Working toward Wellness

Telephone Care Management for Medicaid Recipients with Depression, Eighteen Months After Random Assignment

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Overview

Although many public assistance recipients suffer from depression, few receive consistent treatment. This report on a 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 presents results through 18 months — six months following a one-year intervention. Called "Working toward Wellness," the program 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") telephoned 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, 91 percent of the program group members had at least one discussion with a care manager, and the care managers averaged about nine contacts per client over the yearlong intervention.

- **There were significant barriers to in-person treatment within the target population.** Participants typically faced many ongoing and interrelated life stressors, including multiple health problems and child care and other caregiving responsibilities. The context of poverty shaped their lives in ways that influenced their well-being and ability to seek treatment.

- **The program increased the use of mental health services.** The program group was more likely than the control group to see psychiatrists, psychologists, and primary care physicians. These effects were largest in the program's first months but faded over time. Program group members made 1.6 times as many visits to mental health professionals, but there was no overall difference between the groups in filling prescriptions for antidepressant medications. However, there was an increase in filling prescriptions for other psychotherapeutic medications, primarily antianxiety medicines.

- **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 depression.** Program and control group members had similar average depression scores at 18 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 at the 18-month follow-up.

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Acknowledgments

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.

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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 18-month 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 as one of four studies 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 the likelihood that prescriptions for antianxiety medications would be filled, but it did not have any effect on filling prescriptions for antidepression medicines.
- Although WtW did not have an effect on the average depression level or employment outcomes, it did significantly reduce the number of people who were severely depressed.

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 treat-

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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 the American Medical Association* 289, 23: 3095-3105 (2003).

ment 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 led to a greater interest and capacity to seek and retain employment.

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 were assigned to the study. The evaluation used a random assignment design, meaning that each study participant was randomly assigned to either a program group, which received the intervention's mental health services, or a control group, which did not. Individuals scoring 6 or higher 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

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[2] Simon, Ludman, Tutty, Operskalski, and Von Korff, "Telephone Psychotherapy and Telephone Care Management for Primary Care Patients Starting Antidepressant Treatment: A Randomized Controlled Trial," *Journal of the American Medical Association* 292, 8: 935-942 (2004); 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 the American Medical Association* 298, 12: 1401-1411 (2007).

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 of 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 participants in 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 18 months following random assignment, or from May 2005 (for the first clients assigned) to April 2007 (for the last clients assigned). 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 help participants get 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 a management information system (MIS) that created a record of all care manager-client "contacts" and qualitative data from care manager case notes entered into the MIS. Key findings on the implementation of the program are presented below.

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

Care managers successfully contacted 91 percent of those assigned to the program group, and they averaged about nine contacts (8.82 contacts) per client over the yearlong intervention. This took considerable effort, as the contact-to-attempt ratio was about 30 percent — meaning that the care managers made about 3.5 attempts for each contact. Making contacts also required time. After the initial contact, which typically occurred within just a few days after

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[3] Wang et al. (2007).

random assignment, the median period that elapsed between contacts was about three weeks through the fifth contact and from three to four weeks through the ninth contact.

- **The "phone program" was a useful alternative for clients but typically did not lead to in-person treatment.**

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 that 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 many who used it, the phone program became an end in itself. According to the case note data, it does not appear that the phone program typically led to in-person treatment.

- **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.

- **There were significant barriers to in-person treatment within the WtW target population.**

WtW participants typically faced a proliferation of ongoing stressors — both eventful and chronic — in multiple life domains. While no one event, demand, or strain in particular may have reached a state of crisis — although they sometimes did — their cumulative impact greatly limited or overwhelmed clients' efforts to seek or maintain in-person care, despite engaging with a care manager for support via telephone. Indeed, the circumstances of many of the WtW participants reflect typical situations of "stress proliferation," wherein stressors rooted in the basic conditions of daily life or social roles (such as being a single parent) lead to an array of stressors in other life domains (for example, employment). Stressors relating to comorbidities, child care, and other caregiving appear to be especially challenging. Moreover, the context of poverty shaped participants' lives in ways that fundamentally influenced their well-being and ability to seek treatment.

Key Findings on Program Impacts

This report presents results through the 18 months following random assignment, using information from Medicaid claims data and a survey conducted with about 86 percent of study participants. At this 18-month follow-up point — six months after the end of the one-year program — the focus of the study has been to assess whether WtW improved depression symptoms and work-related outcomes if short-term improvements in depression subsequently led to a greater interest and capacity to seek and retain employment. In addition, the study was also designed to examine effects on participants' children. 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 18-month point, WtW increased the use of any mental health service by about 8 percentage points. About 46 percent of the program group received a mental health service during the 18 months following random assignment, compared with 38 percent of the control group. Program group members were more likely than control group members to see a psychiatrist, primary care physician, or psychologist about a mental health issue. For example, participants in the program group had, on average, about 1.6 times more mental health visits than those in the control group.

In addition, although there was no overall difference in filling prescriptions for antidepressant medications, program group members were more likely to fill prescriptions for other psychotherapeutic drugs, especially antianxiety medications, which are often prescribed along

The Enhanced Services for the Hard-to-Employ Demonstration

Table ES.1

Estimated Impacts on Use of Mental Health Services, Prescription Medications Filled, and Depression Outcomes in Eighteen 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	45.8	38.1	7.8 *	0.072
Psychiatrist	21.6	15.4	6.2 *	0.078
Primary care physician	20.5	14.1	6.3 *	0.057
Psychologist	6.6	1.9	4.6 **	0.012
Clinical social worker/counselor[a]	29.2	26.1	3.1	0.439
Visited emergency department for mental health services	4.6	1.0	3.6 **	0.018
Hospitalized for mental health services	5.6	1.7	4.0 **	0.020
Received chemical dependency services	8	7.7	0.3	0.911
Prescriptions filled, by type (%)				
Filled a prescription for psychotherapeutic drugs	60.0	54.4	5.6	0.160
Antidepressant drugs	52.8	49.5	3.3	0.418
Other psychotherapeutic drugs	34.4	23.6	10.8 ***	0.005
Filled a prescription for adequate therapeutic dosage of antidepressant medication	36.7	33.9	2.7	0.506
Filled a prescription for nonpsychotherapeutic drugs	89.7	89.4	0.3	0.917
Sample size (total = 499)	245	254		
Depression outcomes: QIDS-SR[b] depression scale[c]				
Mean depression score at 18 months	11.5	12.1	-0.7	0.203
Depression level 18 months following random assignment (%)				
Out of depression	17.4	14.9	2.4	0.490
Mildly depressed	26.6	23.5	3.1	0.469
Moderately depressed	29.0	33.1	-4.2	0.361
Severely depressed	23.0	18.2	4.8	0.222
Very severely depressed	4.1	10.3	-6.2 **	0.015
Sample size (total = 428)	211	217		

(continued)

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 18-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 = 0.1368).

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

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]

Also, it is important to note that although impacts are reported for the 18-month period, the higher likelihood of the program group members' receiving mental health services is the cumulative effect that is mostly attributed to the difference during the first 12 months of the intervention (Figure ES.1). There were only minor differences in the use of mental health services between the program and the control group after the end of the program.

- **After 18 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 depression.**

Program and control group members had similar average depression scores 18 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

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[4] Wang et al. (2007).

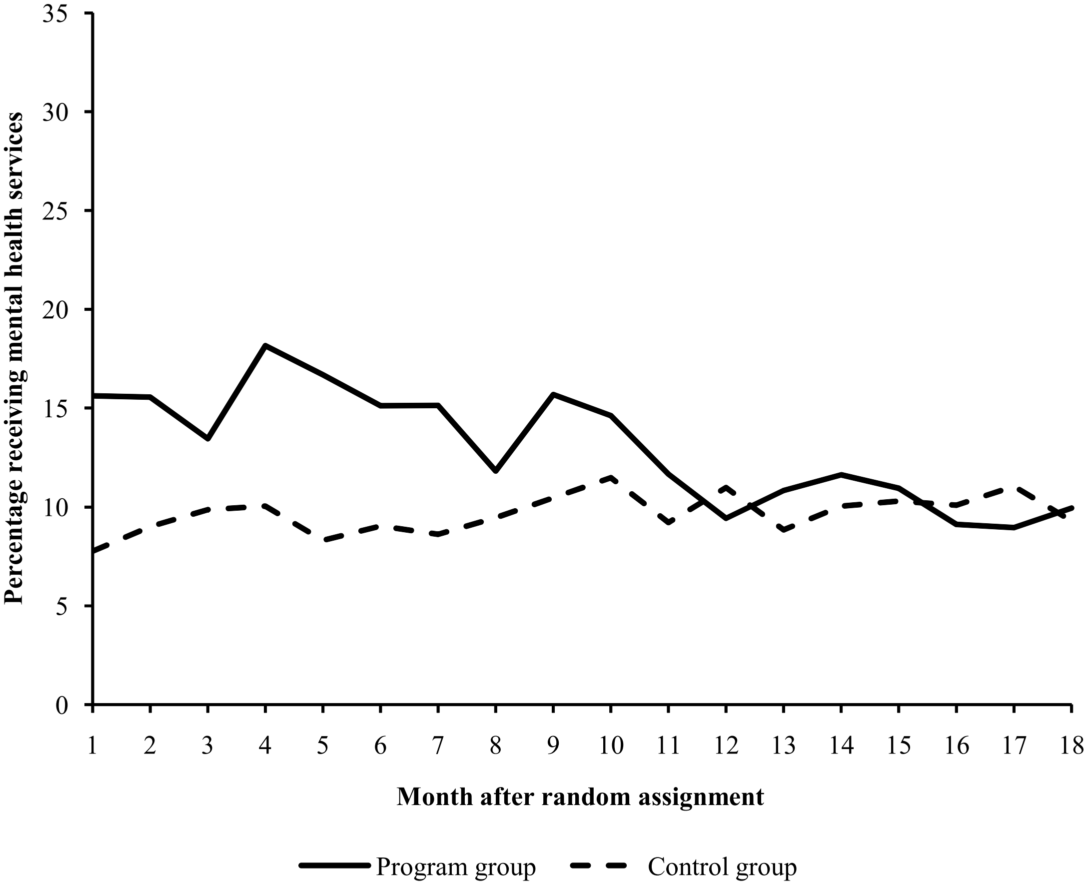
[5] Wells, Sherbourne, Schoenbaum, Duan, Meredith, Unützer, Miranda, Carney, and Rubenstein, "Impact of Disseminating Quality Improvement Programs for Depression in Managed Primary Care: A Randomized Controlled Trial," *Journal of the American Medical Association* 283, 2: 212-220 (2000); Simon et al. (2004).

The Enhanced Services for the Hard-to-Employ Demonstration

Figure ES.1

Percentage Receiving Mental Health Services, 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.

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

be very severely depressed at the 18-month follow-up. There may have been shifts at other depression levels, but the differences between the program and the control groups are not significant at other levels. Also, the overall distribution of depression levels between the program and the control groups are not significantly different.

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

There were 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 18-month follow-up, it is not surprising that there were no differences in employment outcomes.

- **Not surprisingly, given the limited effects of the WtW program on adults' depression, there were few effects of this program on parenting and outcomes for children.**

In addition to examining the effects of the WtW program on adults' depression, this study also examined how the program affected participants' children. Referred to as the "child add-on study," this allowed the research team to collect in-depth information on older children of study participants — children at the transition to early and late adolescence — for whom the effects of parents' depression might be particularly salient. Based on parental and youth reports of their mental health, social skills, and self esteem, effects of the WtW program are extremely rare. While there are a few effects on youth use of medical services, there is no consistent pattern of benefits for children as a result of their parents' assignment to the WtW program.

- **The WtW program had net costs of $774 per program group member, largely reflecting the added cost of care management services. Given the small effects of WtW on the overall usage of mental health services and the lack of effects on the usage of other health services, not surprisingly, no differences were found in the costs for these services.**

The gross costs for health services were $5,496 per program group member. The gross costs for health services for the control group were substantially the same: $5,348 per control group member. Therefore, the net cost of WtW of $774 per program group member largely reflects the cost of the care management services, which were $625 per program group member.

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. The results from the Working toward Wellness study provide some important lessons to consider before implementing such programs as care management of depression. Although such programs have been successful in improving depression among individuals in other settings, future interventions for public assistance recipients should consider other social and financial barriers that discourage disadvantaged populations from engaging in treatment. Results indicate that telephonic care management can increase the use of mental health services, but the impacts on treatment were modest, and there was no effect on depression. The results, however, 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 every client 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. The study also highlights the difficulty of engaging the participants in treatment for a prolonged period. Although the program group members were more likely to receive mental health services than the control group in the first six months of the WtW intervention, the numbers drop in the last six months of the intervention and decrease further after it ended. Thus, programs like this might be strengthened by having care managers devote additional resources to helping parents overcome the barriers they face. 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.

At the six-month follow-up period, it appeared possible — since many participants were still in early stages of treatment — that the program's effects on depression and employment might grow over time. However, this does not seem to have occurred. Treatment participation actually dropped in the last six months of the program. For future interventions, it would be important to consider what factors contributed to receiving treatment and improving depression for some participants. If research can identify groups or characteristics that were less likely to receive treatment, that might suggest approaches that could be used in the future to encourage treatment.

Finally, future interventions might be more effective if they could establish ongoing processes of information sharing, communication, and coordination between care managers and doctors, a relationship WtW was unable to establish.

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 all aspects of life, including employment, job performance, and worker productivity. This report presents 18-month results from a random assignment evaluation of a one-year program that provided telephonic care management to depressed parents who were Medicaid recipients in Rhode Island, to encourage them to seek treatment from mental health professionals. 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, with additional funding from the Department of Labor.

One promising way to encourage engagement in effective depression treatment is through telephonic care management. In WtW, master's-level clinicians — "care managers" — telephoned individuals who were 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,[1] 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 delivered the care management services, and GHC designed the intervention and provided technical assistance and training to UBH staff. Previous reports pertaining to this study indicate that WtW had been implemented with overall fidelity to the intervention design, that care managers were successfully encouraging individuals to receive treatment, and that the program increased receipt of mental health services but had little overall effect on depression severity through six months.[2] This report describes results through 18

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[1] Simon et al. (2004); Wang et al. (2007).

[2] Bloom et al. (2007); Kim, LeBlanc, and Michalopoulos (2009).

months following the start of the study, using data from an 18-month follow-up survey and claims data on the use of mental health and other health services, the use of medications, depression severity, and employment — six months after the end of the one-year intervention.

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.

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.[6] Even among those individuals who do seek treatment, depression can be episodic, and many patients relapse, suggesting the importance of maintaining treatment continuity,[7] including an ongoing relationship with a mental health professional.[8]

The two main purposes of the WtW evaluation are to determine (1) whether a telephone care management model that is focused on low-income parents can get the 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.

Rhode Island Medicaid Recipients

Rhode Island provided Medicaid-covered services to families and children under age 18 and incomes of no more than 185 percent of the federal poverty level (FPL), pregnant women with incomes of no more than 250 percent FPL, and children up to 19 with family incomes of

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[3] Corcoran, Danziger, and Tolman (2003).
[4] Adelmann (2003).
[5] Kessler et al. (2003).
[6] Gonzalez et al. (2010).
[7] Belsher and Costello (1988).
[8] American Psychiatric Association (2000).

no more than 250 percent FPL. In 2004, Rhode Island ranked 37th among all states in Medicaid spending on personal health care services and products (for example, hospital care, physician services, nursing home care, prescription drugs).[9] About 19 percent of the Rhode Island population were enrolled in Medicaid, and a little less than two-thirds of the recipients were enrolled in Medicaid managed care organizations.[10] These proportions were close to the national averages at the time.

Rhode Island's mandatory state plan for mental health services includes inpatient psychiatric care; outpatient hospital services, including rural health center and Federally Qualified Health Center (FQHC) services; physician services, and rehabilitative services (services needed for diagnosis, treatment, or rehabilitation of a mental disorder).[11] Access to services and providers for Medicaid recipients in Rhode Island were not expected to be different from other states.

Care Management

Care management for depression 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 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" or "coordinated care," "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.[12] Care management has also increased the use of preventive care, such as cancer

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[9] Kaiser Family Foundation state facts Web site: http://www.statehealthfacts.org. Data are for 2004.

[10] U.S. Bureau of the Census (2004).

[11] Information as reported by Rhode Island state Medicaid and Children's Health Insurance Program (SCHIP) agencies.

[12] Fireman, Bartlett, and Selby (2004).

screening,[13] and improved the overall health of the elderly while reducing the number of emergency room visits.[14]

Care management has also been shown to be effective for patients with major depression who are receiving treatment from primary health care providers.[15] 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.[16] 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.[17] The usual care group did not receive additional monitoring, care 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 from increased productivity and decreased absenteeism.[18]

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 — suggest that care management can decrease depression and unemployment, particularly for minority groups; impacts on depression and other health outcomes endured five years after the end of the study, especially for Latinos and African-Americans.[19] Other types of interventions for depression in primary care settings have also alleviated depression for low-income and minority populations.[20] 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[21] evaluated the effects of three intervention programs on depression: usual primary care, telephone care management, and telephone care management plus telephone

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[13] Dietrich et al. (2006); Dietrich et al. (2007).
[14] Counsell et al. (2007).
[15] Katzelnick et al. (2000).
[16] Wang et al. (2004).
[17] Katzelnick et al. (2000).
[18] Rost, Pyne, Dickinson, and LoSasso (2005).
[19] Wells et al. (2004).
[20] Smith et al. (2002a); Smith et al. (2002b).
[21] Simon et al. (2004).

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.[22] 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 and nonelderly 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 a 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.

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

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[22] Wang et al. (2007).

employability and productivity. 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.[23] 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;[24] however, no studies about the effects of treatment on employment have been completed specifically among low-income, hard-to-employ populations, such as recipients of Temporary Assistance for Needy Families (TANF) or Medicaid. One of the challenges for this population is that, even among those with jobs, the work may be temporary, low paying, high in stress, or without benefits. This can add to the host of stressful factors that can make it harder for people to seek and maintain treatment.[25]

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.[26] 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.[27] This study found that employed study participants were more likely to be in remission than unemployed or retired participants.[28] 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.[29] At six months, among those receiving appropriate care, white participants were more likely to be employed than minority participants.

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[23] Danziger et al. (2002).

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

[25] Marmot, Siegrist, and Theorell (2006)

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

[27] Trivedi et al. (2006).

[28] "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.

[29] Miranda et al. (2004).

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 — 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.[30] 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 suggest 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.

Review of Findings from the First Six Months of Follow-Up

The six-month interim results from this evaluation show that the care managers were effectively engaging people with depression via telephone. The study participants were randomly assigned to either the program or the control group. Care managers had successfully contacted 94 percent of those assigned to the program group and maintained nearly monthly contact with the average client. This high level of contact suggests that care managers had at least begun building telephone relationships with their clients by six months.

Through six months, the program group was more likely than the control group to see a psychologist, psychiatrist, or clinical social worker/counselor about a mental health issue. Program group members were also more likely to fill prescriptions for psychotherapeutic medications, especially antianxiety medications, which are often prescribed along with antidepressants for people suffering from depression. However, the average depression level did not change at the six-month point. The results were more hopeful for Hispanic sample members, for whom the effects on treatment were larger and whose depression was reduced by the program.

Although the program appeared to have been implemented as planned, individuals in the target population faced many obstacles to entering in-person psychotherapy or seeking antidepressants from a clinician. At six months, about 48 percent of the program group and 40 percent of the control group had either a mental health visit or filled an antidepressant medication. Their barriers to treatment typically stemmed from personal issues regarding parenting and

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[30] Wang et al. (2007).

other types of caregiving, their own health, and work-related stressors (such as seeking employment or maintaining a job).

* * *

This report examines the results for the one-year period during the intervention and the six months following the intervention. At the 18-month follow-up, there were only modest differences in the use of mental health services, filled prescriptions, and depression outcomes between the program group and the control group.

Chapter 2 of this report describes the research design and characteristics of the sample members involved in the study. Chapter 3 and 4 discuss the implementation of the intervention, including a description of the program administration and how participants engaged in treatment. Chapter 5 presents WtW's impacts on participants' treatment, depression, health, and employment. Chapter 6 describes the outcomes for the children of participants. Finally, Chapter 7 summarizes the costs of the WtW program.

Chapter 2

The Research Method and Characteristics of Participants

The Research Design

For the period covered by this report — 18 months following random assignment — the focus has been on assessing the success of the Working toward Wellness (WtW) program in Rhode Island in its efforts to improve depression symptoms and work-related outcomes if short-term improvements in depression subsequently led to a greater interest and capacity to seek and retain employment. The impacts of WtW are being assessed using a research design whereby individuals who met the study's eligibility criteria (described below) 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 health care 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 systematic 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 minor children living with them; (2) they appeared to be experiencing major depression; and (3) they had selected the Medicaid health plan option that made 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. The study was limited to individuals with children because of documented links between parental depression and child well-being. Short-term effects on children are presented in this report, and 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 who were eligible for services from UBH because the intervention was 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 depression-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 a 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:

- Potential study participants from a list of Medicaid recipients were mailed a letter describing the study and containing an initial "screener," which in-

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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.

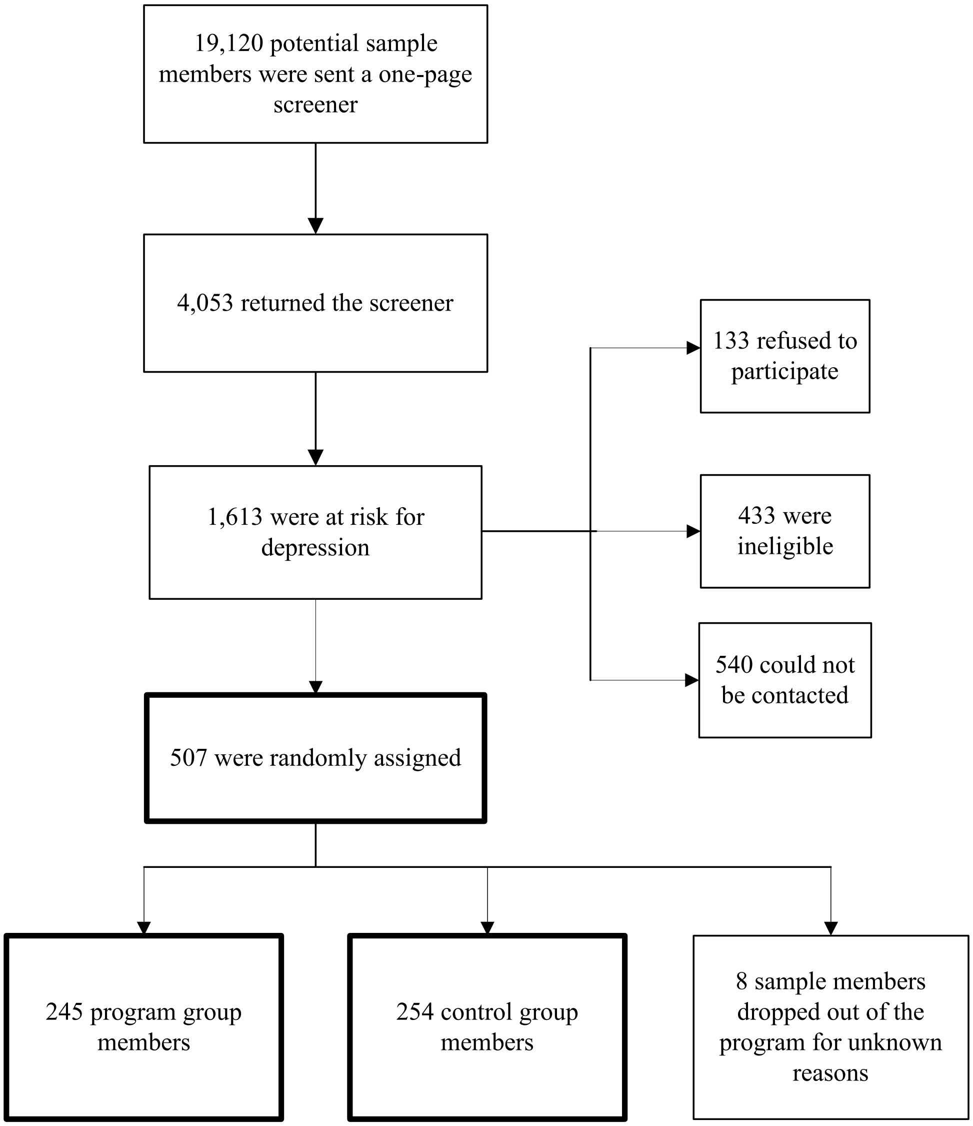
[3] These individuals received a "warm" transfer, which is when the participant is transferred directly from one counselor to another, without a disruption of the telephone connection.

