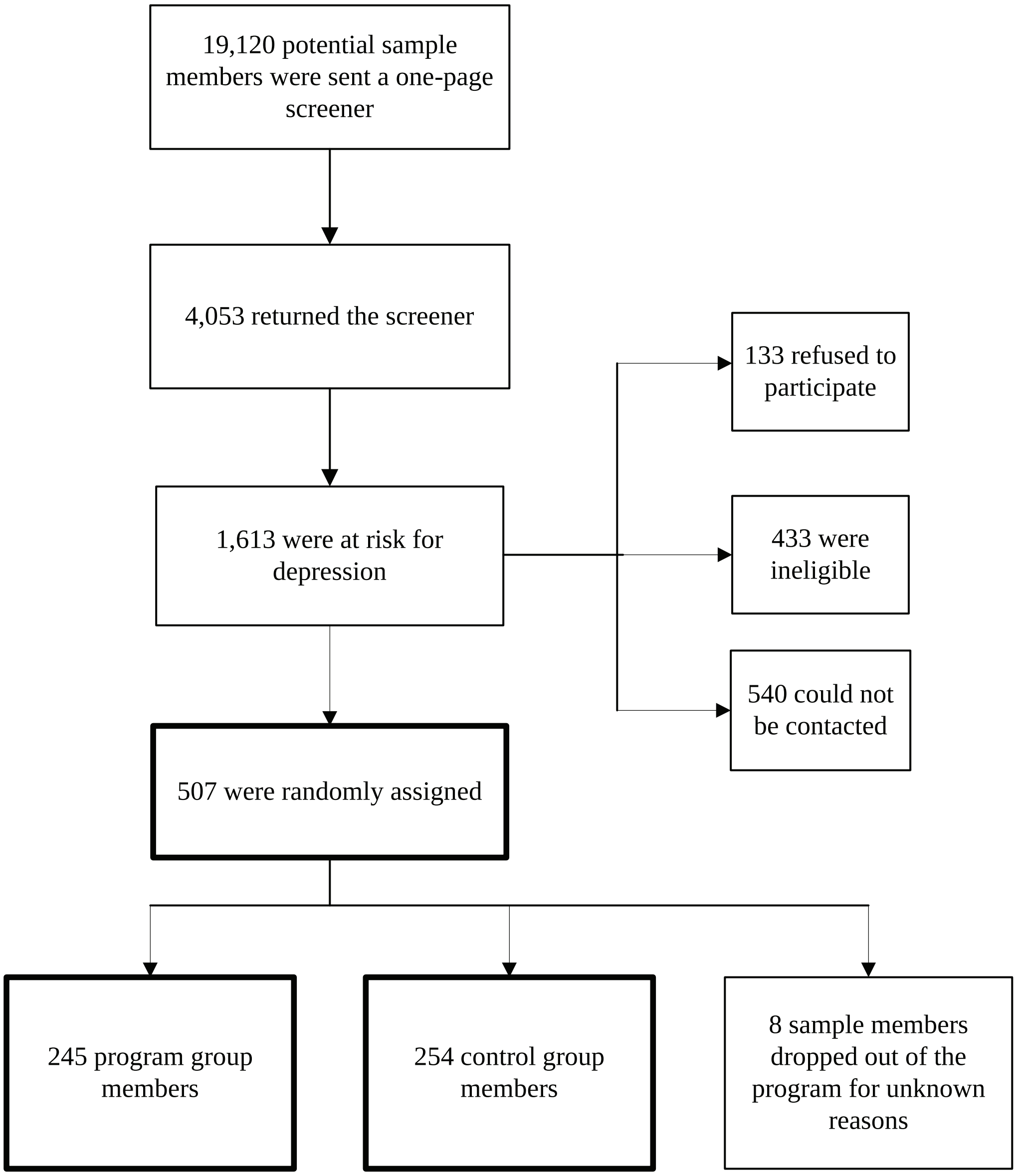
[6] The QIDS-SR is designed to determine whether the person meets the criteria for being diagnosed with major depression over the past seven days. For more information on the QIDS-SR, see Rush et al. (2003).

The Enhanced Services for the Hard-to-Employ Demonstration

Figure 2.1

The Random Assignment Process

Rhode Island: Working toward Wellness



telephone or because the care managers were unable to reach the target individual in household.

- If the person's responses indicated that she or he met the criteria for depression,[7] the care manager explained the random assignment study and asked whether the individual agreed to take part in the research. If the individual agreed, the care manager asked for additional sociodemographic, health, and child-related baseline information. A total of 507 individuals agreed to be in the study, and 133 declined (no reasons were given for why these individuals declined). Another 433 individuals were ineligible because they did not meet the study's criteria.[8]

- The care manager then randomly assigned the individuals via an Internet-based system to one of the two research groups: the program (WtW) group or the control group. Eight individuals dropped out after being randomly assigned, without explanation, so that the final sample includes 499 individuals: 245 in the program group and 254 in the control group.

Characteristics of the Sample Members

Table 2.1 shows selected baseline characteristics for the 499 individuals in the study. As expected, the characteristics of the two research groups are similar. The majority of the participants (74 percent) had a total score on the QIDS-SR in the moderate-to-severe range at baseline — that is, between 11 and 20 — with an average score of 15. The average age of the participants was 35, and 90 percent are women. About half the participants had a General Educational Development (GED) certificate or a high school diploma (53 percent), and a quarter had some education beyond high school (22 percent). Approximately 44 percent of the sample were employed. About one-third (33 percent) are Hispanic. More than half the participants were either single or legally separated and were not living with a spouse or partner (59 percent). The WtW study population's characteristics in terms of gender, age, and race/ethnicity are compara-

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[7] To be eligible for the study, the person must have a score of higher than 5 on the QIDS-SR; scores range from 0 (not depressed) to 25 (very severely depressed). Although the QIDS-SR is typically coded such that the scores range from 0 to 27, the range in this study was limited to 0 to 25 because individuals who answered positively to questions related to suicide were excluded. This change in the upper boundary of possible scores resulted from adaptation of this instrument for telephonic administration by the Workplace Depression Study research team.

[8] The most common reasons for ineligibility were that the individuals were already receiving treatment (39 percent), were not depressed (32 percent), had no children (19 percent), or had other problems (10 percent were bipolar, alcohol/drug dependent, or at risk for suicide).

The Enhanced Services for the Hard-to-Employ Demonstration

Table 2.1

Selected Baseline Characteristics, by Research Group Status

Rhode Island: Working toward Wellness

Characteristic	Program Group	Control Group	Total
Depression severity (%)			
Total score on QIDS-SR[a]		**	
Mild (6-10)	11.4	15.4	13.4
Moderate (11-15)	45.7	32.7	39.1
Severe (16-20)	31.4	38.6	35.1
Very severe (21-25)	11.4	13.4	12.4
Average score on QIDS-SR	15.2	15.6	15.4
Sociodemographic characteristics			
Gender (%)			
Female	89.0	90.6	89.8
Age (%)			
18-25	15.5	10.6	13.0
26-35	35.5	43.7	39.7
36-45	32.2	30.3	31.3
46-maximum age (62)	16.7	15.4	16.0
Average age (years)	35.5	35.4	35.4
Race/ethnicity (%)			
White	43.3	47.2	45.3
Hispanic[b]	35.1	31.5	33.3
Black/African-American	13.1	11.8	12.4
Other	6.1	5.5	5.8
Marital status (%)			
Single	37.0	37.7	37.4
Married or living with partner	39.9	41.3	40.6
Divorced, separated, or widowed	23.0	21.0	22.0
Average number of adults in household	1.6	1.7	1.6
Highest degree/diploma (%)			
High school diploma or GED certificate	51.9	56.2	54.1
Technical or 4-year college degree	23.9	20.9	22.4
No high school diploma or GED certificate	24.3	22.9	23.6

(continued)

Table 2.1 (continued)

Characteristic	Program Group	Control Group	Total
Number of children ages 0-18 per participant (%)	1.9	1.9	1.9
Currently employed (%)			
Yes	42.0	44.9	43.5
No	54.7	53.1	53.9
Number of months on the current job (%)			
Not currently employed	54.7	53.1	53.9
Less than 6 months	10.2	10.6	10.4
6-24 months	13.1	14.6	13.8
More than 24 months	15.9	17.7	16.8
Number of hours worked per week at current job (%)			
Not currently employed	54.7	53.1	53.9
0-9 hours	2.0	2.8	2.4
10-29 hours	10.6	15.7	13.2
30 or more hours	24.9	22.4	23.6
Earnings per hour before taxes at current job (%)			
Not currently employed	54.7	53.1	53.9
$7.00 or less	7.8	8.7	8.2
$7.01 - $9.00	9.8	11.4	10.6
$9.01 - $12.00	12.2	12.6	12.4
$12.01 - $15.00	6.9	5.9	6.4
More than $15.00	4.5	4.7	4.6
Prior treatment (%)			
Ever received treatment from professional	76.2	70.6	73.4
Age when first talked with professional			
Never talked with professional	23.7	29.1	26.5
20 or younger	22.0	21.3	21.6
21-30	26.5	25.2	25.9
31-40	16.7	16.9	16.8
Older than 40	9.8	5.9	7.8
			**
Received treatment within the past year	44.4	35.1	39.7
Received antidepressant medication within the past year	39.9	35.3	37.6

(continued)

Table 2.1 (continued)

Characteristic	Program Group	Control Group	Total
Alcohol/drug use (%)			
Has at least one alcoholic drink in a typical week			
Yes	30.2	29.9	30.1
No	33.5	31.9	32.7
Uses any type of recreational drug in a typical month			
Yes	2.9	4.7	3.8
No	42.4	43.7	43.1
Self-reported health (%)			
How would you rate your health?			
Excellent/very good	16.3	19.3	17.8
Good	35.9	39.0	37.5
Fair/poor	45.7	41.0	43.3
SSI/SSDI benefits (%)			
Currently receiving SSI or SSDI	18.2	16.3	17.2
Sample size	245	254	499

SOURCE: MDRC calculations from Rhode Island baseline data.

NOTES: For categorical variables, chi-square tests were conducted to determine statistical significance. For other variables, two-tailed t-tests were conducted to determine statistical significance. Statistical significance levels are indicated as: * = 10 percent; ** = 5 percent; and *** = 1 percent. The significance level indicates the probability that the impact estimated would be this large if the program had zero true effect.

Respondents with missing data are not included in this table; as a result, the distribution of some categories may not total 100 percent.

[a] Quick Inventory of Depressive Symptomatology-Self Report (QIDS-SR), which determines whether the person meets the criteria for being diagnosed with major depression over the past seven days.

[b] The sample member is coded as Hispanic if she/he answered "Yes" to Hispanic ethnicity.

ble to previously studied samples of people with depression except that this sample appears to be more depressed than studies that focused on employed populations.[9]

One of the key goals of the WtW intervention is to get people into treatment. At baseline, about 73 percent of the sample answered yes to "ever received prior treatment from a professional specifically for things like sadness, feeling unworthy, or loss of interest." Although the rate of mental health service use in the Medicaid population is generally high, this sample's high rate at baseline could be due to self-report bias; it is difficult to figure out how individuals interpreted "prior treatment." The high rate of prior treatment could mean that these participants were amenable to receiving treatment and might have been more inclined to seek treatment than those who had never received treatment. Perhaps those who previously received treatment were more comfortable completing the screener questionnaire. On the other hand, it is possible that prior experience in unsuccessful treatment could have resulted in the belief that treatment may not be effective or may not result in improvement.

Finally, it is important to note that, among this 73 percent, only 39 percent (slightly more than half) had received treatment within the prior year. This may indicate that the problem of being unable to seek and remain in treatment is not a result of the individuals' failure to recognize that they have depression.

Data Sources

The following data sources were used to generate this six-month report on WtW:

- **Baseline survey.** As described above, UBH care managers conducted an interview with sample members immediately before random assignment. The survey collected information on demographic characteristics, prior mental health treatment, health status, current and previous employment, and household composition.
- **Medical claims data.** United Behavioral Health (UBH) provided claims data on the use of behavioral and physical health care services and prescription drugs. This information was provided only as long as individuals received services from UBH. Although all individuals were receiving services through UBH at random assignment, by six months following random assignment, 85 percent remained on the UBH rolls.

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[9] The baseline survey did not ask about participation in the Temporary Assistance for Needy Families (TANF) program because the study team thought that they would obtain administrative records on TANF receipt. It now appears that Rhode Island will not provide those records.

- **Six-month survey.** To collect outcomes that cannot be assessed using administrative data, a survey was fielded with all sample members about six months after they were randomly assigned (which occurred form November 2004 to October 2006). The survey obtained outcome data on depression, other health outcomes, employment, participation in outreach programs other than WtW, receipt of behavioral health services not covered in Medicaid claims data, and material hardship. The survey was completed by 370 participants, for an overall response rate of 74 percent (75 percent of the program group and 74 percent of the control group). A survey response bias analysis was done to examine the effect of a possible *selection bias*, whereby the measured changes in depression scores may be smaller than the true changes because the survey respondents were less severely depressed than the nonrespondents at baseline. Appendix B presents detailed analyses comparing the survey respondents and nonrespondents.

- **Care managers' management information system (MIS).** Care managers used a management information system created by Group Health Cooperative to keep track of their interactions with individuals who were receiving care management services. For this report, the MIS data provide a record of both successful and attempted contacts with clients.

Chapter 3

The Implementation of Working toward Wellness

Introduction

The telephone approach adopted by the Working toward Wellness (WtW) intervention in Rhode Island has evolved from a long history of care management development and evaluation led by clinical and research staff at the Group Health Cooperative (GHC). The first telephone intervention targeting people with depression was fielded and evaluated in the late 1990s.[1] The WtW intervention is most closely derivative of a telephone care management program developed by GHC staff for the Workplace Depression Study (WDS),[2] as described in Chapter 1. The main difference between WtW and WDS lies in the populations they targeted. The WDS intervention solely targeted employed individuals, a group that is relatively well-off compared with the Medicaid sample targeted by WtW. The WtW evaluation represents the first test of a telephone care management intervention exclusively targeting a low-income population. Thus, it provides a test of whether outreach methods that show promise with middle-class, working populations are effective with people of lower socioeconomic status — many of whom are unemployed or work in low-wage jobs.

In general, the research literature does not extensively document the day-to-day operations of telephone care management interventions.[3] The purpose of this chapter is to describe the implementation of the WtW intervention during the six-month follow-up period, at the program's halfway point.[4] Data for this chapter were drawn from a number of sources, including:

- Routine telephone meetings (biweekly or monthly) between the evaluation team and program staff from United Behavioral Health (UBH) and GHC over the course of the evaluation
- Weekly telephone care management team meetings among program staff, which the evaluation team frequently joined

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[1] Katzelnick et al. (2000).

[2] Wang et al. (2007).

[3] For an exception, see Liu et al. (2007) for a documentation of time allocation to care management activities and estimates of care manager workload capacity using data from two studies of telephone care management of depression.

[4] The random assignment of study participants occurred from November 17, 2004, to October 20, 2006. This report presents results through six months following random assignment, from May 2005 (for the first clients assigned) to April 2007 (for the last clients assigned).

- Data from the management information system (MIS) designed by GHC staff to create a record of all care manager-client telephone "contacts"
- Periodic meetings led by the evaluation team — including one in-person site visit with program staff in Rhode Island — to discuss at length particular aspects of program implementation

Program Administration and Description

The WtW program was administered and staffed by United Behavioral Health (UBH), a managed care organization that provides behavioral health care to a large proportion of Rhode Island's Medicaid population. WtW services were provided by one full-time lead care manager and two part-time care managers, all of whom worked as employees of UBH, reporting directly to the director of research. One on-site program administrator supported the work of the care managers. All on-site staff were temporary employees hired specifically to work on the WtW demonstration and evaluation, with contracts that terminated at the end of the project. The fact that these were temporary positions contributed to staff turnover during program implementation. Early on, for instance, one of the initial part-time care managers secured a permanent position with UBH and left the project. It was anticipated that staffing challenges would become greater over time, as the end of funding for the intervention approached.

All three care management positions were filled by master's-level, licensed clinicians with training in either social work or counseling psychology who had previous experience in the assessment and treatment of depression. They received on-site training from GHC staff in the provision of telephone care management of depression at the start of the intervention in the fall of 2004.[5] This training included both didactic instruction on outreach and enactment of the care manager role and repeated role-play of telephone contacts. The care managers generally worked out of UBH's offices in Warwick, RI,[6] although they also worked from their homes as needed (for example, during evenings and on weekends). Since some WtW clients were Spanish-speaking, one of the part-time care managers was bilingual in English and Spanish. For the full course of program implementation, this care manager worked with all clients who were monolingual in Spanish or who were bilingual and expressed a preference for Spanish. The other two

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[5] There was a subsequent "booster" training held at GHC offices in Seattle in December 2005, which was necessary due to turnover of care manager staff. At this training, the care managers were able to review the initial training materials and engage in role-play sessions regarding specific scenarios. They also focused on motivational interviewing techniques, which can help care managers lead their clients to see possibilities regarding treatment that the clients can pursue by their own choice.

