

Effects of Labor Force Participation on Women's Health: New Evidence from a Longitudinal Study

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Effects of labor force participation on women's health are evaluated in analyses of longitudinal data for a national sample of older middle-aged women. Our findings indicate that labor force participation had beneficial effects on health for unmarried women and for married black women, but, on the average, labor force participation had no significant effect on health for married white women. Analyses by occupational category suggest that labor force participation had beneficial effects on health for some blue collar married women, but, on the average, labor force participation had harmful effects on health for white collar married women. Our findings, taken together with previous evidence, suggest that employment may increase social support, and job-related social support may have particularly beneficial effects on health for unmarried women and for married women whose husbands are not emotionally supportive confidants. Additional results from this study showed no significant difference in the health effects of part-time and full-time employment.

Cross-sectional data indicate that employed women are healthier than homemakers.^{1,2} However, this observation does not necessarily indicate that employment has beneficial effects on women's health. It could be that healthier women are more likely to become employed and less likely to leave employment and this is why employed women are healthier than homemakers. A variety of evidence supports this hypothesis.^{1,3,4} For example, analyses of two longitudinal data sets have shown that women who were in better health at an initial survey were more likely to enter the labor force and less likely to leave the labor force during the follow-

up interval⁵ (Women are in the labor force if they are employed or unemployed and looking for a job).

Thus, current evidence indicates that healthier women are more likely to become employed and less likely to leave employment. Evidence from one analysis of cross-sectional data suggests that this may be the primary reason why employed women are healthier than homemakers.⁵ The researchers attempted to remove from the analysis those women whose employment status had been influenced by their health. Specifically, they excluded from the analysis homemakers who reported that poor health was a moderately or highly important reason for not working. When these women were excluded, the association between employment and good health was entirely eliminated. This finding suggests that the relationship between employment and good health observed in cross-sectional data is due primarily or entirely to the effects of health on employment status. Consequently, cross-sectional data generally do not provide an adequate basis for testing the effects of employment on health. Therefore, our discussion of previous research focuses on the few available analyses of longitudinal data concerning the effects of employment or labor force participation on women's general health.

In one analysis of longitudinal data, Wolfe and Haveman⁶ found that employment at the time of the initial survey was associated with better health trends during the follow-up interval. However, it appears that the change in health variable used in this study was inaccurate and possibly biased. Specifically, it appears that, for most of the married women, change in health was assessed as the difference between a woman's husband's responses to questions concerning family members' disability in 1970 and the woman's responses to different questions concerning disability in 1976.^{7,8} The likely errors in this measure of change in health may account for Wolfe and Haveman's surprising finding that black women had better health trends than white

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0096-1736/88/3012-0977\$03.00/0

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women (Dr Barbara Wolfe, personal communication, 1983), in contrast to the more usual finding that white women have better health trends than black women.^{3,9,10}

In another analysis of longitudinal data, Waldron and co-workers⁸ found no relationship between initial labor force status and subsequent change in health for married women in a national sample of middle-aged women. In this study, the measure of change in health was a self-report at the follow-up date that health was the same, better, or worse than at the beginning of the interval. The validity of this measure of change in health was supported by the observation that it showed the expected associations with race and education.⁹ Nevertheless, there is some doubt concerning the sensitivity and reliability of this measure of change in health, since it had only three broad response categories and it depended on recall and assessment of change in health over either a 2-year interval (1967 to 1969) or a 5-year interval (1972 to 1977).

This same sample of women has been re-surveyed in subsequent years, and a better measure of change in health is available for the 1977 to 1982 interval. This measure of change in health is based on 1977 and 1982 health scale scores derived from 22 self-reported health items that were asked in both years (see "Sample and Methods" section). This measure of change in health should be more reliable than the one used previously, because this new measure is not dependent on recall and subjective impressions of change in health over a long period of time. In addition, this measure of change in health should be more sensitive because it provides a finely graded variable, in contrast to the previous three-category variable. The new measure of change in health is used in all the analyses presented in this paper, except for two that were designed to be comparable to our previous analyses.

