

By Peter Muennig, Zohn Rosen, and Elizabeth Ty Wilde

DOI: 10.1377/hlthaff.2012.0971
HEALTH AFFAIRS 32,
NO. 6 (2013): 1072–1077
©2013 Project HOPE—
The People-to-People Health
Foundation, Inc.

Welfare Programs That Target Workforce Participation May Negatively Affect Mortality

Peter Muennig (pm124@columbia.edu) is an associate professor of health policy and management at Columbia University, in New York City.

Zohn Rosen is an associate research scientist in the Department of Health Policy and Management, Mailman School of Public Health, Columbia University.

Elizabeth Ty Wilde is a senior research and evaluation officer at the Wallace Foundation, in New York City.

ABSTRACT During the 1990s reforms to the US welfare system introduced new time limits on people's eligibility to receive public assistance. These limits were developed to encourage welfare recipients to seek employment. Little is known about how such social policy programs may have affected participants' health. We explored whether the Florida Family Transition Program randomized trial, a welfare reform experiment, led to long-term changes in mortality among participants. The Florida program included a 24–36-month time limit for welfare participation, intensive job training, and placement assistance. We linked 3,224 participants from the experiment to 17–18 years of prospective mortality follow-up data and found that participants in the program experienced a 16 percent higher mortality rate than recipients of traditional welfare. If our results are generalizable to national welfare reform efforts, they raise questions about whether the cost savings associated with welfare reform justify the additional loss of life.

Social factors far from the reach of medical care—such as employment, income, and educational attainment—may exert a larger influence on population health than medical care itself.¹ If so, many or most social policies should also influence population health.² In fact, many studies have shown positive correlations between nonmedical factors and health. However, very few of those studies have used experimental data,³ and those few have shown mixed results.^{3–8} If most social policies do, in fact, influence population health, then it is important to understand the health consequences—intended or unintended—of such policies.

Perhaps one of the most sweeping policies enacted in the past two decades was welfare reform. Randomized welfare experiments, which were often large and conducted in multiple locations in the United States, sought to study the effect of limiting the amount of time individuals or families could receive welfare benefits.⁹ These

experiments generally demonstrated that time limits on welfare benefits, typically coupled with other programs such as employment training, produced increases in earnings and employment by encouraging participants to seek employment instead of remaining dependent on welfare.^{9,10}

The experiments may have contributed to the end of “welfare as we know it,” under the Personal Responsibility and Work Opportunity Reconciliation Act of 1996. This act ended Aid to Families with Dependent Children and replaced it with Temporary Assistance for Needy Families, which limited the length of time people could receive welfare. The number of people receiving welfare dropped from twelve million in 1996 to four million in 2010.¹¹

We studied one of these experiments, which compared recipients of Aid to Families with Dependent Children and participants in Florida's Family Transition Program (FTP).¹² This program operated at two locations in Escambia County and at three in Alachua

County from 1994 to 1999. We focused on Escambia County because the experiment in Alachua County was poorly documented and did not clarify how randomization was conducted there. However, we included an analysis with both counties for reference.

Escambia County is located in the far northwest of Florida and shares a border with Alabama. Roughly 73 percent of the county's 300,000 inhabitants are white, and about 20 percent are African American.¹³ Participants in the experiment were randomly assigned to FTP or the traditional Aid to Families with Dependent Children program when they first applied for welfare. If they were reapplying, they were assigned during a recertification interview. Of those families randomly assigned to FTP, 54.9 percent were limited to twenty-four months of cash welfare assistance during any sixty-month period, and 45.1 percent were limited to thirty-six months of welfare assistance during any seventy-two-month period. People in the smaller group were considered to be the least job ready because they had little previous employment.^{12(p1)}

FTP enrollees were required to participate in enhanced employment-related services such as education, training, and job placement. Two caseworkers were generally assigned to each FTP participant (the experimental group). One was an FTP case manager, who was responsible for initially determining whether people were eligible to participate in the study and for general case management duties—that is, ensuring compliance with the program's regulations and performing general social work activities. The second was an FTP-associated career adviser, who oversaw employment-related services for the participant. These advisers sat near each other so they could communicate easily and, like the case managers, had much smaller caseloads than their counterparts in the control group, who worked with families receiving Aid to Families with Dependent Children.^{12(p96)}

Participants in FTP were substantially more likely to find work than participants in the control group. However, few members of the experimental group had total earnings that were greater than the total income from all sources received by members of the control group.^{12(p73-103)} Approximately 50 percent of families in the experimental group remained without work during much of the program. These families reported relying on support from members of their extended families, other programs (such as Food Stamps and public housing), and their friends.^{12(p106)} This suggests that some members of the experimental group may have experienced psychological stress as a result of the

time limits on their welfare eligibility.