[6] The care managers worked in a large workspace divided into cubicles, which led to some concerns about their ability to work with clients in privacy.

care managers — one lead and full time, the other part time — worked with the rest of the caseload.[7]

As illustrated in Figure 3.1, the WtW intervention had three phases: (1) telephone engagement and assessment of people who were assigned to the program group, where the goals were to make contact, establish a relationship, and assess treatment needs; (2) treatment initiation, where the goal was to make a successful referral to evidence-based, in-person treatment, as appropriate; and (3) treatment monitoring, where the goal was to keep track of treatment retention and progress, including adherence to antidepressant medication. All contacts between care managers and clients took place via telephone.[8]

In practice, the care managers distinguished between the "recruitment" and "monitoring" aspects of their work. Recruitment began when the care manager first made telephone contact after the processes of random assignment and informed consent were completed. In this initial contact, the care manager attempted to engage and assess the client — a process that continued until the client's first in-person visit with a clinician.[9] Monitoring began after the client's first visit with a clinician and continued until the end of the 12-month intervention.[10] The primary goal of WtW was to facilitate and support evidence-based, in-person treatment for participants who had moderate to severe depression.[11] Figure 3.2 shows the treatment options for WtW clients experiencing depression. The standard — or ideal level — of evidence-based treatment that was initially established for WtW was a combination of in-person psychotherapy *and* antidepressant medication received from specialty mental health providers. Given the barriers to care that the target population faced, however, the "next-best" level of treatment was *either* psychotherapy *or* antidepressant medication from mental health providers. In addition,

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[7] Average caseload sizes across the care managers varied somewhat over the course of the project. One care manager estimated working at one point with about 80 clients but later on had about half as many. Another care manager estimated working with 40 to 50 clients at any given time.

[8] UBH did not allow the care managers to communicate with clients via e-mail, due to concerns about client confidentiality. One care manager reported that many WtW clients lacked access to e-mail and that the possibility of communicating that way had not come up.

[9] The care managers could "coordinate care," by calling clinicians and helping their clients set up appointments, but they could not "authorize" in-person treatment (that is, could not provide official approval from UBH for services to be covered). As a result, either the in-person providers or the clients themselves were required to obtain this authorization from UBH. Seeking authorization required a telephone call to a UBH Care Advocacy Center (CAC).

[10] At the conclusion of the intervention, the care managers were to work with clients to develop a written plan for ongoing care, which would include plans for self-monitoring and self-care.

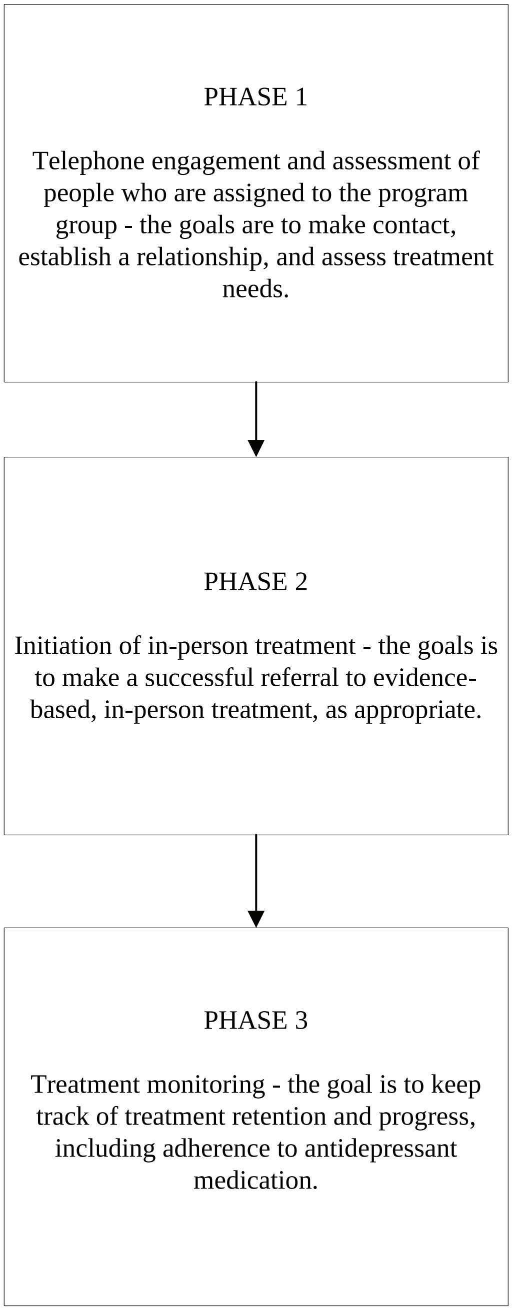
[11] On occasion, the care managers used clinical judgment to recommend in-person treatment for individuals who might not currently have met these criteria.

The Enhanced Services for the Hard-to-Employ Demonstration

Figure 3.1

Intended Phases of the Program

Rhode Island: Working toward Wellness



PHASE 1

Telephone engagement and assessment of people who are assigned to the program group - the goals are to make contact, establish a relationship, and assess treatment needs.

PHASE 2

Initiation of in-person treatment - the goals is to make a successful referral to evidence-based, in-person treatment, as appropriate.

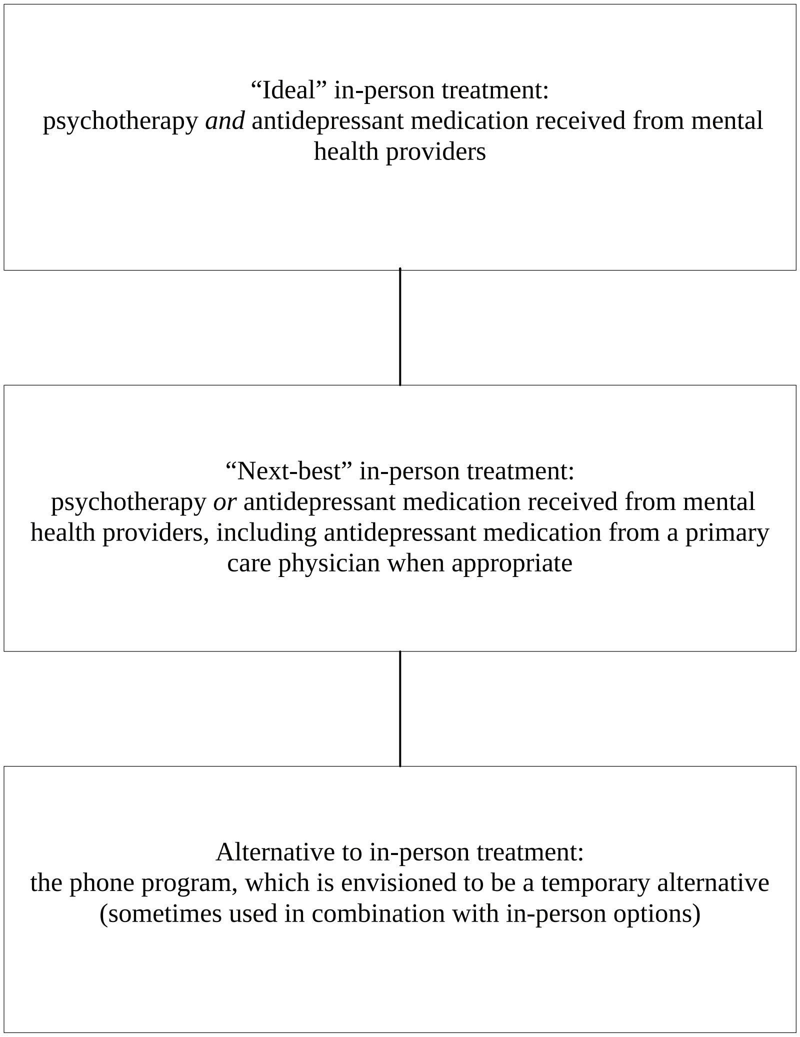
PHASE 3

Treatment monitoring - the goal is to keep track of treatment retention and progress, including adherence to antidepressant medication.

Figure 3.2

Treatment Options for Clients Experiencing Depression

Rhode Island: Working toward Wellness



"Ideal" in-person treatment:
psychotherapy *and* antidepressant medication received from mental health providers

"Next-best" in-person treatment:
psychotherapy *or* antidepressant medication received from mental health providers, including antidepressant medication from a primary care physician when appropriate

Alternative to in-person treatment:
the phone program, which is envisioned to be a temporary alternative (sometimes used in combination with in-person options)

the option of seeking antidepressant medication from a primary care physician was also explored, when appropriate. As discussed further below, when individuals in need of care resisted seeking in-person treatment, the care managers attempted to engage them in a workbook-based telephone psychoeducational program — called "the phone program" — as a temporary alternative. The care managers were generally to refer clients to clinicians in the community, based on the client-clinician match, in terms of location or past relationship — or, in the case of Spanish-speaking clients, language.

In the engagement and assessment phase, the care managers were to begin building rapport and establish a trusting relationship with clients, learning about their circumstances and their experiences with depression. This included discussions relating to clients' employment status and work goals, any other health-related challenges, child care and other caregiving responsibilities, and transportation issues. The care managers were instructed to make referrals to support services as appropriate, in particular with regard to work-related needs (for example, to agencies affiliated with the welfare system and the One-Stop centers created by the Workforce Investment Act). Then, as appropriate, care managers were to encourage participants to seek in-person treatment in the community. Once treatment had been initiated, the care managers were expected to:

1. Monitor clinical and functional outcomes of treatment
2. Monitor clients' adherence to treatment and problem-solve barriers to achieving compliance
3. Provide feedback to treating clinicians regarding clients' adherence to treatment and clinical outcomes
4. Provide education and outreach to maintain clients' adherence to treatment and prevent unplanned discontinuation of treatment
5. Facilitate appropriate follow-up care (including referrals to specialists)

In short, once clients became engaged in in-person care, the care managers were to monitor their progress, paying careful attention to common warning signs that they might be disengaging from care and, if so, advocating on their behalf. Since failure to show up for an appointment is common, it was expected that the care managers would frequently need to remind clients of their appointments.[12] It was also expected that the care managers would follow up with clients a day or two after appointments, especially after the first one.

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[12] No data on clients' level of satisfaction about being the recipients of telephonic outreach and monitoring are available. There was a "complaint system" in place, whereby clients could voice any concerns about the (continued)

In addition, during all telephone contacts with all clients, the care managers were to regularly administer the nine-item depression module of the Patient Health Questionnaire (PHQ-9) to track the severity of depression symptoms.[13] These routine assessments of depression were designed to help the care managers understand changes in symptom severity over time, allowing them to respond accordingly (for example, using their clinical judgment regarding fluctuations or recurring patterns in depressive symptomatology to inform their strategies for referring clients to in-person care).

The Management Information System (MIS) and Client Contacts

Throughout the WtW intervention, care management activities were monitored through a management information system (MIS) designed by GHC staff to create a record of all care manager-client telephone contacts. The MIS documented not only all "contacts" (that is, successful connections) but also all "attempts" to make contact, some of which were unsuccessful. Thus, contacts can be distinguished from attempts. All the routinely gathered PHQ-9 scores were stored in the MIS as well. In addition, the MIS contained open fields where care managers could enter "case notes," which documented some of the background or contextual factors that were important for future reference. For example, the care managers typically made notes regarding clients' family and living situations, parenting and caregiving responsibilities, other health issues, and work-related challenges.

The MIS also had built-in prompts — based on the client's depression severity and progress in the program — that automatically reminded the care managers of routine and eventful benchmarks over the course of the one-year intervention. To illustrate, the MIS set the first contact date as being due immediately, that is, as soon as the client was entered into the program.[14] For subsequent contacts, the next contact due date depended on the client's PHQ-9 score at the previous contact. Prompts for the next contact also depended on the number of previous contacts, as follows:

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program — including care manager outreach and monitoring — but no complaints were filed over the course of the project.

[13] The PHQ-9 is administered by the care managers over the telephone. Levels of depression for the PHQ-9 range from 0 to 27 and are broken down into the following categories: 0-4 (none), 5-9 (mild), 10-14 (moderate), 15-19 (moderately severe), and 20-27 (severe) (Kroenke, Spitzer, and Williams, 2001). These levels closely parallel the levels assessed with the Quick Inventory of Depressive Symptomatology-Self Report measure and the Hamilton Rating Scale for Depression (Rush et al. 2003).

[14] The "contact date" is the date by which the care manager should be able to successfully contact — connect with — the client by telephone.

Contacts 2 Through 4

- *Mild depression or remission* (PHQ-9 score of 0 to 9): Next contact due date was in four weeks.
- *Moderate depression* (PHQ-9 score of 10 to 14): Next contact due date was in three weeks.
- *Severe depression* (moderately severe or severe; PHQ-9 score of 15 to 27): Next contact due date was in two weeks.

Contacts 5 and Later

- *Mild depression or remission* (PHQ-9 score of 0 to 9): Next contact due date was in eight weeks.
- *Moderate depression* (PHQ-9 score of 10 to 14): Next contact due date was in six weeks.
- *Severe depression* (moderately severe or severe; PHQ-9 score of 15 to 27): Next contact due date was in four weeks.

These "rules" were established to regulate care management. If clients demonstrated more proactive engagement than was typical, the care managers were instructed to consider scheduling more frequent contacts to expedite their movement toward in-person care. The care managers reported that this system of prompts worked well for them but that they also relied on their clinical judgment as needed and on occasion disregarded a prompt.

Weekly Care Management Team Meetings

There were weekly telephone meetings between the care managers and the team of clinical supervisors at GHC and UBH. (GHC clinical staff also monitored the MIS continuously.) One purpose of these meetings was to ensure that the care managers were adhering to the program's design. The meetings also created an ongoing opportunity for the care managers to get feedback as they applied strategies from the group trainings in their work. Another purpose was to provide a forum for ongoing reviews of existing caseloads, as well as focused reviews of cases that were especially challenging for any reason. The MIS automatically generated lists of cases for in-depth discussion at the weekly meetings, based on any one of the criteria listed below. (The care managers could also add any case to the weekly list at their discretion.)

- The client was more than two weeks overdue for a contact.

- The client was consistently depressed and had not entered in-person treatment after four weeks in the program.

- The client was experiencing moderately severe or severe depression.

The Phone Program

Telephone counseling interventions for primary care patients experiencing depression have produced promising results.[15] Therefore, although traditional in-person treatment was recommended to most clients (depending on their levels of depression and their receptiveness to seeking treatment),[16] a structured psychoeducational program designed for telephonic administration was offered as a temporary alternative. This program — called "the phone program," for short — was based on a workbook entitled *Creating a Balance,* which clients were to work through under a care manager's guidance.[17] The phone program was distinct from routine efforts to engage and assess participants in that it was designed to facilitate an ongoing therapeutic relationship between care managers and participants.

This workbook, which was mailed to clients, was designed to help clients recognize and manage symptoms of stress and depression. It provided a four-phase approach for using telephone care management to teach clients specific steps for managing stress and overcoming depression in the long run. The four phases are organized by the workbook's chapters:

- Chapter 1 includes basic information about depression and stress as well as information about antidepressant medication and other treatments.

- Chapters 2, 3, and 4 describe a specific program to increase a person's involvement in positive or rewarding activities, which is considered the best first step toward recovery and long-term good health for most people.

- Chapters 5, 6, and 7 describe a step-by-step program to identify and challenge negative or self-critical thoughts, which are considered a big part of depression or stress.

- Chapter 8 was designed to help people make a long-term plan for applying what they learn and maintaining the gains they realize.

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[15] Simon et al. (2004); Ludman, Simon, Tutty, and Von Korff (2007).

[16] If clients' symptoms of depression were mild or in remission, the care managers did not typically advise in-person treatment and instead adopted a "We'll check in later" strategy. In instances where clients were experiencing moderate to severe depression but were reluctant to engage in in-person care, the phone program provided an alternative source of help.

[17] The workbook is unpublished and is an adapted version of one previously developed by Ludman, Simon, and Tutty (2006).

Each of the workbook's eight chapters contains didactic material, exercises that clients could work through with their care managers while on the telephone, and written "homework" assignments. Clients who engaged with a care manager would be asked to complete assignments before the planned phone sessions.

An early assignment from Chapter 1, for example, is entitled "Paying Closer Attention." Clients were asked to start paying closer attention to their moods, thoughts, and activity patterns, as these may change during the day and from day to day. The purpose was to help clients understand that there are fluctuations in their moods and that these fluctuations correspond to different person-environment interactions that ultimately can be modified. Clients were asked to take a few minutes each day for a week to review their feelings and answer the following questions:[18]

- What was the best time you had during the day?
- What changed about you when you were feeling especially good? What did you notice about how you felt, how you thought, and what you did?
- What was the lowest or worst time you had during the day?
- What changed about you when you felt especially down? What did you notice about how you felt, how you thought, and what you did?

Then, after a week's time, clients could go over their notes with the care managers to facilitate an ongoing conversation about their moods as well as potential ways to help them break out of depression.