The Enhanced Services for the Hard-to-Employ Demonstration

Figure 2.1

The Random Assignment Process

Rhode Island: Working toward Wellness



cluded the K6 — a widely used, brief summary measure of nonspecific psychological distress comprising 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 first asked 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 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 individ-

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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 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 cover letter, a phone card was 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).

[7] To be eligible for the study, the person needed 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 was limited to 0 to 25 in this study because individuals who answered positively to questions relating 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.

uals 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 without explanation after being randomly assigned, so the final research sample includes 499 individuals: 245 in the program group and 254 in the control group.
- A cohort of Medicaid recipients who were eligible for services through UBH was randomly enrolled in the study approximately every two and a half months from November 2004 to October 2006. The participants entered the study on a rolling basis, ensuring that the care managers maintained reasonable caseload sizes throughout the study.

Characteristics of the Sample Members at Baseline

Table 2.1 shows selected baseline characteristics of the 499 individuals in the study. As expected, the characteristics of the two research groups are similar.[9] 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 high school diploma (54 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 (59 percent) were either single or legally separated and were not living with a spouse or partner. The WtW study population's characteristics in terms of gender, age, and race/ethnicity are comparable to previously studied samples of people with depression except that this sample appears to have been more depressed than studies that focused on employed populations.[10]

One of the key goals of the WtW intervention was to get people into treatment. At baseline, about 73 percent of the sample answered yes to "ever received prior treatment from a

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

[9] Even after randomization, there are usually some differences between the program and the control groups when many variables are considered. These differences are adjusted for in the impact analyses and are not expected to affect outcomes.

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

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 lives 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 of the first time talked to professional			
Never talked to 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 drugs 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 (%)			
Participant 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: Chi-square tests were conducted to determine statistical significance for categorical variables, and apply to the entire distribution. 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 reported on 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] Sample member is coded as Hispanic if she/he answered "Yes" to Hispanic ethnicity.

professional specifically for things like sadness, feeling unworthy, or loss of interest." Although the rates 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." Alternatively, 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 40 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 individual's failure to recognize that they have depression.

Data Sources

The following data sources were used to generate this 18-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 12 months following random assignment, 75 percent remained on the UBH rolls; by 18 months, 69 percent remained.

- **Six-month survey.** A survey was fielded with all sample members about six months after they were randomly assigned, which occurred from November 2004 to October 2006, to collect outcomes that cannot be assessed using administrative data. 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 (76 percent of the program group and 72 percent of the control group).

- **Eighteen-month survey.** A second follow-up survey was fielded with all sample members about 18 months after they were randomly assigned. Similar to the six-month survey, the 18-month 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 428 participants, for an overall response rate of 86 percent (86 percent of the program group and 85 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 an MIS that was 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 show how often care managers contacted program group members to talk about the status of their treatment.

- **Physiological analyses.** A subsample of 8- to 14-year-old children of the parents in the study provided salivary samples that were used for physiological analyses. The saliva samples allowed the research team to measure cortisol, a hormone that has been associated with depression as well as with effects on the immune and cognitive (memory) systems.

Chapter 3

The Implementation of Working toward Wellness

Introduction

The existing research literature does not extensively document the day-to-day operations of telephone care management interventions.[1] The purpose of this chapter is to describe the implementation of the Working toward Wellness (WtW) program in Rhode Island over its one-year period of operation.[2] Implementation data were drawn from a number of sources, but two sources are especially valuable:

- Quantitative data from the management information system (MIS) that was designed by Group Health Cooperative (GHC) staff to create a record of all care manager-client telephone "contacts," including contact "attempts" and time elapsed between contacts
- Qualitative data from care managers' "case notes" that were entered into the MIS to describe clients' circumstances in some detail

The evaluation team also gathered information about the program from routine telephone meetings with program staff from GHC and United Behavioral Health (UBH) over the course of the evaluation, as well as by frequently joining weekly telephonic care management team meetings. Moreover, the evaluation team organized occasional telephone meetings — including one in-person site visit to the WtW offices in Rhode Island — with the program staff to discuss at length particular aspects of program implementation. By maintaining these ongoing contacts with the care managers and their supervisors, the evaluation team was also able to talk informally with staff members regarding specific issues that arose.

Program Administration and Description

The WtW program was administered and staffed by 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

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[1] For an exception to this, see Liu et al. (2007), which documents the time allocated to care management activities and presents estimates of care managers' workload capacity using data from two studies of telephone care management of depression.

[2] The random assignment of study participants occurred from November 17, 2004, to October 20, 2006.

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 WtW, 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, which required the hiring of a new care manager. As anticipated, staffing challenges increased toward the end of the intervention as a second care manager moved to a new job — this one, outside UBH. This situation was managed effectively by having the two remaining care managers take on the active cases of their former colleagues.

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.[3] 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, Rhode Island, although they also worked from their homes as needed (for example, during evenings and on weekends).[4] 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 care managers worked with the rest of the caseload, all of whom spoke English.

Caseloads increased over the course of the program as the research sample was recruited into the study and individuals were randomly assigned to the WtW program group or to the control group. The care managers had their highest caseloads, of about 60 clients each, in 2005 and 2006. As individuals began to complete the intervention year, caseloads diminished for all the care managers. At the start of 2007, the active caseloads ranged from 27 to 37 clients across three care managers.

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

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[3] 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.

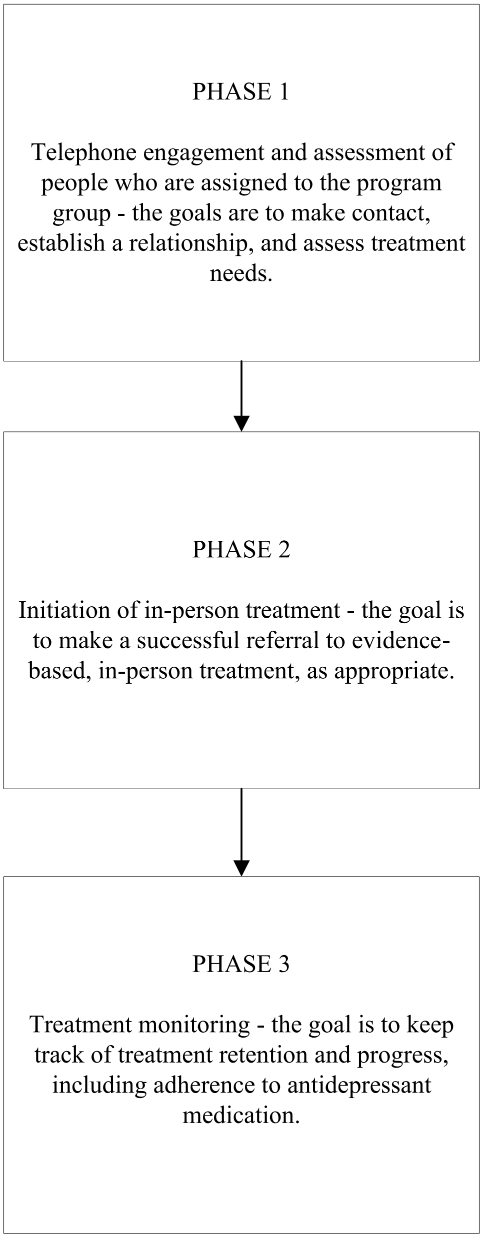
[4] In UBH's offices, the care managers shared a large space that was divided into cubicles, which led to some concerns about their ability to work with clients in privacy.

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 goal 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.

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.[5]

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. 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, they 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).

Monitoring began after the client's first visit with a clinician and continued until the end of the 12-month intervention. 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.

The primary goal of WtW was to facilitate and support evidence-based, in-person treatment for participants who had moderate to severe depression.[6] 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, 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

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[5] 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.

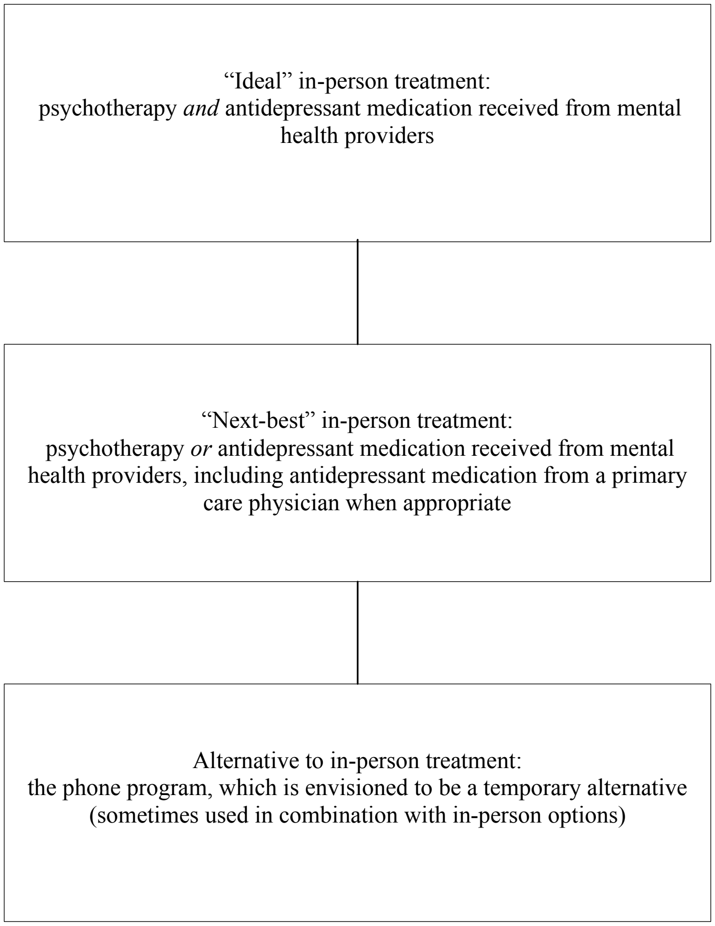
[6] On occasion, the care managers used clinical judgment to recommend in-person treatment for individuals who might not currently have met these criteria.

The Enhanced Services for the Hard-to-Employ Demonstration

Figure 3.2

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)

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).[7] 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.[8] It was also expected that the care managers would follow up with clients a day or two after appointments, especially after the first one.

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.[9] These routine assessments of depression were designed to help the care managers understand changes in symptom severity over

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[7] The care managers did not provide vocational counseling or services (such as working with an employer to facilitate a client's return to work).

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

[9] 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 (a QIDS-SR score of 7 or less) and the Hamilton Rating Scale for Depression (a HAM-D score of 5 or less) (Rush et al., 2003).

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 Schedule of 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. Because the care managers entered this kind of information in the MIS case notes for each client with whom they worked, they created a useful data source that provides a deeper understanding of these and other barriers to engaging in — and maintaining — in-person treatment for low-income parents, as discussed further in Chapter 4.

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.[10] 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 shown in Table 3.1.

These "rules" were established to regulate care management. If clients demonstrated more proactive engagement than was typical for the overall caseload, 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.

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

The Enhanced Services for the Hard-to-Employ Demonstration

Table 3.1

Timing of Contacts with Clients, by Severity of Depression

Rhode Island: Working toward Wellness

		Contact Due Date	
Severity of Depression	PHQ-9 Score	Contacts 2-4	Contacts 5 and Later
Mild depression or none	0 - 9	4 weeks from prior contact	8 weeks from prior contact
Moderate depression	10 - 14	3 weeks from prior contact	6 weeks from prior contact
Severe depression (moderately severe or severe)	15 - 27	2 weeks from prior contact	4 weeks from prior contact

SOURCE: Rhode Island WtW implementation guidelines.

NOTE: The Patient Health Questionnaire (PHQ-9) score is used to track the severity of depressive symptoms (Kroenke, Spitzer, and Williams, 2001).

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.[11] Therefore, although traditional in-person treatment was recommended to most clients (depending on their levels of depression and their receptiveness to seeking treatment),[12] a structured psychoeducational program designed for telephonic administration was offered as an 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.[13] 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 them 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.

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 next scheduled telephone conversation. (See Appendix D for examples of

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

[12] 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.

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

exercises and assignments drawn from the workbook.) Moreover, the workbook's wording choices and grammar were revised to suit a maximum reading level of eighth grade. In addition, the workbook was translated, and then back-translated, into Spanish for WtW.[14]

Finally, 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 above 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 5. As shown there, about 46 percent of the participants became engaged in in-person care within 18 months of random assignment, but others never left the first phase of the program. About 54 percent of the program group and 62 percent of the control group did not receive mental health services over the 18-month follow-up period. 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, as detailed in Chapter 4. The efforts made by the care managers to engage clients and facilitate their entry into treatment are discussed below.

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[14] "Back-translation" refers to the process of translating text that has already been translated 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).

Program Implementation

Contacts and Attempts to Contact

The WtW care managers worked hard to earn the trust of clients struggling with depression, some of whom did not previously know that they were experiencing depression. According to the MIS data,[15] the vast majority of program group members were contacted at least once after random assignment (91 percent — which represents 222 of the 245 individuals assigned to WtW). In short, the vast majority of the program group began the first phase of WtW, embarking on a telephone relationship with a care manager. The care managers contacted 85.7 percent — or 210 clients — at least twice, and over two-thirds (67.8 percent) were contacted at least five times. The portion of the caseload that accounted for the top 25 percent of all recorded contacts had a mode of 13 contacts over the program year.

Table 3.2 contains MIS data showing that, over the 12-month period of program operations, the care managers averaged about nine contacts per client (8.82 contacts, data row 4).[16] The modal number of contacts was eight, and the maximum number was 32 (not shown). The mean number of contacts with clients during the first six months after random assignment was about six (5.89 contacts, data row 2), which indicates that contacts were more frequent during the first six months. In addition, the MIS data suggest that the care managers had greater contacts with clients who were experiencing greater symptoms of depression, as evident in the differential contact rates across three subsamples defined by depression severity (that is, none to mild; moderate; and moderately severe to severe) (Table 3.2, data rows 2 and 4).[17]

Of course, establishing contacts with clients typically required multiple attempts on the part of the care manager. MIS data in Table 3.2 also illustrate that the care managers averaged approximately 30 attempts per client (30.05 attempts, data row 3) over the full intervention period. The modal number of attempts was 23, and the maximum was 101 (not shown). The mean number of attempts to reach clients during the first six months after random assignment was about 20 (19.66 attempts, data row 1), illustrating that attempts were more frequent during the first half of the program year. The MIS data also suggest that the care managers made more attempts to contact clients who were relatively more depressed (Table 3.2, data rows 1 and 3).

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[15] 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.

[16] In comparison, the Workplace Depression Study (WDS) care management team recorded just over six contacts (6.05 contacts) over the course of that one-year intervention. WDS data were made available by Greg Simon, GHC.

[17] The differential contact rates across the depression severity subsamples for the full intervention period are not statistically significant (Table 3.2, column 4), although they were so for the first six months (Table 3.2, column 2).

The Enhanced Services for the Hard-to-Employ Demonstration

Table 3.2

Attempts and Contacts Over Time

Rhode Island: Working toward Wellness

		Depression Severity			
Average Number of Attempts and Contacts	Program Group	None (0-4) to Mild (5-9)	Moderate (10-14)	Moderately Severe (15-19) to Severe (20-27)	
First 6 months					
Average number of attempts	19.66 (n = 245)	16.67 (n = 28)	18.30 (n = 112)	21.92 (n = 105)	**
Average number of contacts	5.89 (n = 245)	5.42 (n = 108)	5.63 (n = 77)	7.05 (n = 60)	**
All 12 months					
Average number of attempts	30.05 (n = 245)	25.32 (n = 28)	28.07 (n = 112)	33.42 (n = 105)	**
Average number of contacts	8.82 (n = 245)	8.44 (n = 108)	8.24 (n = 77)	10.25 (n = 60)	
Sample size (total = 245)					

SOURCE: Contact information is based on management information system (MIS) call data provided by Group Health Cooperative.

NOTES: Depression severity is based on Patient Health Questionnaire (PHQ-9) score.

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.

The disproportionately greater number of attempts and contacts in the first half of the program year is in keeping with the program's design. As clients accumulated contacts over time, the recommended time between contacts doubled (Table 3.1). In addition, the greater frequency of attempts and contacts with clients who were experiencing greater symptoms of depression is also in line with the program's design. The recommended time to next contact grew smaller as depression symptoms became more severe (Table 3.1).

When considering attempts to make contact, it is important to keep in mind that the MIS data reflect both: (1) the care manager's level of effort and (2) the ease with which individual clients were reached, including whether they were reachable at all. However, these data do not offer evidence regarding the relative importance of these two factors as predictors of recorded attempts.

For the program group as a whole over the full intervention period, the ratio of contacts to attempts was just under 30 percent (29.33 percent).[18] This ratio was slightly higher during the first six months after random assignment than it was during the second six months (29.96 percent, compared with 28.23 percent). In short, the care managers successfully reached clients on only about one out of every three and one-half attempts, and this was a relatively consistent pattern. When compared with other studies where only one or two attempts were required for each contact,[19] this statistic illustrates that the WtW population was relatively hard to reach. However, available data from the Workplace Depression Study (WDS)[20] suggest that the WtW population was not relatively more difficult to reach than an employed population. The ratio of contacts to attempts for WDS was just over 25 percent (25.84 percent), suggesting that those care managers reached clients approximately once for every four attempts.

It also took time to achieve successful contacts. Table 3.3 contains MIS data that show — for the full program group and by level of depression at most recent contact — the median number of days that elapsed between contacts, up to the ninth contact. (The median statistic is presented here because the mean statistic is heavily influenced by outliers in the number of days elapsed.) These data suggest that the median time to the first contact after random assignment was two days — a very short time frame. For the contacts that followed, the median number of days that elapsed between contacts increased, reflecting a three-week interval between contacts up to the fifth contact and rising an additional three to five days between the sixth and ninth contacts. These data also suggest that, after the first contact, the time elapsed between contacts was generally less in cases where clients were experiencing more severe symptoms of depression, except in regard to the numbers of days that elapsed between the third and fourth contacts and between the eighth and ninth contacts, respectively (Table 3.3).

The average duration of telephone contacts with clients varied somewhat across the care managers, although calls generally lasted less than an hour. The MIS did not contain information on call duration. 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.

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[18] This ratio is similar across three subsamples defined by depression severity: none to mild (32.8 percent); moderate (30.9 percent); moderately severe to severe (31.6 percent).

[19] Liu et al. (2007).

[20] WDS data were made available by Greg Simon, GHC.

The Enhanced Services for the Hard-to-Employ Demonstration

Table 3.3

Days Elapsed Between Contacts

Rhode Island: Working toward Wellness

		Depression Severity at Most Recent Contact		
Median Number of Days Elapsed	Full Program Group	None (0-4) to Mild (5-9)	Moderate (10-14)	Moderately Severe (15-19) to Severe (20-27)
From random assignment to first contact	2.00 (n = 222)	4.00 (n = 24)	2.00 (n = 101)	1.00 (n = 97)
Between				
Contacts 1 and 2	18.00 (n = 210)	19.00 (n = 69)	20.00 (n = 72)	16.00 (n = 69)
Contacts 2 and 3	21.00 (n = 194)	25.00 (n = 92)	19.00 (n = 55)	19.00 (n = 47)
Contacts 3 and 4	21.00 (n = 179)	26.00 (n = 85)	17.00 (n = 51)	19.00 (n = 43)
Contacts 4 and 5	21.00 (n = 166)	27.00 (n = 92)	21.00 (n = 39)	16.00 (n = 35)
Contacts 5 and 6	26.00 (n = 166)	28.00 (n = 93)	25.50 (n = 38)	23.00 (n = 25)
Contacts 6 and 7	23.00 (n = 166)	28.00 (n = 87)	21.50 (n = 32)	19.00 (n = 22)
Contacts 7 and 8	26.00 (n = 166)	27.00 (n = 82)	27.00 (n = 25)	21.00 (n = 18)
Contacts 8 and 9	26.00 (n = 166)	23.00 (n = 66)	20.00 (n =20)	27.50 (n = 16)
Sample size (total = 245)				

SOURCE: Contact information is based on management information system (MIS) call data provided by Group Health Cooperative.

NOTE: Depression severity is based on Patient Health Questionnaire (PHQ-9) score.

Program Details

The Phone Program: A Useful Alternative

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.[21] An analysis examining the effectiveness of the workbook was not done because there is no reliable information about which participants used the phone program.

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 — as in the example below, drawn from the care manager's case notes:[22]

> **Case 1:** The client was a married African-American[23] man with three children. One teenage child suffered bipolar disorder. At intake, the client was unemployed and was primary caregiver for his wife, who had suffered a stroke and was living in a nursing home. It was noted that he had long struggled with depression but was currently receiving no treatment. Moreover, it was noted that he suffered seasonal affect [disorder], which made him dread the approaching fall, as well as that he had knee surgery scheduled for late November. In his initial contacts, he declined referrals for treatment, but over time — and after his surgery — the case notes show that the care manager successfully engaged him with the phone program. They began working together using the workbook, which helped him better understand the patterns and causes of his symptoms. Also, at later contacts, he reported reviewing workbook chapters on his own, doing experiments and finding those very helpful. His use of the workbook appeared to continue, but his symptoms periodically increased nonetheless. About 11 months into his program year, it was noted that he began an antidepressant after seeing his PCP [personal care physician] and seemed to be managing his depression more effectively as his case was closed.

The care managers generally felt that the phone program helped clients but, in many instances, were unsure whether those clients would ultimately engage in in-person treatment. In the case above, for example, it is not clear whether the client would continue antidepressant medications. Indeed, for some clients, regular contact with their care managers felt like therapy,

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[21] In part because this was not standard procedure at the start of the project, the care manager database does not contain information about the use of the phone program.

[22] Case note scenarios are compiled from the care managers' notes. Words placed in quotation marks reflect the care managers' own words or their quoting of the client. Minor details from selected cases were either omitted or altered to protect the identity of the client.

[23] In some cases — but not all — the case notes document the client's race/ethnicity.

and it offered the assistance that they felt they needed. For others, of course, the phone program may have become a gateway to the pursuit of in-person care, although the case note data do not suggest that this pathway was common. More often, however, the phone program appears to have been an alternative used when clients were either unable or unwilling to move toward consistent in-person treatment from a mental health professional.

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 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[24] — to help clients begin dealing with some of the issues they faced.[25]

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.[26]

The care managers' role as liaison between patient and clinician has been well developed in other telephonic depression care management interventions that have been implemented

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[24] 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).