There are various ways in which welfare reform might have influenced health. Employment itself can pose health threats through commutes to work and exposures to dangerous substances at the workplace. But it can also increase income and improve social connections, thereby improving health.^{14,15} Social connections can provide emotional and financial support and have been linked to both improved biological measures of health and reduced mortality in some circumstances.¹⁶

It is also possible that the psychosocial stressors associated with the imminent or actual loss of one's income benefits or with having to borrow money from friends or family members could produce harmful effects. Psychological stress has been linked to diabetes, hypertension, infection, and other risks for premature death.¹⁷⁻¹⁹

Study Data And Methods

BACKGROUND We analyzed a multicenter randomized controlled experiment that enrolled welfare recipients between May 1994 and October 1996 and that ended in 1999;^{9,12} it included two sites in Escambia County, Florida. New applicants for Aid to Families with Dependent Children and existing recipients were eligible to participate in the experiment, with the following exceptions: people older than sixty-one or younger than eighteen; those who attended school or were working at least thirty hours a week; those who were disabled or were caretakers for a disabled person; and those who had a child less than six months old.

Enrollees were randomly assigned to the control group, whose members received regular benefits and no additional job counseling, or the experimental group (FTP), whose members had time limits on their benefits but received extra job training and case management. There was no evidence of randomization failure in the original experiment.¹² Compared to people in the experimental group, the control group's members were significantly more likely to be under the age of twenty (6.2 percent versus 8.1 percent), less likely to be Hispanic (0.7 percent versus 1.5 percent), and less likely to be living in emergency or temporary housing when they were randomly assigned to one of the groups (4.0 percent versus 5.6 percent).¹²

Electronic records for 3,224 participants in the experiment were obtained from the state of Florida. The 2011 Social Security Administration Death Master File contains most deaths in the United States and includes identifiers—such as a person's Social Security number, name, and

date of birth—that can be matched with records from other data files. To identify the total number of deaths associated with participants in the experimental and control groups in the Florida case, these two data sets were probabilistically linked to death records using Registry Plus Link Plus software.²⁰ Probabilistic linkage is used to establish the likelihood that two different records refer to the same person and to determine how good the matches are when there are errors in the data.

All of the Florida participant records contained complete identifiers. We could have missed some participants if their records were not in the data file, but there is no reason to suspect that this would introduce any systematic errors. Of the 3,224 participants, we identified 142 participants as deceased by November 2011. In the combined sample that also included participants in Alachua County, there were 5,094 participants, of whom 215 had died by the same time.

STATISTICAL ANALYSIS Analyses were conducted using the statistical software Stata, version SE 11. We employed Cox proportional hazards models for the analysis and clustered the standard errors on location. Clustering on location takes geographical variations into account.

To minimize random noise, we controlled for year of birth, year of assignment to the experimental or control group, and site location (these were the only variables available to us). Central to the proper functioning of the Cox proportional hazards models we used is that the deaths in both the experimental and control groups were proportionate to one another over time. We conducted a number of tests to ensure that this was the case.

To estimate the average number of life-years lost in the experimental group, we generated an unabridged life table of the US population using data from the Centers for Disease Control and Prevention. We adjusted this table to reflect the increase in mortality for people in the experimental group compared to those in the control group and subtracted the difference before and after adjustment. This process is described in detail elsewhere.²¹ We assumed that mortality effects would begin at age thirty (the mean age of the two groups combined at the start of the experiment) and would end at age seventy (the age at which hazards ratios in socioeconomically deprived populations tend to converge).

The study was approved by Columbia University's Institutional Review Board.

LIMITATIONS The major limitation of the study was its generalizability. However, welfare reform experiments were conducted in multiple places, and most showed increases in employment and

earnings, just as the experiment in our study did.⁹ We should also note that members of the control group were able to enroll in other types of job training programs, which suggests that our current evaluation may understate the true effect of the intervention.