In our analyses we test for possible differences in the health effects of labor force participation, depending on marital status, race, occupational category, and part-time *vs* full-time employment. We expect the health effects of labor force participation to vary for different subgroups of women, since labor force participation has multiple beneficial and detrimental effects, and the balance between these multiple effects would be expected to vary for women in different situations.^{1,4,11}

Postulated health-promoting effects of labor force participation include beneficial effects due to increased social support, self-esteem, psychologic well-being, income, and access to health care.^{1,4,11} Postulated health-damaging effects of labor force participation include detrimental effects due to exposures to chemical, physical and biologic occupational hazards, job stress, or the stress of unemployment. In addition, labor force participation may have health-damaging effects due to role overload (having too much to do as a result of multiple roles) and role conflict (which arises when fulfillment of the demands of one role, eg, worker, interferes with fulfillment of the demands of another role, eg, mother). The importance of each of these effects would be expected to vary for women with different personal char-

acteristics or different types of jobs. In the "Discussion" section we describe how variation in certain of these postulated effects may account for the variation in the health effects of labor force participation observed in this study.

In conclusion, the primary focus of this paper is an analysis of longitudinal data to assess the effects of labor force participation on women's health. Initially, we compare results for two different measures of change in health. Then we utilize the more sensitive and reliable measure of change in health to test for differences in the effects of labor force participation on health, depending on marital status, race, blue collar *vs* white collar occupational category, and part-time *vs* full-time employment.

Sample and Methods

Longitudinal data for a national sample of noninstitutionalized women were obtained from the National Longitudinal Surveys of Labor Market Experience, which have been conducted jointly by the Center for Human Resource Research of Ohio State University and the Bureau of the Census. Sampling methods and questionnaire design have been described previously.¹² The women were aged 30 to 44 years at the initial interview in 1967. The sample was a multistage probability sample, with oversampling of women living in predominantly black areas. The present study utilizes data for the 1977 to 1982 interval, so the women were aged 40 to 54 years at the beginning of the 5-year study interval. The response rate for the initial interview was 94%. Of the women who completed the initial interview, 78% were reinterviewed in 1977, and 70% were reinterviewed in 1982. The analyses reported in this paper include the 2,405 white women and the 896 black women for whom all of the 1977 and 1982 variables used in this study were available. These constituted 67% and 64%, respectively, of the women interviewed in the original survey in 1967.

Health scale scores were calculated for 1977 and 1982, based on 22 interview questions concerning health that were asked in both years. Twelve items assessed difficulties with the following activities: walking; using stairs or inclines; standing for long periods; sitting for long periods; stooping, kneeling, or crouching; lifting or carrying weights up to 4.5 kg (10 lb); lifting or carrying heavy weights; reaching; using hands and fingers; seeing (even with glasses); hearing; and dealing with people. Three items assessed the following activity limitations due to poor health: inability to use public transportation without assistance, need for help with personal care, and limitation of ability to work. Seven items assessed psychosomatic symptoms: pain; tiring easily, no energy; weakness, lack of strength; aches, swelling, sick feeling; fainting spells, dizziness; nervousness, tension, anxiety, depression; and shortness of breath, trouble breathing. Previous analyses support the validity of these items as measures of health problems.¹³

The score for each item ranged from 0 to 1. For all items 0 represented no health problem. For the first 12 items listed above, a score of $\frac{1}{2}$ represented "any difficulty" performing the activity, and 1 represented inability to perform the activity at all. Similarly, for the limitation of work item, $\frac{1}{2}$ represented any limitation of work and 1 represented inability to work due to health problems. For the item concerning need for help with personal care, the responses "rarely," "occasionally," and "frequently" were represented by scores of $\frac{1}{3}$, $\frac{2}{3}$, and 1, respectively. All other items were dichotomies, with a score of 1 representing the presence of the health problem. The health scale score was the sum of the 22 item scores, with a minimum possible score of 0 and a maximum of 22. The mean was 1.94 in 1977 and 2.51 in 1982. The health scale scores had high internal consistency reliabilities (Cronbach $\alpha = .93$ and $.92$, respectively, in 1977 and 1982). The difference between the 1982 and 1977 health scale scores provided a measure of increase in health problems, with a minimum possible health scale score of -22 and a maximum of $+22$. The mean of the increase in health problems scores was $+0.57$, with a standard deviation of 3.06. An approximate interpretation is that, on the average, women in the sample had 0.57 more of the 22 health problems in 1982 than in 1977. The validity of this measure of change in health is supported by the observation that, as expected, black women, less educated women, and older women had more increase in health problems.¹⁰ (This measure is valid for use in analyses that control for 1977 health scale scores, as discussed below.)

Women were classified as in the labor force if they were employed or looking for a job. All other women were classified as out of the labor force. Occupation was classified on the basis of the occupation of the current job for women employed at the time of the 1977 survey or occupation of the most recent job for other women. We refer to professional, technical, administrative, clerical, and sales workers as white collar women and craftsmen, operatives, laborers, service, and private household workers as blue collar women. For employed women in 1977, those who usually worked 35 hours a week or more were categorized as full-time workers and others were categorized as part-time workers. The average number of hours worked per week was 40.3 for full-time workers and 20.6 for part-time workers. The income measure used was family income in 1977 divided by the poverty level for a family of that size in 1977.¹⁴ Women who were never married, or were widowed, divorced, or separated were classified as unmarried.