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

[26] 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.

in systems of care that are more unified, such as the U.S. Department of Veterans Affairs (VA)[27] 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 antidepressant 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. The case notes document numerous instances when the care managers discussed medication adherence with clients, suggesting that adherence was often a challenge and that advising related to medications may have been particularly important.

Implications

It appears that the WtW program was generally well implemented. According to MIS data, the vast majority of program group members (91 percent) were successfully contacted at least once after random assignment, and the care managers averaged about nine successful contacts (8.82 contacts) per client over the yearlong intervention. It took considerable effort to make successful contacts as the contact-to-attempt ratio was about 30 percent — meaning that the care managers made about three and one-half attempts for each successful contact. When compared with other studies where only one or two attempts were required for each contact,[29] this statistic illustrates that the WtW population was relatively hard to reach. However, in comparison with available WDS data on contacts and attempts, the WtW data are similar.

Initial contacts were made exceptionally quickly. The first contact typically occurred within just a couple of days after random assignment. As anticipated — and according to program design — subsequent contacts required more time. The median days elapsed between

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[27] Liu et al. (2007).

[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).

[29] Liu et al. (2007).

contacts was about three weeks through the fifth contact and between three and four weeks through the ninth contact.

Collectively, these MIS data suggest that the care managers were able to establish a relatively enduring connection with many clients over the course of their year in WtW. Contacts — and attempts to make contact — were more frequent during the first six months following random assignment, which is in keeping with the program's design. In addition, the MIS data suggest that the care managers recorded more attempts and contacts with clients who were experiencing greater symptoms of depression. This is also in line with the program's design.

While the care managers worked closely with the clinical supervisors from UBH and GHC to ensure that the program was implemented as planned, 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. First, the phone program was 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. In addition, with clients working in the phone program, the care managers continued to encourage movement toward in-person care for those who remained depressed over time. The care managers generally felt that the phone program helped clients but, in many instances, were unsure whether those clients would ultimately engage in in-person treatment. For some, the phone program may have become a gateway to the pursuit of in-person care, although the case note data do not suggest that this pathway was common. More often, the phone program appeared to have been an alternative to in-person treatment. In such instances, the care managers continued to provide support via telephone, as appropriate.

Moreover, 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.[30] Such 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 clients and providers. Consequently, the care mangers 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 to advocate for themselves. In short, they worked to empower clients to be more proactive in accessing and managing their care.

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[30] Simon, Von Korff, Rutter, and Wagner (2000); Liu et al. (2007).

Although the available data suggest that the care managers worked consistently and hard to engage clients, the fact that they were hired as temporary employees might have created some challenges to sustaining their collective efforts over time. If this were a factor, it would have been most likely to emerge as the project began to wind down and the care managers faced the need to find new employment. It is noteworthy that other programs have anticipated this issue and dealt with it in various ways. For instance, the WDS care managers were guaranteed greater job security with the promise of permanent staff positions as that intervention came to a close. Short of offering permanent employment, future projects might also consider offering care managers financial incentives in the form of retainers or bonuses for staying fully engaged through the later stages of program implementation.

Nonetheless, the clearest findings to emerge from this implementation research concern the many barriers to engagement, retention, and success in in-person treatment that this Medicaid population faces, and it is unclear whether more intensive telephonic care management — if it were possible — would make a difference. Case note data illustrating these barriers are detailed in Chapter 4. The challenges for future interventions revolve around creating ways to better address the needs of low-income, chronically stressed populations.

Chapter 4

Barriers to In-Person Treatment

This chapter presents scenarios constructed from the case notes of care mangers in the Working toward Wellness (WtW) program in Rhode Island to illustrate the main barriers to engagement in in-person treatment for depression that the WtW target population faced. When considered alongside the details of program implementation described in Chapter 3, these scenarios offer important insights regarding the trajectory of each client's participation — or lack thereof — in WtW during the yearlong intervention. Although the case notes were entered into the management information system (MIS) primarily to help the clinical team implement the intervention as planned, they also served the unintended function of providing a greater and deeper context for understanding the lives of this population — and potential future interventions that may help them.

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 treatment choice, a combination of psychotherapy and antidepressant medication, and others receiving the next-best option, either therapy or medication. (Figure 3.2 in Chapter 3 presents the treatment options for clients experiencing depression.) The client described below illustrates relatively quick engagement first with the care manager and then with in-person treatment.[1]

> **Case 1:** The client was a married woman with a teenage daughter. When she entered the study and had her first contact with the care manager in February 2005, she had recently been laid off from her job and was collecting unemployment. Her husband was also not working and was applying for disability benefits. The client reported that her child was doing poorly in school. When the care manager discussed treatment options for both the client and her child, she expressed interest right away, and a first appointment was made.
>
> About one week later, the care manager noted that the client kept her appointment and agreed to talk again with the care manager in two weeks time.

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[1] Case note scenarios are compiled from the care managers' notes. Words placed in quotation marks reflect the care managers' own words or their quoting of the client. Minor details from selected cases were either omitted or altered to protect the identity of the client.

> Less than one month later, the notes show that another appointment for in-person treatment was kept but that depression was "still high" and that the client "will explore meds." Subsequent contacts document that in-person treatment continued and that both the client and her child were experiencing improvement. In early June 2005, the care manager wrote "depressive symptoms mostly diminished," although "daughter is having a hard time." Family therapy was suggested, and the client agreed to consider this option as well.
>
> At last contact, in November 2005, it was noted that the client had gone back to work full time and had not seen her [treatment] provider for some time. Because some symptoms were returning, she agreed to return to treatment and scheduled an appointment.

Cases like this one, with quick engagement leading to in-person treatment, were more the exception than the rule. For a variety of reasons, many people who are experiencing depression find it difficult to seek help and engage in a therapeutic relationship, and it appears that barriers to care are more pronounced for low-income and minority populations.[2] Indeed, many WtW participants in need of care did not enter in-person treatment over the course of this one-year intervention. The care managers shared a general understanding of what typically held people back. One summed it up as follows:

> 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."

As noted above, issues relating to child care often create barriers to treatment for parents, perhaps especially for mothers. Moreover, overarching economic hardship and financial worries, including strains and difficulties relating to work — whether the inability to find work or the inability to do work (due to a disability) — had a pervasive impact on WtW participants, exacerbating all other stressors in their lives. A systematic examination of these case notes highlights the intensity of hardship faced by the individuals in this sample, vividly illustrating why a one-year, telephone intervention can fall short of its goals of moving large numbers of people first into in-person treatment for depression and then into remission of symptoms.

As detailed below, the primary theme that emerged from this case note analysis is that the WtW participants typically faced many ongoing and interrelated life stressors, both eventful and chronic. Indeed, the circumstances of many of the WtW participants reflect typical situa-

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[2] Miranda et al. (2003); Miranda et al. (2006).

tions of stress proliferation, wherein stressors rooted in the basic conditions of daily life or social roles (such as being a single parent) lead to an array of stressors in others life domains (for example, employment).[3] While no one event, demand, or strain in particular may have reached a state of crisis — although sometimes they did — their cumulative impact greatly limited or overwhelmed clients' efforts to seek or maintain in-person care, despite engaging with a care manager for support via telephone.

These themes are illustrated below with scenarios built from the MIS case notes. The scenarios were selected to illustrate the primary themes evident in the case notes as a whole. To some degree, these scenarios may overrepresent cases in which serious barriers to in-person treatment were present in the study sample. By design, however, the care managers had less contact — and thus recorded fewer notes — with individuals who readily entered treatment as well as with those experiencing less symptomatology. Nonetheless, the clients who are discussed in the following scenarios do not appear to be exceptional in the range or intensity of barriers that they faced, based on the available case notes regarding this WtW group.

Stress Proliferation

The following cases illustrate how the individuals who were targeted by WtW lived under circumstances of chronic social stress, with ongoing and interrelated demands in multiple life domains. Even in instances where they recognized and labeled their symptoms and wished to get professional help, "life" repeatedly interrupted their efforts to seek and maintain treatment. In short, they faced an array of daily challenges that competed for their attention and time, and often they lacked the resources and support needed to manage both ongoing demands and unanticipated challenges.

Ongoing Multiple, Interrelated Stressors

The client described below experienced multiple, interrelated stressors.

> **Case 2:** The client was a single woman in her twenties who had two children and who entered the program in December 2005.
>
> At first contact, the client was working two jobs. Her primary job was in retail, where she worked 30 hours per week. She was also attending school part time. She reported a previous history of depression and was currently taking antidepressants and antianxiety medications prescribed by her PCP [personal care physician]. She also acknowledged struggling with adherence [to treat-

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[3] Pearlin, Aneshensel, and LeBlanc (1997); Pearlin (1999).

> ment] and had not worked with a therapist for more than a year. A male friend was staying in her home. She was helping to support him while he applied for disability benefits, and he, in turn, was helping her with child care.
>
> In January 2006, she reported suffering chronic pain, having recently completed treatment for carpel tunnel syndrome and receiving physical therapy for neck pain. Someone close to her had been recently shot and killed. Her job had been exceptionally stressful lately, and she reported having conflicts with her boss. She was also having difficulties with her children.
>
> In February 2006, she stated that things were better at work and that she had been able to get some support for her children. In April 2006, it was noted that the client had been in a car accident, which caused additional aches and pains. Her children were still getting help, but both were still having problems. She reported feeling "funny" about taking medications for her mood and also that her mother was questioning why she needed them. The care manager advised her to work hard to get back on track with her medications.
>
> In June 2006, the case notes state that the client was taking her medications but feeling stressed because she needed to move back in with her mom. In August 2006, the care manager learned that the move "just didn't work out." The client reported that she was staying with a friend until she could find a new place. She was still working two jobs and "racing" between work and parenting. The client let the care manager know that her younger child was having migraine headaches. Later in August 2006, she said that she was feeling better but had stopped taking her medications, since she was "feeling good." She also mentioned "fighting with the state" about her daycare needs.
>
> In October 2006, the client reported struggling with school but was generally in a good place. She had settled into a new apartment, and her children were adjusting to the move and were doing better in school. She also reported working on better managing her budget, cutting back on optional expenses (for example, "no more lattes"). Finally, she was taking her medications and following up with her PCP regularly.

Although this client was generally able to manage some of the challenges she faced regarding work, child care, and housing — while engaging with a care manager to maintain some focus on her depression and need for medication — she nonetheless suffered setbacks along the way. Other clients, like the one profiled below, faced circumstances that ultimately overwhelmed their efforts to seek and maintain treatment, despite having a care manager's telephonic support.

Case 3: The client was a woman in her thirties who had three children and who entered the program in November 2004.

At first contact, she was working full time as a personal care attendant. She complained of having to rely on rides to work because her car was breaking down frequently. Her depression had been severe lately. She was taking an antidepressant recently prescribed by her PCP, and she was open to entering therapy for the first time. Her depression was affecting her at work (she was missing days and feeling "spacey"), and she expressed worry about potentially losing her job. She was thinking about getting an additional job at a fast-food chain restaurant, where she had worked in the past.

In mid-December 2004, the care manger noted that the client missed her first scheduled treatment appointment due to a problem arranging child care. She agreed to reschedule the appointment.

In early January 2005, the client reported feeling very overwhelmed. She had "taken in" a friend who was homeless, but the friend had begun to take advantage of her "emotionally and financially." About one week later, the client was still stressed and stated that one of the children was skipping school. To make matters worse, the police had come to her home to discuss this situation. They had also let her know that the Department of Child and Youth Services would be contacting her as well. The client had still not rescheduled her appointment for therapy but was open to doing so. She described how, on one day recently, she had left home for work, but when she got to the bus stop, she turned around and went back home.

After numerous attempted contacts and several brief contacts, the care manager noted, in mid-February 2005, that the client had taken herself off her antidepressant and was not sleeping or eating well. She also recognized a big change in her mood — as a result — and agreed to call her PCP and consider again the possibility of starting therapy, as well as to stay in touch with the care manager.

In March 2005, the client informed the care manager that she had lost her job and, consequently, her health insurance. She had also recently taken custody of a teenager (her brother's child). Back on Medicaid by now, she was able to arrange a new appointment for a psychiatric evaluation. The client also reported starting classes for a Certified Nursing Assistant (CNA) license.

In mid-April 2005, the care manager wrote that the client was "feeling worse and needs to do something to help herself." She had quit her CNA classes

> because she could not concentrate. It was also noted that the client was "not working, borrowing money, and generally very down" — and, further, experienced "suicide ideation without plan or intent." Four days later, the care manager documented that the most recent psychiatric appointment was not kept. The client agreed to see her PCP instead and to report back.
>
> In early May 2005, the care manager documented that the client did see her PCP, who encouraged her to begin therapy. A few days later, a same-day appointment with a counselor was scheduled. However, later that day, the client informed the care manager that she went to the appointment but the provider was not there. Another appointment was scheduled for a week or so later.
>
> At the next contact, the notes do not mention the previously scheduled appointment, and a new appointment was made for late June 2005. Over the course of five additional contacts — which required 19 attempts — the client reported the following: missing the scheduled appointment because a relative had been shot and hospitalized the night before, training for a management position at a fast-food chain restaurant but being unable to maintain that position due to a panic attack during the first week on the job, and resisting a new antidepressant because she feared that it would cause her to gain weight.
>
> At the time of her final contact in early September 2005, the care manager wrote that the client was having a "tough time." Her car had broken down. She was looking for a job. She was unable to get one of her children registered for Head Start. She had agreed to see a social worker and to report back on that. However, when the care manager attempted to contact her again later that month, she found that the phone was no longer accepting incoming calls. The social worker later confirmed that the client had made her first appointment.

This case clearly demonstrates how much effort and time can be required before some clients are able to both schedule and show up for an in-person appointment. At first contact, this client was open to entering treatment and had already received antidepressant medication from her primary care physician, but, as the case notes illustrate, there was a constellation of stressors — relating mainly to caregiving as a single parent to three daughters, difficult work circumstances, and a lack of reliable transportation but also to unexpected challenges that arose over the program year, such as the choice to take in a homeless friend and her sister's child, and losses like the shooting of relative. Collectively, the effects of these stressors repeatedly interfered with her efforts to get ongoing help with her depression.

Crisis Situations Leading to Loss of Contact

A portion of the WtW caseload experienced difficulties that placed them in a state of crisis at some point during the one-year intervention, causing them to lose all contact with their care manager for extended periods of time. The next case dramatically illustrates how difficult life circumstances interfered with the program's potential.

> **Case 4:** The client was a single mother of two children who entered the program in May 2005. The care manager noted that she currently lived with her boyfriend and worked full time as a Certified Nursing Assistant (CNA).
>
> At first contact in mid-May 2005, it was documented that the client was moderately depressed and was interested in counseling. However, because a parent was terminally ill and depended on her, she wanted to postpone making an appointment for in-person care.
>
> In mid-July 2005, after 13 attempts and one brief contact, the care manager documented that the client was "working three jobs and did not have time to talk." It was further noted that her boyfriend was moving out. She was "very overwhelmed" and "trying to save money." The client agreed to a call at the end of summer, when the kids were back in school. At subsequent attempts, both of the client's phone numbers were out of service.
>
> At the end of September 2005 — by which time phone service was restored — it was noted that the client was "extremely depressed," with some suicide ideation, but no plan. She had gone into treatment two weeks prior. She was also suffering from bulimia. A sibling had recently been murdered. She reported seeing both a counselor and a psychiatrist. She was taking medication for sleep and had tried an antidepressant but discontinued using it due to side effects. At the end of this call, she gave the care manager permission to coordinate care for her. She also agreed to another call in one week. It was also noted that she was still working full time as a CNA, on night shifts.
>
> In early October 2005, the care manager reached a relative of the client on two occasions and learned that she had been hospitalized, but no reason was disclosed. Later that month the care manager learned that the client had admitted herself, due to suicidal feelings. She had stayed in inpatient treatment for one week. The client stated that she was now feeling better and had no present suicide ideation. The care manager further noted that she was taking a new antidepressant and had agreed to see a therapist and a psychiatrist. She had recently found a new apartment and had plans to move into it the next day. It was agreed that they would talk again in two weeks.

> In November 2005, three documented attempts note that the client's phone was disconnected.
>
> The eighth and final contact was recorded in early January 2006. The care manager wrote that he/she had "tracked down the member today through relatives." She was doing better and was in treatment with a psychiatrist and a therapist. She was working on balancing her medications and dealing with her bulimia. She stated that she was working full time and that her kids were doing well. She agreed to another call in two weeks.
>
> Between late January and late April 2006, the care manager made 10 attempts to reach the client, but no further contacts were made.

Another client experienced homelessness and incarceration during his intervention year. In such cases, and the one above, the care managers are left — to a greater degree than usual — wondering about the welfare of the client.

> **Case 5:** The care manager's case notes describe this client as a man who was homeless, living in his car, and unemployed. A successful contact was made at the end of August 2005. It was noted that the "member called from a phone booth today" and that he felt depressed with "some suicide ideation, but no plan or intent." It was also noted that he wanted treatment. During this initial contact, the care manager and the client discussed employment and treatment possibilities. Because the client was homeless and lacked consistent access to a phone, the care manager contacted a local provider to arrange an appointment on his behalf — and the client agreed to check in with the care manager later in the day for details. It does not appear that the client ever called back.
>
> After two more attempts to contact the client in September and November 2005, the care manager reached a relative, in late November, and learned that the client had just been released from jail for nonpayment of child support.
>
> Additional attempts and a third contact were recorded in early December 2005, when the client let the care manager know that he had been incarcerated for a period of 30 days and was staying in a shelter. He had recently started a job and was looking for a second job, stating that he needed to find a job with benefits. He also expressed a desire to seek in-person treatment, and the care manager referred him to a local provider.
>
> At the final contact, in early January 2006, the care manager noted that the client was still in a shelter and had reported relationship struggles with the mother of his child. He was also working full time and participating in an

> employment program to get a job as a plumber's apprentice. He denied using alcohol or drugs, but it was noted that he was attending "NA [Narcotics Anonymous] and Salvation" meetings. There is no record of any in-person treatment for depression.
>
> Finally, two attempts were made in February and March 2006, and the last notes state: "cell disconnected" and "living in shelter."

The Impact of Loss, Grief, and the Threat of Violence

The case notes also describe numerous circumstances of loss and grief in the lives of WtW participants. Injuries to, and losses of, family members and friends through violence were not uncommon. These events were distressing in part because they served to remind clients of threats in their surrounding communities and, in some instances, in their own homes. One client reported being shot — from which she recovered — during her intervention year. As the following case illustrates, losses of loved ones typically precipitated personal crises that intensified depression, creating a greater challenge to fully engaging in the program.

> **Case 6:** At random assignment in October 2005, the client was a widowed African-American mother of two children, the younger of whom was enrolled in special education. She also cared for an ailing elderly mother, who had recently suffered a stroke and had been placed in an area nursing home. The client had received treatment for depression as an adolescent but was not under care since then. She reported numerous medical issues other than depression, receiving ongoing care from an orthopedist and a neurologist, as well as antianxiety medications from her primary care physician. The client was unemployed due to her caregiving responsibilities as well as her own health problems. She received Social Security income for the younger child through her deceased husband's death benefit, and she was appealing a recent denial of her own application for disability income. A boyfriend contributed some to the family's income.
>
> About two months into the intervention year, the care manager noted that the client's mother had died. The notes that were made over the ensuing months — which involved 30 attempts and eight contacts — portray the client as experiencing profound grief over this loss and having ongoing struggles with health, financial, and work-related stressors. On several dates, it was noted that her phone was disconnected. During the program year, the client attended one session with a psychiatrist but no more.

* * *

As each case scenario above illustrates, the WtW population faced imposing and persistent stressors that created barriers to in-person care because they could not be addressed easily; nor were they the kinds of issues that are typically resolvable within a short time frame. For many clients, these stressors were persistent and deeply rooted in past events and difficulties. For the care managers, they presented significant challenges that affected their ability to provide effective support.

Next, data drawn from the case notes are presented to highlight two of the most significant stressors faced by the WtW program group: comorbidities and the demands of child care and other caregiving.

Comorbidities

The MIS case note data show that many WtW clients suffered from physical and mental health conditions in addition to their struggle with depression. As the scenarios below illustrate, these comorbidities were varied; consequently, intervention to assist clients often involved addressing numerous other health issues, both mental and physical. Sometimes these "other" issues posed more serious threats to the client's well-being than past or current depression did. The pain, discomfort, uncertainty, and anxiety associated with various ailments are abundantly present in the case notes.

> **Case 7:** At random assignment in June 2005, the client was a single mother of three children. She and her children were living with her mother. The client had a history of substance abuse but was "six months clean" when she entered the study. Although the case notes do not portray significant engagement with the care manager — 27 attempts and nine contacts — they illustrate how the client's past addiction influenced her current efforts to seek and maintain treatment for depression and anxiety. About one month into her program year, she reported being "homeless, staying with friends," while her children remained with her mother. Apparently, her mother prohibited her from being on the mother's property, due to her desire to use drugs. Eventually, the client requested the care manager's help in seeking dual-diagnosis treatment, which she needed "to prove" before a pending court date. The case notes suggest that this referral led to ongoing treatment, until the provider took a leave of absence. The care manager attempted to help with a referral for a new provider, but this occurred near the end of the program year, and no further contacts were made.
>
> **Case 8:** The client — a divorced woman with one child — stated at random assignment that medical problems had exacerbated her depressive symptoms over the past couple years. At the first contact in September 2005, she re-

> ported concerns about her inability to maintain steady employment — in particular, fears about losing her Temporary Assistance for Needy Families (TANF) benefit. She had been homeless in the recent past. Her comorbid health issues included trauma stemming from childhood abuse by her father; a history of difficulty controlling her anger, which had greatly affected her ability to keep jobs; and chronic, undiagnosed pain. The care manager explained that depression could be contributing to her physical symptoms, which the member considered, but she initially resisted a referral for depression treatment before fully exploring her other issues. Over the course of the first half of the program year, the client reported receiving medication for fibromyalgia, which led to some undesirable side effects, as well as being hospitalized for treatment of diverticulitis. Moreover, she reported a fall while shopping and said that "spots" had been found on her kidneys during medical tests. While she remained engaged with a care manager (23 contacts over the program year, including significant work in the phone program) and ultimately sought in-person treatment for depression, her other health issues greatly affected her trajectory through WtW.

Child Care and Other Caregiving

One criterion for inclusion in the WtW evaluation was that the individual be a parent of a child age 18 or less who was living with him or her. Therefore, everyone in the program group faced some issues regarding parenting or child care. While the case notes portray ordinary challenges and hardships associated with parenting — in particular, with being a single parent — they also contain examples of circumstances where issues relating to child care had become so significant that they prohibited clients from focusing on their own mental health needs. In addition, these data suggest that "other caregiving" (for example, for spouses or partners, parents, other relatives, and friends experiencing chronic illness or disability) was common, perhaps even more so within immigrant families. One care manager noted that a client — a married woman from Laos with two children and caregiving responsibilities for elderly relatives — was overwhelmed with "family and culture."

Moreover, many of the WtW participants — 90 percent of whom are women — reported working in care-related jobs, very often as CNAs or personal care attendants. Indeed, having multiple informal and formal care-related responsibilities and challenges was typical within this sample predominantly composed of mothers. As evidenced by the case note data, caregiving responsibilities can detract considerably from clients' efforts to address their own mental health needs.