Moreover, since we relied on Social Security data, which measures only earnings from the formal sector of the economy, we did not measure employment in the informal sector. People in the experimental group or the control group may have had higher income and rates of employment than observed because of jobs in the informal sector. For example, the Jobs Corps randomized trial, which examined the effect of job training on low-income youth, revealed occasionally large differences between earnings reported on surveys and those reported from administrative data.²²

The findings from the experiment we studied were comparable to those of other welfare reform experiments that used survey data.⁹ However, unobserved differences in informal sector earnings could also play a role in the observed differences in mortality hazards. If they did, this is an important additional mechanism through which participation in FTP might have affected mortality.

Additionally, we did not have data with which to test the distributional effects of participation in FTP on mortality. Therefore, we cannot know whether mortality was higher among those who did not actually become employed. This is particularly important if we are to understand whether psychological stress or employment played a role in the increased mortality we observed. One indirect measure of stress and material hardship on a family is how its children perform in school, and some measures of school performance among adolescents were lower in the experimental group than in the control group.¹² Although the differences in mortality that we observed were significant, the numbers of deaths in both the experimental and control groups were small.

Finally, we relied on the Social Security Death Master File, which might undercount some groups—particularly people without social security records.²³ However, all of the participants whose records were in the Florida data file had complete Social Security numbers. Therefore, we think it unlikely that our matching of Florida records with mortality data introduced non-random bias into our results.

Study Results

There were no significant differences between the experimental and control groups in birth

year, year of random assignment, or location. For both groups, the mean birth year was 1964, and the mean random assignment year was 1994. In one of the locations in Escambia County, each group contained 50 percent of the participants. In the second location, the experimental group contained 50.07 percent and the control group 49.93 percent.

There were seventy-five deaths among the 1,611 participants in the experimental group in both locations in Escambia County and sixty-seven deaths among the 1,613 participants in the control group. After clustering on location and adding the control measures described above, we found that participants in the experimental group had a 16 percent higher mortality rate than members of the control group (hazard ratio: 1.16; 95% confidence interval: 1.14, 1.19; $p < 0.01$). This amounts to nine months of life expectancy lost between the ages of thirty and seventy for people in FTP. The survival curve is shown in the online Appendix.²⁴

We also analyzed data from the experiment's participants in Alachua County. This part of the experiment was poorly documented, and it is unclear whether randomization was successful. With this caveat, including participants in this county gave us 2,539 members of the experimental group, which had 117 deaths. There were ninety-eight deaths among the 2,555 participants assigned to the control group. When the data were analyzed this way, the difference in mortality rates between the two groups increased to 26 percent (hazard ratio: 1.26; 95% CII: 1.09, 1.46; $p < 0.01$).

Discussion

The welfare reform experiment involving Florida's Family Transition Program appeared to increase mortality among those who were exposed to job training and who were eligible for welfare for only a limited time (the experimental group) relative to those receiving traditional welfare (the control group). Prior to conducting this analysis, we hypothesized that FTP would serve as an experimental estimator of the health benefits of increased employment. Like most welfare reform experiments and the Temporary Assistance for Needy Families program itself, FTP did produce increases in employment, which have long been hypothesized to reduce mortality.^{14,15}

If employment does reduce mortality, then its effect was overwhelmed in this case by one or more competing factors. Participation in FTP was associated with a significant 16 percent increase in mortality rate, which is equivalent to roughly nine months of life lost. It is possible

that the increased mortality rate could be related to the psychological stress associated with losing welfare benefits, although we cannot measure this directly. Psychological stress is associated with poor health and a shorter lifespan in both humans and animals.^{18,25,26} It is also possible that employment in low-wage jobs carries hazards (for example, occupational risks) that are not present in most other jobs.

Our study adds to a small number of randomized experiments on the nonmedical determinants of health showing that early education and income redistribution may influence population health.^{3,4,6,7} Although it is exceedingly difficult to find data sets from the welfare reform experiments in other states that have participants' identifying information, additional work to verify the external validity of our findings is needed.

Our study highlights the unintended consequences of nonmedical social policies on health. In the future, it would be useful to include health measures in nonmedical social experiments, which would better define both the intended and unintended consequences of such policies on population health. These measures include health-related quality-of-life instruments, which can be used both as broad measures of health and as a way to estimate the cost-effectiveness of other nonmedical social policies, such as early education.