The workbook also includes instructions for "personal experiments" that could help clients find new ways of acting or behaving while they watch changes in their mood. In short, the experiments offer suggestions for "trying out" new ways of doing things. For instance, clients might make time for an activity that at one time gave them pleasure and, when trying it again , pay careful attention to how it makes them feel in the present. Understanding how different experiences affect them gives them the option of keeping what works and setting aside what does not work. The following example from Chapter 2 of the workbook illustrates the idea of a personal experiment:

> Phyllis had enjoyed her stepson's basketball games ever since he was little. But this year she just felt too overwhelmed to make it there. Most Saturday mornings she didn't feel like getting out of bed. And when she missed the games she just

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[18] The workbook contains formatted worksheets — one for each day — which the clients could simply fill in. In addition, the workbook provides sample answers that serve as models for how people might answer the questions.

> felt guilty — and that made her even more depressed. Then she saw Inez, one of the other mothers from the team, at the grocery store. Inez told Phyllis she'd missed her. Phyllis decided that it was time to borrow some motivation. She asked Inez to come by and get her before the next Saturday game. When Phyllis arrived, she felt awkward at first. But soon enough she was cheering so much that she forgot all about being embarrassed. Phyllis felt like she'd found her place again for a few minutes. Now that she'd taken one step, it would be easier to come back next week.

The workbook — initially developed for a study of primary care patients starting antidepressant treatment[19] and then revised for WDS — was adapted for WtW to incorporate illustrative examples of the experiences and stressors more typical of unemployed or low-income families, many of which are headed by females. For example, WtW workbook scenarios involve hypothetical circumstances for individuals working as a pizza delivery driver, a telephone customer service representative, and a grocery checker. In addition, other workbook scenarios portray families facing challenges due to job loss, job searching, and lack of access to adequate child care or reliable transportation. The following example — from Chapter 3 — illustrates how the workbook was adapted to include these kinds of circumstances:

> Patricia really meant to get started on a walking program. She'd set aside time three days a week, and she had her route picked out. What she didn't count on was her daughter getting laid off and moving back into the house. And her daughter had no transportation and there was no bus anywhere near Patricia's house. It seemed like every day Patricia was driving Maria and her baby somewhere — to the baby's doctor visit, to the unemployment office, to get diapers. Patricia wanted to help her daughter out, but helping herself just seemed to slip farther and farther away. She kept thinking — "Can't I have even a few minutes to take care of myself?" — and that led to an idea. Patricia taped a calendar to the front of the refrigerator. She chose one hour every day that was reserved just for her. That was the time she'd start her walking program — or try to do some other things that would be good for her. She told her daughter that she'd be happy to help out, but not during that one hour. And she made sure her daughter knew how to read the schedule.

Moreover, the workbook's wording choices and grammar were revised to suit a maximum reading level of eighth grade. Finally, the workbook was also translated, and then back-translated, into Spanish for WtW.[20]

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[19] Simon et al. (2004).

[20] "Back-translation" refers to the procss of translating text that has already been tranlated back into the language of the original text. Once a back-translation has been made, the original and the back-translated materials should be nearly identical. This process helps ensure that nuances in meaning are not lost in translation (Bernard, 2000).

It should be kept in mind that the phone program was designed primarily as a tool for encouraging clients to start discussing the issues related to their depression, with the ultimate goal of getting them into in-person treatment. Therefore, the care managers were expected to continue discussing the option of in-person treatment with clients who began working in the phone program.

Treatment Options for Clients

The primary goal of Working toward Wellness was to facilitate and support evidence-based, in-person treatment for Medicaid clients experiencing depression. Generally speaking, in-person psychotherapy and antidepressant medication, either in combination or singly, were viewed as successful outcomes. Over time, the phone program became a temporary alternative to in-person care — and, for some, an end in itself.

As shown in Figure 3.1, the ideal pathway for individuals experiencing moderate to severe depression is illustrated with a direct progression through the three phases of WtW: (1) telephone engagement and assessment, (2) treatment initiation, and (3) treatment monitoring. Data concerning the numbers of clients who entered in-person treatment — who reached the second and third phases — are presented in Chapter 4. As shown there, about a third of the participants became engaged in in-person care, but others never left the first phase of the program. About 68 percent of the program group and 78 percent of the control group did not receive mental health services in the first six months following random assignment. A portion of those who did not enter treatment were people whose symptoms of depression had lessened, but, in fact, individuals in the target population faced many barriers to seeking the help they needed. The efforts made by the care managers to establish contact and facilitate entry into treatment, as well as individual cases illustrating typical trajectories followed by WtW clients, are discussed below.

Program Implementation

Attempted and Successful Contacts

The WtW care managers worked hard to win the trust of clients struggling with depression, some of whom did not previously know that they were experiencing depression. During the six months following random assignment, there was a high rate of contact between the care managers and clients. According to the MIS data, 94 percent of the program group were contacted successfully at least once — which represents all of the program group except for 15 individuals.[21] The number of clients who had no contacts beyond the initial one is also very small: 6 percent, representing just 15 people in the program group. In short, the vast majority of the program group began the first phase of WtW, embarking on a telephone relationship with a care manager.

In addition, the average number of contacts per client over the six months was 5.84. Thus, in the typical scenario, there was almost monthly contact between the care managers and their clients. The MIS data also show that the care managers were quick to make successful connections with their clients. They contacted 43 percent of program group one to three times during the first three months after random assignment, and they contacted an additional 50 percent of the program group four or more times during that same time frame. Collectively, these data on contacts suggest that the care managers were working to build good telephone relationships with their clients: developing an understanding of their circumstances and of their experiences with depression, through ongoing assessments, and — for those who were receiving clinical care — monitoring their progress.

Of course, it often took multiple attempts to achieve a successful contact. According to MIS data for the first three months following random assignment, the care managers reported a ratio of successful contacts to attempts of 25 percent or less with about one-third of their clients (30 percent) and a ratio of less than 50 percent with two-thirds of their clients (66 percent). In other words, for one-third of their caseloads, the care managers were successful in reaching the client only one time in four tries, or less; with the large majority of their caseloads, they made successful contact only half the times they tried, or less.[22]

Moreover, establishing and maintaining contact became more challenging over time. During the initial three-month period after random assignment, just 7 percent of clients had no successful contacts; in contrast, during the second three months after random assignment, 27 percent of clients (more than one-quarter) had no successful contacts. One care manager devised a strategy for contacting clients. Rather than scheduling an exact day for the call, she thought that it was more effective to tell clients that she would call them within a general time frame — for example, a couple of weeks — based on what she was able to discern about their work schedules and other commitments. This made it harder for people to avoid her calls.

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[21] The MIS was designed as a tool to help the care managers "manage" their work and is, therefore, a reliable data source regarding attempted and successful contacts with clients. It cannot, however, be treated as a data source for tracking client engagement in the phone program or in-person treatment.

[22] Although the GHC data can be used to determine who was contacted successfully and how many calls were required for individual clients, the data were not provided to MDRC in time to be analyzed in this report. That analysis will appear in the next interim report, which will present outcomes through 18 months following random assignment.

The average duration of telephone contacts with clients varied somewhat across the care managers, although calls generally lasted less than an hour. One care manager stated that contacts ranged from just a few minutes to 45 minutes and that contacts involving the phone program lasted longest. Another care manager reported that the duration of telephone contacts with clients "really varied" but often lasted between 10 and 30 minutes. A third care manager estimated that telephone calls were 20 to 30 minutes each.

Engagement in In-Person Treatment

In some cases, the WtW care managers described clients with whom they were able to establish "a great connection," facilitating a relatively rapid move toward in-person treatment. Some clients moved into in-person care after just one or two telephone calls — some receiving the ideal combination of psychotherapy and antidepressant medication, others receiving the next-best option, either therapy or medication (Figure 3.2).

Yet only a small number of clients moved quickly into in-person treatment. For a variety of reasons, many people who are experiencing depression find it difficult to seek help and engage in a therapeutic relationship. Therefore, generally speaking, numerous telephone contacts were required as clients navigated their way toward in-person treatment — working through their options and, once engaged, sometimes wavering in their desire to continue. Clients reported that they (in the words of one care manager) "did not feel a connection" to a clinician, which sometimes led to interruptions in contact with their care managers and, ultimately, in any progress toward ongoing in-person treatment. Thus, the care managers worked hard to maintain a connection with each client, calling at different times of the day, leaving voice messages, and sending letters.

One care manager described a client — a woman who simultaneously began to see both a psychiatrist and a therapist at the start of the program — as follows. At one point she dropped out of therapy but maintained a relationship with her psychiatrist just to continue her antidepressant medication. During that time, the care manager stayed in regular telephone contact with her, and when the client felt that she was ready, she reengaged in therapy. This client liked to refer to her care managers[23] as "her secretaries," which she meant as a compliment in recognition of their supportive role in helping her first realize that she needed help with depression and then in facilitating her engagement in in-person care. She further demonstrated the potential longer-term benefits of WtW when — acting independently — she successfully sought therapy for members of her family as well.

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[23] This client worked with two different care managers during the first six months of program implementation.

In contrast, many WtW participants in need of care did not enter in-person treatment within the first six months after random assignment. The care managers shared a general understanding of what typically held people back. One summed it up nicely:

> The main reason people give is that they don't have time for therapy. This is what people say. Some people resist because they are now in remission, but that's not the majority of them. Mostly it's a commitment thing. It's their other commitments, to work and kids. It's pretty constant: "I've got to pick my kids up and go to work."

Many clients' barriers to treatment stemmed from personal issues regarding parenting and other types of caregiving, their own health (comorbidities with depression), and work-related stressors (such as seeking employment or maintaining a job). One client, for instance, was a widowed mother with one child still at home who entered WtW at a time when she was unemployed because of health problems and her obligations as the caregiver to an ailing parent. She faced multiple medical issues, including obesity and chronic pain, which were exacerbated by the fact that she lived on an upper floor of her building, requiring that she use stairs. At initial contact, she expressed suicidal ideation. Another client — a single mother of two with a history of substance addiction — was fearful of the side effects associated with medication of any kind, not just antidepressant medication. For reasons like these, the care managers spent considerable time discussing a range of client barriers to in-person care.

Given that everyone who was enrolled in WtW was a parent, issues regarding their children were often connected to how they viewed their own well-being and need for care. For instance, one care manager noted that some of her clients were "homeless and living in their cars with their children, a circumstance of extreme unmet need among the entire family." Another care manager described a client — a woman diagnosed with an autoimmune disorder — who felt that she simply could not take care of her teenage children. Indeed, the children cared for *her,* which brought about enormous guilt and exacerbated her depression. In some cases, the care managers were able to talk with clients about the pros and cons of entering, or not entering, in-person treatment. For example, in the case of a single mother with three young children, a care manager helped the client reflect on one important consequence of not getting help: how her fatigue and irritability were affecting her children.

Use of the Phone Program

Initially, the phone program was envisioned as only a temporary or "fallback" alternative for people who were not willing or able to engage in face-to-face treatment for depression, but, with time, it was seen as a potentially useful way to capture clients' attention as they began WtW. Although it was used from the start of program implementation in late 2004, it became standard protocol to immediately mail a copy of the workbook to each person, beginning with individuals who were recruited in September 2005, when about 40 percent of the study sample had been recruited and randomly assigned.[24]

Each of the care managers reported cases where the phone program offered them a means of staying engaged with clients who needed in-person treatment. When asked about the proportion of their caseloads who became engaged in the phone program, one care manager estimated that it was about one-fourth, while another stated that it was half or more. Both reported that clients who began the phone program typically completed half or more of the workbook's chapters. One example was a woman who maintained a good job at a local hotel despite consistently experiencing severe depression. This woman had talked with her gynecologist — she did not have a primary care physician — about her depression, but she felt that the doctor failed to take her complaint seriously. As a result, she was not taking any antidepressant medications, and when she began care management, she reported that she did not have the time for therapy. According to the care manager, she initially used "the holidays" as an excuse for not entering therapy, but her resistance persisted once the holidays were over. It was then that the care manager introduced the idea of the phone program, which the client felt was doable. Soon they began talking every three or four weeks and were able to begin some of the assignments in the workbook. The care manager was optimistic that the phone program would help this client but was unsure whether the woman would ultimately engage in in-person treatment.

Indeed, for some clients, regular contact with their care managers felt like therapy, and it offered the assistance that they felt they needed. For others, of course, the phone program became a gateway to the pursuit of in-person care, as illustrated by a woman who was in school and working toward a credential in a medical technology field at the start of care management — and who was initially very depressed. This client required 10 or 12 telephone contacts and some work with her care manager in the phone program before going to her first in-person appointment. After she became engaged in therapy, however, she continued with it and started antidepressant medication. The care manager felt that she had experienced remission of her depression, based on routine PHQ-9 scores. The care manager described her as a "poster child" for WtW and was confident that her recent training would lead to a good job in the medical field.

Although the care managers encouraged in-person care for clients who remained depressed over time, the phone program became an end in itself for some clients. In these instances, the care managers continued to provide support and counseling by telephone, as appropriate. Given that the care managers were all themselves clinically trained, there undoubtedly were times when, in the course of routine care management contacts (and particularly in

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[24] Unfortunately, the care manager database does not contain reliable information about which participants used the phone program or how many of them used it.

the context of working with clients on the phone program), they naturally moved beyond the care manager role and used therapeutic techniques — such as motivational interviewing[25] — to help clients begin dealing with some of the issues they faced.[26]

Care Managers as Liaisons and "Coaches"

As discussed above, it was initially envisioned that the WtW care managers — as part of their work in monitoring clients' treatment for depression — would work collaboratively with clinicians in the community as clients progressed in treatment. To be sensitive to any client concerns about contact between the care managers and the clinicians, the plan was for the care managers to obtain permission to contact clinicians from the participants directly, by telephone. After participants had granted permission verbally, they were to receive a Release of Information (ROI) form by mail, which was to be signed and returned to the care manager. The care manager would then send that form — typically as a fax — to the clinician for approval and signature. In practice, the clients generally returned the ROI, but the clinicians did not. The care managers reported that this was the case despite repeated attempts to obtain clinician sign-off. The required ROI documentation thus created an administrative burden that greatly diminished the care managers' capacity to consult directly with providers in the community, and consequently they did not consult as expected.[27]

The care managers' role as liaison between patient and clinician has been well developed in other depression interventions that have been implemented in systems of care that are more unified, such as the U.S. Department of Veterans Affairs (VA) and staff model Health Maintenance Organizations (HMOs) like GHC.[28] In those settings, the care managers and clinical providers work as employees of a single organization. In the case of WtW, however, the care managers worked for UBH, while the clinicians worked in the community and contracted not only with UBH to offer care but also with a number of other managed care organizations; thus, the potential for this kind of collaborative work was smaller.

Although the care managers did not typically act as liaisons between clients and their clinicians in the community, they nonetheless did report playing the role of "coach" with some regularity. For example, one care manager had a client who had been prescribed an antidepres-

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[25] Motivational interviewing is "a directive, client-centered counseling style for eliciting behavior change by helping clients to explore and resolve ambivalence" (Rollnick and Miller, 1995).

[26] This kind of therapeutic assistance does not reflect the typical "session-to-session" process that makes up psychotherapy.

[27] As a means of getting around this administrative obstacle, at least one care manager reported occasionally using a three-way telephone call, simultaneously linking the care manager with the client and the client's clinician.

[28] Simon, Von Korff, Rutter, and Wagner (2000). In staff model HMOs, clinical staff who serve the membership are employed by the HMO (Stahl, 2003).

sant and whose sleep was “a little off.” The woman reported taking the drug just before bedtime, which the care manager felt might be affecting her sleep, given that the drug also can have stimulant effects. Without medical training, however, the care manager did not want to discuss this possibility with the client. Instead, she suggested — more generally — that the client talk with her doctor about her medications. This kind of coaching effort was made to help clients be more proactive and more empowered during the course of their treatment.

Conclusions

In sum, the WtW program was strong during the six-month follow-up period. The care managers worked diligently and effectively to engage their clients. Overall, they successfully contacted 94 percent of those who were assigned to the program group. In addition, they maintained nearly monthly contact with the average client. Thus, they appear to have begun building good telephone relationships with their clients: developing an understanding of their circumstances and of their experiences with depression, through ongoing assessments, and — for those who were receiving clinical care — monitoring their progress. Achieving this high level of contact, however, required persistence, as evidenced by a very large number of attempted contacts for each successful one. In large degree, the WtW appears to have been implemented as planned.

In addition, the care managers worked closely with the clinical supervisors from UBH and GHC — carefully entering data into the MIS and meeting weekly for group telephone discussions — to ensure that the program was implemented as planned. Collectively, they formed a strong therapeutic team and worked together to address a wide range of obstacles that prevented clients who were in need of care from seeking in-person help for depression. They also worked together to adjust the program to fit the needs of its Medicaid population. For instance, the phone program came to play a larger role in WtW than originally expected. In some cases, the phone program proved to be a useful tool for engaging clients while their specific barriers to in-person treatment could be addressed.