Case 9: The client was described at random assignment in November 2004 as a Latina woman who was the single mother of four children, one of whom suffered a serious condition that causes seizures and profound respiratory failure. She was the primary caregiver for this child and, consequently, was not employed. At the first contact, she expressed being eager to begin treatment and felt that her early conversations with the care manager were helping her to focus on, and plan for, her future. An appointment for in-person treatment was scheduled but was missed when the child struggling with illness was hospitalized. At another attempt, the care manager noted that the client had been "up all night" caring for the sick child. Subsequently, at later contacts, it was documented that the client had ongoing frustrations with inadequate nursing support for this child's care. It was also noted that the client would not be allowed to seek treatment at a local provider where she had now missed two intake appointments. At this point, the case notes indicate that the client began to work with the care manager in the phone program, and they made some progress in that regard. However, ensuing entries state that the client faced many eventful stressors relating to her health, including being hospitalized with a "heart attack and grand mal seizure." This client obviously encountered a range of difficulties in her life over the course of the intervention year, with many stemming from her care-related obligations as the single mother of a chronically ill child.

Case 10: At random assignment in December 2005, the client was a divorced woman with longstanding depression who lived with three children. She also had two other children, both over age 18 and living outside the home. The client reported one attempt at in-person treatment three years prior and also reported working full time in an office job, which she had held for eight months. Shortly after she entered the study, her teenage daughter was arrested for shoplifting and then, shortly after that, moved out of the house and became pregnant. Over the course of the year, the care manager also noted — among other challenges — that at one point the client's mother became hospitalized shortly after the death of a close relative. A hospitalization for her daughter, for pneumonia, was also noted. Given the challenges inherent in such circumstances — as well as her own health problems, which led to hospitalization for surgery on the rotator cuff of a shoulder — it is not surprising that the client attended her first in-person appointment for treatment about 10 months after random assignment.

The Context of Poverty

The WtW program participants are a low-income population, and the care managers' case notes clearly portray them as living in poverty. As illustrated below — and above — among WtW participants, it was common to face difficulties relating to meeting the basic necessities of life (such as securing housing, paying utility bills, and maintaining phone service), and many challenges revolved around seeking and securing steady employment or a better job — or, in some cases, financial support due to disability.

> **Case 11:** At random assignment in February 2006, the client was a married mother of two, with one teenage child living at home. Her husband had worked as an electrician but was currently receiving SSDI [Social Security Disability Insurance] as a result of a back injury and depression. Over the program year, the client also reported numerous health issues other than depression, including sleep apnea, claustrophobia, severe arthritis, diabetes, and dental problems. She had herself applied for disability income on two occasions but was denied both times. As a result, the family lived exclusively on her husband's SSDI, which did not cover their basic needs. Even affording gas for the car was an issue, and so the client asked whether the care manager could identify places for in-person treatment that were nearby so that gas money would not be a consideration. About six months into the program, she reported that the family had begun relying on a food bank for meals and that her financial worries were so overwhelming that they prohibited her from engaging in care. Eventually, as the client won approval for SSI [Supplemental Security Income], she reported reduced financial stress and seemed open to begin addressing her depression.

> **Case 12:** The client was a Cuban-born man, married, with one teenage child. At first contact in May 2006, he was unemployed and had last worked about a year and a half earlier in a machine shop. He had sustained a serious back injury that prevented him from continuing to work, although he apparently did not receive disability income. When he was screened into WtW, the care manager noted that the client had been staying in a shelter for the past three days. The family had been staying with in-laws during the day. He had never been in treatment for depression. Early on, the care manager referred the client for housing assistance, and — after some struggle navigating the system — he sought help and successfully got placed on a waiting list at an area agency. After 11 attempts and five contacts, it was noted that he kept an appointment with a therapist and at that appointment — after expressing suicide ideation — was hospitalized. After his release, he again expressed suicide ideation and planning during the six-month survey data

> collection for the WtW study, at which time the lead care manager intervened. At the end of the intervention year, the care manager wrote that the client was feeling better and that he agreed to call his counselor to set up a next appointment. He reported taking medications but could not recall what they were. Following the final contact, it was noted — based on six failed attempts to reach him — that the client was "not at friend's house"; "cell phone not working"; and "homeless at last."

Related to economic hardship and financial worry, the case notes also contain numerous references to difficulties associated with health insurance, concerning the maintenance of coverage as well as reimbursement for particular medications. For example, in some instances, clients lost Medicaid when they began to earn more income, surpassing the program's eligibility criteria, and in others they lost it when a child "aged out" of eligibility — which had previously insured the family. In some cases, insurance coverage was truly lost; in others, the care managers were able to advise clients on how to seek and obtain health insurance from new sources. In short, the care managers did their best to help clients navigate the bureaucracies of health insurance, maximizing their ability to obtain care.

Implications

The case note data illustrate that the WtW participants typically lived under circumstances of chronic social stress, with ongoing and interrelated demands in multiple life domains. Even in instances where they recognized and labeled their symptoms and wished to get professional help, "life" repeatedly interrupted their efforts to seek and maintain treatment. In short, they faced an array of eventful and ongoing challenges that competed for their attention and time, and they often lacked the resources and support required to manage them.[4] Indeed, the circumstances of many of the WtW participants reflect typical situations of stress proliferation. Such conditions of chronic social stress have been shown to diminish health and well-being,[5] highlighting the need for effective intervention.

The fact that many WtW participants faced complex, multifaceted problems that do not have easy or quick solutions meant that the care managers faced steep challenges in their attempts to intervene. Indeed, numerous clients entered WtW in a state of crisis, stemming from — for instance — traumatic events, intensive suicide risk, or profound bereavement. Such circumstances created further challenges for the care managers, sometimes resulting in extended periods where it was impossible to maintain a telephonic relationship. Consequently,

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[4] McLeod and Kessler (1990).

[5] Avison and Davies (2005); LeBlanc, London, and Aneshensel (1997); Pearlin, Aneshensel, and LeBlanc (1997).

they were often left wondering what happened to clients who they knew to be in serious need of help and care.

In addition, the case note data offer insights into the nature of specific stressors that were particularly challenging for clients and, subsequently, for the care managers as they attempted to give assistance. First, stressors relating to comorbidities, or health issues (mental and physical) in addition to depression, are abundantly apparent in this population. These data clearly illustrate the presence of a wide range of health-related problems — such as issues relating to histories of substance abuse and symptomatology associated with the chronic conditions of aging (for example, heart disease and cancer) — that in some cases caused greater distress or posed a more serious threat to the client's well-being than past or current depression. Second, stressors associated with child care and other types of caregiving were ubiquitous — as expected, given that WtW targeted low-income parents, predominantly mothers. However, exceptional hardships relating to caregiving were also normative. To illustrate, there were many examples of single parents caring for children with serious behavioral or health-related difficulties, as well as individuals caring for friends and relatives with life-threatening conditions.

Finally, these case note scenarios serve as a reminder of the long-standing research literature demonstrating that the conditions associated with socioeconomic disadvantage are powerfully associated with diminished health and well-being, in part because they create and exacerbate enduring stressors in peoples' lives. Thus, while it is useful to consider the challenges posed by specific stressors that individuals face, it is also important to consider the underlying social conditions of poverty and deprivation that fundamentally shape those stressors.[6] In other words, in addition to understanding the significance of specific stressors — such as comorbid health problems and care-related demands and strains — it is essential also to understand how the conditions of poverty exacerbate such stressors, resulting in greater hardship and harm among the poor. Shifting focus in this way also informs the creation of stronger interventions for assisting low-income populations. The work of Miranda and colleagues, which concerned similar populations, has explicitly addressed some poverty-related client needs by offering assistance to individuals, including transportation and child care funds to enable them to participate in care.[7]

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[6] A growing research literature makes a compelling argument that social conditions such as socioeconomic status not only contribute to health but also act as direct — fundamental — causes. See Link and Phelan (1995); Link, Phelan, Miech, and Leckman-Westin (2008); Phelan et al. (2004).

[7] Miranda et al. (2003); Miranda et al. (2006).

Chapter 5

Effects on Health Care and Health Outcomes

As discussed in Chapters 1 through 4, 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. The goal of the intervention was to get people to seek in-person treatment from psychiatrists, psychologist, therapists, counselors, or a primary care physician (Figure 5.1). 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 severity, although this effect might take time to emerge. In turn, reducing depression might lead to increased employment and increased productivity. As suggested by previous studies that have found increased job retention following treatment, employment might be a longer-term effect of the intervention.[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.

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

Table 5.1 shows the estimated effects of the WtW intervention on the use of mental health treatment, which is defined as any visit to a psychiatrist, primary care doctor, psychologist, or social worker/counselor with a primary diagnosis related to mental health. During the 18 months following random assignment — including six months after the end of the intervention — telephone care management had a modest effect on increasing the use of the in-person treatment. Program group members were slightly more likely to use any mental health services in general. About 46 percent of the program group had a mental health visit during the 18 months following random assignment, compared with about 38 percent of the control group. This is an impact of 8 percentage points, which is lower than that of a previous study with a

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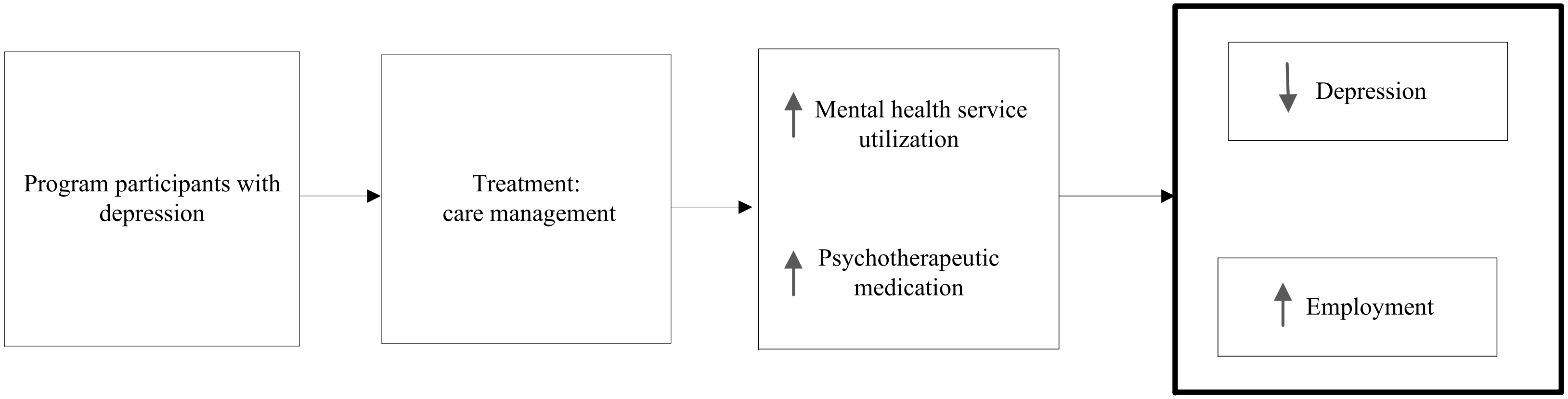
[1] Goetzel, Ozminkowski, Sederer, and Mark (2002); Kessler and Frank (1997); Rost, Smith, and Dickinson (2004).

The Enhanced Services for the Hard-to-Employ Demonstration

Figure 5.1

Intended Effects of the Intervention

Rhode Island: Working toward Wellness



The Enhanced Services for the Hard-to-Employ Demonstration

Table 5.1

Estimated Impacts on Use of Mental Health and Chemical Dependency Services in Eighteen 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	45.8	38.1	7.8 *	0.072
Psychiatrist	21.6	15.4	6.2 *	0.078
Primary care physician	20.5	14.1	6.3 *	0.057
Psychologist	6.6	1.9	4.6 **	0.012
Clinical social worker/counselor[a]	29.2	26.1	3.1	0.439
Visited emergency department for mental health services	4.6	1.0	3.6 **	0.018
Hospitalized for mental health services	5.6	1.7	4.0 **	0.020
Received chemical dependency services	8.0	7.7	0.3	0.911
Number of visits for mental health services, by type				
Number of mental health visits	4.7	3.4	1.3	0.109
Psychiatrist	1.3	0.8	0.5 *	0.070
Primary care physician	0.4	0.3	0.1	0.300
Psychologist	0.8	0.0	0.8 ***	0.006
Clinical social worker/counselor	2.5	2.4	0.2	0.814
Number of visits to emergency department for mental health services	0.0	0.0	0.0 **	0.018
Number of days hospitalized for mental health services	0.5	0.1	0.4 **	0.014
Number of chemical dependency visits	1.9	2.4	-0.5	0.598
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] Includes claims for one program group member who received services at a behavioral health clinic.

similar intervention but with a non-Medicaid population.[2] This impact on the use of mental health services is also smaller than studies that were conducted in health care systems where the care managers had direct access to the health care providers, facilitating an easier communication with the providers.[3] These previous studies showed that the impact was about 10 to 20 percentage points in the use of mental health services or medication for depression during a one-year intervention. Another thing to note is that most of the impacts on the use of mental health services for WtW occurred during the year of the intervention (12 months following random assignment); there were only minimal impacts during the six months following the end of the intervention. (See Appendix Tables C.1a and b, C.2a and b.)

The WtW program also resulted in a modest increase in the use of each mental health service. For example, a higher percentage of the program group (22 percent) than of the control group (15 percent) visited a psychiatrist (Table 5.1). Program group members were also more likely to see a psychologist about a mental health issue. Furthermore, a higher percentage of the program group than of the control group received mental health services from their primary care physician. This is in contrast to a previous finding that showed that the program group actually was less likely than the control group to have visits with the primary care doctor for major depression.[4]

In addition to the slight increase in the likelihood that individuals would receive treatment, WtW increased the number of mental health visits during the 18-month follow-up period, from an average of 3.6 visits for the control group to 5.2 visits for the program group. When examining only those who had at least one mental health visit, the program group had, on the average, 11 mental health service visits, and the control group had 9 visits during the 18-month follow-up period (not shown).

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, 0.4 day more in the hospital than the control group (Table 5.1).

Figure 5.2 shows the percentage of participants who received mental health treatment on a monthly basis through the 18 months following random assignment. Although there were some fluctuations in the two groups' use of mental health services during the first few months after random assignment, the program group was more likely to receive services than the control group during the year of the intervention. The impact during the first 12-month point is 9 percentage points (Appendix Table C.1a). However, the line graph shows that there is no

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[2] Wang et al. (2007).

[3] Unützer, Schoenbaum, Druss, and Katon (2006); Wells et al. (2000).

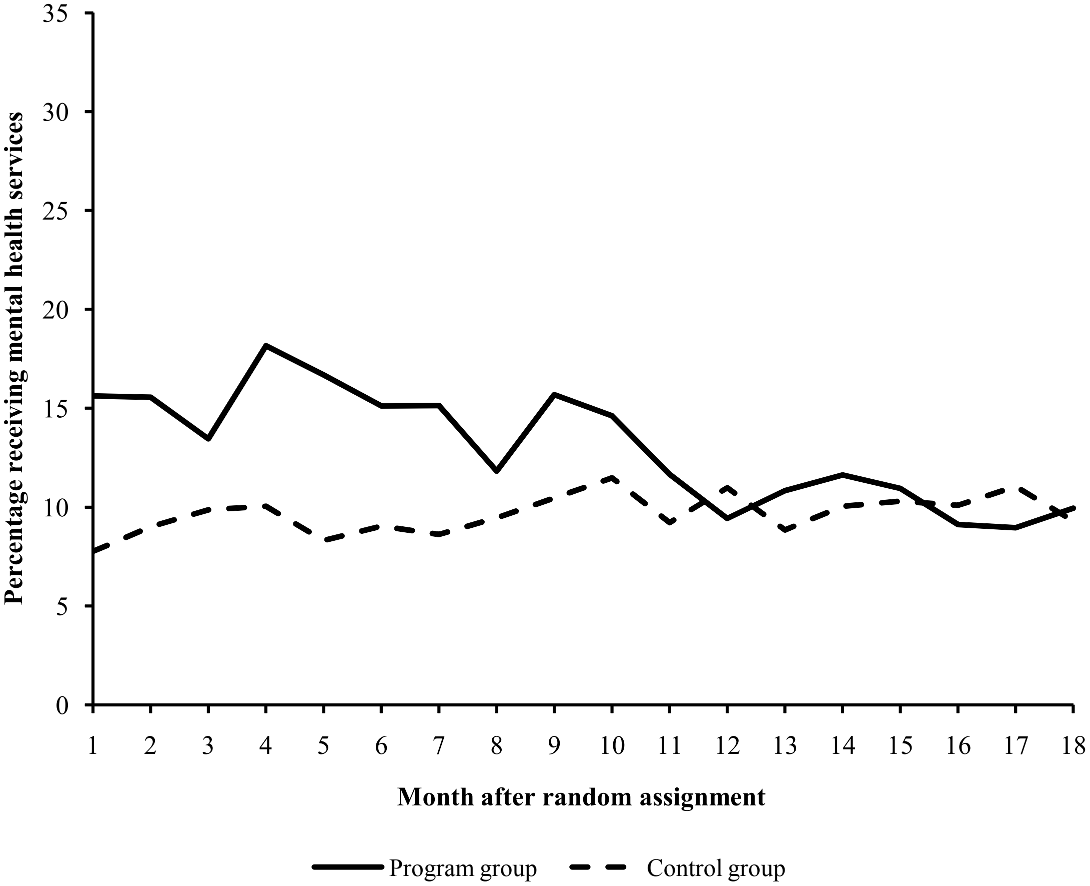
[4] Wang et al. (2007).

The Enhanced Services for the Hard-to-Employ Demonstration

Figure 5.2

Percentage Receiving Mental Health Services, 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.

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

difference between the program and the control groups at the 12-month point and later months. This figure supports the finding that WtW had a modest positive impact on the use of mental health services during the one-year intervention but not after the intervention ended.

By increasing the visits to mental health professionals — particularly, psychiatrists and other physicians — the program was expected to increase the likelihood that participants would fill a prescription for an antidepressant or other psychotherapeutic medication. Table 5.2 shows that there was no difference between the two groups in the filling of prescriptions for antidepressant medications during the 18 months following random assignment. The only significant impact was among the program group members, who were more likely to fill prescriptions[5] for psychotherapeutic medications that are not antidepressants. These were generally antianxiety medications, which are often prescribed along with or instead of antidepressants. Although one of the roles of care managers was to monitor participants' compliance with prescribed drugs, the data do not show that the program group was more likely to continue receiving psychotherapeutic medications during the intervention.

Figure 5.3 shows the percentage of the participants who filled prescriptions for psychotherapeutic medications on a monthly basis through the 18 months following random assignment. The difference between the program and the control groups reached a high of about 9 percentage points at Month 3, but the impacts on filling prescriptions for psychotherapeutic medications diminished over time — particularly after the one-year intervention ceased.

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 an 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.[6] To investigate these possibilities, Table 5.3 shows the estimated effects of the intervention on the non-mental health services, including visits to primary care, specialist, emergency department, hospitalization, and other physicians and to nonphysician providers. The table indicates that, through the 18-month follow-up period, there was no effect on other health care services except for emergency department visits. It is unclear why a significantly higher percentage of the program group than of the control group had emergency department visits for non-mental health services. Additional analyses (not shown) indicate that a higher percentage of these participants in the program group also had more mental health-related visits than their control group counterparts, including emergency department visits for mental health services.

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[5] Although the goal was to increase the use of antidepressants among participants who needed them, the data used for this analysis indicate only whether a prescription was filled, not whether it was used.

[6] Kinder et al. (2006).

The Enhanced Services for the Hard-to-Employ Demonstration

Table 5.2

Estimated Impacts on Prescription Medications Filled in Eighteen 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	60.0	54.4	5.6		0.160
Antidepressant drugs	52.8	49.5	3.3		0.418
Other psychotherapeutic drugs	34.4	23.6	10.8	***	0.005
Filled a prescription for adequate therapeutic dosage	36.7	33.9	2.7		0.506
Filled a prescription for nonpsychotherapeutic drugs	89.7	89.4	0.3		0.917
Number of filled prescription medications, by type					
Number of filled prescriptions for psychotherapeutic drugs	5.6	4.7	0.9		0.127
Antidepressant drugs	4.0	3.3	0.6		0.194
Other psychotherapeutic drugs	1.7	1.3	0.3		0.282
Number of filled prescriptions for nonpsychotherapeutic drugs	16.7	15.0	1.6		0.257
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.

Health Outcomes: Depression and Health Status

Given that the WtW program had only modest effects on the use of mental health services and the filling of appropriate medications, it is not surprising that WtW was not effective in reducing depression severity.[7] To measure depression severity, the Quick Inventory of De-

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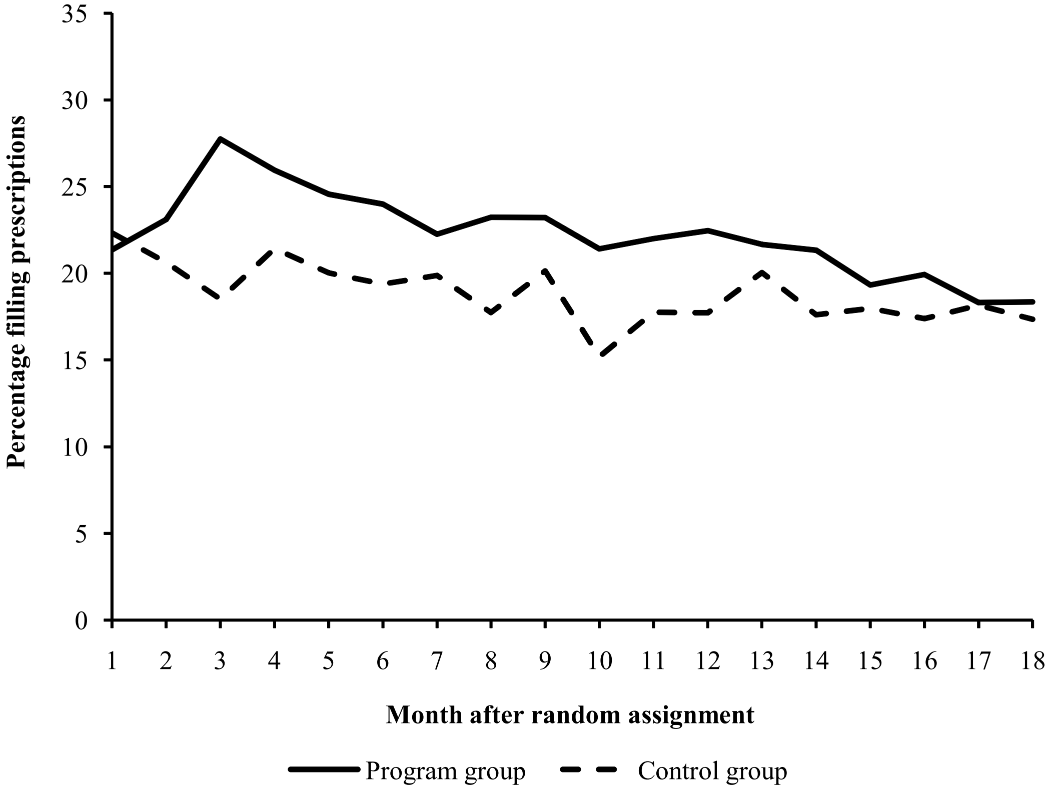
[7] Another potential benefit of depression treatment is reducing the number of suicides, but because reliable information on the suicide rate is difficult to obtain and was expected to be very low, the rate was not examined in this study.

The Enhanced Services for the Hard-to-Employ Demonstration

Figure 5.3

Percentage Filling Prescriptions for Psychotherapeutic Drugs, by Month

Rhode Island: Working toward Wellness



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

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

pressive Symptomatology-Self Report (QIDS-SR) was administered.[8] This commonly used depression scale includes a 16-item questionnaire to measure the severity of depressive symptoms. The scores usually range 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

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[8] Rush et al. (2003).