New studies should also require that participants' identifiers be preserved. Such identifiers are central to understanding the long-term economic and health impacts of social policies because they make it possible to collect data on participants' earnings and disability and mortality status inexpensively and with great accuracy over decades of follow-up research.

Conclusion

Although Florida's Family Transition Program was conceptually similar to the Personal Responsibility and Work Opportunity Reconciliation Act, it was less intensive. Moreover, states implemented Temporary Assistance for Needy Families programs in many ways, with varying time limits, work requirements, and sanctions. It is therefore difficult to generalize from our results to conclusions about welfare reform more broadly.

However, there is now good evidence that Temporary Assistance for Needy Families produces significant reductions in welfare rolls, coupled with significant increases in employment. If Temporary Assistance for Needy Families produces large economic benefits but shortens participants' lives, it is important to ask

whether the human cost is worth the economic benefit. Some legislators have argued that the government should spend what it can to save lives. This has led to the increased use of comparative effectiveness research (which considers

only the health benefits of new treatments) compared to cost-effectiveness analysis (which considers both health and economic benefits).²⁷ ■

The authors thank Don Winstead, Jason Gaitanis, and Pete Digre for their help with accessing and using the data. They also thank Amy Kahn for advising on the use of the Link Plus software.

NOTES

- 1 Muennig P, Fiscella K, Tancredi D, Franks P. The relative health burden of selected social and behavioral risk factors in the United States: implications for policy. *Am J Public Health*. 2010;100(9):1758–64.
- 2 Schoeni RF, House JS, Kaplan GA, Pollack H, editors. *Making Americans healthier: social and economic policy as health policy*. New York (NY): Russell Sage Foundation; 2008.
- 3 Kawachi I, Adler NE, Dow WH. Money, schooling, and health: mechanisms and causal evidence. *Ann N Y Acad Sci*. 2010;1186:56–68.
- 4 Muennig P, Johnson G, Wilde ET. The effect of small class sizes on mortality through age 29 years: evidence from a multicenter randomized controlled trial. *Am J Epidemiol*. 2011;173(12):1468–74.
- 5 Elesh D, Lefcowitz MJ. The effects of the New Jersey–Pennsylvania Negative Income Tax Experiment on health and health care utilization. *J Health Soc Behav*. 1977;18(4):391–405.
- 6 Muennig P, Schweinhart L, Montie J, Neidell M. Effects of a prekindergarten educational intervention on adult health: 37-year follow-up results of a randomized controlled trial. *Am J Public Health*. 2009;99(8):1431–7.
- 7 Muennig P, Robertson D, Johnson G, Campbell F, Pungello EP, Neidell M. The effect of an early education program on adult health: the Carolina Abecedarian Project randomized controlled trial. *Am J Public Health*. 2011;101(3):512–6.
- 8 Lagarde M, Haines A, Palmer N. The impact of conditional cash transfers on health outcomes and use of health services in low and middle income countries. *Cochrane Database Syst Rev*. 2009;(4):CD008137.
- 9 Greenberg D, Shroder M. *The digest of social experiments*. 3rd ed. Washington (DC): Urban Institute Press; 2004.
- 10 Grogger J, Karoly LA, Klerman JA. Consequences of welfare reform: a research synthesis [Internet]. Santa Monica (CA): RAND; 2002 [cited 2013 May 2]. Available for download from: <http://www.rand.org/pubs/drafts/DRU2676.html>
- 11 Moffitt RA. The effect of pre-PRWORA waivers on AFDC case-loads and female earnings, income, and labor force behavior. In: Danziger S, editor. *Economic conditions and welfare reform*. Kalamazoo (MI): W.E. Upjohn Institute for Employment Research; 1999. p. 91–118.
- 12 Bloom D, Kemple JJ, Morris P, Scrivener S, Verma N, Hendra R, et al. Final report on Florida's initial time-limited welfare program. New York (NY): Manpower Demonstration Research Corporation; 2000 Dec.
- 13 Census Bureau. Your gateway to census 2000 [Internet]. Washington (DC): Census Bureau [cited 2013 May 2]. Available from: <http://www.census.gov/main/www/cen2000.html>
- 14 Ross CE, Mirowsky J. Does employment affect health? *J Health Soc Behav*. 1995;36(3):230–43.
- 15 Sorlie PD, Rogot E. Mortality by employment status in the National Longitudinal Mortality Study. *Am J Epidemiol*. 1990;132(5):983–92.
- 16 Muennig P, Cohen AK, Palmer A, Zhu W. The relationship between five different measures of structural social capital, medical examination outcomes, and mortality. *Soc Sci Med*. 2013;85:18–26.
- 17 McEwen BS, Mirsky AE. How socioeconomic status may “get under the skin” and affect the heart. *Eur Heart J*. 2002;23(22):1727–8.
- 18 Sapolsky RM, Krey LC, McEwen BS. The neuroendocrinology of stress and aging: the glucocorticoid cascade hypothesis. *Endocr Rev*. 1986;7(3):284–301.
- 19 Cohen S, Tyrrell DA, Smith AP. Psychological stress and susceptibility to the common cold. *N Engl J Med*. 1991;325(9):606–12.
- 20 Centers for Disease Control and Prevention. National Program of Cancer Registries (NPCR): Registry Plus™ Link Plus technical information and installation [Internet]. Atlanta (GA): CDC; [last updated 2012 Dec 13; cited 2013 May 2]. Available from: http://www.cdc.gov/cancer/npcr/tools/registryplus/lp_tech_info.htm
- 21 Muennig PA, Gold MR. Using the years-of-healthy-life measure to calculate QALYs. *Am J Prev Med*. 2001;20(1):35–9.
- 22 Schochet PZ, McConnell S, Burghardt J. National Job Corps Study: findings using administrative earnings records data: final report [Internet]. Princeton (NJ): Mathematica Policy Research; 2003 Oct [cited 2013 May 2]. Available from: <http://www.mathematica-mpr.com/publications/pdfs/jobcorpsadmin.pdf>
- 23 Schisterman EF, Whitcomb BW. Use of the Social Security Administration Death Master File for ascertainment of mortality status. *Popul Health Metr*. 2004;2(1):2.
- 24 To access the Appendix, click on the Appendix link in the box to the right of the article online.
- 25 Cohen S. Psychological stress and susceptibility to upper respiratory infections. *Am J Respir Crit Care Med*. 1995;152(4 Pt 2):S53–8.
- 26 Epel ES, Blackburn EH, Lin J, Dhabhar FS, Adler NE, Morrow JD, et al. Accelerated telomere shortening in response to life stress. *Proc Natl Acad Sci U S A*. 2004;101(49):17312–5.
- 27 Sox HC, Greenfield S. Comparative effectiveness research: a report from the Institute of Medicine. *Ann Intern Med*. 2009;151(3):203–5.