More generally, the phone program was also found to be a useful means of capturing clients’ attention as they began WtW. Therefore, over time, it became standard practice to mail the workbook to all individuals who were assigned to the program group. With clients in the phone program, the care managers continued to encourage movement toward in-person care for those who remained depressed over time. For some clients, however, the phone program became an end in itself. In these instances, the care managers continued to provide support via telephone, as appropriate.

Finally, it was initially hoped that the care managers would be able to act as liaisons between clients and the clinicians who worked with them in the community. Such a collaborative approach — where care managers and clinicians work together — has been shown to have benefits for depression patients in settings where both work as employees of a single organization. Such a collaboration was difficult in the case of WtW, however, because the care managers worked for UBH and the clinicians worked in the community in a variety of settings, contracting not only with UBH to offer care but also with a number of other managed care organizations. In addition, an administrative barrier to this liaison function was created by the need for the care managers to obtain written permission from both the clients and the providers. Consequently, the care managers generally did not perform this role. Instead, they demonstrated ingenuity by acting as coaches — advising or guiding clients on ways to better navigate care and advocate for themselves. In short, they worked to empower clients to be more proactive in accessing and managing their care.

Chapter 4

Effects on Health Care and Health Outcomes

As discussed in Chapters 1 through 3, the Working toward Wellness (WtW) intervention in Rhode Island was designed to help the study participants who had depression enter and stay in in-person treatment. Care managers — using telephone contacts — monitored and encouraged the participants to seek and receive clinical treatment for up to a year. At the six-month follow-up point, therefore, an increase in visits to mental health professionals was expected because the immediate goal was to get people to seek in-person treatment from psychiatrists, psychologists, therapists, counselors, or a primary care physician (Figure 4.1). An increase in the use of mental health services might result in an increase in prescriptions for medications, especially antidepressants. Because psychotherapy and antidepressants have been found to reduce depression, increased treatment should lead to reduced depression severity, although this effect might take time to emerge. In turn, reducing depression might lead to increased employment and increased productivity, although this might be a longer-term effect of the intervention, as suggested by previous studies that have found increased job retention following treatment.[1]

If WtW did not have much of an effect on the use of mental health services, one should not expect effects on the later outcomes, such as depression severity. Likewise, if effects on depression severity are small, an effect on employment among the study sample is unlikely. It is important to remember that six months represents only the halfway point of the intervention, and effects on depression and employment might continue to grow, especially if individuals had only recently entered treatment.

Use of Health Care Services: Mental Health and Non-Mental Health Services

Table 4.1 shows the estimated effects of the WtW intervention on the use of mental health treatment, which is defined as any visit to a psychiatrist, doctor, psychologist, or social worker/counselor with a primary diagnosis related to mental health. As hypothesized, the program group members were more likely to use mental health services. About one-third of the program group had a mental health visit during the six months following random assignment, compared with one-fifth of the control group — resulting in an impact of 10.5 percentage

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[1] Wang et al. (2007); Smith et al. (2002b); Miranda et al. (2004).

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Figure 4.1

Intended Effects of the Intervention

Rhode Island: Working toward Wellness

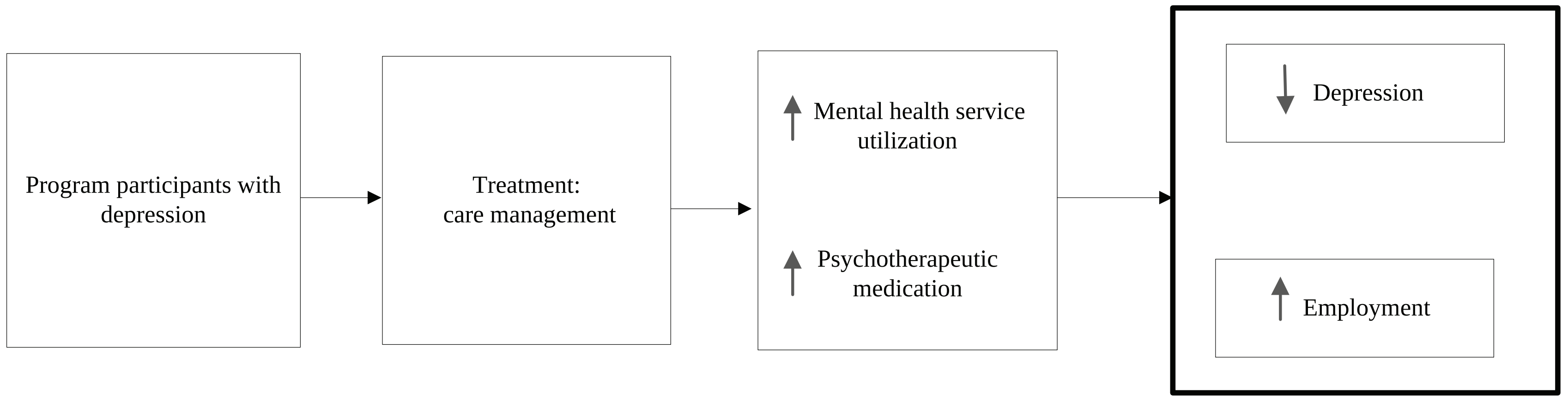

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Table 4.1

Estimated Impacts on Use of Mental Health and Chemical Dependency Services in Six Months Following Random Assignment

Rhode Island: Working toward Wellness

Outcome	Program Group	Control Group	Difference (Impact)	P-Value
Use of mental health services, by type (%)				
Received mental health services	32.2	21.7	10.5 ***	0.007
Psychiatrist	12.5	7.2	5.3 *	0.053
Primary care physician	10.3	8.1	2.2	0.401
Psychologist	4.1	0.3	3.8 ***	0.005
Clinical social worker/counselor[a]	20.1	11.7	8.3 **	0.011
Visited emergency department for mental health services	1.4	0.2	1.3	0.126
Hospitalized for mental health services	4.1	0.0	4.0 ***	0.002
Received chemical dependency services	5.2	5.6	-0.4	0.841
Number of visits for mental health services, by type				
Number of mental health visits	2.3	1.1	1.2 **	0.017
Psychiatrist	0.6	0.3	0.3 *	0.054
Primary care physician	0.2	0.1	0.0	0.717
Psychologist	0.2	0.0	0.2 ***	0.010
Clinical social worker/counselor	1.3	0.7	0.6	0.127
Number of visits to emergency department for mental health services	0.0	0.0	0.0	0.126
Number of days hospitalized for mental health services	0.3	0.0	0.3 ***	0.009
Number of chemical dependency visits	0.7	0.9	-0.2	0.647
Sample size (total = 499)	245	254		

SOURCE: Measures of health service utilization are based on MDRC calculations using United Behavioral Health medical claims data.

NOTES: Results in this table are adjusted for pre-random assignment characteristics.

Two-tailed t-tests were conducted to determine statistical significance. Statistical significance levels are indicated as: * = 10 percent; ** = 5 percent; and *** = 1 percent. The significance level indicates the probability that the impact estimated would be this large if the program had zero true effect.

[a] This item includes claims for one program group member who received services at a behavioral health clinic.

points, which is slightly higher than a previous study with a similar intervention but with a non-Medicaid population.[2] This impact on the use of mental health services is however smaller than studies that were conducted in health care systems where care managers had direct access to health care providers, facilitating an easier communication with providers.[3]

The WtW program increased the use of a range of mental health services. For example, a higher percentage of the program group (13 percent) than of the control group (7 percent) visited a psychiatrist. Program group members were also more likely to see a psychologist or clinical social worker/counselor about a mental health issue.

In addition to increasing the likelihood that individuals would receive treatment, WtW increased the number of mental health visits during the first six months, from an average of 1.1 visits for the control group to 2.3 visits, on average, for the program group, significantly increasing the number of visits to both psychiatrists and psychologists.

Participants in the program group were 4 percentage points more likely than those in the control group to have had a mental health-related hospitalization. Although the numbers are small, those in the program group spent, on average, 0.3 day more in the hospital than the control group (Table 4.1). Further analysis of the data show that while the control group had no hospital days that were related to mental health, half of all the hospital days for the program group involved mental health reasons.

Additional analyses were conducted to examine when individuals entered treatment (Appendix Tables C.1 and C.2). WtW doubled the number of people who first sought treatment in the month following random assignment — from 8 percent of the control group to 16 percent of the program group — and it increased the likelihood that participants would get continuous treatment after the first visit. Among participants who had any mental health visit during the first six months, about half the participants in the program group — compared with a little over a third of the control group — received their first treatment in the first month after random assignment. Thus, care management was successful in encouraging program participants to enter treatment in the first month.

By increasing visits to mental health professionals — particularly, psychiatrists and other physicians — the program was expected to increase the likelihood that participants would be prescribed an antidepressant or other psychotherapeutic medication. In addition, one of the roles of care managers was to monitor participants' compliance with prescribed drugs, which might have increased the likelihood that they continued receiving medications. Indeed, Table 4.2 shows

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[2] Wang, et al. (2007).

[3] Wells et al. (2000); Simon et al. (2004).

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Table 4.2

Estimated Impacts on Prescription Medications Filled in Six Months Following Random Assignment

Rhode Island: Working toward Wellness

Outcome	Program Group	Control Group	Difference (Impact)	P-Value
Prescription medications filled, by type (%)				
Filled a prescription for psychotherapeutic drugs	44.9	38.2	6.7 *	0.087
Antidepressant drugs	38.5	34.5	4.0	0.299
Other psychotherapeutic drugs	21.0	14.4	6.6 *	0.051
Filled a prescription for adequate therapeutic dosage	21.9	21.8	0.2	0.961
Filled a prescription for nonpsychotherapeutic drugs	81.4	80.5	0.9	0.810
Number of times prescriptions were filled, by type				
Number of times prescriptions for psychotherapeutic drugs were filled	2.0	1.7	0.2	0.309
Antidepressant drugs	1.4	1.2	0.2	0.418
Other psychotherapeutic drugs	0.6	0.5	0.1	0.437
Number of times prescriptions for nonpsychotherapeutic drugs were filled	6.0	5.8	0.3	0.639
Sample size (total = 499)	245	254		

SOURCE: Measures of health service utilization are based on MDRC calculations using United Behavioral Health prescription claims data.

NOTES: Results in this table are adjusted for pre-random assignment characteristics.

Two-tailed t-tests were conducted to determine statistical significance. Statistical significance levels are indicated as: * = 10 percent; ** = 5 percent; and *** = 1 percent. The significance level indicates the probability that the impact estimated would be this large if the program had zero true effect.

that program group members were more likely to fill prescriptions,[4] with a slightly higher percentage (45 percent) receiving psychotherapeutic medications than the control group (38 percent). The program's effect on prescription medications was particularly large for psychotherapeutic drugs that are not antidepressants — generally, antianxiety medications, which are often prescribed along with or instead of antidepressants. Although the program significantly increased the number of people who filled prescriptions, it did not significantly increase the average number of prescriptions that were filled. This is a statistical artifact whereby it is easier to detect a change in a

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[4] Although the goal was to increase the use of antidepressants, the data used for this analysis indicate only whether a prescription was filled, not whether it was used.

proportion (the proportion of participants who filled any prescription) than in an average (the average number of prescriptions filled). The estimated effect on both outcomes is an increase of about 15 percent, but one impact estimate is statistically significant, while the other is not.

Previous research has shown that individuals with a mental health diagnosis often have other health problems. Therefore, an increase in the use of mental health services may coincide with increase in the number of visits for non-mental health services. On the other hand, reducing depression severity might help people to take care of other chronic conditions, which could result in reduced use of other health care services.[5] To investigate these possibilities, Table 4.3 shows the estimated effects of the intervention on non-mental health services, including visits to primary care, specialist, emergency department, hospitalization, and other physicians and to nonphysician providers. The table indicates that there was no effect on other health care services through the six-month follow-up period.

Although this chapter focuses on treatment received in the first six months after random assignment, so that the follow-up period coincides with the six-month follow-up survey, Medicaid claims data were available for nine months for all individuals. Figure 4.2 provides previews whether WtW is likely to have ongoing effects by showing the percentage of participants who received mental health treatment on a monthly basis through nine months. Although there were some fluctuations in the use of mental health services during the first few months after random assignment between the program and control groups, the difference between the two groups reached a high of about 8 percentage points at Months 4 and 5. This difference becomes smaller in latter months, but it is difficult to predict whether it is a true downward trend or an episodic utilization trend that may increase in the future. More information will be available in the 18-month analyses.

Health Outcomes: Depression and Health Status

Having shown that the WtW program increased the use of mental health services and the filling of appropriate medications, the next question is whether it reduced depression severity.[6] To measure depression severity, the Quick Inventory of Depressive Symptomatology-Self Report (QIDS-SR) was administered.[7] This commonly used depression scale includes a 16-item questionnaire to measure the severity of depressive symptoms. The scores usually range

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[5] Kinder et al. (2006).

[6] Another potential benefit of depression treatment is reducing the number of suicides, but because reliable information on the suicide rate is difficult to obtain and was expected to be very low, the rate was not examined in this study.

[7] Rush et al. (2003).

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Table 4.3

Estimated Impacts on Use of Non-Mental Health Services in Six Months Following Random Assignment

Rhode Island: Working toward Wellness

Outcome	Program Group	Control Group	Difference (Impact)	P-Value
Use of non-mental health services, by type (%)				
Received non-mental health service	78.4	78.0	0.4	0.913
Primary care physician	62.0	58.7	3.3	0.454
Specialist	56.4	54.2	2.2	0.624
Nonphysician provider[a]	29.3	27.2	2.1	0.600
Visited emergency department for non-mental health services	22.6	21.2	1.4	0.712
Hospitalized for non-mental health services	4.6	3.8	0.9	0.642
Number of visits for non-mental health services, by type				
Number of non-mental health visits				
Primary care physician	1.8	1.6	0.3	0.207
Specialist	2.5	2.1	0.4	0.251
Nonphysician provider	1.2	0.8	0.4	0.195
Number of visits to emergency department for non-mental health services	0.4	0.4	0.0	0.806
Number of days hospitalized for non-mental health services	0.2	0.2	0.1	0.607
Sample size (total = 499)	245	254		

SOURCE: Measures of health service utilization are based on MDRC calculations using United Behavioral Health medical claims data.

NOTES: Results in this table are adjusted for pre-random assignment characteristics.

Two-tailed t-tests were conducted to determine statistical significance. Statistical significance levels are indicated as: * = 10 percent; ** = 5 percent; and *** = 1 percent. The significance level indicates the probability that the impact estimated would be this large if the program had zero true effect.

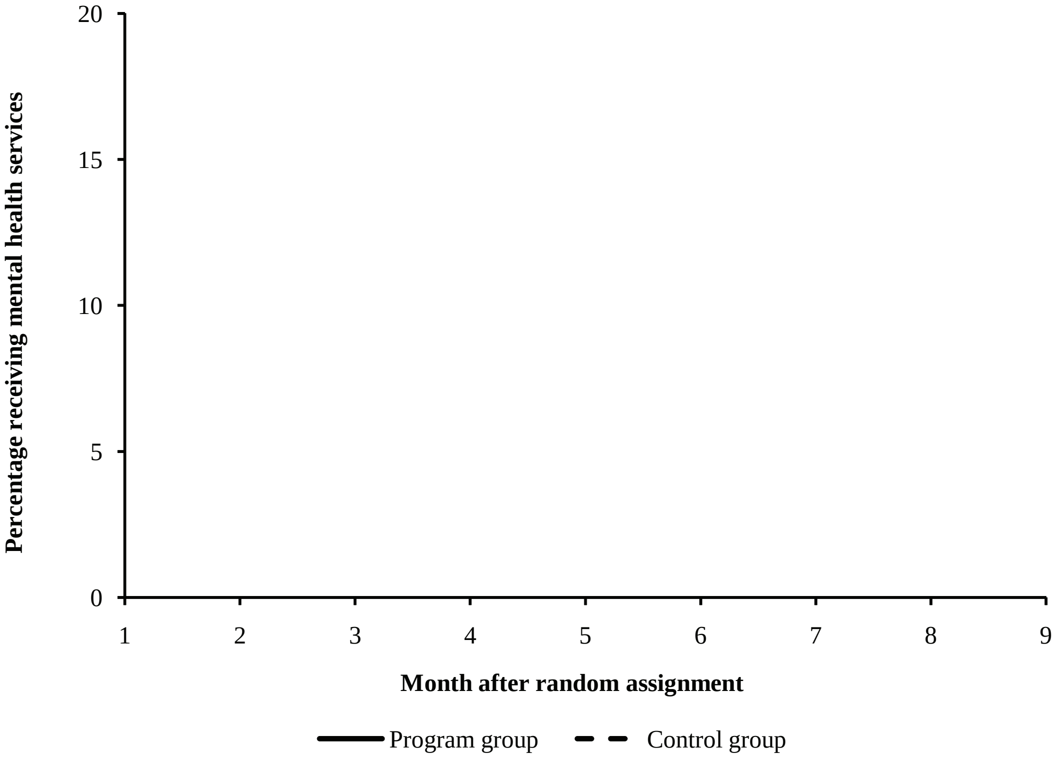
[a] Nonphysician providers include audiologists, chiropractors, home care providers, nurses, nutritionists, opticians and optometrists, podiatrists, and physical therapy providers.