The Enhanced Services for the Hard-to-Employ Demonstration

Table 5.3

Estimated Impacts on Use of Non-Mental Health Services in Eighteen 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	87.7	90.6	-2.9		0.297
Primary care physician	75.6	77.1	-1.6		0.684
Specialist	76.1	71.5	4.6		0.253
Nonphysician provider[a]	45.3	44.8	0.5		0.914
Visited emergency department for non-mental health services	46.7	37.2	9.5	**	0.031
Hospitalized for non-mental health services	12.0	10.4	1.6		0.584
Number of visits for non-mental health services, by type					
Number of non-mental health visits	14.1	12.6	1.5		0.303
Primary care physician	4.9	4.5	0.4		0.403
Specialist	6.4	6.1	0.3		0.741
Nonphysician provider	2.8	2.0	0.8		0.179
Number of visits to emergency department for non-mental health services	1.2	1.2	0.0		0.931
Number of days hospitalized for non-mental health services	0.6	0.7	-0.1		0.771
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.

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 5.4 shows the estimated effects of the WtW program on depression severity and health outcomes at the 18-month follow-up point. The average QIDS-SR score at 18 months

The Enhanced Services for the Hard-to-Employ Demonstration

Table 5.4

Estimated Impacts on Depression Severity and Health
Eighteen 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 18 months	11.5	12.1	-0.7		0.203
Severity of depression at 18 months (%)					
Out of depression	17.4	14.9	2.4		0.490
Mildly depressed	26.6	23.5	3.1		0.469
Moderately depressed	29.0	33.1	-4.2		0.361
Severely depressed	23.0	18.2	4.8		0.222
Very severely depressed	4.1	10.3	-6.2	**	0.015
Shift in depression, by category[c] (%)					
Depression worsened by 2 categories	1.8	3.3	-1.5		0.332
Depression worsened by 1 category	12.7	13.9	-1.2		0.728
No categorical shift in depression	27.3	28.8	-1.5		0.737
Depression improved by 1 category	33.4	31.2	2.2		0.637
Depression improved by 2 or more categories	24.8	22.4	2.4		0.547
Substantial improvement[d] (%)	25.2	24.8	0.4		0.931
Recovery at 18 months[e] (%)	17.4	14.9	2.4		0.490
Health status					
General health (%)					
Poor	10.1	9.5	0.6		0.840
Fair	34.8	33.0	1.8		0.701
Good	30.2	37.9	-7.6		0.107
Very good	20.7	16.8	3.9		0.312
Excellent	4.2	2.8	1.4		0.454
Sample size (total = 428)	211	217			

(continued)

Table 5.4 (continued)

SOURCE: Measures of depression and health are based on MDRC calculations using data from respondents to the 18-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 reported 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 = 0.1368).

[c]Scores on 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.

was 11.5 for the program group and 12.1 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. These levels of depression at 18 months were higher than the levels in the Workplace Depression Study at 12 months.[9] The average QIDS-SR score could be masking important effects of the program on different levels of depression severity. The next set of outcomes in Table 5.4 shows the distribution of depression severity 18 months following random assignment.

There was no significant difference in the distribution of the depression scores between the program and the control group at the 18-month follow-up point. Although a higher percentage of the control group than the program group had "very severe" depressive symptoms (QIDS greater than 21) at 18 months, these numbers represent a very small sample — about 22 individuals (10 percent) in the control group and 8 (4 percent) in the program group. 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.

To examine the depression scores in more detail, Table 5.4 shows the proportion of individuals whose depression "shifted": worsened, did not change, or improved. Results show that the impacts on the proportions that shifted are not statistically significant. It could be that the intervention 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

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[9] Wang et al. (2007).

made worse off because of the program. The numbers in Table 5.4 show that the distribution of depression changed from baseline, but it is difficult to know the specific direction of the shifts.

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 a 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 18-month follow-up point, 17 percent of the program group had recovered, compared with 15 percent of the control group, but this difference is not statistically significant (Table 5.4). 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.[10] 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.[11]

Another way for clinicians to consider someone to have improved substantially is when the depression score declines by more than 50 percent. 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 5.4 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 5.4. 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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[10] Rush et al. (2006); Silverstone and Ravindran (1999); Thase, Entsuah, and Rudolph (2001).

[11] 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 levels 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 the individuals with moderate depression and for those with severe or very severe depression at the time of random assignment. Results are shown in Table 5.5, which indicates that there are few differences in estimated impacts when analyzed by depression severity at baseline. There was only a modest difference among the moderately depressed subgroup: the program group members were more likely to receive mental health services and fill prescriptions for antidepressants than the control group members. There was also no significant difference across the subgroups.

Regarding ethnicity, prior research suggests that minority group members are less likely to obtain depression care and are less likely to receive appropriate care if they do seek it.[12] 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 having lower odds of receiving appropriate care for depressive or anxiety disorders.[13] 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.[14]

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.[15] Although the Hispanic subgroup had a slightly higher number of visits for mental health services, there was no difference in depression outcome. Table 5.6 shows that there was almost no program impact for the Hispanic sample members at 18 months following random assignment. Inconsistent with previous studies, WtW did not affect the Hispanic subgroup differently.

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

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

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

[15] There are few African-American or Asian sample members, and results when those minority groups are combined with Hispanic sample members look similar to the results shown in Table 5.6.

The Enhanced Services for the Hard-to-Employ Demonstration

Table 5.5

Selected Estimated Impacts in Eighteen 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 18 months following random assignment				
Received mental health services (%)	46.9	33.1	13.9 *	0.056
Number of visits for mental health services	5.6	2.4	3.3 **	0.019
Prescription medications filled during 18 months following random assignment				
Filled a prescription for an antidepressant (%)	59.5	47.4	12.0 *	0.078
Filled a prescription for adequate therapeutic dosage of antidepressant medication (%)	43.1	37.0	6.0	0.389
Sample size (total = 195)	112	83		
Mean depression score 18 months following random assignment	10.8	11.8	-1.0	0.203
Depression level 18 months following random assignment (%)				
Out of depression	18.7	12.0	6.7	0.198
Mildly depressed	32.5	28.3	4.2	0.541
Moderately depressed	27.8	35.6	-7.8	0.268
Severely depressed	18.6	16.8	1.8	0.754
Very severely depressed	2.3	7.3	-5.0	0.112
Sample size (total = 202)	115	87		
Severely to very severely depressed subgroup				
Use of mental health services during 18 months following random assignment				
Received mental health services (%)	47.1	42.9	4.2	0.514
Number of visit for mental health services	5.1	4.0	1.1	0.373
Prescription medications filled during 18 months following random assignment				
Filled a prescription for an antidepressant (%)	52.1	53.2	-1.1	0.856
Filled a prescription for adequate therapeutic dosage of of antidepressant medication (%)	36.3	34.8	1.5	0.809
Sample size (total = 237)	105	132		

(continued)

Table 5.5 (continued)

Subgroup and Outcome	Program Group	Control Group	Difference (Impact)	P-Value
Mean depression score 18 months following random assignment	13.5	14.0	-0.5	0.560
Depression level 18 months following random assignment (%)				
Out of depression	10.6	8.8	1.8	0.719
Mildly depressed	16.1	13.0	3.1	0.592
Moderately depressed	29.4	37.8	-8.3	0.280
Severely depressed	35.9	24.3	11.6	0.115
Very severely depressed	8.0	16.1	-8.1	0.130
Sample size (total = 167)	73	94		

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 18-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.

Employment History and Performance

As shown in Table 5.7, about half the participants in both groups reported currently being employed at the 18-month follow-up point, showing little change from baseline, when a little less than half the participants reported being employed. On average in the United States, about half the families receiving Medicaid have at least one full-time worker, and about a third of families have no workers.[16] When the baseline measures for the WtW intervention were taken, the unemployment rate in Rhode Island was also comparable to the national average, at 5.7 percent.[17]

At 18 months, a little over a third of the program and control group members reported ever having participated in employment-related activities. A higher percentage of the program group than of the control group participated in postsecondary education in the 18 months following random assignment. Given that WtW had no impact on depression outcomes, it is not surprising that a significant employment outcome is not observed.

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[16] Kaiser Family Foundation state facts Web site: http://www.statehealthfacts.org. Data are for 2007-2008.

[17] U.S. Bureau of the Census (2004).

The Enhanced Services for the Hard-to-Employ Demonstration

Table 5.6

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

Rhode Island: Working toward Wellness

Subgroup and Outcome	Program Group	Control Group	Difference (Impact)		P-Value
Outcomes for Hispanic subgroup					
Use of mental health services during 18 months following random assignment					
Received mental health services (%)	44.5	34.6	9.9		0.215
Number of visits for mental health services	5.2	2.3	2.8	**	0.034
Prescription medications filled during 18 months following random assignment					
Filled a prescription for an antidepressant (%)	53.8	47.1	6.7		0.383
Filled a prescription for adequate therapeutic dosage of antidepressant medication (%)	37.6	34.5	3.1		0.685
Sample size (total = 166)	86	80			
Mean depression score 18 months following random assignment	11.3	11.5	-0.2		0.870
Depression level 18 months following random assignment (%)					
Out of depression	18.9	18.7	0.2		0.979
Mildly depressed	28.1	24.0	4.1		0.627
Moderately depressed	23.2	35.1	-11.9		0.136
Severely depressed	26.9	11.8	15.0	**	0.041
Very severely depressed	2.9	10.4	-7.4		0.108
Sample size (total = 138)	71	67			
Outcomes for non-Hispanic subgroup					
Use of mental health services during 18 months following random assignment					
Received mental health services (%)	45.2	40.9	4.3		0.422
Number of visits for mental health services	4.5	3.9	0.6		0.543
Prescription medications filled during 18 months following random assignment					
Filled a prescription for antidepressant (%)	52.1	50.6	1.5		0.770
Filled a prescription for adequate therapeutic dosage of antidepressant medication (%)	34.8	34.9	-0.1		0.983
Sample size (total = 333)	159	174			

(continued)

Table 5.6 (continued)

Subgroup and Outcome	Program Group	Control Group	Difference (Impact)	P-Value
Mean depression score 18 months following random assignment	11.5	12.5	-1.0	0.109
Depression level 18 months following random assignment (%)				
Out of depression	16.8	12.9	3.9	0.356
Mildly depressed	26.8	22.3	4.5	0.377
Moderately depressed	30.4	33.7	-3.3	0.558
Severely depressed	21.6	20.5	1.1	0.822
Very severely depressed	4.4	10.6	-6.2 *	0.050
Sample size (total = 290)	140	150		

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 18-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.

Implications

At this 18-month follow-up point — six months after the end of the one-year program — the focus of the study has been to assess whether WtW improved depression symptoms and work-related outcomes if short-term improvements in depression subsequently led to a greater interest and capacity to seek and retain employment. The finding is that although WtW increased the used of mental health services by 8 percentage points, the program did not significantly reduce depression, on average.

Less than half of the program participants (46 percent) received any mental health service during the 18 months following random assignment, but the number is smaller for the control group (38 percent). The program group members were more likely than control group members to see a psychiatrist, primary care physician, or psychologist about a mental health issue. In addition, although there was no overall difference in the filling of prescriptions for antidepressant medications, program group members were more likely to fill prescriptions for other psychotherapeutic drugs, especially antianxiety medications, which are often prescribed along with antidepressants for people suffering from depression.

The Enhanced Services for the Hard-to-Employ Demonstration

Table 5.7

Estimated Impacts on Employment-Related Outcomes Eighteen 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 (%)	70.8	73.1	-2.3	0.592
Currently employed (%)	53.2	51.5	1.7	0.724
Currently working odd jobs (%)	2.4	2.2	0.2	0.900
Earnings per hour before taxes at most recent job since random assignment or last interview (%)				
Not employed since random assignment or last interview	27.3	24.6	2.6	0.526
Less than $5.00	2.5	7.2	-4.7 **	0.029
$5.00 - $6.99	6.0	7.6	-1.6	0.523
$7.00 - $8.99	17.4	14.9	2.5	0.489
$9.00 or more	42.8	40.4	2.5	0.587
Days of missed work, at current job, since random assignment (%)				
Not currently employed	48.3	48.9	-0.5	0.912
0	26.9	23.6	3.3	0.444
1-5	18.2	19.6	-1.4	0.708
6-9	2.7	3.8	-1.1	0.548
10 or more	2.9	2.7	0.2	0.886
Work performance in the past 4 weeks is higher than other workers (%)				
All or most of the time	28.7	25.0	3.7	0.385
Only some or none of the time	18.6	19.7	-1.1	0.780
Monthly income ($)				
Household income	1,752	1,753	-1	0.993
Individual income	1,134	1,170	-36	0.670
Has ever participated in any employment-related activity (%)				
Job club or job search	16.6	16.6	0.0	0.991
Basic education and English as a Second Language (ESL)	4.8	4.1	0.7	0.716
Postsecondary education	11.2	6.2	5.0 *	0.074
Vocational training	3.5	3.1	0.4	0.842
Other	3.8	6.5	-2.7	0.206
Sample size (total = 428)	211	217		

SOURCE: Measures of employment are based on MDRC calculations using data from respondents to the 18-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 reported in this table; as a result, the distribution of some categories may not total 100 percent.

It is also important to note that although the impacts reported here are for the 18-month period, the higher likelihood of the program group members' receiving mental health services is the cumulative effect that is mostly attributed to the difference during the first 12 months of the intervention. In the six months after WtW ended, there were only minor differences in the use of mental health services between the program and the control groups.

Although the hypothesis was that there might be positive employment outcomes to be gained through encouraging depression treatment for the WtW participants, there was no difference in employment between the program and the control groups. Since there was minimal impact on depression at the 18-month follow-up, it is not surprising that there were no differences in employment outcomes. There were no differences in the number of days of missed work or in hourly wages between the two research groups.

The WtW program was well implemented, and nearly everyone in the program group was successfully contacted at least once. However, it was difficult to maintain engagement with the study population, and the WtW intervention had only a modest impact on the use of mental health treatment services. The depression and employment outcomes were not strong at the six-month follow-up point, and the story remained the same at 18 months following random assignment. Also, although it appears that the intervention helped more program group members move out of "very severe" depression, compared with control group members, the average depression score at 18 months is similar for both groups. The WtW intervention was not very effective for low-income parents with depression who are Medicaid recipients. This Medicaid population is more difficult to engage and sustain in treatment.

Chapter 6

Effects of WtW on Participants' Children

In addition to examining the effects of the Working toward Wellness (WtW) program in Rhode Island on adults' depression, this study was also designed to assess how the program affected participants' children — an analysis that is referred to as the "child add-on study." Notably, a wealth of research has shown that children and adolescents of clinically depressed parents face considerable risks.[1] Yet few studies have examined children of depressed parents in the context of poverty, where rates of maternal depression are very high[2] and the stresses of poverty may increase the risks of maternal depression having a deleterious effect on children. In this context, it is critical to understand how intervention efforts can increase resilience among these at-risk children. Two recent developments in welfare policy — the increasing interest in strategies that meet the needs of hard-to-employ parents and the increasing focus on improving child well-being within these families — makes this research particularly salient to the current policy context.

Why Focus on Children of Depressed Parents?

A wealth of research has documented the negative effects of maternal depression for children's development. Early studies found that children of depressed parents were at similar levels of risk as those of parents experiencing other forms of psychopathology (for example, schizophrenia).[3] Children of depressed parents show impairments in social behavior and psychological functioning as well as affective disorders like depression.[4] Other work has found that children of depressed parents show a more negative attributional style (that is, they see the world in a more negative light) that impedes their self-esteem.[5]

While much of the research in this area has been cross-sectional, more recent research has been longitudinal, allowing for the investigation of patterns of relations between depression among parents, on the one hand, and outcomes for children on the other, across time.[6] Studies conducted with clinic-referred parents and non-ill comparison group samples find increased rates of psychiatric problems in children of depressed parents — particularly, major depression, higher rates of suicide and alcohol dependence, and greater difficulty in relationships and

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[1] Beardslee, Versage, and Gladstone (1998); Downey and Coyne (1990); Goodman and Gotlib (1999, 2002).
[2] Kessler et al. (2003).
[3] Downey and Coyne (1990).
[4] Downey and Coyne (1990); Cummings and Davies (1994); Goodman and Gotlib (1999, 2002).
[5] Hammen (1988); Hammen, Adrian, and Hiroto (1988).
[6] Beardslee, Versage, and Gladstone (1998).

employment.[7] Among a non-clinically referred population, not only were higher rates of affective disorders among children of affectively ill parents found, but those episodes also were longer, occurred earlier in children's development, and co-occurred with other diagnoses more often than for children of non-ill parents.[8] While some of the effects of maternal depression on children's depressive symptomatology are thought to reflect the role of genetic predisposition,[9] there is still considerable room for environmental methods of transmission (like parenting behavior) that might be altered by a care management model like the one studied here.[10]

Older children of depressed parents are the focus of this study.[11] While studies have found negative effects of depression for all stages of childhood, the effects may be most pronounced during specific stages of development.[12] In particular, research on the effects of maternal depression on children has marked adolescence as one period in which maternal depression may interfere markedly with development.[13] Research has found that maternal depression contributes to difficult adjustment during adolescence in low-income families,[14] as well as depression among the adolescents themselves.[15] The tasks of gaining independence and developing identity that are central to adolescent development[16] may be impeded in depressed parent-child interactions that are marked by closeness and dependence. In fact, the onset of puberty itself has been implicated in the emergence of depression, particularly among girls.[17] It may be that the hormones of puberty interact with any biological tendencies and social stresses among adolescents of depressed parents, making children particularly vulnerable during this period of development.

Notably, while investigating the effects of changes in parents' depression was the primary impetus for the inclusion of outcomes for children in this study, there may be other pathways of influence of this program besides changes in parents' depression. More specifically, children may be affected by the WtW program if, for example, care managers helped parents

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[7] Hammen, Burge, and Adrian (1991); Weissman et al. (1997).

[8] Beardslee et al. (1993); Beardslee et al. (1996).

[9] Nurnberger, Goldin, and Gershon (1986); Tsuang and Faraone (1990).

[10] Sullivan, Neale, and Kendler (2000).

[11] The original research design called for a study of both younger children (ages 0 to 5 at baseline) and older children, given that depression can interfere with children's development of emotion-regulatory skills so central to their early development. However, the sample size for the youngest children was too small to permit analysis of the program impacts for this sample. Hence, this chapter focuses on the older child sample — children between the ages of 8 and 14 at baseline.

[12] Radke-Yarrow and Klimes-Dougan (2002).

[13] Beardslee (1986); Gelfand and Teti (1990).

[14] McLoyd, Jayaratne, Ceballo, and Borquez (1994).

[15] Beardslee, Versage, and Gladstone (1998; for a review).

[16] Erickson (1963).

[17] Angold, Costello, and Worthman (1998).

to arrange for services or supports for children or if parents' participation in therapeutic treatment improved their parenting skills even though it did not affect their depression.

The Child Study

The aim in undertaking the child study was to conduct an in-depth follow-up with older children (aged 8 to 14 at the point of random assignment) — those youth making the transition to early and late adolescence. Information was collected from a variety of sources, including (1) Medicaid claims data on medical service utilization and prescription medications filled for children; (2) a parent survey, to understand parents' perceptions of their own parenting and reports of their children's behavior; (3) a youth survey conducted with the children themselves; and (4) physiological stress measures collected from the children.[18]

Figure 6.1 shows how the child sample was selected from the broader sample of parents in this study. At the start, all 1,187 children of parents in the WtW sample were included. Of those, 133 children were excluded because their fathers, rather than mothers, were participating in the study. The decision was made to exclude these children because prior research on the effects of depression had focused on the negative effects of maternal depression on children. Child sample members were also excluded if they were born after random assignment or if they were older than 19 years of age at the point of random assignment. Among the resulting child sample of 884 children, there were 358 children between the ages of 8 and 14 at the point of random assignment. The in-depth data collection for the child study includes a subset of these children — with up to two children selected from each family as the focus of the child study.[19] Using this sample selection procedure, 264 children ages 8 to 14 were selected for in-depth data collection. The resulting sample for the analyses presented in this chapter is 220 children ages 8 to 14 from a total of 183 families who had completed the youth survey. Of this youth survey

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[18] In addition, a set of assessments was conducted with the youngest children (younger than age 5 at random assignment), but the final sample sizes for these assessments are very small, and therefore findings from these assessments are not included in this report. (See Figure 6.1 and the next paragraph for a discussion of the child sample.)

[19] Since the original design of the study called for conducting data collection with two focal age groups (children 5 years and younger and children 8 to 14 years old), up to two children in each family were selected across the two age categories. In selecting these children, there was a preference for the selection of one younger and one older focal child per family. That is, if parents had both a child aged 5 or younger and a child aged 8 to 14, one child in each age group was selected as the focus of the child study. If not, up to two children were selected in either one of the two age categories. However, the younger child sample are excluded from this report because the most reliable measures of children's functioning — direct assessments of their cognitive outcomes and emotional well-being — were collected on only a very small sample of children.

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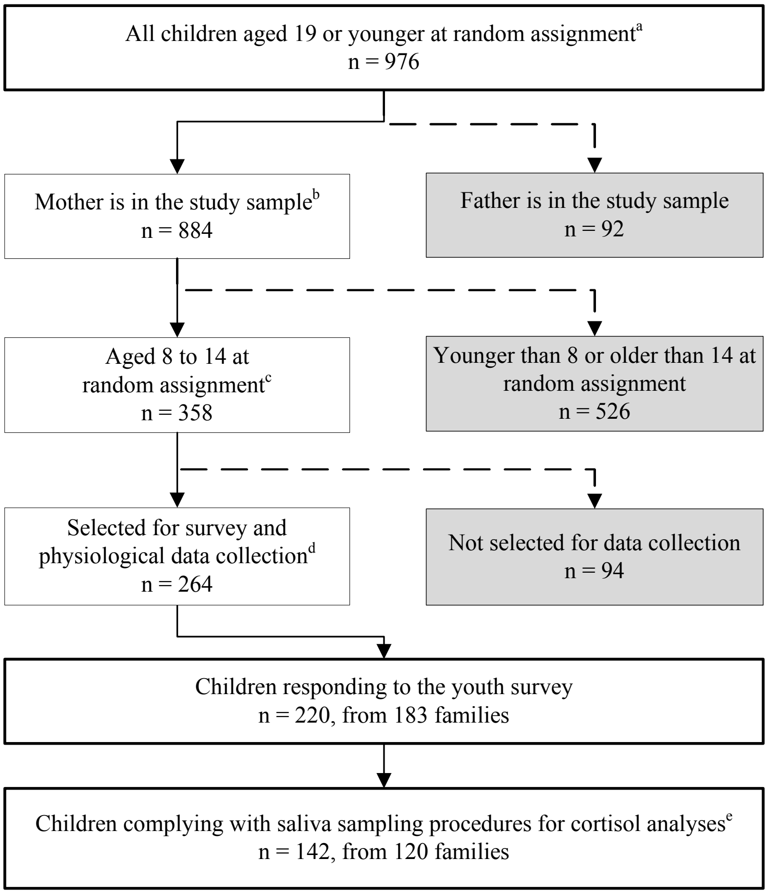
Figure 6.1

Sample Intake Flowchart for the Child Add-On Study

Rhode Island: Working toward Wellness



NOTES: [a] This sample size excludes children in families who were enrolled at baseline but dropped out of Medicaid before the first sets of data were collected.

[b] Three children had both a father and a mother in the study sample. These children were included in the analysis sample under the experimental group status of their mothers.