Almost all the analyses reported in this paper test the relationship of increase in health problems to initial labor force status and control variables. A significant relationship between initial labor force status and subsequent increase in health problems is interpreted as evidence for an effect of labor force status on health. A significant interaction between labor force status and a control variable is interpreted as evidence that the effects of labor force status on health varied depending on the control variable. (For example, an interaction

between labor force status and marital status is interpreted as evidence that the effects of labor force status differed between married and unmarried women.) When a significant interaction effect was observed, labor force effects were tested separately for the relevant subgroups (eg, married and unmarried women).

The primary method of statistical analysis was analysis of covariance, with increase in health problems from 1977 to 1982 as the dependent variable, labor force status in 1977 as one of the classification variables, and 1977 health scale score, age, and education as the covariates. Additional classification variables included in the analysis were race and marital status or, in an analysis for married women, race and occupational category. (The analysis by occupational category excluded unmarried women, because categorization of the unmarried women by occupational category yielded cell sizes of less than 20.) In some cases, adjusted family income was included as an additional covariate. For each analysis of covariance, an initial analysis tested the significance of interactions between each covariate and each classification variable. A second analysis omitted all nonsignificant covariates by classification variable interactions, and the results of these analyses are presented in this paper. The level of significance used throughout is $P \leq .05$.

The analyses of covariance with increase in health problems as the dependent variable yield identical statistical results to analyses of covariance with the 1982 health scale score as the dependent variable, so long as the 1977 health scale score is included as a covariate.¹⁵ Analyses which utilize the increase in health problems scores as the dependent variable have the advantage that the least-squares means from these analyses provide estimates of change in health, adjusted for differences in initial health, age, and education.

Two additional analyses were carried out for comparability to previous analyses.³ The first of these analyses tested the effects of health on labor force participation by analyzing the relationship between initial health and labor force status at follow-up, with controls for initial labor force status, marital status and race included in the analysis. The second of these analyses tested the effects of labor force participation on health by analyzing the relationship between initial labor force status and self-reported change in health at follow-up, with controls for initial health, marital status, and race included in the analysis. Since both of these analyses had a categorical dependent variable, the statistical analyses utilized the CATMOD procedure of SAS.¹⁶ This procedure is equivalent to an analysis of variance for categorical dependent variables. For these analyses the health scale scores for 1977 were categorized as few vs many health problems.

Results

The analyses that used variables comparable to those available for earlier study intervals replicated the re-

sults found previously.⁸ Specifically, analysis of the relationship between initial health and subsequent changes in labor force status showed that women in good health in 1977 were more likely to stay in the labor force or to enter the labor force by 1982 ($P = .0001$, data not shown). Analysis of the relationship between initial labor force status and subsequent self-reported change in health showed that there was no significant relationship between labor force status in 1977 and self-reports in 1982 that health was the same, better, or worse than in 1977 (data not shown).

In contrast, there were significant relationships between initial labor force status and subsequent change in health when change in health was assessed with our new, more reliable and sensitive measure, increase in health problems from 1977 to 1982. Women who were out of the labor force had a greater increase in health problems than women who were in the labor force for unmarried women of both races and for married black women, but not for married white women (Fig. 1, Table 1). The same pattern was observed in an analysis that included family income as an additional covariate (data not shown).

Another analysis compared the effects of labor force participation on health for white collar and blue collar married women (Fig. 2, Table 2). This analysis indicates that labor force participation had more beneficial effects on health for blue collar married women than for white collar married women. For blue collar married women, those who were in the labor force tended to have better health trends than those who were out of the labor force, although this difference was significant only for the black married women and not for the white married women. For white collar married women, those who were in the labor force had significantly worse health trends than those who were out of the labor force. One