The Enhanced Services for the Hard-to-Employ Demonstration

Figure 4.2

Percentage Receiving Mental Health Services and Estimated Impacts, by Month

Rhode Island: Working toward Wellness



SOURCE: Measures of health service utilization are based on MDRC calculations using United Behavioral Health medical claims data.

NOTES: Percentages shown are adjusted for pre-random assignment characteristics.

from 0 to 27, but the range was limited to 0 to 25 in this study because individuals who answered positively to questions relating to suicide were excluded. Scores of 5 or less indicate no depression; 6 to 10 indicate mild depression; 11 to 15 indicate moderate depression; 16 to 20 indicate severe depression; and 21 to 25 indicate very severe depression.

Table 4.4 shows the estimated effects of the WtW program on depression severity and health outcomes at the six-month follow-up point. The average QIDS-SR score at six months was 12.5 for the program group and 12.8 for the control group, a difference that is not statistically significant. Since both groups had mean scores of 15 at baseline, both groups improved somewhat over time, but that improvement was not substantially greater for the program group than for the control group. The average QIDS-SR score could be masking important effects of the program on different levels of depression severity. To examine this possibility, the next set of outcomes in Table 4.4 shows the distribution of depression severity six months following random assignment.

There was a significant difference in the distribution of depression scores between the program and control group at six months. In particular, a higher percentage of the control group than of the program group was in the "very severe" category at six months following random assignment, and a correspondingly smaller percentage was moderately depressed. Specifically, the percentages of individuals with "very severe" depressive symptoms (QIDS greater than 21) are 11 percent for the control group and 6 percent for the program group. Conversely, the percentages of participants who were moderately depressed are 24 percent for the control group and 33 percent for the program group. Thus, the results suggest that the program group helped some people move out of very severe depression and shifted some people into lower depression categories. Because the impact on average depression scores was close to zero, if the intervention made some people better off, it must have made others worse off. The table suggests that the program also reduced the number of individuals who were mildly depressed at six months, suggesting that some people who would have been mildly depressed were made worse off because of the intervention.

To examine the depression scores in more detail, Table 4.4 shows the proportion of individuals whose depression "shifted": worsened, did not change, or improved. Results show that more control group members than program group members had depression that got worse by two categories (for example, from moderate to very severe). Impacts on the proportions who did not change or showed improvement are not statistically significant. This finding suggests that the intervention may have helped a small number of people from getting worse, although the small effect on average depression severity means that this group is small or is offset by a small group who were made worse off because of the program.

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Table 4.4

Estimated Impacts on Depression Severity and Health
Six Months Following Random Assignment

Rhode Island: Working toward Wellness

Outcome	Program Group	Control Group	Difference (Impact)	P-Value
Depression outcomes: QIDS-SR[a] depression scale[b]				
Mean depression score at 6 months	12.5	12.8	-0.4	0.509
Severity of depression at 6 months (%)				
Out of depression	12.3	9.9	2.4	0.463
Mildly depressed	22.3	29.7	-7.4	0.115
Moderately depressed	32.8	24.4	8.4 *	0.081
Severely depressed	26.5	24.8	1.7	0.715
Very severely depressed	6.1	11.2	-5.1 *	0.072
Shift in depression, by category[c] (%)				
Depression worsened by 2 categories	2.4	5.8	-3.4 *	0.099
Depression worsened by 1 category	14.5	17.4	-3.0	0.443
No categorical shift in depression	37.9	31.8	6.2	0.235
Depression improved by 1 category	27.9	25.0	2.9	0.546
Depression improved by 2 or more categories	17.3	20.0	-2.7	0.505
Substantial improvement[d] (%)	19.2	23.0	-3.8	0.379
Recovery at 6 months[e] (%)	12.3	9.9	2.4	0.463
Health status				
General health (%)				
Poor	12.1	9.5	2.6	0.442
Fair	26.0	32.4	-6.4	0.172
Good	42.6	36.8	5.8	0.257
Very good	12.2	17.0	-4.8	0.209
Excellent	7.0	3.7	3.3	0.162
Sample size (total = 370)	187	183		

SOURCE: Measures of depression and health are based on MDRC calculations using data from respondents to the six-month survey.

NOTES: Results in this table are adjusted for pre-random assignment characteristics.

Two-tailed t-tests were conducted to determine statistical significance. Statistical significance levels are indicated as: * = 10 percent; ** = 5 percent; and *** = 1 percent. The significance level indicates the probability that the impact estimated would be this large if the program had zero true effect.

Respondents with missing data are not included in this table; as a result, the distribution of some categories may not total 100 percent.

[a] Quick Inventory of Depressive Symptomatology-Self Report (QIDS-SR), which determines whether the person meets criteria for being diagnosed with major depression over the past seven days.

[b] A chi-square test was used to test the difference in distribution between the program and control groups (p-value = 0.096).

[c] Scores on the QIDS-SR depression scale fall into the following categories: very severe depression, severe depression, moderate depression, mild depression, no depression.

[d] Substantial improvement is indicated by a 50 percent or higher reduction in the QIDS-SR score.

[e] Recovery is indicated by a QIDS-SR score of 5 or less.

Previous clinical trials indicate that a full recovery from depression is difficult to achieve but that continued treatment results in improvement in depressive symptoms. A majority of patients respond to depression treatment and show improvement, whether the treatment involves antidepressants alone or combined with psychotherapy. However, fewer achieve remission, which is defined as an almost complete absence of symptoms and return to normal day-to-day functioning. Although the improvements are important, it should be noted that. in this study, being in the program group did not significantly increase the likelihood that someone would have recovered from depression, as indicated by a QIDS-SR score of less than 6. At the six-month follow-up point, 12 percent of the program group had recovered, compared with 10 percent of the control group, but this difference is not statistically significant (Table 4.4). Remission rates from clinical antidepressant treatment in the past are 18 percent to 45 percent, and the rate varies depending on the type of treatment and medication.[8] Treatments that combine antidepressants with psychotherapy have similar remission rates, usually showing more improvement with time: 18 percent remission at six months to 26 percent remission at 12 months.[9]

Another way for clinicians to consider someone to have improved substantially is when the depression score declines by more than half. For example, someone would be considered to have improved if the depression score declined from 10 to 5 or from 20 to 10. As Table 4.4 shows, the rates of substantial improvement are not significantly different between the two research groups.

It was expected that there might be a relationship between depression improvement and health status, so that participants reporting better health at follow-up would also have better depression outcomes. General health status is shown in Table 4.4. This measure was based on a question from the SF-36 survey, a validated instrument commonly used to measure functional health and well-being. The particular health status question was: “In general would you say your health is excellent, very good, good, fair, or poor?” There are no significant differences in the self-reported general health status of the program and control groups.

Impacts on Health Care Use and Health Outcomes, by Subgroup

Because small average effects can mask larger effects for some groups of study participants, the impacts of WtW were analyzed for two key subgroups defined by baseline depression severity and ethnicity. These subgroups were chosen a priori, based on (1) hypotheses that

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[8] Silverstone and Ravindran (1999); Thase, Entsuah, and Rudolph (2001); Rush et al. (2006).

[9] Wang et al. (2007).

individuals with varying depression severity may respond differently to the program and (2) previous literature that showed differential findings for minority groups.

Based on previous studies, the program was expected to have bigger effects among participants with higher level of depression at baseline, because there was more room for such effects to occur among these persons. However, there was some concern that the intervention might not be powerful enough to benefit those with very severe depression. To investigate these hypotheses, impacts were analyzed separately for individuals with moderate depression and for those with severe or very severe depression at the time of random assignment. Results are shown in Table 4.5, which indicates that there are few differences in estimated impacts when analyzed by depression severity at baseline.

Regarding ethnicity, prior research suggests that minorities group members are less likely to obtain depression care and are less likely to receive appropriate care if they do seek it.[10] When a nationally representative sample screening positive for depression or anxiety disorder was asked about receiving appropriate treatment, there were ethnic differences — with African-Americans and Hispanics had lower odds of receiving appropriate care for depressive or anxiety disorders.[11] This suggests that the intervention might have had room for larger effects on the use of mental health services for Hispanic sample members than for other participants. Another study, which examined an integrated approach to improving care for depression in primary care and which had a large Mexican-American subgroup, found that depression treatment programs reduced disparities in depression outcomes between Mexican-American and other participants.[12]

Because these prior studies suggest that impacts on depression severity might be larger for Hispanic sample members than for others, separate analyses were conducted for Hispanic and non-Hispanic sample members.[13] Table 4.6 shows that program impacts on filling prescriptions for antidepressants and on depression severity are significantly larger for Hispanic sample members than for the non-Hispanic subgroup. In addition, estimated impacts on mental health visits are larger for the Hispanic subgroup, although the difference between subgroups is not statistically significant. It is worth noting that although the estimated effect on average depression score is not statistically significant for non-Hispanic participants, the program did significantly increase the number of individuals without depression for this subgroup. These results indicate that the intervention may have been more effective for Hispanic participants.

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[10] Miranda et al. (2003); Lesser et al. (2007).

[11] Young, Klap, Sherbourne, and Wells (2001).

[12] Chapter 1 describes RAND Corporation's "Partners in Care" (Wells et al., 2004; Miranda et al., 2003).

[13] There are few African-American or Asian sample members, and results when those minority groups are combined with Hispanic sample members (Appendix Table C.3) look similar to the results shown in Table 4.6.

The Enhanced Services for the Hard-to-Employ Demonstration

Table 4.5

Selected Estimated Impacts in Six Months Following Random Assignment, by Level of Depression at Random Assignment

Rhode Island: Working toward Wellness

Subgroup and Outcome	Program Group	Control Group	Difference (Impact)	P-Value
Moderately depressed subgroup				
Use of mental health services during 6 months following random assignment				
Received mental health services (%)	30.5	20.3	10.1	0.122
Number of visits for mental health services	1.7	0.7	1.0 *	0.073
Prescription medications filled during 6 months following random assignment				
Filled a prescription for an antidepressant (%)	41.0	36.3	4.7	0.465
Filled a prescription for adequate therapeutic dosage of antidepressant medication (%)	22.9	24.5	-1.6	0.795
Sample size (total = 195)	112	83		
Mean depression score 6 months following random assignment	11.3	11.7	-0.3	0.727
Depression level 6 months following random assignment (%)				
Out of depression	13.1	16.1	-2.9	0.646
Mildly depressed	27.2	30.7	-3.5	0.674
Moderately depressed	40.8	27.0	13.8	0.129
Severely depressed	15.2	19.8	-4.7	0.523
Very severely depressed	3.7	6.4	-2.7	0.510
Sample size (total = 147)	89	58		
Severely to very severely depressed subgroup				
Use of mental health services during 6 months following random assignment				
Received mental health services (%)	35.1	25.1	9.9 *	0.097
Number of visit for mental health services	2.5	1.3	1.2 **	0.040
Prescription medications filled during 6 months following random assignment				
Filled a prescription for an antidepressant (%)	38.5	36.0	2.5	0.665
Filled a prescription for adequate therapeutic dosage of of antidepressant medication (%)	24.4	21.5	2.9	0.602
Sample size (total = 237)	105	132		

(continued)

Table 4.5 (continued)

Subgroup and Outcome	Program Group	Control Group	Difference (Impact)	P-Value
Mean depression score 6 months following random assignment	14.5	14.6	-0.1	0.887
Depression level 6 months following random assignment (%)				
Out of depression	6.7	6.6	0.2	0.970
Mildly depressed	16.5	22.7	-6.2	0.337
Moderately depressed	23.8	18.8	4.9	0.477
Severely depressed	42.1	33.4	8.7	0.263
Very severely depressed	10.9	18.5	-7.7	0.165
Sample size (total = 166)	75	91		

SOURCES: Measures of health service utilization are based on MDRC calculations using United Behavioral Health medical and prescription claims data. Measures of depression are based on MDRC calculations using data from respondents to the six-month survey.

NOTES: Results in this table are adjusted for pre-random assignment characteristics.

Two-tailed t-tests were conducted to determine statistical significance. Statistical significance levels are indicated as: * = 10 percent; ** = 5 percent; and *** = 1 percent. The significance level indicates the probability that the impact estimated would be this large if the program had zero true effect.

An f-test was applied to differences between the subgroups for each characteristic. Statistical significance levels are indicated as: † = 10 percent; †† = 5 percent; and ††† = 1 percent.

Outcomes for the mildy depressed subroup can be seen in Appendix Table C.5.

Employment History and Performance

As shown in Table 4.7, about half the participants in both groups reported being currently employed at the six-month follow-up, showing little change from baseline, when a little less than half the participants reported being employed. There is no significant difference between the groups in the number of days of missed work or in the hourly wage. A little over a third of all sample members participated in education or training activities in the prior six months (not shown), but there is no difference between the program and control groups. It is not surprising that a significant employment outcome was not observed, given that there was only a small impact on depression outcomes and that baseline employment rates were low.

Further, six months may be too early to examine employment outcomes for this population because that is only the halfway point in the depression intervention and a small number of participants were engaged in job-related education or training activities. Although the numbers are small, the impact on the program group’s participation in postsecondary education is encouraging.

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Table 4.6

Selected Estimated Impacts in Six Months Following Random Assignment, by Ethnicity

Rhode Island: Working toward Wellness

Subgroup and Outcome	Program Group	Control Group	Difference (Impact)	P-Value
Hispanic subgroup				
Use of mental health services during 6 months following random assignment				
Received mental health services (%)	39.2	21.6	17.6 **	0.019
Number of visits for mental health services	2.7	0.9	1.8 **	0.012
Prescription medications filled during 6 months following random assignment				
Filled a prescription for an antidepressant (%)	43.7	29.3	14.3 *	0.055 †
Filled a prescription for adequate therapeutic dosage of antidepressant medication (%)	25.9	18.4	7.4	0.263
Sample size (total = 166)	86	80		
Mean depression score 6 months following random assignment	12.6	14.9	-2.3 **	0.049 ††
Depression level 6 months following random assignment (%)				
Out of depression	11.7	-2.0	13.7 ***	0.005 †††
Mildly depressed	29.1	27.1	2.0	0.839
Moderately depressed	25.4	25.5	-0.1	0.990
Severely depressed	24.5	30.6	-6.0	0.538
Very severely depressed	9.3	18.8	-9.5	0.206
Sample size (total = 110)	60	50		
Non-Hispanic subgroup				
Use of mental health services during 6 months following random assignment				
Received mental health services (%)	27.7	22.4	5.4	0.268
Number of visits for mental health services	1.7	1.0	0.7 *	0.092
Prescription medications filled during 6 months following random assignment				
Filled a prescription for antidepressant (%)	36.2	36.5	-0.3	0.956 †
Filled a prescription for adequate therapeutic dosage of antidepressant medication (%)	19.9	23.2	-3.3	0.455
Sample size (total = 333)	159	174		

(continued)

Table 4.6 (continued)

Subgroup and Outcome	Program Group	Control Group	Difference (Impact)		P-Value	
Mean depression score 6 months following random assignment	12.4	12.0	0.4		0.531	††
Depression level 6 months following random assignment (%)						
Out of depression	11.8	15.1	-3.3		0.458	†††
Mildly depressed	20.2	29.5	-9.3		0.104	
Moderately depressed	36.3	24.0	12.2	**	0.043	
Severely depressed	27.1	23.0	4.0		0.461	
Very severely depressed	4.6	8.4	-3.7		0.218	
Sample size (total = 260)	127	133				

SOURCES: Measures of health service utilization are based on MDRC calculations using United Behavioral Health medical and prescription claims data. Measures of depression are based on MDRC calculations using data from respondents to the six-month survey.

NOTES: Results in this table are adjusted for pre-random assignment characteristics.

Two-tailed t-tests were conducted to determine statistical significance. Statistical significance levels are indicated as: * = 10 percent; ** = 5 percent; and *** = 1 percent. The significance level indicates the probability that the impact estimated would be this large if the program had zero true effect.

An f-test was applied to differences between the subgroups for each characteristic. Statistical significance levels are indicated as: † = 10 percent; †† = 5 percent; and ††† = 1 percent.

Conclusions

The evaluation of WtW is the first study of a telephonic care management intervention targeted specifically to Medicaid recipients who are experiencing major depression. This study provides evidence about a relatively inexpensive program to try to reduce depression among public assistance recipients, with the ultimate goal of encouraging employment. While there have been other studies of various types of care management models designed to help people who have various health and behavioral health needs, few have focused on getting them into in-person treatment for depression. Working with low-income people who have significant — and sometimes multiple — barriers to employment presents additional challenges. Despite these challenges, the preliminary results suggest that participants in the WtW intervention used more mental health services than those in the usual care group.