[c] Direct child assessments were conducted with focal children aged 5 years or younger at random assignment (n = 117) but were excluded from this report due to the small sample size.

[d] For each participating mother, up to two children younger than 5 or between 8 and 14 years of age at the time of random assignment were originally selected to be in the fielded child sample. The selection process prioritized the selection of one younger and one older child per family. The analyses presented in this report only include children in the older age range.

[e] Children consented to provide saliva samples for cortisol analyses after agreeing to complete the youth survey. Out of 193 children who provided at least one saliva sample, 142 children provided enough samples in compliance with sampling procedures to be used in the analyses included in this report.

sample, 142 children provided salivary cortisol samples that were used for the physiological analyses in this study, discussed at the end of this chapter.[20]

Children's Medical Services Utilization, Clinical Diagnoses, and Prescription Medications Filled

First, the child add-on study examined the effects of the WtW intervention on the medical services that children received, based on Medicaid claims information collected from administrative sources of data. It was hoped that these data would help to explain whether the WtW program would have effects on children's use of medical services as well as on the prescription medications that they received. These analyses focus on common diagnoses for older children — including respiratory diseases, infections, mental disorders, and routine health exams. The results are presented in Table 6.1.

Table 6.1 shows high rates of medical services utilization for the older children in this sample: 89 percent of children in the control group received any medical services during the 18 months following random assignment. Similar proportions of children in the program and control groups received any medical services, but the program group received slightly fewer services, on average, than children in the control group, by two to three service occasions over the 18-month period. On the one hand, this might be seen as a positive development — fewer services could mean that children are less sick or that the care they are receiving is more effective. At the same time, it also might be seen negatively — the children are not getting the care they need. Examining children's own reports of their well-being may help to shed light on which interpretation is more plausible. These findings are presented in the next section.

There were no significant differences between the program and control groups on medical services for respiratory disorders or infections or for routine health exams. Significant differences were observed in children's rates of diagnoses for mental disorders and, within mental disorders, for depressive disorders specifically. The effect is small — a reduction of about two services, on average, with a diagnosis of mental disorders for children of parents in the program group as compared with their peers in the control group. It should be noted that these effects are better measures of the *use* of medical services than of the *presence of a diagnosis* per se, given that not all parents of children with symptoms of depression will seek out physician services for those symptoms.

With regard to prescription medications, there were a few differences between children in the program and control groups. There were no differences in the filling of prescriptions for

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[20] Some children refused to provide saliva samples, or agreed to do so initially but never returned the vials to the survey firm.

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Table 6.1

Estimated Impacts on Children's Medical Services Utilization, Clinical Diagnoses, and Prescription Medications Filled in Eighteen Months Following Random Assignment

Rhode Island: Working toward Wellness

Outcome	Program Group	Control Group	Difference (Impact)	P-Value
Total medical services utilization				
Ever received any medical services (%)	88.6	88.7	-0.1	0.977
Number of medical services received	5.3	8.0	-2.6 **	0.027
Number of medical services, by diagnosis				
Respiratory diseases	0.7	1.0	-0.2	0.373
Asthma	0.2	0.3	0.0	0.759
Nonasthmatic	0.6	0.7	-0.1	0.494
Mental disorders	0.5	3.0	-2.5 **	0.018
Depressive disorders/reactions[a]	-0.1	1.1	-1.2 **	0.033
Infectious and parasitic diseases	0.5	0.6	-0.1	0.629
Routine health exam	0.8	0.6	0.1	0.171
Total prescriptions filled				
Ever filled any prescription (%)	71.6	79.5	-7.8	0.157
Number of prescriptions filled	5.8	8.4	-2.6 *	0.082
Number of filled prescriptions, by type				
Psychotherapeutics	1.1	0.2	0.9 *	0.065
Antihistamines	0.5	0.9	-0.3	0.323
Antiasthmatics	0.5	1.7	-1.2 **	0.023
Anti-infectives	0.8	0.8	0.0	0.962
Sample size (total = 211)	98	113		

SOURCE: Measures of medical services utilization, clinical diagnoses, and prescription medications filled are based on MDRC calculations using United Behavioral Health medical and prescription claims data.

NOTES: This table includes sample members randomly assigned between November 2004 and October 2006. The sample is restricted to children aged 8 to 14 at random assignment who responded to the 18-month youth questionnaire.

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] Includes diagnoses of major depressive disorder, affective psychosis not otherwise specified, bipolar/manic depressive disorder, adjustment reaction with depression, and depressive disorder not elsewhere classified.

antihistamine or for anti-infective medications. There was a small difference between the program and control groups on their filling of psychotherapeutic medications, with slightly higher rates among the children of parents in the program group. It is possible that this higher rate of filling psychotherapeutic medication prescriptions resulted in a reduction in children's mental distress, which could partially explain the smaller number of medical services received for mental disorders in the program group, but this is merely speculative. There were also slightly lower numbers of antiasthmatic prescriptions filled for children of parents in the program group than for children of parents in the control group.

Parental Reports of Emotional Climate in the Home, Parenting, and Outcomes for Children

As part of the child add-on study, information was collected from parents about their own expression of negative emotions in the home and their parenting stress. Information was also collected about their parenting practices and their perspective on their children's behavior and functioning. This information was collected from a survey conducted with parents over the telephone or in participants' homes. Analyses comparing scores for parents in the program group and parents in the control group were conducted and are presented in Table 6.2. The analyses focus on the sample of parents for whom data on their children aged 8 to 14 at random assignment were also collected. Measures collected from the parent survey are described in Appendix E; see "Parental Report Measures."

As shown in Table 6.2 — not surprisingly, given the limited impacts of WtW on parents' depression — no differences were found between program and control group parents in their expression of negative emotions or their parenting stress. Neither were consistent differences found in reported parenting behavior. In fact, on all the outcomes presented in Table 6.2, average levels for the program and control groups are similar.

The bottom panel of the table presents impacts on parents' reports of children's behavior. Parents were asked to report on children's positive behaviors, including their social competence, compliance, and autonomy. Parents were also asked to report on children's externalizing, or acting out behavior, and on their internalizing, or depressed and withdrawn behavior. On all these measures, there were no differences between the reports of those parents assigned to the program group and of those assigned to the control group. Notably, compared with scores for children of a sample of low-income parents in the New Hope Project (an employment-based antipoverty initiative in two inner-city areas in Milwaukee),[21] scores on children's positive behavior in WtW are slightly lower, and scores on problem behavior are

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[21] Bos et al. (1999); Huston et al. (2008).

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Table 6.2

Estimated Impacts on Mothers' Reports of Emotional Climate in the Home, Parenting Behavior, and Child Behavior Eighteen Months Following Random Assignment

Rhode Island: Working toward Wellness

		Average Scale Score			
Outcome	Score Range	Program Group	Control Group	Difference (Impact)	P-Value
Emotional climate in the home					
Mother's expression of negative dominant feelings	10 - 50	23.3	23.9	-0.6	0.533
Parenting stress	8 - 40	22.8	22.8	0.0	0.984
Sample size (total = 184)		86	98		
Parenting behavior					
Communication	8 - 32	25.9	25.3	0.6	0.267
Limit setting	12 - 48	31.1	30.4	0.7	0.496
Involvement	9 - 36	28.6	27.8	0.8	0.276
Autonomy granting	4 - 16	11.0	11.4	-0.4	0.301
Frequency of disciplinary action	1 - 4	1.8	1.9	-0.1	0.183
Child behavior					
Positive behavior	1 - 5	3.8	3.8	0.1	0.270
Problem behavior	1 - 5	2.5	2.5	-0.1	0.397
Externalizing problems	1 - 5	2.5	2.6	-0.2	0.251
Internalizing problems	1 - 5	2.4	2.4	0.0	0.954
Sample size (total = 220)		104	116		

SOURCE: Measures of emotional climate, parenting behavior, and child behavior are based on MDRC calculations using data from respondents to the 18-month parent questionnaire.

NOTES: The sample is restricted to parents of children aged 8 to 14 at random assignment who responded to the 18-month youth questionnaire.

See Appendix E for descriptions of the measures used.

For the findings presented in the first panel, the parent is the unit of analysis. For the findings presented in the second panel, the child is the unit of analysis, and standard errors are adjusted to account for the shared variance between children within the same family.

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.

slightly higher, which is consistent with the high-risk nature of this sample of youth with low-income depressed parents.

Children's Self-Reported Mental Health

An in-depth survey with youth was also conducted to allow for the assessment of the effects of the WtW intervention on youths' own reports of their depressive symptoms, anxiety, social skills (self-control and loneliness), and self-esteem. The measures that were collected as part of this youth survey are described in Appendix E; see "Youth Self-Report Measures of Mental Health." Analysis of the effects of WtW on youth self-reported outcomes are presented in Table 6.3.

First, how does this sample of children compare with other children of depressed parents and with low-income children more generally, based on their own reports? With regard to levels of depression, children in this sample show levels similar to those of a nationally representative sample of children with a family history of depression (10 percent to 16 percent) but much higher levels than children without such a family history (2 percent to 6 percent).[22] Compared with children from the national sample of the National Institute of Child Health and Human Development (NICHD) Study of Early Child Care and Youth Development, children in this study have average depression scores comparable to the scores of children of subclinically depressed parents and of parents with elevated levels of depression (and scores higher than those of children of nondepressed parents).[23] And their scores on loneliness and social dissatisfaction are even higher than those of children of parents with elevated depression in that sample. At the same time, however, the children of parents in WtW scored lower on this same loneliness dimension than a sample of children attending a school with high exposure to violence.[24]

With regard to the effects of the WtW program, in general, there were very few effects on youth as a result of their parents' assignment to the WtW program. On most measures of mental health, social skills, and self-esteem, there are no statistically significant differences between youth of parents assigned to the program group and those assigned to the control group. There are small differences in the proportion of youth with clinically significant levels of depressive symptoms: 19 percent of youth in the control group, compared with 9 percent of children in the WtW group, reported clinically significant symptoms on the Mood and Feelings Questionnaire (MFQ).[25] However, this difference is observed only on the clinical cut-point for

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[22] Glied and Pine (2002); The Glied and Pine (2002) study used the Commonwealth Fund Survey of the Health of Adolescent Girls, a nationally representative study of adolescents conducted in classrooms.

[23] The NICHD study sample is not a low-income sample, while the WtW sample is. See Campbell, Morgan-Lopez, Cox, and McLoyd (2009).

[24] Bagner, Fernandez, and Eyberg (2004).

[25] Angold and Costello (1987).

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Table 6.3

Estimated Impacts on Children's Self-Reports of Mental Health Eighteen Months Following Random Assignment

Rhode Island: Working toward Wellness

		Average Scale Score			
Outcome	Score Range	Program Group	Control Group	Difference (Impact)	P-Value
Mood and anxiety measures					
Depressive symptoms (as measured by the MFQ)	0 - 66	12.3	14.7	-2.4	0.206
MFQ score is clinically significant[a] (%)		8.8	18.9	-10.1 *	0.055
Depressive symptoms (as measured by the CDI-S)	0 - 20	2.4	2.7	-0.3	0.581
Anxiety symptoms	1 - 5	2.1	2.2	-0.1	0.325
Social skills measures					
Self-control in social situations	0 - 16	8.6	8.0	0.6	0.114
Loneliness and social dissatisfaction	16 - 80	28.6	29.7	-1.1	0.513
Self-esteem measures					
Global self-worth[b]	1 - 4	3.2	3.1	0.1	0.392
Positive feelings about physical appearance	1 - 4	2.9	2.9	0.0	0.739
Positive feelings about scholastic competence	1 - 4	2.9	2.7	0.2 *	0.084
Sample size (total =220)		104	116		

SOURCE: Measures of mental health are based on MDRC calculations using data from respondents to the 18-month youth questionnaire.

NOTES: The sample is restricted to children aged 8 to 14 at random assignment.

MFQ = Mood and Feelings Questionnaire. CDI-S = Children's Depression Inventory, Short Form.

See Appendix E for descriptions of the measures used.

Results in this table are adjusted for pre-random assignment characteristics. Standard errors are adjusted to account for the shared variance between children within the same family.

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] A score of 29 or higher on the MFQ is considered clinically significant, based on the finding by Daviss et al. (2006) that this score optimally discriminated between youth with and without a major depressive episode.

[b] Global self-worth is measured by a single item that asks whether they are happy being the way they are or wish they were different (responses range from 1 to 4, with a 4 being highest self-worth).

the MFQ scale and not on the continuous measures of mental health as assessed by either the MFQ or the Children's Depression Inventory, Short Form (CDI-S).[26]

While children in the program group reported slightly higher levels of scholastic competence than their control group counterparts, there are no differences in other aspects of children's reported competence. Given the few effects observed, the most important takeaway message from this table is the limited effects on youth of the WtW program, which is consistent with the few findings on their parents' depression that are reported in previous chapters.

Children's Stress Physiology

Finally, this study includes an innovative set of measures of children's stress-sensitive physiology, assessed through saliva samples collected from the youth themselves. The samples were collected in order to measure the salivary concentration of cortisol, a hormone that is the output of the stress-sensitive hypothalamic-pituitary-adrenal (HPA) axis system. In short, when a stressful event occurs, an individual may experience a series of physiological changes that may involve activation of the HPA axis and resulting rises in levels of cortisol. Cortisol in the laboratory setting rises most consistently with such experiences as perceived social rejection or the threat of social rejection, including situations in which individuals perceive negative feedback on their performance.[27] Cortisol is an important variable in its association with depression, and associations between cortisol levels and immune and cognitive (memory) systems have also been observed.[28] Interestingly, the HPA axis not only responds to immediate stressful events but also exhibits a regular diurnal pattern that is disrupted in individuals at risk. Cortisol levels rise with wakening (the levels about 30 to 45 minutes after waking in the morning are higher than at first wake-up); levels fall rapidly in the first few hours after waking, and then they continue to fall more slowly across the day, to a low point in the middle of the night. Low levels of cortisol help one to sleep at night, while the boost in the morning mobilizes the body's energy to get out of bed. Interestingly, chronically elevated *and* chronically suppressed average cortisol levels have been considered dysfunctional patterns of cortisol activity.[29] These atypical patterns of cortisol activity are thought to be linked with situations in which the normal stress response has gone awry.[30] In short, chronic stress might lead to frequent and chronic activation of the stress system (resulting in abnormally high cortisol levels) or to

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[26] Kovacs (1992).

[27] Eisenberger et al. (2007); Pruessner, Kirschbaum, Meinlschmid, and Hellhammer (2003); Wang et al. (2005).

[28] Adam (2006); Chrousos and Gold (1992); McEwen (1998).

[29] Carlson and Earls (1997); Gunnar (2000); Gunnar and Vasquez (2001).

[30] McEwen (1998).

overcompensation by the stress system (resulting in abnormally low cortisol levels), both of which have been associated with emotional and physical health problems.[31]

For children, a number of studies have shown that early stressful experiences may alter the typical diurnal pattern of cortisol production. Initial expectations were that early stressors would contribute to increases in cortisol as a result of children's continued response to threat,[32] although some research has shown a flattened but also *low* patterning of cortisol production evident in the context of extreme environmental stress.[33] In addition, there is some emerging research to show that variation across days in levels of cortisol may be associated with mental health outcomes, although not all the research in this area is consistent. Individuals who fail to "habituate" to stressors (that is, who show greater cortisol reactivity one day and less the next) have higher scores on measures of stress, anxiety, and depression.[34] But other research has linked a "blunted" pattern of cortisol reactivity to depression, particularly among adult men. Research on children shows that higher variability in morning cortisol levels is associated with depression several years later,[35] and this same research team has linked children's experience with maternal depression postnatally with greater variation in cortisol output from one day to the next in adolescence.[36]

The expectation for this study was that children's patterns of cortisol output would be altered as a result of their parents' improvements in depressive symptoms. As mothers' depression improves, children should face fewer stressors in the home (for example, fewer negative emotional interactions with the mother or more attentive parenting), and this reduced exposure to stressors may result in changes in children's stress levels, mood, and cortisol output. Although, as discussed above, it is well established that children's typical diurnal patterns of cortisol output are linked to early or chronic exposure to stressful experiences, recent research has also shown that cortisol levels are sensitive to recent life events and current mood, with higher levels of negative recent life events and more negative current emotion being associated with higher average cortisol levels.[37] Thus, improvements in children's home life could be expected to result in lowered average cortisol levels. Evening levels may be expected to be the most reduced, since recent studies have found an association between elevated evening cortisol levels and concurrent reports of depressive or anxious symptoms,[38] whereas adolescents'

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[31] Chrousos and Gold (1992); Heim, Ehlert, and Hellhammer (2000).

[32] Gunnar and Vazquez (2001).

[33] Carlson and Earls (1997); Gunnar (2000).

[34] van Eck, Berkhof, Nicolson, and Sulon (1996).

[35] Halligan, Herbert, Goodyer, and Murray (2007).

[36] Halligan, Herbert, Goodyer, and Murray (2004).

[37] Adam, Klimes-Dougan, and Gunnar (2007).

[38] Van den Bergh and van Calster (2009); Van den Bergh, van Calster, Pinna Puissant, and Van Huffel (2008).

cortisol awakening response and wake-up levels have more consistently been found to be associated with early life experiences and genetics.[39] However, given the scarcity of observed impacts on parents' depression levels or on parenting practices in this evaluation, it was seen as unlikely that changes in children's cortisol levels would be observed as a result of the intervention. One hypothetical pathway to intervention-induced changes in children's cortisol levels does exist, though: the increase in children's filling of prescriptions for psychotherapeutic medications (perhaps as a result of the mother's increased engagement with mental health professionals) would be likely to alter cortisol levels.

Cortisol Sampling Procedures and Measures

Youth whose parents were in the program and control groups of the WtW study were asked to provide three samples of saliva on each of two days: one sample at the time they woke up in the morning, a second sample 30 minutes after waking, and the final sample at bedtime.[40] They were instructed to spit into a vial that was supplied especially for this effort and to record on each vial the time and date of the sample. From these samples, the following measures were developed, as described below:[41]

Cortisol Levels

Wakeup cortisol level: the average of their wake-up cortisol values on two days
Bedtime cortisol level: the average of their bedtime cortisol values on two days

Patterns of Cortisol Output

Cortisol awakening response (CAR): the difference between their 30-minute post-wake-up cortisol level and their wake-up cortisol level, averaged over the two days of collection

Diurnal slope: the average rate of decline in cortisol levels from wake-up to bedtime (bedtime cortisol level – wake-up cortisol level) / (bedtime sample time – wake-up sample time)

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[39] Halligan, Herbert, Goodyer, and Murray (2004); Bartels et al. (2003).

[40] Cortisol data were also collected, using the same sampling procedures, from children's parents. It was hypothesized that changes in parents' cortisol levels would be observed as a result of their decreased depressive symptoms. Not surprisingly, given the lack of an impact of the program on parents' average depression levels, no significant differences in cortisol levels, average patterns of output or variability of cortisol output were observed.

[41] Each saliva sample was assayed twice for cortisol concentrations, and the reported cortisol values are the average of the values from these two assays. If the inter-assay variation was greater than 20%, a third assay was conducted and the average of the closest two of the three assays was used. The resulting average inter-assay variation was 6.5 percent. All cortisol values are reported in micrograms per deciliter (μg/dL).

> *Area under the curve (AUC), with respect to ground:* calculated using the wake-up value and the bedtime value, and the amount of time from wake-up to bedtime, using polygon geometry (The AUC provides an estimate of the total cortisol output over the course of the day, excluding the cortisol awakening response.)

Three measures of variability — on the three "cortisol output" measures — were also computed:

> *Variability in the cortisol awakening response:* computed as the difference in the CAR across the two days of measurement
>
> *Variability in diurnal slope:* computed as the difference between the diurnal slope measures for the two days of measurement
>
> *Variability in the area under the curve:* computed as the difference in the AUC value for the two days of measurement

Findings About Children's Stress Physiology

Table 6.4 presents the results of the analysis of physiological data described above. Measures were computed for those individuals who had supplied at least a wake-up sample and a valid 30-minute post-wake-up sample or bedtime sample on any given day, except in the case of the variability measures, which require data from two days of sampling.[42] In addition to pre-random assignment characteristics, all analyses controlled for certain concurrent factors that have been indicated in the research as affecting cortisol levels, including cigarette smoking, oral

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[42] The CAR was calculated only if the second sample was taken within 15 to 60 minutes after the wake-up sample. (In 88 percent of these cases, the second sample was taken between 20 and 40 minutes after the wake-up sample.) The diurnal slope and the AUC were calculated only if the bedtime sample was taken at least nine hours after the wake-up sample. If a cortisol value was missing because of a missing or insufficient saliva sample, measures that derive from this sample were not calculated, and this case was excluded from the analyses for these measures. In cases in which individuals supplied a cortisol sample with no time recorded on the vial, the missing sample time was imputed using a three-pronged approach: (1) if the time for the wake-up or the 30-minute post-wake-up sample was missing, the missing time was imputed to be 30 minutes before or after the nonmissing sample time, assuming compliance with the sampling procedure; (2) if the missing time could not be imputed from same-day information, it was imputed using the time at which the sample was taken by this individual on the other day of sampling; (3) if no within-person data could be used to impute the missing time, the average time at which this cortisol sample was taken by other children was imputed. This resulted in 19 individuals with imputed sample times, or 13 percent of the older-child cortisol analysis sample. To assess the sensitivity of the results to the time-imputation decisions, analyses were run both including and excluding individuals with imputed times, and no meaningful differences in the estimates were observed. The results described in this chapter are based on analyses that include all individuals with imputed times.

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Table 6.4

Estimated Impacts on Children's Salivary Cortisol Levels Eighteen Months Following Random Assignment

Rhode Island: Working toward Wellness

Outcome	Program Group	Control Group	Difference (Impact)	P-Value
Morning and evening cortisol levels				
Wake-up cortisol level	0.45	0.52	-0.07	0.361
Bedtime cortisol level	0.13	0.22	-0.08	0.182
Patterns of cortisol output				
Cortisol awakening response	0.06	0.00	0.06	0.526
Diurnal cortisol slope	-0.02	-0.02	0.00	0.760
Area under the curve	4.05	5.14	-1.09	0.265
Sample size (total = 142)	66	76		
Variability of patterns of cortisol output[a]				
Variability of cortisol awakening response	0.25	0.32	-0.07	0.259
Variability of diurnal slope	0.01	0.03	-0.01 *	0.057
Variability of area under the curve	1.86	3.04	-1.18 *	0.093
Sample size (total = 124)	57	67		

SOURCE: Measures of salivary cortisol outcomes are based on MDRC calculations from saliva samples collected 18 months after random assignment and assayed for cortisol concentration.

NOTES: All salivary cortisol levels are reported in micrograms per deciliter.

The sample is restricted to children aged 8 to 14 at random assignment.

Results in this table are adjusted for pre-random assignment characteristics and for certain sampling-day factors that are expected to influence cortisol levels (cigarette smoking, use of steroids-based medications, and compliance with the cortisol sampling procedures). Standard errors are adjusted to account for the shared variance between children within the same family.

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.

All cortisol values are capped at 3 standard deviations above the mean for the sampling occasion (wake-up, 30 minutes after wake-up, or bedtime).

[a] These measures quantify the variability of cortisol output across the two days of sampling, for those who complied with sampling procedures on both days.

consumption of steroid-based medications, the amount of time that elapsed between the wake-up and bedtime samples, and whether the bedtime sample was taken 16 hours after the wake-up sample. (Previous research has shown that although cortisol levels usually decline over the course the day, they begin to increase again after one has been awake for 16 hours.)[43] There were no significant differences between the program and the control groups on these concurrent factors, with the exception that children in the program group were more likely to be awake for more than 16 hours.