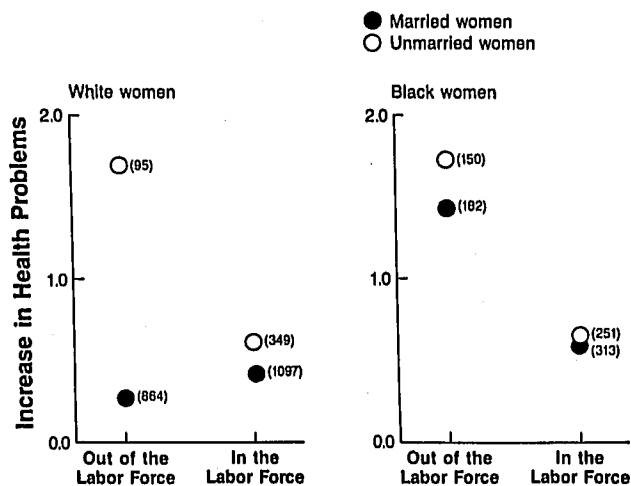


Fig. 1. Relationship of health trends to initial labor force status, marital status and race. The increase in health problems scores have been adjusted for differences in initial health, age, and education. The figures in parentheses give the number of women in each subgroup. The results of the statistical analyses of these data are given in Table 1.

TABLE 1

Analysis of Covariance of Increase in Health Problems in Relation to Initial Labor Force Status, Marital Status, and Race*

Overall Analysis	
Effect	P
Labor force status	.0001
Marital status	.0002
Race	.001
Labor force status by marital status	.01
Labor force status by race	.1
Marital status by race	.02
Labor force status by marital status by race	.1
Initial health	.0001
Initial health by race	.001
Education	.0001
Age	.0003
Significance of Labor Force Status Effect, Tested Within Marital Status Subgroups	
Subgroup	P
Married women	†
Unmarried women	.002

* This table presents the statistical analyses of the data shown in Fig. 1. The significant labor force by marital status interaction effect indicates that the labor force effect varied depending on the women's marital status. Therefore, labor force effects were tested separately for married and unmarried women, and the results of these analyses are presented in the lower portion of this table.

† For married women, the labor force status by race interaction effect was significant ($P = .001$), so the labor force status effect was tested separately for white and black married women. The labor force status effect was significant for black married women ($P = .02$), but not for white married women ($P = .3$).

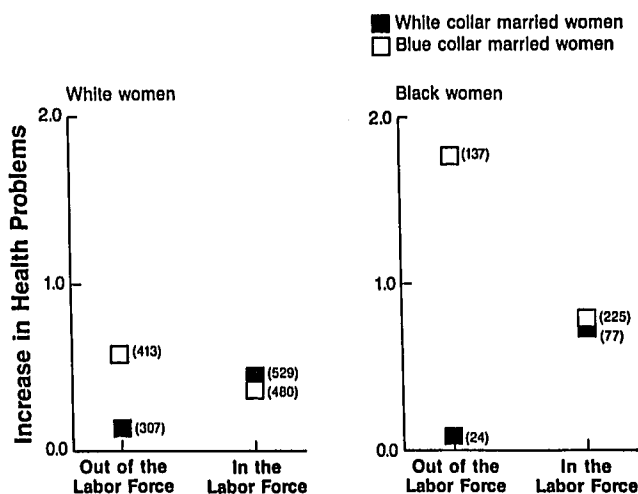


Fig. 2. Relationship of health trends to initial labor force status, occupational category, and race for married women. The results of the statistical analyses of these data are given in Table 2.

additional point of interest is that white collar married women had better health trends than blue collar married women only for women who were out of the labor force ($p=.002$), and not for women who were in the labor force. (This analysis, like all the others in this study, controlled for differences in education). These patterns were also observed in analyses that included family income as an additional covariate (analyses restricted to white married women due to low cell sizes for black married women; data not shown).

TABLE 2

Analysis of Covariance of Increase in Health Problems in Relation to Initial Labor Force Status, Occupational Category, and Race for Married Women*

Overall Analysis	
Effect	P
Labor force status	.8
Occupation	.01
Race	.02
Labor force status by occupation	.004
Labor force status by race	.6
Occupation by race	.1
Labor force status by occupation by race	.1
Initial health	.0001
Education	.002
Age	.004
Significance of Labor Force Status Effect, Tested Within Occupational Subgroups	
Subgroup	P
Blue collar women	†
White collar women	.04

* This table presents the statistical analyses of the data shown in Fig. 2. The significant labor force by occupation interaction effect indicates that the labor force effect varied by occupational category, so labor force effects were tested separately for blue collar and white collar women, and the results of these analyses are presented in the lower portion of this table.

† For the blue collar women, the labor force status by race interaction effect was significant ($P = .04$). For these blue collar married women, the labor force status effect was significant for black women ($P = .004$), but not for white women ($P = .3$).

Additional analyses showed no significant difference in health trends between women who were employed part-time and women who were employed full-time. This result was found both in an analysis with the usual controls for marital status, race, education, and age and in a second analysis with an additional control for family income (data not shown).