The care manager telephone outreach model appears to be successful in removing barriers to treatment not only for participants as a whole but also for the Hispanic subgroup. Among the Hispanic subgroup, the average depression score was better for the program group

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Table 4.7

Estimated Impacts on Employment-Related Outcomes in Six Months Following Random Assignment

Rhode Island: Working toward Wellness

Outcome	Program Group	Control Group	Difference (Impact)		P-Value
Has had any paid job since random assignment (%)	62.7	61.1	1.5		0.720
Currently employed (%)	50.6	48.3	2.3		0.617
Currently working odd jobs (%)	3.4	0.4	3.0	**	0.042
Earnings per hour before taxes at current job (%)					
Not currently employed	49.4	51.7	-2.3		0.617
Less than $5.00	2.5	1.2	1.3		0.383
$5.00 - $6.99	4.5	3.6	0.8		0.703
$7.00 - $8.99	12.2	10.0	2.2		0.507
$9.00 or more	26.5	28.7	-2.2		0.612
Days of missed work, at current job, since random assignment (%)					
Not currently employed	49.4	51.7	-2.3		0.617
0	26.6	25.9	0.7		0.877
1-5	19.6	19.8	-0.2		0.966
6-9	2.8	1.5	1.3		0.421
10 or more	1.5	0.7	0.8		0.482
Work performance in the past 4 weeks is higher than other workers (%)					
All or most of the time	25.8	26.1	-0.3		0.944
Only some or none of the time	21.6	20.6	1.0		0.810
Monthly income ($)					
Household income	1,413	1,306	108		0.350
Individual income	915	834	81		0.287
Has ever participated in any employment-related activity (%)					
Job club or job search	22.9	22.5	0.3		0.943
Basic education	5.9	6.5	-0.6		0.820
Postsecondary education	14.1	8.0	6.0	*	0.065
Vocational training	3.0	4.1	-1.1		0.574
Other	5.0	6.4	-1.4		0.573
Sample size (total = 370)	187	183			

SOURCE: Measures of employment are based on MDRC calculations using data from respondents to the six-month survey.

NOTES: Results in this table are adjusted for pre-random assignment characteristics.

Two-tailed t-tests were conducted to determine statistical significance. Statistical significance levels are indicated as: * = 10 percent; ** = 5 percent; and *** = 1 percent. The significance level indicates the probability that the impact estimated would be this large if the program had zero true effect.

Respondents with missing data are not included in this table; as a result, the distribution of some categories may not total 100 percent.

than for the control group at six months, and a higher percentage of the program group showed depression improvement. Since only one care manager spoke Spanish, however, it is possible that these differential impacts for Hispanic participants represent the unusual effectiveness of this one provider. Although the sample sizes are too small to separate the Hispanic-English speakers from the Hispanic-Spanish speakers, additional descriptive data checks indicate that the results are consistent for Hispanic-English speakers. Despite the possibility of a bias by having one care manager for this group of participants, the results for the Hispanic subgroup are consistent with previous research findings on Hispanics.

The depression and employment outcomes are not strong at six months of follow-up, but given that the intervention was designed to be a one-year program, additional analysis will be conducted at 18 months of follow-up. Although the average depression score is similar for the program and control groups, the data suggest that there are shifts in depression severity. When the changes in depression categories from baseline to six months were examined, a higher percentage of individuals in the control group seemed to be getting worse. Further, the results from the Hispanic subgroup indicate that there is an improvement in average depression for the program group. This finding suggests that when depression treatment becomes available to a population who traditionally faced barriers to mental health services, there is greater benefit from being in the intervention. These findings are promising and underscore the importance of this particular test and the need for more evaluation in this area.

In conclusion, at six months, the WtW intervention increased the use of mental health treatment services but did not make a difference in the use of antidepressants between the program and control groups. Although there were significant favorable impacts on depression for Hispanic participants, there was no difference in the average depression scores between the program and control groups for the study population taken as a whole. There was also no effect on employment at six months.

Appendix A

Description of Outcome Measures

Data on Medical Services

Information on the use of medical services in the Working toward Wellness (WtW) evaluation was available from claims data provided by United Health Care (UHC) / United Behavioral Health (UBH). These data provide information on the date of service, diagnoses, procedures performed, provider type, submitted charges, and fees paid. For this study, medical claims records are categorized on the basis of type of service and primary diagnosis.

Services

Doctors' visits. In this report, claims for professional fees are considered in the analysis of doctor's visits. In addition to measures of overall service use, measures are broken down by provider type. Mental health services were provided by psychiatrists, primary care physicians (such as family practitioners and pediatricians), psychologists, clinical social workers, mental health counselors, or staff at chemical dependency treatment centers. Use of non-mental health services are reported separately for primary care physicians and specialists (such as cardiologists, dermatologists, plastic surgeons, and urologists) and for nonphysician providers, including nurses, chiropractors, optometrists, nutritionists, and podiatrists.

Unique visits. Records from a particular provider type on a particular date are counted as a single medical visit. Visits to different provider types on a particular date are considered separate events, as are multiple visits to the same provider type that occurred on different dates. Hence, two visits to different psychiatrists on the same date are considered a single event. However, visits to two psychiatrists on different days count as multiple visits, as would visits to a psychiatrist and a dermatologist on the same day.

Hospitalization and services from emergency departments. The incidence of inpatient hospitalization and emergency department use was calculated using hospital claims for room and board and for emergency room services, respectively.

Diagnoses

Medical services were considered mental health-related or non-mental health-related on the basis of the primary diagnosis for the claim. Diagnoses are coded by providers following the International Classification of Diseases (ICD-9-CM) system. Under this coding standard, diagnosis codes for mental health disorders are those in the range from 290 to 319. Because of the relatively frequent nature of treatments for chemical dependency, this study reports this subcategory of mental health disorders (ICD-9-CM codes ranging between 303 to 306) separately from other mental health diagnoses. All services with a primary diagnosis code outside the range of 290 to 319 are considered non-mental health-related.

Data on Prescription Medications

Classification of Filled Prescriptions

The UHC data also include information on paid claims for prescription medications.[1] These data provide information about filled prescriptions, including drug names (generic and brand); therapeutic classification and dosage information, such as drug strength, quantity, and number of days supplied; the date the prescription was filled; and submitted charges and fees paid. Based on the generic and American Hospital Formulary Service (AHFS) therapeutic classifications indicated in the data, the medications were categorized as psychotherapeutic (and were further classified as either antidepressants or other psychotherapeutic medications) and nonpsychotherapeutic medications.

Adequate Dosage

Information on adequate therapeutic dosage levels for antidepressant medications was compiled by Dr. Gregory E. Simon using Agency for Health Research and Quality (AHRQ), American Psychological Association (APA), and other expert guidelines. These thresholds were used to determine whether sample members were ever prescribed medication at a minimally adequate level during the six-month follow-up period.

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[1] These claims data provide information on filled prescriptions only.

Appendix B

Response Bias Analysis

Although information on health care use in the Working toward Wellness (WtW) evaluation was available for all sample members through United Behavioral Health (UBH) claims data, information on follow-up depression severity was available only for the 74 percent of the sample members who completed the six-month follow-up survey. There are some differences between respondents and nonrespondents that raise some concerns about how to interpret the small effects on depression severity. In particular, impacts on mental health treatment were substantially smaller for survey respondents than for nonrespondents. Because depression outcome information is available only for the 370 survey respondents and because the utilization outcomes are derived from the claims data, which includes 499 participants, comparison analyses were conducted of the respondents and nonrespondents to the six-month survey.

Appendix Table B.1 compares the baseline characteristics of survey respondents and nonrespondents with the baseline characteristics of the full sample of 499 participants. It shows that participants who did not respond to the survey were more likely to be Hispanic and had higher depression scores at baseline. This might suggest that the survey was conducted with individuals suffering from milder depression at the six-month follow-up point, which could reduce the ability of the survey to find impacts on depression severity.

Appendix Table B.2 compares the baseline characteristics of survey respondents in the program group and survey respondents in the control group and shows that sample members in both groups who responded to the survey were similar at baseline. This suggests that results from the survey provide valid impact estimates for this subgroup of respondents, even if they cannot be generalized to the full sample.

Appendix Table B.3 compares selected impacts from medical claims data for survey respondents and nonrespondents. If impacts from medical claims are similar for the two groups, this would increase the confidence that impacts from the survey might reflect impacts for the full sample. However, estimated effects on the use of mental health services are substantially larger for nonrespondents, suggesting that estimated impacts on depression severity based on the survey might understate the true effects of the WtW intervention.

To deal with nonrespondents and further test the robustness of the results, selected impacts from medical claims data were recalculated among survey respondents, weighting by the inverse of the estimated probability that someone would respond to the survey. The purpose of the weighting was to produce impact estimates that would be consistent with baseline characteristics for the full sample. The weights were determined by running a regression of whether someone responded to the survey using baseline data for all 499 sample members. Results from the regression were used to calculate a predicted probability that someone responded to the survey, and a weight was applied to the 370 survey sample members, using the inverse of this predicted probability. The weighted impacts on depression and health outcomes are shown in

Appendix Table B.4 and are very similar to those impacts for the full sample. For example, the difference in the mean depression scores derived from weighted results for the survey respondents do not differ from results for the full sample (they differ by 0.01). Lastly, Appendix Table B.5 shows the parameter estimates from the regression used to create the weights.

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Appendix Table B.1

Comparison of the Baseline Characteristics of Six-Month Survey Respondents and Nonrespondents

Rhode Island: Working toward Wellness

Characteristic	Full Sample	Respondents	Non-Respondents	
Depression severity (%)				
Total score on QIDS-SR[a]				**
Mild (6-10)	13.4	15.4	7.8	
Moderate (11-15)	39.1	39.7	37.2	
Severe (16-20)	35.1	34.6	36.4	
Very severe (21-25)	12.4	10.3	18.6	
Average score on QIDS-SR	15.4	15.1	16.2	***
Sociodemographic characteristics				
Gender (%)				
Female	89.8	89.2	91.5	
Age (%)				
18-25	13.0	11.1	18.6	
26-35	39.7	40.5	37.2	
36-45	31.3	31.9	29.5	
46-maximum age (62)	16.0	16.5	14.7	
Average age (years)	35.4	35.8	34.4	
Race/ethnicity (%)				***
White	45.3	48.6	35.7	
Hispanic[b]	33.3	29.7	43.4	
Black/African-American	12.4	14.1	7.8	
Other	5.8	5.7	6.2	
Marital status (%)				
Single	37.4	37.5	37.0	
Married or living with partner	40.6	40.2	41.7	
Divorced, separated, or widowed	22.0	22.3	21.3	
Average number of adults in household	1.6	1.6	1.7	
Highest degree/diploma (%)				
High school diploma or GED certificate	54.1	55.7	49.2	
Technical or 4-year college degree	22.4	22.1	23.0	
No high school diploma or GED certificate	23.6	22.1	27.8	

(continued)

Appendix Table B.1 (continued)

Characteristic	Full Sample	Respondents	Non-Respondents	
Number of children ages 0-18 per participant (%)	1.9	1.9	1.9	
Currently employed (%)				**
Yes	43.5	45.1	38.8	
No	53.9	53.2	55.8	
Number of months on the current job (%)				*
Not currently employed	53.9	53.2	55.8	
Less than 6 months	10.4	11.6	7.0	
6-24 months	13.8	12.7	17.1	
More than 24 months	16.8	18.4	12.4	
Number of hours worked per week at current job (%)				**
Not currently employed	53.9	53.2	55.8	
0-9 hours	2.4	2.4	2.3	
10-29 hours	13.2	14.9	8.5	
30 or more hours	23.6	24.6	20.9	
Earnings per hour before taxes at current job (%)				*
Not currently employed	53.9	53.2	55.8	
$7.00 or less	8.2	8.1	8.5	
$7.01 - $9.00	10.6	11.4	8.5	
$9.01 - $12.00	12.4	12.7	11.6	
$12.01 - $15.00	6.4	7.6	3.1	
More than $15.00	4.6	4.6	4.7	
Prior treatment (%)				
Ever received treatment from professional	73.4	72.6	75.6	
Age when first talked with professional				
Never talked with professional	26.5	27.3	24.0	
20 or younger	21.6	20.5	24.8	
21-30	25.9	27.0	22.5	
31-40	16.8	15.9	19.4	
Older than 40	7.8	8.1	7.0	
Received treatment within the past year	39.7	38.2	44.0	
Received antidepressant medication within the past year	37.6	36.4	40.9	

(continued)

Appendix Table B.1 (continued)

Characteristic	Full Sample	Respondents	Non-Respondents	
Alcohol/drug use (%)				
Has at least one alcoholic drink in a typical week				***
Yes	30.1	30.5	28.7	
No	32.7	36.2	22.5	
Uses any type of recreational drug in a typical month				***
Yes	3.8	2.4	7.8	
No	43.1	48.4	27.9	
Self-reported health (%)				
How would you rate your health?				
Excellent/very good	18.1	18.6	16.5	
Good	38.0	38.1	37.8	
Fair/poor	43.9	43.3	45.7	
SSI/SSDI benefits (%)				
Participant currently receiving SSI or SSDI (%)	3.4	3.3	3.9	
Sample size	499	370	129	

SOURCE: MDRC calculations from Rhode Island baseline data.

NOTES: For categorical variables, chi-square tests were conducted to determine statistical significance. For other variables, two-tailed t-tests were conducted to determine statistical significance. Statistical significance levels are indicated as: * = 10 percent; ** = 5 percent; and *** = 1 percent. The significance level indicates the probability that the impact estimated would be this large if the program had zero true effect.

Respondents with missing data are not included in this table; as a result, some categories may not total 100 percent.

[a] Quick Inventory of Depressive Symptomatology-Self Report (QIDS-SR), which determines whether the person meets the criteria for being diagnosed with major depression over the past seven days.

[b] The sample member is coded as Hispanic if she/he answered "Yes" to Hispanic ethnicity.

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Appendix Table B.2

Selected Baseline Characteristics, by Research Group Status, Among Six-Month Survey Respondents

Rhode Island: Working toward Wellness

Characteristic	Program Group	Control Group		Total
Depression severity (%)				
Total score on QIDS-SR[a]			**	
Mild (6-10)	12.3	18.6		15.4
Moderate (11-15)	47.6	31.7		39.7
Severe (16-20)	32.1	37.2		34.6
Very severe (21-25)	8.0	12.6		10.3
Average score on QIDS-SR	14.8	15.3		15.1
Sociodemographic characteristics				
Gender (%)				
Female	88.2	90.2		89.2
Age (%)				
18-25	12.3	9.8		11.1
26-35	39.6	41.5		40.5
36-45	30.5	33.3		31.9
46-maximum age (62)	17.6	15.3		16.5
Average age (years)	35.8	35.8		35.8
Race/ethnicity (%)				
White	46.2	53.1		49.6
Hispanic[b]	32.6	27.9		30.3
Black/African-American	15.2	13.4		14.3
Other	6.0	5.6		5.8
Marital status (%)				
Single	38.7	36.3		37.5
Married or living with partner	39.2	41.2		40.2
Divorced, separated, or widowed	22.0	22.5		22.3
Average number of adults in household	1.6	1.6		1.6
Highest degree/diploma (%)				
High school diploma or GED certificate	52.7	58.9		55.7
Technical or 4-year college degree	25.3	18.9		22.1
No high school diploma or GED certificate	22.0	22.2		22.1

(continued)

Appendix Table B.2 (continued)

Characteristic	Program Group	Control Group	Total
Number of children ages 0-18 per participant (%)	1.9	1.9	1.9
Currently employed (%)			
Yes	45.5	44.8	45.1
No	52.4	54.1	53.2
Number of months on the current job (%)			
Not currently employed	52.4	54.1	53.2
Less than 6 months	11.8	11.5	11.6
6-24 months	12.8	12.6	12.7
More than 24 months	17.6	19.1	18.4
Number of hours worked per week at current job (%)		[c]	
Not currently employed	52.4	54.1	53.2
0-9 hours	2.7	2.2	2.4
10-29 hours	11.8	18.0	14.9
30 or more hours	27.3	21.9	24.6
Earnings per hour before taxes at current job (%)			
Not currently employed	52.4	54.1	53.2
$7.00 or less	8.0	8.2	8.1
$7.01 - $9.00	11.2	11.5	11.4
$9.01 - $12.00	12.8	12.6	12.7
$12.01 - $15.00	8.6	6.6	7.6
More than $15.00	4.3	4.9	4.6
Prior treatment (%)			
Ever received treatment from professional	74.2	71.0	72.6
Age when first talked with professional (%)			
Never talked with professional	25.7	29.0	27.3
20 or younger	20.3	20.8	20.5
21-30	28.3	25.7	27.0
31-40	14.4	17.5	15.9
Older than 40	10.2	6.0	8.1
Received treatment within the past year	43.0	33.3 *	38.2
Received antidepressant medication within the past year	38.4	34.4	36.4

(continued)

Appendix Table B.2 (continued)

Characteristic	Program Group	Control Group	Total
Alcohol/drug use (%)			
Has at least one alcoholic drink in a typical week			
Yes	28.3	32.8	30.5
No	37.4	35.0	36.2
Uses any type of recreational drug in a typical month		[c]	
Yes	4.3	5.2	4.8
No	95.7	94.8	95.2
Self-reported health (%)			
How would you rate your health?			
Excellent/very good	14.8	22.5	18.6
Good	38.8	37.4	38.1
Fair/poor	46.4	40.1	43.3
SSI/SSDI benefits (%)			
Currently receiving SSI or SSDI	17.9	14.9	16.4
Sample size	183	187	370

SOURCE: MDRC calculations from Rhode Island baseline data.