An examination of the average levels of cortisol in the control group children in this sample shows slightly elevated levels of cortisol secretion at wake-up. Typically, studies have shown wake-up values to be in the range of 0.3 to 0.4 microgram per deciliter (µg/dL), with a typical CAR increase of about 50 percent to 60 percent from the wakeup value. This sample of children has wake-up values slightly higher — around 0.5 µg/dL. But what is truly striking is the lack of a CAR. In this sample, there is almost no average increase in cortisol levels from wake-up to 30 minutes after wake-up. Interestingly, research shows a positive CAR in 75 percent of healthy individuals, and a smaller CAR has been linked with depression.[44] Bedtime values reported in Table 6.4 are around 0.2 µg/dL, a measure on which this sample is comparable to other, lower-risk samples. With regard to the effects of the WtW program on average cortisol levels and patterns of cortisol output, there were no significant differences between the adolescents of parents assigned to the two groups.

In addition, with two days of measurement, it is possible to measure whether there were any effects of the WtW program on the variability in cortisol levels and in patterns of output across days. Such measures assess the sensitivity of the system to variable stressors from one day to the next — in effect, a rough measure of the individuals' reactivity to daily events. Here, an effect of the WtW program was observed on two of the three measures of variability: variability in the diurnal slope and variability in the area under the curve, indicating that the WtW program reduced day-to-day fluctuations in cortisol secretion for adolescents. As discussed above, there is some emerging research to suggest that variability might be associated with experiences of maternal depression among children, on the one hand, and depressive outcomes among children themselves, on the other. That being said, the few effects observed overall suggest that any effects of the WtW program on children's physiology were small and in only limited areas of functioning.

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[43] Indicators flagging records with imputed sample times were also included as control variables in the analyses.

[44] Saxbe (2008).

Implications

The child add-on study of the WtW evaluation allowed for the collection of in-depth information on older children of study participants — children between the ages of 8 and 14 at the beginning of the study — for whom the effects of parents' depression might be particularly salient. For these children, parents provided additional information about their parenting and their children's behavior and functioning, and children themselves answered a series of questions about their mental health and social skills. This information was augmented with information on medical services received for children and measures of children's stress physiology, to get a sense of what was going on "under the skin" of adolescents in this high-risk sample.

- **Children of parents in the program group received fewer medical services than children of parents in the control group, but only in a few areas.** There were no differences between program and control group children on the number of medical visits they received for a number of common diagnoses, including infections, respiratory disorders, and routine health exams. However, children in the program group had fewer visits to the doctor than their control group counterparts overall, and this reduction in visits appears to be concentrated in visits to the doctor for mental disorders. Notably, these findings should not be interpreted as differences in depression levels among children, since many factors (including the presence of disorders as well as the need and effectiveness of services) are associated with doctor visits for depressive symptoms.

- **Not surprisingly given the limited effects of the WtW program on adults' depression, there were no effects of this program on parents' reports of the emotional climate in the home, their own parenting behaviors, and their children's behaviors.** Based on parents' reports on the level of anger and hostility that they expressed in the home, on their parenting-related stress, and on their parenting behavior, there were no differences between parents who were assigned to the program group and those in the control group. Parents in both groups also reported similar levels of behavior problems and of positive social behaviors among their older children.

- **Effects of the WtW program on older children's own reports of their behavior and emotional well-being were rare.** In general, children of parents in the program group reported similar levels as children of parents in the control group on most measures of mental health, social skills, and self-esteem. Fewer children in the program group reported clinically significant levels of depressive symptoms, but there was not a consistent pattern of program benefits across a broader set of measures of mental health for this sample.

- **The WtW program had few effects on older children's physiology.** Most measures of cortisol — to assess the children's stress physiology — did not show differences between the program and control groups. Children in the program group did exhibit less variability in cortisol from one day to the next, which may be associated with reduced reactions to daily stressors in this high-risk sample. However, given the lack of effects on parents' depression, the mechanism for these few effects is unclear.

In sum, given the limited effects on parents' depression that resulted from their participation in the WtW program, it is not surprising that there were few effects observed for participants' children. In fact, given these few effects, it is almost surprising that there were as many impacts observed on children as are reported here — particularly on youth's visits to the doctor and on their physiology, both of which occurred more frequently than could be expected by chance. Two explanations are worth considering. On the one hand, these findings may be spurious, reflecting chance findings emerging in this small sample of about 200 children. On the other hand, the findings could be the result of other pathways of influence, such as through the provision of care manager support for the challenges that the children were facing. Either way, the findings indicate that adolescents in this study were not consistently benefited by their parents' assignment to the WtW program.

Chapter 7

Costs of the WtW Program

This chapter presents a cost analysis of the Working toward Wellness (WtW) program in Rhode Island, focusing on the costs of enrollment activities, care management services, and direct health services. These costs are presented for the 18-month period following a sample member's entry into the program.[1]

The cost estimates are broken down in a number of different ways. The WtW cost estimates that appear in this report are presented per sample member for each research group, and the costs are broken down by the key program components. In addition, the analysis distinguishes between *gross* costs and *net* costs. Net costs are the difference between the gross cost of serving an average member of the program group and the gross cost of serving a member of the control group. As noted in earlier chapters, members of the control group were not eligible for the care management services provided by WtW, but they were not denied any services for which they were otherwise eligible. Thus, net costs are the incremental costs over and above the costs of existing services for the control group, which represent the cost of services that would have existed in the absence of the WtW program.

The first section of this chapter presents an overview of the major components of the total cost of the WtW program and how the component costs were estimated. This is followed by a more detailed discussion of the gross cost estimates for program and control group members and of the net costs.

Analytic Approach

Cost Components

Figure 7.1 depicts the elements that make up the gross and net costs of the WtW program. For program group members, there are three cost components: expenditures for enrollment activities, including mailings for recruitment and completion of a baseline assessment (Box A); expenditures for care management services (Box B); and expenditures for health services, including outpatient visits and prescriptions (Box C). Summing these three costs produces the total gross cost per program group member (Box D).

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[1] The random assignment of study participants occurred from November 17, 2004, to October 20, 2006. Chapter 3 presents the details of program implementation.

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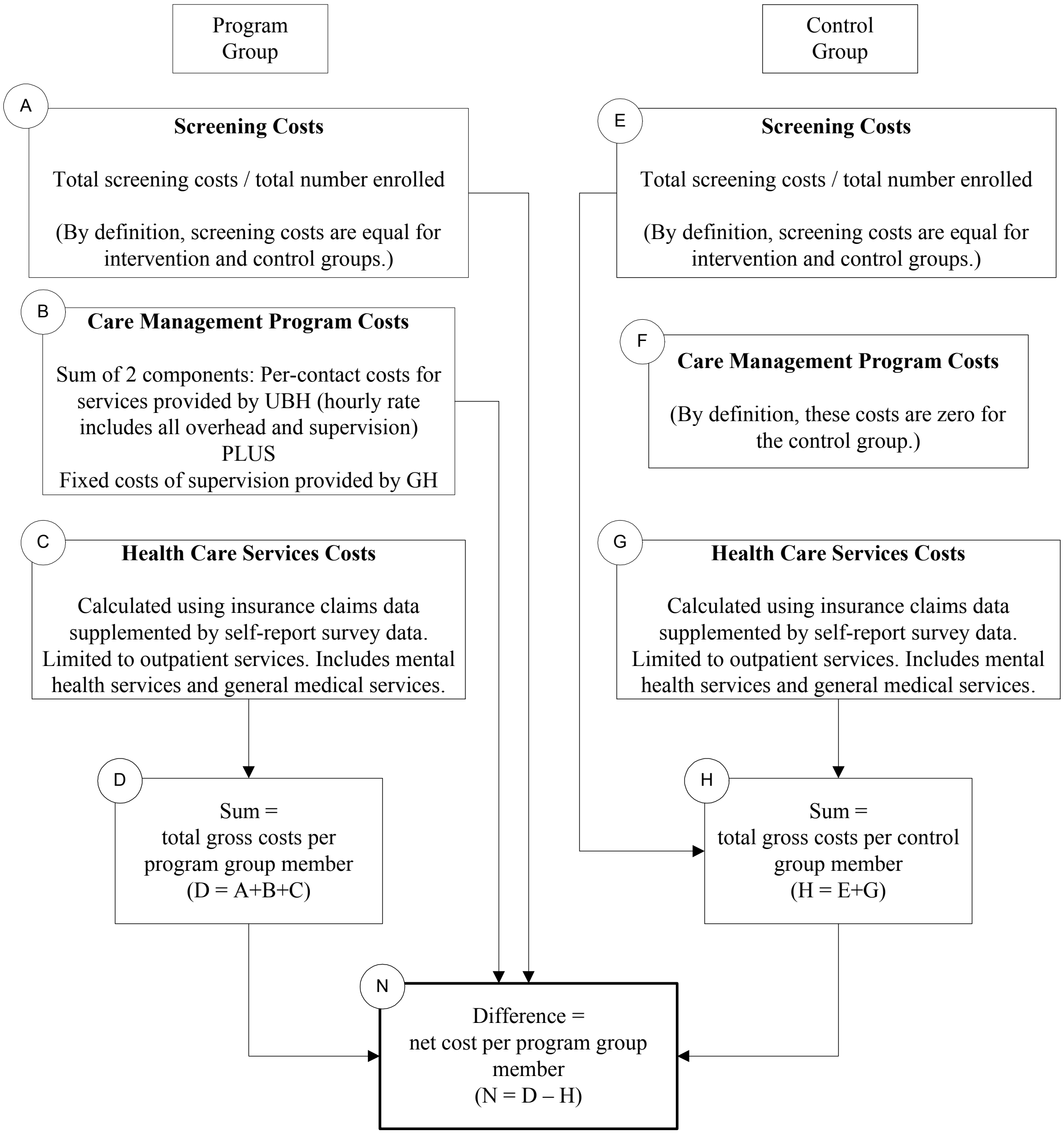
Figure 7.1

Simplified Diagram of Major Cost Components

Rhode Island: Working toward Wellness



Control group members were not eligible for care management services, and, therefore, only expenditures for enrollment activities (Box E) and for health services (Box G) are reflected in their gross cost (Box H).

The difference between the two groups' gross costs figures is the net cost of WtW per program group member (Box N).

Methodology

Program Enrollment

The cost of recruitment includes costs for mailings (printing, stuffing, mailing, and outgoing and reply postage) and for handling returned forms (opening and data entry). These costs were estimated based on bids for mailing and form handling from bulk mail marketing firms.

Care Management

Care management costs were estimated using data regarding services provided to each participant (such services as the completion of baseline assessment questionnaires and care management calls). Costs include salary, fringe benefits, facilities, and so on that are attributable to each service to arrive at the total cost to serve each participant. An advantage of this approach is that it captures variability in services received across participants.

Health Services

Information on the use and cost of medical services was available from claims data provided by United Health Care (UHC) or United Behavioral Health (UBH).[2] Although these data are both precise and accurate with respect to the exact service received and the date and amount paid, they are available only for participants enrolled in a UBH insurance plan. As a result, this analysis may underestimate gross costs if participants were enrolled in other plans.

Additionally, medical service costs in this analysis are limited to those for outpatient visits and prescriptions. Inpatient services are not considered, for two reasons. First, inpatient care is expected to account for 10 percent or less of health service costs. Second, inpatient costs typically show a highly skewed distribution, so any difference in inpatient costs would likely represent random variation rather than a true program effect. Costs for diagnostic services (laboratory testing, imaging procedures) are also excluded, because charges for these services

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[2] Claims or charges are only a proxy for actual costs of producing health services. As in most studies of this type, data are not available regarding actual input costs.

are not a reasonable proxy for costs and because accurate data regarding diagnostic services could not be collected via other means.

Care management and health service costs were estimated using individual-level data, allowing measures of average costs as well as indicators of variability to be calculated. (The program enrollment costs were estimated as average costs, and, therefore, standard deviations could not be calculated.) Indicators of variability are useful for service planning and for interpreting any difference in mean cost.

Gross Costs per Program Group Member

Program Enrollment

As shown in Table 7.1, program enrollment costs were $127 per sample member. This is high compared with enrollment costs in previous depression care management programs.[3] It is almost certain that the requirements of research (more detailed data collection, informed consent, and so on) reduced participation rates, making the intake process less efficient and increasing the cost per participant. Notably, the enrollment process was designed as a separate, stand-alone activity, distinct from the normal Medicaid authorization or reauthorization process. Any future implementation efforts should consider more efficient enrollment strategies.

Care Management

Total care management costs were $625 per program group member. These costs are generally similar to other telephonic care management programs, especially when compared with those providing high-intensity care management or telephone psychotherapy.[4] In the WtW program, considerable effort was devoted to outreach, which may have contributed to its higher costs.

Health Services

Costs for mental health and non-mental health-related outpatient services and prescriptions are presented separately. Doctors' visits are categorized as mental health-related on the basis of primary diagnosis, although it is possible that some visits without mental health diagnosis included some mental health content. Mental health-related prescriptions include all medications possibly used for the treatment of depression (including anxiolytics or other psychotherapeutic medications that might be used to augment depression treatment).

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[3] Simon, Von Korff, Rutter and Wagner (2000).
[4] Simon, Ludman, and Rutter (2009).

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Table 7.1

Estimated Gross Costs of Working toward Wellness

Rhode Island: Working toward Wellness

Cost Component ($)	Gross Cost per Program Group Member ($)	Standard Deviation
Total program enrollment costs	**127**	**NA**
Total care management costs	**625**	**350**
Mental health services		
Mental health-related visits		
Specialty mental health visits	544	1,583
General medical visits with a mental health diagnosis	21	59
Mental health-related prescriptions		
Antidepressant prescriptions	527	1,798
Other mental health prescriptions	570	3,561
Total mental health costs	**1,662**	**4,607**
Non-mental health services		
General medical visits with a non-mental health diagnosis	1,045	1,289
Nonpsychotherapeutic drugs	2,790	7,724
Total non-mental health costs	**3,834**	**8,017**
Total costs	**6,249**	**9,991**

SOURCES: MDRC calculations using WtW care management MIS data maintained by the Group Health Cooperative, and WtW staff allocation records, and medical and prescription claims data from United Behavioral Health.

As shown in Table 7.1, in the panel "Mental health services," the mean cost of outpatient mental health treatment in the 18 months following program entry was $565 per program group member ($544 plus $21). The panel "Non-mental health services" shows that mean costs for general medical services were nearly twice that, at $1,045 per program group member. Costs for mental health-related prescription medications were $1,097 per sample member ($527 plus $570) and were more than twice that ($2,790) for nonpsychotherapeutic drugs. Summing these component costs, the gross cost of WtW per program group member was $6,249.

Net Cost per Program Group Member

As noted above, control group members were not eligible for the care management services provided by WtW. However, they continued to be eligible for usual health care services while enrolled for UBH coverage. Therefore, as shown in Figure 7.1, control group members incurred costs attributable to enrollment activities (Box E) and to health services (Box G) but not to care management services (Box F). The following section presents the net cost of WtW, which was $774 per program group member (as shown in Table 7.2). This net cost is the difference between the gross costs of services for the program group and for the control group. Although it is not possible to determine which specific health care services were affected by the WtW program, any observed differences are assumed to be due to the intervention.

Program Enrollment

Inasmuch as program enrollment activities were completed prior to randomization, the cost of program enrollment was assumed to be the same for all participants regardless of research group. Therefore, as shown at the far right in the first row of Table 7.2, net program enrollment costs are zero.

Typically, strictly research-related costs are excluded in cost analyses. In the case of screening activities for WtW program enrollment, there is no clear distinction between these functions — enrollment in the program and in the research took place as part of the same process. Given the experimental design of the WtW study, the costs (and benefits) of screening should be equally allocated to both the program group and the control group. Consequently, any comparison of incremental costs of the intervention program would net out screening costs. However, even in the absence of a research study, some form of screening would have been necessary to enroll participants. Therefore, while the research may have affected the efficiency of the process, resulting in higher-than-typical costs, some enrollment costs should be considered part of the total cost of offering a care management program such as WtW.

Care Management

As noted above, control group members were not eligible to receive the care management services that were part of WtW, and they were unlikely to receive these types of services in other settings. Thus the full cost of these services to program group members — $625 — is counted toward net costs.

Health Services

As shown in the panel “Mental health services” in Table 7.2, for control group members, the mean cost of outpatient mental health treatment in the 18 months following program

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Table 7.2

Estimated Gross and Net Costs of Working toward Wellness

Rhode Island: Working toward Wellness

Cost Component ($)	Gross Cost per Program Group Member ($)	Standard Deviation	Gross Cost per Control Group Member ($)	Standard Deviation	Net Cost per Program Group Member ($)
Total program enrollment costs	**127**	**NA**	**127**	**NA**	**0**
Total care management costs	**625**	**350**	**1**	**0**	**625**
<u>Mental health services</u>					
Mental health-related visits					
Specialty mental health visits	544	1,583	396	1,045	148
General medical visits with a mental health diagnosis	21	59	15	43	6
Mental health-related prescriptions					
Antidepressant prescriptions	527	1,798	447	1,453	79
Other mental health prescriptions	570	3,561	398	2,158	172
Total mental health services costs	**1,662**	**4,607**	**1,257**	**3,265**	**406**
<u>Non-mental health services</u>					
General medical visits with a non-mental health diagnosis	1,045	1,289	990	2,577	54
Nonpsychotherapeutic drugs	2,790	7,724	3,100	8,342	-311
Total non-mental health services costs	**3,834**	**8,017**	**4,091**	**8,901**	**-256**
Total costs	**6,249**	**9,991**	**5,475**	**11,203**	**774**

SOURCES: MDRC calculations using WtW care management MIS data maintained by the Group Health Cooperative, and WtW staff allocation records, and medical and prescription claims data from United Behavioral Health.

entry was $411 ($396 plus $15). The panel “Non-mental health services” shows that mean costs for general medical services were more than double that, at $990 per control group member. Costs for mental health-related prescription medications were $845 per control group member ($447 plus $398) and were more than triple that ($3,100) for nonpsychotherapeutic drugs.

As shown in the rightmost column of Table 7.2, the costs of mental health visits were approximately $150 higher for the intervention group. Because uptake of depression treatment was subject to many influences beyond the control of the intervention program, there is great variability in this cost category; the large standard deviations indicate that this difference is within the range expected by chance. Costs for non-mental health visits were similar in the two groups, at $1,045 and $990 per program and control group member, respectively. This category was expected to show the greatest variation, and the provision of care management services could have resulted in movement in both directions. The net cost for general medical visits was $54, but this difference is quite small compared with the observed variability and, again, is within the range expected by chance. Notably, visits for mental health treatment accounted for only one-third of all visit costs.

Costs for antidepressant drugs and for other psychotherapeutic drugs were both higher for participants assigned to the intervention program, but the differences are small compared with the observed variability. Costs for other prescriptions (that is, nonpsychotherapeutic medications) were approximately $300 lower for the program group, but this difference is also within the range of error. Total prescription costs in the two groups were similar ($3,887 for program group members and $3,945 for control group members). It is notable that costs for antidepressant drugs accounted for only approximately one-eighth of all prescription costs.

Summary of the Net Costs

Overall, the net cost of WtW was $774 per program group member. This is the difference between the total cost of services received by program group members ($6,249) and the total cost of services received by control group members ($5,475). The cost for care management services accounts for the majority of the net cost. The mean costs of traditional outpatient mental health services (visits and prescriptions) were approximately $400 higher in the program group. Although this difference is in the expected direction (higher in the program group), it lies well within the range expected by chance. The mean costs for other outpatient health services were approximately $250 lower for the intervention program group, but this difference also lies well within the range expected by chance. While these differences are in the expected directions, they are within the range expected by chance and do not support any firm conclusions about the effects of the program on health services costs.

Several other trials of depression care management interventions observed a similar pattern of slightly lower general medical costs among those receiving a care management intervention. While none of those studies found a statistically significant reduction in general medical care costs (that is, a cost-offset effect of increased spending on depression treatment), all these studies taken together suggest that increased spending on depression care (through telephone-based or in-person services) may be partially offset by reductions in general medical spending.[5]

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[5] Simon, Ludman, and Rutter (2009).

Appendix A

Description of Outcome Measures

Data on Medical Services

Information on the use of medical services was available from claims data provided by United Health Care (UHC) or 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

Doctor Visits

In this report, claims for professional fees are considered in the analysis of doctor 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 relating to a particular provider type on a particular date were counted as a single medical visit. Visits to different provider types on a particular date are considered separate events, as are 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 a visit to a psychiatrist and a dermatologist on the same day.

Hospitalization and Services from Emergency Departments

Incidences of inpatient hospitalization and emergency department use were 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

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 the drug strength, the quantity, and the number of days supplied; the date the prescription was filled; and submitted charges and fees paid. Using the generic and American Hospital Formulary Service (AHFS) therapeutic classifications indicated in the data, the medications were categorized as psychotherapeutic medications (which were further classified as either antidepressants or other psychotherapeutic medications) or as nonpsychotherapeutic medications.

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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) program in Rhode Island was available for all sample members through claims data from United Behavioral Health (UBH), information on follow-up depression severity was available only for the 86 percent of the sample who completed the follow-up survey. Because depression outcome information is available only for the 428 survey respondents and because the utilization outcomes are derived from the claims data, which include 499 participants, comparison analyses of the respondents and the nonrespondents of the 18-month survey were conducted.

Appendix Table B.1 compares the baseline characteristics of survey respondents and nonrespondents with the characteristics of the full sample of 499 participants. There were no significant differences. Appendix Table B.2 compares the baseline characteristics of the survey respondents in the program group and those in the control group and shows that sample members who responded to the survey were similar groups at baseline. This suggests that results from the survey provide valid impact estimates for this subgroup of respondents, even if the results cannot be generalized to the full sample.