ABOUT THE AUTHORS: PETER MUENNIG, ZOHN ROSEN & ELIZABETH TY WILDE



Peter Muennig is an associate professor at Columbia University.

In this month's *Health Affairs*, Peter Muennig and coauthors explore whether the Florida Family Transition Program randomized trial, a welfare reform experiment, led to long-term changes in mortality among participants.

Muennig is an associate professor of health policy and management at Columbia University. He uses randomized trials and cost-effectiveness analyses together to develop causal models to study the most efficient mix of medical and nonmedical policies for maximizing health in the United States and elsewhere. He earned a master's degree in public health from Columbia University and a medical degree from the University of California, San Diego.



Zohn Rosen is an associate research scientist at Columbia University.

Zohn Rosen is an associate research scientist in the Department of Health Policy and Management, Mailman School of Public Health, Columbia University. His research focuses on the health outcomes associated with social policies, social epidemiology, and the effectiveness of wellness initiatives. Rosen has an extensive background in designing and directing health-focused research studies, ranging from clinical trials to policy analysis. His work includes investigations of the behavioral economics underlying incentivized behavior change and the effectiveness of US-based private and public wellness initiatives. Rosen has a master's degree and a doctorate in experimental psychology from the City University of New York.



Elizabeth Ty Wilde is a senior research and evaluation officer at the Wallace Foundation.

Elizabeth Wilde is a senior research and evaluation officer at the Wallace Foundation. She contributes to strategy design, identifies policy challenges and opportunities, and analyzes the impact of empirical and theoretical approaches to addressing policy problems. Before joining Wallace, Wilde was an assistant professor in the Mailman School of Public Health at Columbia University, where this work was conducted. At Columbia, her research focused on improving health outcomes by changing the institutions that directly provide health care or influence health through other mechanisms, such as elementary schools. Wilde has a master's degree and a doctorate in economics from Princeton University.