NOTES: For categorical variables, chi-square tests were conducted to determine statistical significance. For other variables, two-tailed t-tests were conducted to determine statistical significance. Statistical significance levels are indicated as: * = 10 percent; ** = 5 percent; and *** = 1 percent. The significance level indicates the probability that the impact estimated would be this large if the program had zero true effect.

Respondents with missing data are not included in this table; as a result, the distribution of some categories may not total 100 percent.

[a] Quick Inventory of Depressive Symptomatology-Self Report (QIDS-SR), which determines whether the person meets the criteria for being diagnosed with major depression over the past seven days.

[b] The sample member is coded as Hispanic if she/he answered "Yes" to Hispanic ethnicity.

[c] The chi-square test may not be valid due to small sample sizes within the cross-tabulation distribution.

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Appendix Table B.3

Estimated Impacts on Selected Outcomes Six Months Following Random Assignment for Survey Respondents and Nonrespondents

Rhode Island: Working toward Wellness

Subgroup and Outcome (%)	Program Group	Control Group	Difference (Impact)		P-Value
Respondents					
Received mental health services	31.4	21.5	9.9	**	0.032
Psychiatrist	12.6	7.3	5.3		0.102
Primary care physician	10.6	7.8	2.9		0.347
Psychologist	4.6	-0.3	4.8	***	0.002
Clinical social worker/counselor[a]	17.7	10.9	6.8	*	0.072
Visited emergency department for mental health services	1.5	0.1	1.3		0.178
Hospitalized for mental health services	4.4	-0.1	4.5	***	0.004
Received chemical dependency services	0.1	0.0	0.0		0.562
Filled a prescription for psychotherapeutic drugs	42.3	38.2	4.1		0.377
Antidepressant drugs	36.5	34.3	2.3		0.609
Other psychotherapeutic drugs	19.3	13.6	5.8		0.141
Filled a prescription for adequate therapeutic dosage of antidepressant medication	22.9	20.9	2.0		0.626
Filled a prescription for nonpsychotherapeutic drugs	80.3	80.3	0.0		0.994
Sample size (total = 370)	187	183			
Nonrespondents					
Received mental health services	36.8	20.6	16.2	*	0.051
Psychiatrist	12.3	6.8	5.5		0.305
Primary care physician	10.2	8.6	1.6		0.782
Psychologist	3.0	1.8	1.2		0.712
Clinical social worker/counselor[a]	30.1	12.0	18.1	**	0.013
Visited emergency department for mental health services	1.2	0.4	0.8		0.638
Hospitalized for mental health services	2.6	0.7	1.9		0.422
Received chemical dependency services	0.0	0.1	0.0		0.362

(continued)

Appendix Table B.3 (continued)

Subgroup and Outcome (%)	Program Group	Control Group	Difference (Impact)	P-Value
Filled a prescription for psychotherapeutic drugs	55.7	36.2	19.5 **	0.021
Antidepressant drugs	47.3	33.2	14.1 *	0.091
Other psychotherapeutic drugs	28.7	14.6	14.1 *	0.052
Filled a prescription for adequate therapeutic dosage of antidepressant medication	20.8	22.4	-1.6	0.826
Filled a prescription for nonpsychotherapeutic drugs	86.8	79.8	7.1	0.350
Sample size (total = 129)	58	71		

SOURCE: Measures of health service utilization are based on MDRC calculations using United Behavioral Health medical and prescription claims data.

NOTES: Two-tailed t-tests were conducted to determine statistical significance. Statistical significance levels are indicated as: * = 10 percent; ** = 5 percent; and *** = 1 percent. The significance level indicates the probability that the impact estimated would be this large if the program had zero true effect.

An f-test was applied to differences between the subgroups for each characteristic. Statistical significance levels are indicated as: † = 10 percent; †† = 5 percent; and ††† = 1 percent.

[a] This item includes claims from one program group member who received services for a behavioral health clinic.

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Appendix Table B.4

Response-Weighted Impact Estimates for Health and Depression Severity Six Months Following Random Assignment

Rhode Island: Working toward Wellness

Outcome	Program Group	Control Group	Difference (Impact)	P-Value
Depression outcomes: QIDS-SR[a] depression scale				
Mean depression score at 6 months	12.6	12.7	0.0	0.947
Depression level 6 months following random assignment (%)				
Out of depression	12.2	10.0	2.3	0.490
Mildly depressed	21.0	30.7	-9.7 **	0.036
Moderately depressed	32.7	24.6	8.1 *	0.084
Severely depressed	27.7	24.0	3.7	0.414
Very severely depressed	6.5	10.8	-4.3	0.137
Shift in depression, by category[b] (%)				
Depression worsened by 2 categories	2.5	5.5	-3.0	0.126
Depression worsened by 1 category	14.6	17.6	-3.0	0.417
No categorical shift in depression	38.8	30.9	7.9	0.123
Depression improved by 1 category	27.3	25.0	2.3	0.626
Depression improved by 2 or more categories	16.7	20.9	-4.2	0.303
Substantial improvement[c] (%)	18.1	24.7	-6.7	0.130
Recovery at 6 months[d] (%)	12.2	10.0	2.3	0.490
Health status				
General health (%)				
Poor	11.6	9.6	2.0	0.531
Fair	27.5	31.3	-3.7	0.420
Good	41.6	37.6	4.0	0.425
Very good	12.5	16.6	-4.1	0.273
Excellent	6.8	4.5	2.2	0.345
Sample size (total = 370)	187	183		

SOURCE: Measure of depression and health are based on MDRC calculations using data from respondents to the six-month survey.

NOTES: Results in this table are adjusted for pre-random assignment characteristics.

Two-tailed t-tests were conducted to determine statistical significance. Statistical significance levels are indicated as: * = 10 percent; ** = 5 percent; and *** = 1 percent. The significance level indicates the probability that the impact estimated would be this large if the program had zero true effect.

Respondents with missing data are not included in this table; as a result, the distribution of some categories may not total 100 percent.

[a] Quick Inventory of Depressive Symptomatology-Self Report (QIDS-SR), which determines whether the person meets criteria for being diagnosed with major depression over the past seven days.

[b] Scores on the QIDS-SR depression scale fall into the following categories: very severe depression, severe depression, moderate depression, mild depression, no depression.

[c] Substantial improvement is indicated by a 50 percent or higher reduction in the QIDS-SR score.

[d] Recovery is indicated by a QIDS-SR score of 5 or less.

The Enhanced Services for the Hard-to-Employ Demonstration

Appendix Table B.5

Regression Parameter Estimates Used to Create Weights for Response-Weighted Results for the Six-Month Survey

Rhode Island: Working toward Wellness

Characteristic	Parameter Estimate	Standard Error	
Treatment status	0.051	0.039	
Total score on QIDS-SR[a] (%)			
Moderate (11-15)	-0.087	0.089	
Severe (16-20)	-0.124	0.146	
Very severe (21-25)	-0.272	0.209	
Average score on QIDS-SR	0.842	1.533	
Gender (%)			
Female	0.015	0.070	
Age (%)			
26-35	0.115	0.066	*
36-45	0.138	0.070	**
46-maximum age (62)	0.173	0.080	**
Race/ethnicity (%)			
Hispanic[b]	-0.131	0.048	***
Black/African-American	0.008	0.064	
Other	-0.086	0.088	
Marital status (%)			
Married or living with spouse	-0.043	0.054	
Divorced, separated, or widowed	-0.034	0.051	
Highest degree/diploma (%)			
Technical/AA/2-year college	0.031	0.058	
4-year college	-0.138	0.080	*
None of the above	-0.012	0.051	
Currently employed (%)	0.210	0.146	
Earnings per hour before taxes at current job (%)			
Not currently employed	0.250	0.133	*
$7.01-$9.00	0.085	0.087	
$9.01-$12.00	-0.005	0.086	
$12.01-$15.00	0.106	0.102	
More than $15.00	0.025	0.115	

(continued)

Appendix Table B.5 (continued)

Characteristic	Parameter Estimate	Standard Error	
Number of children ages 0-18 per participant (%)			
0	-0.165	0.169	
2	0.123	0.072	*
3 or more	0.141	0.141	
Average number of children ages 0-18 per participant	-3.787	5.415	
Date of random assignment			
Jan - Mar 2005	0.184	0.095	*
Apr - Jun 2005	0.095	0.098	
Jul - Sep 2005	0.078	0.104	
Oct - Dec 2005	0.217	0.103	**
Jan - Mar 2006	0.209	0.097	**
Apr - Jun 2006	0.332	0.099	***
Jul - Sep 2006	0.264	0.103	**
Oct - Dec 2006	0.489	0.167	***
Sample size (total = 499)			

SOURCE: MDRC calculations from Rhode Island baseline data.

NOTES: Statistical significance levels are indicated as: *** = 1 percent; ** = 5 percent; * = 10 percent. The significance level indicates the probability that one would incorrectly conclude that a difference exists between research groups for the corresponding variable.

These estimates were used to generate weights for analyses presented in Appendix Table B.4.

One category from each distribution was omitted as a reference category.

[a] Quick Inventory of Depressive Symptomatology-Self Report (QIDS-SR), which determines whether the person meets criteria for being diagnosed with major depression over the past seven days.

[b] The sample member is coded as Hispanic if she/he answered "Yes" to Hispanic ethnicity.

Appendix C

Supplemental Impact Results

The Enhanced Services for the Hard-to-Employ Demonstration

Appendix Table C.1

Estimated Impacts on Mental Health Treatment in Six Months Following Random Assignment, by Month

Rhode Island: Working toward Wellness

Outcome (%)	Program Group	Control Group	Difference (Impact)		P-Value
Use of mental health services					
Month 1	15.6	7.8	7.9	***	0.007
Month 2	15.6	9.0	6.5	**	0.027
Month 3	13.4	9.9	3.6		0.219
Month 4	18.2	10.0	8.1	***	0.009
Month 5	16.7	8.3	8.4	***	0.006
Month 6	15.1	9.0	6.1	**	0.043
Filled a prescription for psychotherapeutic drugs					
Month 1	21.4	22.3	-1.0		0.778
Month 2	23.1	20.6	2.5		0.487
Month 3	27.7	18.5	9.2	**	0.010
Month 4	25.9	21.4	4.5		0.207
Month 5	24.6	20.0	4.5		0.200
Month 6	24.0	19.4	4.6		0.192
Sample size (total = 499)	245	254			

SOURCE: Measures of health service utilization are based on MDRC calculations using United Behavioral Health medical and prescription claims data.

NOTES: Results in this table are adjusted for pre-random assignment characteristics.

Two-tailed t-tests were conducted to determine statistical significance. Statistical significance levels are indicated as: * = 10 percent; ** = 5 percent; and *** = 1 percent. The significance level indicates the probability that the impact estimated would be this large if the program had zero true effect.

The Enhanced Services for the Hard-to-Employ Demonstration

Appendix Table C.2

Estimated Impacts on Month of Initial Mental Health Treatment in Six Months Following Random Assignment

Rhode Island: Working toward Wellness

Outcome (%)	Program Group	Control Group	Difference (Impact)		P-Value
Received first mental health service					
Month 1	15.6	7.8	7.9	***	0.007
Month 2	4.9	3.9	1.0		0.585
Month 3	3.0	4.2	-1.3		0.469
Month 4	3.6	2.5	1.1		0.478
Month 5	4.0	1.7	2.3		0.138
Month 6	1.1	1.7	-0.6		0.585
Received monthly service after first visit	12.4	6.5	5.9	**	0.028
Month 1	4.8	1.7	3.1	*	0.059
Month 2	1.7	0.7	0.9		0.352
Month 3	1.1	0.5	0.6		0.501
Month 4	1.2	0.8	0.4		0.666
Month 5	2.6	1.0	1.6		0.199
Month 6	1.1	1.7	-0.6		0.585
Sample size (total = 499)	245	254			

SOURCE: Measures of health service utilization are based on MDRC calculations using United Behavioral Health medical claims data.

NOTES: Results in this table are adjusted for pre-random assignment characteristics.

Two-tailed t-tests were conducted to determine statistical significance. Statistical significance levels are indicated as: * = 10 percent; ** = 5 percent; and *** = 1 percent. The significance level indicates the probability that the impact estimated would be this large if the program had zero true effect.

The Enhanced Services for the Hard-to-Employ Demonstration

Appendix Table C.3

Selected Impacts for White and Nonwhite Sample Members in Six Months Following Random Assignment

Rhode Island: Working toward Wellness

Subgroup and Outcome	Program Group	Control Group	Difference (Impact)		P-Value	
Nonwhite subgroup						
Use of mental health services during 6 months following random assignment						
Received mental health services (%)	31.8	17.0	14.7	***	0.004	
Number of visits for mental health services	1.8	0.6	1.2	***	0.006	
Prescription medications filled during 6 months following random assignment						
Filled a prescription for an antidepressant (%)	34.6	25.3	9.3	*	0.070	
Filled a prescription for adequate therapeutic dosage of antidepressant medication (%)	20.9	14.2	6.7		0.148	††
Sample size (total = 273)	139	134				
Mean depression score 6 months following random assignment	12.5	13.9	-1.4	*	0.068	†
Depression level 6 months following random assignment (%)						
Out of depression	10.1	4.2	5.9		0.133	
Mildly depressed	26.4	27.4	-1.1		0.877	
Moderately depressed	32.6	23.6	9.0		0.194	
Severely depressed	23.6	30.5	-6.9		0.304	
Very severely depressed	7.3	14.2	-6.9		0.138	
Sample size (total = 190)	102	88				
White subgroup						
Use of mental health services during 6 months following random assignment						
Received mental health services (%)	33.0	26.7	6.3		0.320	
Number of visits for mental health services	2.2	1.4	0.8		0.189	
Prescription medications filled during 6 months following random assignment						
Filled a prescription for an antidepressant (%)	43.0	45.3	-2.3		0.701	
Filled a prescription for adequate therapeutic dosage of antidepressant medication (%)	22.7	30.8	-8.1		0.154	††
Sample size (total = 226)	106	120				

(continued)

Appendix Table C.3 (continued)

Subgroup and Outcome	Program Group	Control Group	Difference (Impact)	P-Value	
Mean depression score 6 months following random assignment	12.5	11.7	0.8	0.357	†
Depression level 6 months following random assignment (%)					
Out of depression	13.8	16.1	-2.3	0.691	
Mildly depressed	19.6	29.8	-10.2	0.144	
Moderately depressed	33.1	25.1	7.9	0.275	
Severely depressed	26.9	22.3	4.6	0.499	
Very severely depressed	6.7	6.7	0.0	0.995	
Sample size (total = 180)	85	95			

SOURCES: Measures of health service utilization are based on MDRC calculations using United Behavioral Health medical and prescription claims data. Measures of depression are based on MDRC calculations using data from respondents to the six-month survey.

NOTES: Two-tailed t-tests were conducted to determine statistical significance. Statistical significance levels are indicated as: * = 10 percent; ** = 5 percent; and *** = 1 percent. The significance level indicates the probability that the impact estimated would be this large if the program had zero true effect.

An f-test was applied to differences between the subgroups for each characteristic. Statistical significance levels are indicated as: † = 10 percent; †† = 5 percent; and ††† = 1 percent.