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Appendix Table B.1

Comparison of the Baseline Characteristics of Eighteen-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	13.8	11.3
Moderate (11-15)	39.1	38.8	40.8
Severe (16-20)	35.1	35.7	31.0
Very severe (21-25)	12.4	11.7	16.9
Average score on QIDS-SR	15.4	15.3	15.8
Sociodemographic characteristics			
Gender (%)			
Female	89.8	89.5	91.5
Age (%)			
18-25	13.0	12.4	16.9
26-35	39.7	40.0	38.0
36-45	31.3	31.5	29.6
46-maximum age (62)	16.0	16.1	15.5
Average age (years)	35.4	35.6	34.5
Race/ethnicity (%)			
White	45.3	45.6	43.7
Hispanic[b]	33.3	32.2	39.4
Black/African-American	12.4	13.1	8.5
Other	5.8	6.1	4.2
Marital status (%)			
Single	37.4	36.9	40.6
Married or lives with partner	40.6	40.4	42.0
Divorced, separated, or widowed	22.0	22.8	17.4
Average number of adults in household	1.6	1.6	1.7
Highest degree/diploma (%)			
High school diploma or GED certificate	54.1	53.7	56.5
Technical or 4-year college degree	22.4	22.7	20.3
No high school diploma or GED certificate	23.6	23.6	23.2
Number of children ages 0-18 per participant	1.9	1.9	2.0
Currently employed (%)			
Yes	43.5	43.0	46.5
No	53.9	54.7	49.3

(continued)

Appendix Table B.1 (continued)

Characteristic	Full Sample	Respondents	Non Respondents
Number of hours worked per week at current job (%)			
Not currently employed	53.9	54.7	49.3
0-9 hours	2.4	2.3	2.8
10-29 hours	13.2	13.6	11.3
30 or more hours	23.6	22.7	29.6
Earnings per hour before taxes at current job (%)			
Not currently employed	53.9	54.7	49.3
$7.00 or less	8.2	7.7	11.3
$7.01 - $9.00	10.6	11.0	8.5
$9.01 - $12.00	12.4	11.7	16.9
$12.01 - $15.00	6.4	7.0	2.8
More than $15.00	4.6	4.2	7.0
Prior treatment (%)			
Ever received treatment from professional	73.4	72.7	77.5
Age of the first time talked to professional			
Never talked to professional	26.5	27.1	22.5
20 or younger	21.6	19.6	33.8
21-30	25.9	27.3	16.9
31-40	16.8	16.8	16.9
Older than 40	7.8	7.7	8.5
Received treatment within the past year	39.7	40.2	36.2
Received antidepressant medication within the past year	37.6	37.5	38.0
Alcohol/drug use (%)			
Has at least one alcoholic drink in a typical week			
Yes	30.1	29.7	32.4
No	32.7	33.2	29.6
Uses any type of recreational drugs in a typical month			
Yes	3.8	3.5	5.6
No	43.1	43.5	40.8
Self-reported health (%)			
How would you rate your health?			
Excellent/very good	18.1	18.8	14.1
Good	38.0	38.0	38.0
Fair/poor	43.9	43.2	47.9
SSI/SSDI benefits (%)			
Participant currently receiving SSI or SSDI	3.4	3.5	2.8
Sample size	499	428	71

(continued)

Appendix Table B.1 (continued)

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 reported on 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] 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 Eighteen-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)	10.9	16.6		13.8
Moderate (11-15)	45.5	32.3		38.8
Severe (16-20)	32.2	39.2		35.7
Very severe (21-25)	11.4	12.0		11.7
Average score on QIDS-SR	15.2	15.4		15.3
Sociodemographic characteristics				
Gender (%)				
Female	89.1	89.9		89.5
Age (%)				
18-25	14.2	10.6		12.4
26-35	37.0	42.9		40.0
36-45	31.3	31.8		31.5
46-maximum age (62)	17.5	14.7		16.1
Average age (years)	35.8	35.4		35.6
Race/ethnicity (%)				
White	43.9	50.0		47.0
Hispanic[b]	34.6	31.9		33.3
Black/African-American	14.6	12.4		13.5
Other	6.8	5.7		6.3
Marital status (%)				
Single	37.6	36.1		36.9
Married or lives with partner	37.6	43.1		40.4
Divorced, separated, or widowed	24.8	20.8		22.8
Average number of adults in household	1.6	1.7		1.6
Highest degree/diploma (%)				
High school diploma or GED certificate	51.2	56.1		53.7
Technical or 4-year college degree	24.9	20.6		22.7
No high school diploma or GED certificate	23.9	23.4		23.6

(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	41.2	44.7	43.0
No	55.5	53.9	54.7
Number of months on the current job (%)			
Not currently employed	55.5	53.9	54.7
Less than 6 months	10.4	11.1	10.7
6-24 months	11.8	13.8	12.9
More than 24 months	15.6	18.0	16.8
Number of hours worked per week at current job (%)			
Not currently employed	55.5	53.9	54.7
0-9 hours	2.4	2.3	2.3
10-29 hours	10.0	17.1	13.6
30 or more hours	24.2	21.2	22.7
Earnings per hour before taxes at current job (%)			
Not currently employed	55.5	53.9	54.7
$7.00 or less	6.6	8.8	7.7
$7.01 - $9.00	10.0	12.0	11.0
$9.01 - $12.00	11.4	12.0	11.7
$12.01 - $15.00	7.6	6.5	7.0
More than $15.00	4.7	3.7	4.2
Prior treatment (%)			
Ever received treatment from professional	75.2	70.2	72.7
Age of the first time talked to professional			
Never talked to professional	24.6	29.5	27.1
20 or younger	20.4	18.9	19.6
21-30	27.5	27.2	27.3
31-40	16.1	17.5	16.8
Older than 40	10.4	5.1	7.7
		**	
Received treatment within the past year	45.2	35.3	40.2
Received antidepressant medication within the past year	39.7	35.3	37.5

(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	29.9	29.5	29.7
No	34.6	31.8	33.2
Uses any type of recreational drugs in a typical month			
Yes	6.2	8.7	7.5
No	93.8	91.3	92.5
Self-reported health (%)			
How would you rate your health?			
Excellent/very good	17.0	20.5	18.8
Good	38.8	37.2	38.0
Fair/poor	44.2	42.3	43.2
SSI/SSDI benefits (%)			
Participant currently receiving SSI or SSDI	19.2	15.3	17.3
Sample size	211	217	428

SOURCE: MDRC calculations from Rhode Island baseline data.

NOTES: Chi-square tests were conducted to determine statistical significance for categorical variables, and apply to the entire distribution. 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 reported on 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] 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 C1.a

Estimated Impacts on Use of Mental Health and Chemical Dependency Services in Twelve 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	41.4	32.1	9.4	**	0.026
Psychiatrist	17.7	10.9	6.8	**	0.031
Primary care physician	17.9	12.3	5.6	*	0.077
Psychologist/clinical social worker/counselor[a]	29.6	21.1	8.5	**	0.027
Visited emergency department for mental health services	3.5	0.2	3.2	***	0.009
Hospitalized for mental health services	4.9	1.6	3.2	**	0.045
Received chemical dependency services	6.7	6.9	-0.2		0.915
Number of visits for mental health services, by type					
Number of mental health visits	3.8	2.3	1.5	**	0.032
Psychiatrist	1.0	0.6	0.4		0.122
Primary care physician	0.3	0.2	0.1		0.218
Psychologist/clinical social worker/counselor	2.5	1.5	1.0	*	0.086
Number of visits to emergency department for mental health services	0.0	0.0	0.0	***	0.009
Number of days hospitalized for mental health services	0.4	0.1	0.3	**	0.032
Number of chemical dependency visits	1.4	1.8	-0.4		0.590
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] Includes claims for one program group member who received services at a behavioral health clinic.

The Enhanced Services for the Hard-to-Employ Demonstration

Appendix Table C.1b

Estimated Impacts on Use of Mental Health and Chemical Dependency Services in Thirteen to Eighteen 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	22.9	21.3	1.6	0.668
Psychiatrist	11.9	8.6	3.3	0.228
Primary care physician	6.2	4.6	1.6	0.438
Psychologist/clinical social worker/counselor[a]	14.9	15.5	-0.6	0.845
Visited emergency department for mental health services	1.2	0.8	0.4	0.697
Hospitalized for mental health services	0.8	0.0	0.7	0.214
Received chemical dependency services	3.9	3.7	0.1	0.946
Number of visits for mental health services, by type				
Number of mental health visits	1.7	1.2	0.5	0.364
Psychiatrist	0.4	0.2	0.1	0.171
Primary care physician	0.1	0.1	0.0	0.838
Psychologist/clinical social worker/counselor	1.2	0.9	0.3	0.501
Number of visits to emergency department for mental health services	0.0	0.0	0.0	0.697
Number of days hospitalized for mental health services	0.1	0.0	0.1	0.241
Number of chemical dependency visits	0.5	0.7	-0.1	0.666
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.

The Enhanced Services for the Hard-to-Employ Demonstration

Appendix Table C.2a

Estimated Impacts on Prescription Medications Filled in Twelve 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	55.0	47.7	7.3 *	0.070
Antidepressant drugs	49.0	42.5	6.5	0.105
Other psychotherapeutic drugs	30.4	21.1	9.3 **	0.015
Filled a prescription for adequate therapeutic dosage	33.7	27.7	6.0	0.119
Filled a prescription for nonpsychotherapeutic drugs	87.9	86.9	1.0	0.729
Number of filled prescription medications, by type				
Number of filled prescriptions for psychotherapeutic drugs				
Antidepressant drugs	2.7	2.3	0.4	0.293
Other psychotherapeutic drugs	1.2	0.9	0.3 *	0.094
Number of filled prescriptions for nonpsychotherapeutic drugs	11.6	10.6	0.9	0.336
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.

The Enhanced Services for the Hard-to-Employ Demonstration

Appendix Table C.2b

Estimated Impacts on Prescription Medications Filled in Thirteen to Eighteen 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	34.7	35.5	-0.8	0.853
Antidepressant drugs	29.8	31.1	-1.4	0.735
Other psychotherapeutic drugs	13.8	11.9	2.0	0.507
Filled a prescription for adequate therapeutic dosage	20.0	19.7	0.4	0.920
Filled a prescription for nonpsychotherapeutic drugs	65.7	62.2	3.5	0.414
Number of filled prescription medications, by type				
Number of filled prescriptions for psychotherapeutic drugs				
Antidepressant drugs	1.3	1.0	0.3	0.174
Other psychotherapeutic drugs	0.4	0.4	0.0	0.856
Number of filled prescriptions for nonpsychotherapeutic drugs	5.1	4.4	0.7	0.245
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.

Appendix D

Example Assignments from the *Creating a Balance* Workbook

Creating a Balance is an eight-chapter workbook that was mailed to Working toward Wellness (WtW) clients in Rhode Island so that they might work on their own and as part of the program to better recognize and manage symptoms of stress and depression.[1] The workbook contains didactic material, exercises that clients could work through with their care managers while on the telephone, and written "homework" assignments. It also contains formatted worksheets for given assignments, which the clients could simply fill in. In addition, the workbook provides sample answers that serve as models for how people might answer given questions.

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:

> 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 break out of their depression.

The workbook also includes instructions for "personal experiments" that could help clients find new ways of acting or behaving while they watched 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:

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

> 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 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.

Another example of a homework assignment, drawn from Chapter 7 of the workbook, is designed to help clients try out — to experiment with — different "thought-balancing" methods. These methods can help people who are experiencing depression begin to challenge automatic patterns of thinking that overemphasize negative thoughts in order to gain a clearer, more balanced view of daily events. The goal is not to ignore all negative thoughts or worries but, rather, to be aware of how they emerge and to maintain a healthy, more balanced perspective on them. The workbook suggests a range of thought-balancing methods — some more creative and others more logical — for clients to try, in recognition that different approaches work differently for different people. Creative approaches include "thought-stoppers," which involve identifying repeated phrases, mental images, or actions that can be used at any place or any time to interrupt negative thoughts before they start to control the overall mood. One method that the workbook gives is the practice of carrying a list of favorite positive thoughts that can be read whenever negative thinking begins.

Another method, "the reasonable approach," may help clients take a "reasonable look" at a given situation to tame negative thinking. This method is based on the fact that negative thoughts are often exaggerated, unreasonable, or illogical, and such thoughts usually survive if there is no evidence to prove them wrong. The following scenario is presented in Chapter 7 to illustrate how a reasonable approach can be useful:

> Janice had no luck finding a regular job, so she decided to sign up with a temp agency. She filled out the application and set up a personal interview. First impressions count, so she dressed carefully and showed up early. She even practiced in her mind how she would answer the questions. But the placement specialist at the temp agency didn't seem interested. About 10 minutes into the interview, he took an "urgent" phone call. Things really went downhill from there. He seemed completely distracted and ended the interview early. She didn't even have time to ask what he thought. He just said, "Check back with us on Monday." Janice was crushed. She thought she would shine in the interview, but now she was sure she'd made a terrible impression. She said to herself, "That man thought I was just wasting his time. I was a fool to think I was ready to start working again." Fortunately, Janice had enough confidence to call back

> on Monday. When she asked for the placement specialist from her interview, she heard that he'd been let go. No wonder he wasn't paying attention to Janice during the interview. He had been too busy worrying about losing his own job! Once she knew all the facts, she saw her interview in a whole new light. She was able to say to herself, "Maybe that was all about his problems, not mine."

Clients who are engaged in the workbook are then asked — when they are facing an upsetting situation like Janice's — to take a step back and look at things from a different angle and to experiment with the different thought-balancing methods covered in the workbook, such as the reasonable approach, which encourages that they ask themselves the following questions as a way to gain perspective and balance their thoughts:

> What's the evidence? Ask yourself what real evidence supports your negative or self-critical thought. How far did you have to "jump" to reach that negative conclusion?
>
> What are the other explanations? Try to list all the other possible explanations for the same situation or set of facts. Start off by letting all the possibilities come into your head. Write them down. Then review your list. How many other explanations seem just as likely as your negative conclusion?
>
> What if the worst did happen? Try to take a step back and look at the outcome that you're afraid of. Write down what it might mean if that worst thing really happened. Ask: Will this make a big difference to me in a week? A month? A year?
>
> How would somebody else look at this situation? Try to think of some friend you trust. What would she or he say about your situation? Would your friend blame you as much as you're blaming yourself? Would she or he see things as completely hopeless?

Then, after trying different methods, clients are instructed to set aside some time each day to review what was tried and how it worked, which they then reflect on alone and with the care manager on the telephone. (Blank "daily review forms" are included in the workbook, creating a convenient place for clients to record examples of when thought-balancing methods were tried and whether they worked.)

The workbook was initially developed for a study of primary care patients who were starting antidepressant treatment[2] and then was revised for the Workplace Depression Study (WDS). It was adapted for WtW to incorporate illustrative examples of the experiences and stressors that are more typical of unemployed or low-income families, many of whom are

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[2] Simon et al. (2004).

headed by women. 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.

Appendix E

Measures Used in This Report

Parental Report Measures

Emotional Climate in the Home

Mother's expression of negative dominant feelings. The negative dominant subscale of the Self-Expressiveness in the Family Questionnaire (SEFQ)[1] was used to assess the frequency of parents' expressions of anger and hostility in the home. The 10 items, each ranging from 1 (never) to 5 (always), are summed to create a scale score ranging from 10 to 50, with 50 indicating the highest level of negative dominant emotional expression. This scale achieved high internal reliability (Cronbach's alpha = 0.80).

Parenting stress. Selected items from the Parental Distress subscale of the Parenting Stress Index–Short Form[2] were used to assess the stress associated with the parenting role. Sample items include "You often have the feeling that you cannot handle things very well" and "You feel trapped by your responsibilities as a parent." The 8 items making up the scale are each scored on a scale of 1 to 5 and are summed to create a scale score ranging from 8 to 40, with 40 indicating the greatest level of parenting stress. This scale achieved high internal reliability (Cronbach's alpha = 0.81).

Parenting Behavior

Parent-child communication, limit-setting, involvement, and autonomy-granting were assessed using selected items from four subscales of the Parent-Child Relationship Inventory (PCRI),[3] confirmed in psychometric work conducted on this sample. All items are scored on a scale of 1 to 4. Scale scores are calculated as the sum of item scores, with high scores indicating more positive parenting practices.

- The **communication scale** consists of 8 items measuring how well the parent communicates with the child. Items include "[Child] generally tells you when something is bothering him or her" and "[Child] would say that you are a good listener." This scale achieved moderate internal reliability (Cronbach's alpha = 0.75).
- The **limit-setting scale** consists of 12 items measuring the quality of the parent's disciplinary techniques. Items include "You sometimes give in to [child] to avoid a tantrum" and "You often lose your temper with [child]." This scale achieved high internal reliability (Cronbach's alpha = 0.86).

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[1] Halberstadt et al. (1995).

[2] Abidin (1995).

[3] Gerard (1995); Coffman, Guerin, and Gottfried (2006).

- The **involvement scale** consists of 9 items measuring the parent's closeness with the child. Items include "You spend a great deal of time with [child]" and "You feel very close to [child]." This scale achieved high internal reliability (Cronbach's alpha = 0.85).

- The **autonomy-granting scale** consists of 6 items measuring the parent's comfort level with granting autonomy to the child. Items include "You can't stand the thought of [child] growing up" and "You worry a lot about [child] getting hurt." This scale achieved only marginally acceptable internal reliability (Cronbach's alpha = 0.62).

Parenting discipline was assessed using 6 items adapted from prior studies of low-income parents (the New Hope Project — an employment-based antipoverty initiative in two inner-city areas in Milwaukee).[4] These items assessed the frequency, in the prior week, with which parents had punished the child by grounding, taking away privileges, sending child to room, spanking, threatening to punish, yelling, or scolding. All items are assessed on a 4-point scale ranging from 1 (never) to 4 (four or more times). The scale score is computed by taking the mean of the item scores, resulting in a score ranging from 1 to 4, with 4 indicating the greatest mean frequency of parental discipline. This scale achieved moderate internal reliability (Cronbach's alpha = 0.76).

Child's Behavior

Positive behavior was assessed using the Positive Behavior Scale.[5] The scale consists of 25 items tapping children's social competence (11 items, including "[Child] gets along well with other kids"); compliance (9 items, including "[Child] usually does what I tell [him/her] to do"); and autonomy (5 items, including "[Child] is independent, does things [him/her] self"). All items are assessed on a scale from 1 (never) to 5 (all of the time). The scale score is computed by taking the mean of the item scores, resulting in a score ranging from 1 to 5, with 5 indicating the highest level of positive behaviors. This scale achieved high internal reliability (Cronbach's alpha = 0.91)

Problem behavior was assessed using the Problem Behaviors scale of the Social Skills Rating System (SSRS).[6] The scale consists of 11 items. Items include both those tapping children's externalizing (acting out) and internalizing (withdrawn) behavior problems. All items are assessed on a scale from 1 (never) to 5 (all of the time). The scale score is computed by taking

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[4] Huston et al. (2008).

[5] Quint, Bos, and Polit (1997); Epps, Eun Park, Huston, and Ripke (2005).

[6] Gresham and Elliot (1990).

the mean of the item scores, resulting in a score ranging from 1 to 5, with 5 indicating the highest level of externalizing or internalizing behaviors.

- The **externalizing subscale** consists of 6 items measuring children's aggressive or angry behaviors. Items include "[Child] fights with others" and "[Child] gets angry easily." This subscale achieved high internal reliability (Cronbach's alpha = 0.87).

- The **internalizing subscale** consists of 5 items measuring children's withdrawn or depressed behaviors. Items include "[Child] appears lonely" and "[Child] acts sad or depressed." This subscale achieved moderate internal reliability (Cronbach's alpha = 0.74).

Youth Self-Report Measures of Mental Health

Mood and Anxiety

Depressive symptoms were assessed with two measures: the Mood and Feelings Questionnaire (MFQ)[7] and the Children's Depression Inventory, Short Form (CDI-S).[8]

- The MFQ is a 33-item measure that assesses children's mental, physiological, and behavioral states during the past two weeks that may be indicative of depression. For example, items include "I felt miserable or unhappy," "I was less hungry than usual," "I slept more than usual," and "I thought that life wasn't worth living." Responses to each item range from 0 (not true) to 2 (true); items are summed to produce a total score ranging from 0 to 66, with 66 indicating the highest level of depressive symptoms. Children who scored above 28 on the MFQ were considered to have "clinically significant" levels of depressive symptoms, based on findings that this score optimally distinguished youth with and without a diagnosis of major depressive disorder.[9]

- The CDI-S measures children's feelings of sadness, irritability, hopelessness, self-worth, and social acceptance experienced during the past two weeks. For example, children respond to such statements as "I am sad all the time," "Nobody really loves me," and "Nothing will ever work out for me." The measure consists of 10 items ranging from 0 to 2, with 2 indicating the highest level of depressive symptoms. Total scores are calculated by summing the

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[7] Angold and Costello (1987).

[8] Kovacs (1992).

[9] Daviss et al. (2006).

individual item scores and range from 0 to 20. Unlike the MFQ, there is no established clinical cut-point for the CDI-S.

Anxiety symptoms were assessed using 13 items selected from the Revised Manifest Anxiety Scale,[10] as revised for the New Hope study.[11] These items measure anxiety symptoms, such as worry, fear, nervousness, sleep disturbances, and difficulty concentrating. For example, children are asked how often they feel that they "worry a lot of the time," "have trouble going to sleep at night," and "have trouble making up your mind." Responses for each item range from 1 (never true) to 5 (always true). The scale score is computed by taking the mean of the item scores, resulting in a score ranging from 1 to 5, with 5 indicating the highest level of anxiety symptoms.

Social Skills

Self-control in social situations was assessed using items from the self-control subscale of the Social Skills Rating System (SSRS).[12] Eight items measuring children's self-control were used, including "How often do you ignore other children when they tease you or call you names?" and "How often do you take corrections given by your parents without getting angry?" Each item has a response scale of 0 (never) to 2 (very often). Total scores are calculated as the sum of the item scores and may range from 0 to 16, with 16 indicating the most self-control.

Loneliness and social dissatisfaction was assessed using a measure called the Loneliness and Social Dissatisfaction Scale (LSDS).[13] This 16-item scale assesses children's feelings of social acceptance and support by asking them to respond to such statements as "It's easy for you to make new friends," "You feel alone," and "You get along with other kids." Each item has a response range of 1 (never true) to 5 (always true), with some items reverse-coded so that a response of 5 always indicates greater feelings of loneliness and social dissatisfaction. Items are summed to produce the total scale score, which ranges from 16 (low loneliness) to 80 (high loneliness).

Self-Esteem

Self-esteem was assessed using the Self-Perception Profile for Children.[14] This widely used measure includes subscales on children's self-perceived scholastic competence, social acceptance, physical appearance, athletic competence, behavioral conduct, and global self-worth. For this project, only the scholastic competence and physical appearance subscales were used,

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[10] Reynolds and Richmond (1990).

[11] Bos et al. (1999).

[12] Gresham and Elliot (1990).

[13] Asher, Hymel, and Renshaw (1984).

[14] Harter (1985).

in addition to one item on global self-worth. Each item in the scale asks children to think about two different kinds of kids — those with higher self-assessments on a particular characteristic and those with lower self-assessments — and asks them to decide whether they are more like the first or the second group of kids. Then, children are asked to decide whether they are *sort of* like those kids or *really* like those kids. This results in an item score between 1 (low perceived competence) and 4 (high perceived competence). The mean of the item scores is used as the total scale score.

- The **global self-worth** item asks children whether they are happy being the way they are or wish they were different.
- The 6-item **physical appearance** subscale includes such questions as whether they are happy with the way they look and whether they wish their body were different.
- The 6-item **scholastic competence** subscale includes such questions as how good they are at their schoolwork, how smart they think they are compared with other kids their age, and whether they remember what they learn.

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Founded in 1974 and located in New York City and Oakland, California, MDRC is best known for mounting rigorous, large-scale, real-world tests of new and existing policies and programs. Its projects are a mix of demonstrations (field tests of promising new program approaches) and evaluations of ongoing government and community initiatives. MDRC's staff bring an unusual combination of research and organizational experience to their work, providing expertise on the latest in qualitative and quantitative methods and on program design, development, implementation, and management. MDRC seeks to learn not just whether a program is effective but also how and why the program's effects occur. In addition, it tries to place each project's findings in the broader context of related research — in order to build knowledge about what works across the social and education policy fields. MDRC's findings, lessons, and best practices are proactively shared with a broad audience in the policy and practitioner community as well as with the general public and the media.

Over the years, MDRC has brought its unique approach to an ever-growing range of policy areas and target populations. Once known primarily for evaluations of state welfare-to-work programs, today MDRC is also studying public school reforms, employment programs for ex-offenders and people with disabilities, and programs to help low-income students succeed in college. MDRC's projects are organized into five areas:

- Promoting Family Well-Being and Children's Development
- Improving Public Education
- Raising Academic Achievement and Persistence in College
- Supporting Low-Wage Workers and Communities
- Overcoming Barriers to Employment

Working in almost every state, all of the nation's largest cities, and Canada and the United Kingdom, MDRC conducts its projects in partnership with national, state, and local governments, public school systems, community organizations, and numerous private philanthropies.