The Enhanced Services for the Hard-to-Employ Demonstration

Appendix Table C.4

Estimated Impacts on Employment-Related Outcomes Six Months Following Random Assignment, by Employment at Random Assignment

Rhode Island: Working toward Wellness

Subgroup and Outcome	Program Group	Control Group	Difference (Impact)		P-Value
Unemployed survey respondents					
Has had any paid job since random assignment (%)	40.2	34.7	5.5		0.438
Currently employed (%)	27.3	23.9	3.5		0.591
Currently working odd jobs (%)	6.4	0.4	6.0	**	0.030
Earnings per hour before taxes at current job (%)					
Not currently employed	72.7	76.1	-3.5		0.591
Less than $5.00	1.9	0.0	1.9		0.165
$5.00-$6.99	3.8	1.1	2.6		0.250
$7.00-$8.99	6.3	5.5	0.8		0.821
$9.00 or more	14.1	15.5	-1.4		0.786
Days of missed work, at current job, since random assignment (%)					
Not currently employed	72.7	76.1	-3.5		0.591
0	16.5	15.0	1.5		0.785
1-5	8.1	7.7	0.4		0.925
6-9	1.0	0.9	0.1		0.960
10 or more	1.7	0.2	1.5		0.307
Work performance in the past 4 weeks is higher than other workers (%)					
All or most of the time	12.3	12.3	-0.1		0.991
Only some or none of the time	14.1	9.6	4.5		0.336
Monthly income ($)					
Household income	1,094	1,115	-21		0.867
Individual income	638	586	52		0.555
Has ever participated in any employment-related activity (%)	41.2	39.6	1.5		0.835
Job club or job search	24.6	29.6	-5.0		0.444
Basic education	7.9	9.8	-1.9		0.635
Postsecondary education	10.7	6.1	4.6		0.258
Vocational training	2.1	2.9	-0.8		0.739
Other	7.2	8.6	-1.3		0.741
Sample size (total = 203)	102	101			

(continued)

Appendix Table C.4 (continued)

Subgroup and Outcome	Program Group	Control Group	Difference (Impact)	P-Value
Employed survey respondents				
Has had any paid job since random assignment (%)	89.6	93.7	-4.1	0.366
Currently employed (%)	78.1	78.8	-0.6	0.923
Currently working odd jobs (%)	0.0	0.0	0.0	0.000
Earnings per hour before taxes at current job (%)				
Not currently employed	21.9	21.2	0.6	0.923
Less than $5.00	3.6	2.3	1.3	0.654
$5.00-$6.99	6.1	5.9	0.2	0.968
$7.00-$8.99	19.1	15.6	3.4	0.583
$9.00 or more	41.5	44.8	-3.3	0.676
Days of missed work, at current job, since random assignment (%)				
Not currently employed	21.9	21.2	0.6	0.923
0	38.0	39.8	-1.8	0.816
1-5	33.6	34.7	-1.0	0.899
6-9	5.2	2.0	3.2	0.320
10 or more	1.0	1.4	-0.3	0.856
Work performance in the past 4 weeks is higher than other workers (%)				
All or most of the time	41.3	43.7	-2.4	0.769
Only some or none of the time	30.6	34.1	-3.5	0.644
Monthly income ($)				
Household income	1,801	1,536	264	0.224
Individual income	1,269	1,119	150	0.257
Has ever participated in any employment-related activity (%)	32.0	29.0	3.0	0.689
Job club or job search	19.9	14.8	5.1	0.396
Basic education	3.0	3.0	0.1	0.984
Postsecondary education	18.6	10.0	8.5	0.142
Vocational training	3.7	5.9	-2.1	0.551
Other	2.6	3.4	-0.8	0.776
Sample size (total = 167)	85	82		

SOURCE: Measures of employment are based on MDRC calculations using data from respondents to the six-month survey.

NOTES: Results in this table are adjusted for pre-random assignment characteristics.

Two-tailed t-tests were conducted to determine statistical significance. Statistical significance levels are indicated as: * = 10 percent; ** = 5 percent; and *** = 1 percent. The significance level indicates the probability that the impact estimated would be this large if the program had zero true effect.

Respondents with missing data are not included in this table; as a result, the distribution of some categories may not total 100 percent.

The Enhanced Services for the Hard-to-Employ Demonstration

Appendix Table C.5

Estimated Impacts on Selected Outcomes Six Months Following Random Assignment for Individuals Mildly Depressed at Random Assignment

Rhode Island: Working toward Wellness

Subgroup and Outcome	Program Group	Control Group	Difference (Impact)		P-Value
Mildly depressed subgroup					
Use of mental health services during 6 months following random assignment					
Received mental health services (%)	25.6	15.0	10.6		0.446
Number of visits for mental health services	1.2	0.2	1.0		0.162
Prescription medications filled during 6 months following random assignment					
Filled a prescription for an antidepressant (%)	33.8	21.9	11.9		0.382
Filled a prescription for adequate therapeutic dosage of antidepressant medication (%)	7.1	18.0	-10.8		0.364
Sample size (total = 67)	28	39			
Mean depression score 6 months following random assignment	10.5	9.9	0.7		0.688
Depression level 6 months following random assignment (%)					
Out of depression	22.3	11.4	10.9		0.400
Mildly depressed	16.0	50.9	-35.0	*	0.089
Moderately depressed	50.4	21.8	28.6		0.126
Severely depressed	11.3	15.9	-4.5		0.685
Very severely depressed	0.0	0.0	0.0		0.000
Sample size (total = 57)	23	34			

SOURCES: Measures of health service utilization are based on MDRC calculations using United Behavioral Health medical and prescription claims data. Measures of depression are based on MDRC calculations using data from respondents to the six-month survey.

NOTES: Results in this table are adjusted for pre-random assignment characteristics.

Two-tailed t-tests were conducted to determine statistical significance. Statistical significance levels are indicated as: * = 10 percent; ** = 5 percent; and *** = 1 percent. The significance level indicates the probability that the impact estimated would be this large if the program had zero true effect.

An f-test was applied to differences between the subgroups for each characteristic. Statistical significance levels are indicated as: † = 10 percent; †† = 5 percent; and ††† = 1 percent.

References

Adelmann, Pamela K. 2003. "Mental and Substance Use Disorders Among Medicaid Recipients: Prevalence Estimates from Two National Surveys." *Administration and Policy in Mental Health* 31, 2: 111-129.

American Psychiatric Association. 2000. *Diagnostic and Statistical Manual of Mental Disorders, DSM IV,* 4th ed. Washington, DC: American Psychiatric Association.

Belsher, Gayle, and Charles G. Costello. 1988. "Relapse After Recovery from Unipolar Depression: A Critical Review." *Psychological Bulletin 1988* 104, 1: 84-96.

Bernard, H. Russell. 2000. *Social Research Methods: Qualitative and Quantitative Approaches.* Thousand Oaks, CA: Sage Publications.

Bloom, Dan, Cindy Redcross, JoAnn Hsueh, Sarah Rich, and Vanessa Martin. 2007. *Four Strategies to Overcome Barriers to Employment: An Introduction to the Enhanced Services for the Hard-to-Employ Demonstration and Evaluation Project.* New York: MDRC.

Corcoran, Mary, Sandra Danziger, and Richard Tolman. 2003. "Employment Duration of African-American and White Welfare Recipients and the Role of Persistent Health and Mental Health Problems." National Poverty Center Working Paper Series No. 03-5. Ann Arbor: University of Michigan, National Poverty Center.

Counsell, Steven R., Christopher M. Callahan, Daniel O. Clark, Wanzhu Tu, Amna B. Buttar, Timothy E. Stump, and Gretchen D. Ricketts. 2007. "Geriatric Care Management for Low-Income Seniors: A Randomized Controlled Trial." *Journal of American Medical Association* 298, 22: 2623-2633.

Danziger, Sandra, Mary Corcoran, Sheldon Danziger, Colleen Heflin, Ariel Kalil, Judith Levine, Daniel Rosen, Kristin Seefeldt, Kristine Siefert, and Richard Tolman. 2002. "Barriers to the Employment of Welfare Recipients." PSC Research Report No. 02-508. Ann Arbor: University of Michigan, Population Studies Center at the Institute for Social Research.

Dietrich, Allen J., Jonathan N. Tobin, Andrea Cassells, Christina M. Robinson, Mary A. Greene, Carol H. Sox, Michael L. Beach, Katherine N. DuHamel, and Richard G. Younge. 2006. "Telephone Care Management to Improve Cancer Screening Among Low-Income Women: A Randomized, Controlled Trial." *Annals of Internal Medicine* 144, 8: 563-571.

Dietrich, Allen J., Jonathan N. Tobin, Andrea Cassells, Christina M. Robinson, Meredith Reh, Karen A. Romero, Ann B. Flood, and Michael L. Beach. 2007. "Translation of an Efficacious Cancer-Screening Intervention to Women Enrolled in a Medicaid Managed Care Organization." *Annals of Family Medicine* 5, 4: 320-327.

Fireman, Bruce, Joan Bartlett, and Joe Selby. 2004. "Can Disease Management Reduce Health Care Costs by Improving Quality?" *Health Affairs* 23, 6: 63-75.

Katzelnick, David J., Gregory E. Simon, Steven D. Pearson, Wilard G. Manning, Cindy P. Helstad, Henry J. Henk, Stanley M. Cole, Elizabeth H. Lin, Leslie H. Taylor, and Kenneth A. Kobak. 2000. "Randomized Trial of a Depression Management Program in High Utilizers of Medical Care." *Archives of Family Medicine* 9, 4: 345-351.

Kessler, Ronald C., Gavin Andrews, Lisa J. Colpe, Eva Hiripi, Daniel K. Mroczek, Sharon-Lise T. Normand, Ellen E. Walters, and Alan M. Zaslavsky. 2002. "Short Screening Scales to Monitor Population Prevalences and Trends in Non-Specific Psychological Distress." *Psychological Medicine* 32, 6: 959-976.

Kessler, Ronald C., Patricia Berglund, Olga Demler, Robert Jin, Doreen Koretz, Kathleen R. Merikangas, A. John Rush, Ellen E. Walters, and Philip S. Wang. 2003. "The Epidemiology of Major Depressive Disorder: Results from the National Comorbidity Survey Replication (NCS-R)." *Journal of American Medical Association* 289, 23: 3095-3105.

Kinder, Leslie S., Wayne J. Katon, Evette Ludman, Joan Russo, Greg Simon, Elizabeth H. B. Lin, Paul Ciechanowski, Michael Von Korff, and Bessie Young. 2006. "Improving Depression Care in Patients with Diabetes and Multiple Complications." *Journal of General Internal Medicine* 21, 10: 1036-1041.

Kroenke, Kurt, Robert L. Spitzer, and Janet B. Williams. 2001. "The PHQ-9: Validity of a Brief Depression Severity Measure." *Journal of General Internal Medicine* 16: 606-613.

Lesser, Ira M., Daniel B. Castro, Bradley N. Gaynes, Jodi Gonzalez, A. John Rush, Jonathan E. Alpert, Madhukar Trivedi, James F. Luther, and Stephen R. Wisniewski. 2007. "Ethnicity/Race and Outcome in the Treatment of Depression: Results from STAR*D." *Medical Care* 45, 11: 1043-1051.

Liu, Chuan-Fen, John Fortney, Susan Vivell, Karen Vollen, William N. Raney, Barbara Revay, Maurilio Garcia-Maldonado, Jeffrey Pyne, Lisa V. Rubenstein, and Edmund Chaney. 2007. "Time Allocation and Caseload Capacity in Telephone Depression Care Management." *American Journal of Managed Care* 13, 12: 652-660.

Ludman, Evette J., Gregory E. Simon, and Steve Tutty. 2006. *Creating a Balance: A Step by Step Approach to Managing Stress and Lifting Your Mood.* Victoria, BC: Trafford Publishing.

Ludman, Evette J., Gregory E. Simon, Steve Tutty, and Michael Von Korff. 2007. "A Randomized Trial of Telephone Psychotherapy and Pharmacotherapy for Depression: Continuation and Durability of Effects." *Journal of Consulting and Clinical Psychology* 75, 2: 257-266.

Mintz, Jim, Lois Imber Mintz, Matthew J. Arruda, and Sun Sook Hwang. 1992. "Treatments of Depression and the Functional Capacity to Work." *Archives of General Psychiatry* 49, 10: 761-768.

Miranda, Jeanne, Joyce Y. Chung, Bonne L. Green, Janice Krupnick, Juned Siddique, Dennis A. Revicki, and Tom Belin. 2003. "Treating Depression in Predominantly Low-Income

Young Minority Women: A Randomized Controlled Trial." *Journal of American Medical Association* 290, 1: 57-65.

Miranda, Jeanne, Michael Schoenbaum, Cathy Sherbourne, Naihua Duan, and Kenneth Wells. 2004. "Effects of Primary Care Depression Treatment on Minority Patients' Clinical Status and Employment." *Archives of General Psychiatry* 61, 8: 827-834.

Rollnick, Stephen, and William R. Miller. 1995. "What Is Motivational Interviewing?" *Behavioral and Cognitive Psychotherapy* 23: 325-334.

Rost, Kathryn, Jeffrey M. Pyne, L. Miriam Dickinson, and Anthony T. LoSasso. 2005. "Cost-Effectiveness of Enhancing Primary Care Depression Management on an Ongoing Basis." *Annals of Family Medicine* 3, 1: 7-14.

Rush, A. John, Madhukar H. Trivedi, Hicham M. Ibrahim, Thomas J. Carmody, Bruce Arnow, Daniel N. Klein, John C. Markowitz, Philip T. Ninan, Susan Kornstein, Rachel Manber, Michael E. Thase, James H. Kocsis, and Martin B. Keller. 2003. "The 16-Item Quick Inventory of Depressive Symptomatology (QIDS), Clinical Rating (QIDS-C), and Self-Report (QIDS-SR): A Psychometric Evaluation in Patients with Chronic Major Depression." *Biological Psychiatry* 54: 573-583.

Rush, A. John, Madhukar H. Trivedi, Stephen R. Wisniewski, Jonathan W. Stewart, Andrew A. Nierenberg, Michael E. Thase, Louise Ritz, Melanie M. Biggs, Diane Warden, James F. Luther, Kathy Shores-Wilson, George Niederehe, and Maurizio Fava. 2006. "Bupropion-SR, Sertraline, or Venlafaxine-XR After Failure of SSRIs for Depression." *New England Journal of Medicine* 354, 12: 1231-1242.

Silverstone, Paul H., and Arun Ravindran. 1999. "Once-Daily Venlafaxine Extended Release (XR) Compared with Fluoxetine in Outpatients with Depression and Anxiety." *Journal of Clinical Psychiatry* 60, 1: 22-28.

Simon, Gregory E., Evette J. Ludman, Steve Tutty, Belinda Operskalski, and Michael Von Korff. 2004. "Telephone Psychotherapy and Telephone Care Management for Primary Care Patients Starting Antidepressant Treatment: A Randomized Controlled Trial." *Journal of American Medical Association* 292, 8: 935-942.

Simon, Gregory E., Michael Von Korff, Carolyn Rutter, and Edward Wagner. 2000. "Randomised Trial of Monitoring, Feedback, and Management of Care by Telephone to Improve Treatment of Depression in Primary Care." *British Medical Journal* 320: 550-554.

Smith, Jeffrey L., Kathryn M. Rost, Paul A. Nutting, Carl E. Elliott, and L. Miriam Dickinson. 2002a. "Impact of Ongoing Primary Care Intervention on Long Term Outcomes in Uninsured and Insured Patients with Depression." *Medical Care* 40, 12: 1210-1222.

Smith, Jeffrey L., Kathryn M. Rost, Paul A. Nutting, Anne M. Libby, Carl E. Elliott, and Jeffrey M. Pyne. 2002b. "Impact of Primary Care Depression Intervention on Employment and Workplace Conflict Outcomes: Is Value Added?" *Journal of Mental Health Policy and Economics* 5: 43-49.

Stahl, Michael J. (ed.). 2003. *Encyclopedia of Health Care Management.* Thousand Oaks, CA: Sage Publications.

Thase, Michael E., A. Richard Entsuah, and Richard L. Rudolph. 2001. "Remission Rates During Treatment with Venlafaxine or Selective Serotonin Reuptake Inhibitors." *British Journal of Psychiatry* 178: 234-241.

Trivedi, Madhukar H., A. John Rush, Stephen R. Wisniewski, Andrew A. Nierenberg, Diane Warden, Louise Ritz, Grayson Norquist, Robert H. Howland, Barry Lebowitz, Patrick J. McGrath, Kathy Shores-Wilson, Melanie M. Biggs, G.K. Balasubramani, and Maurizio Fava. 2006. "Evaluation of Outcomes with Citalopram for Depression Using Measurement-Based Care in STAR*D: Implications for Clinical Practice." *American Journal of Psychiatry* 163, 1: 28-40.

Wang, Philip S., Arne L. Beck, Pat Berglund, David K. McKenas, Nicolaas Pronk, Gregory E. Simon, and Ronald C. Kessler. 2004. "Effects of Major Depression on Moment-in-Time Work Performance." *American Journal of Psychiatry* 16, 10: 1885-1891.

Wang, Philip S., Gregory E. Simon, Jerry Avorn, Francisca Azocar, Evette J. Ludman, Joyce McCulloch, Maria Z. Petukhova, and Ronald C. Kessler. 2007. "Telephone Screening, Outreach, and Care Management for Depressed Workers and Impact on Clinical and Work Productivity Outcomes: A Randomized Controlled Trial." *Journal of American Medical Association* 298, 12: 1401-1411.

Wells, Kenneth, Cathy Sherbourne, Michael Schoenbaum, Susan Ettner, Naihua Duan, Jeanne Miranda, Jürgen Unützer, and Lisa Rubenstein. 2004. "Five-Year Impact of Quality Improvement for Depression: Results of a Group-Level Randomized Controlled Trial." *Archives of General Psychiatry* 61, 4: 378-386.

Wells, Kenneth B., Cathy Sherbourne, Michael Schoenbaum, Naihua Duan, Lisa Meredith, Jürgen Unützer, Jeanne Miranda, Maureen F. Carney, and Lisa V. Rubenstein. 2000. "Impact of Disseminating Quality Improvement Programs for Depression in Managed Primary Care: A Randomized Controlled Trial." *Journal of American Medical Association* 283, 2: 212-220.

Young, Alexander S., Ruth Klap, Cathy D. Sherbourne, and Kenneth B. Wells. 2001. "The Quality of Care for Depressive and Anxiety Disorders in the United States." *Archives of General Psychiatry* 58, 1: 55-61.

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