Discussion

The evidence from this study provides further support for our previous conclusion that good health increases women's labor force participation.³ Women in good health were more likely to join the labor force and to stay in the labor force.

Although our earlier analyses failed to demonstrate significant effects of labor force participation on women's health,³ our current analyses, which utilize our new, more reliable and sensitive measure of change in health, show significant effects of labor force participation on health for some groups of women. Our evidence indicates that labor force participation had beneficial effects on health for unmarried women and for married black women, but no significant effect on health for married white women. Our evidence also indicates that labor force participation had more beneficial effects on health for blue collar married women than for white collar married women. For blue collar married women, it appears that labor force participation had beneficial effects on health for black women and no significant

effect on health for white women, on the average. In contrast, for white collar married women, it appears that labor force participation had harmful effects on health. Labor force participation had a net beneficial effect on health for all black married women taken together, because 78% of the black married women were blue collar women, and the beneficial effect of labor force participation on health was quite strong for these blue collar women. The following paragraphs discuss possible explanations for the observed variations in the health effects of labor force participation.

Several explanations can be offered for the finding that labor force participation had more beneficial effects on health for unmarried women than for married women. Employment increases income, and in many cases, fringe benefits increase access to health care. These advantages may be more important for unmarried women, since married women are more likely to have an alternative source of adequate income and access to health care through their husbands' employment. However, findings from this study suggest that income effects are not the primary reason why labor force participation had more beneficial effects on health for unmarried women. Specifically, we found that labor force participation had more beneficial effects on health for unmarried women even in analyses that controlled for family income.

Another hypothesis proposes that employment increases social support, and the increase in social support has particularly beneficial effects on health for unmarried women who do not have a husband as an alternative source of social support.^{1,3,4} Several lines of evidence support this hypothesis. Employed women report co-workers to be one important source of social support, and limited evidence suggests that this may be particularly true for unmarried women.^{17,18} Social support has been shown to have beneficial effects on health.^{19,20} Among employed women, those who report closer social integration with co-workers have been found to have better self-reported health and fewer days of hospitalization (excluding pregnancy-related hospital stays).²¹ Thus, increased social support may be an important benefit of employment, and this benefit may be particularly important for unmarried women since they do not have a husband as an alternative source of social support.

Similar explanations can be offered for the differentials in the health effects of labor force participation for various subgroups of married women. Specifically, labor force participation had beneficial effects on health for black married women, but not for white married women, and labor force participation had more beneficial effects on health for blue collar married women than for white collar married women. In black families and in blue collar families the income derived from a wife's employment appears to make a greater proportionate contribution to family income,²² and this could be one reason for the more beneficial effect of employment on health for black wives and blue collar wives. However, the inclusion of controls for family income did not change

the pattern of results observed, so it appears unlikely that differences in income are the primary cause of the observed relationships.

An alternative explanation can be offered for the findings that labor force participation had more beneficial health effects for black wives than for white wives and more beneficial health effects for blue collar wives than for white collar wives. Job-related social support may be particularly beneficial for black wives and for blue collar wives. Two lines of evidence support this hypothesis. First, current evidence suggests that the husbands of black women or blue collar women are less likely to be confidants for their wives than the husbands of white women or white collar women.^{23,24} Second, women of lower socioeconomic status may experience more stress, and social support may be more beneficial for women who experience more stress.^{20,24,25} In summary, our findings, taken together with previous evidence, suggest that labor force participation has beneficial effects on health for women who experience less social and emotional support in their family situations and/or more stress in their lives.

In contrast to the beneficial effects of labor force participation discussed thus far, it appears that labor force participation had harmful effects on health for white collar married women. As discussed in the Introduction, the effects of labor force participation reflect a balance between beneficial effects, eg, increased social support and income, and detrimental effects, eg, occupational hazards, job stress, role overload, and role conflict. This balance may be less beneficial for white collar married women than for blue collar married women, because white collar married women often have husbands who are confidants, and thus these women may benefit less from job-related social support. We have not been able to identify the specific reason(s) why labor force participation had harmful effects on health for the white collar married women in this study.

Our findings provide evidence against the previously proposed hypothesis that employment has more harmful effects on health for blue collar women than for white collar women.^{1,26} This hypothesis was based on the arguments that blue collar jobs more often involve exposure to occupational hazards, and blue collar jobs may be more stressful and less rewarding. Also, blue collar employed women may experience more role overload than white collar employed women, because blue collar employed women may receive less help with housework and child care from husbands or paid services. Employment of blue collar women probably does have at least some of these postulated disadvantages. However, as discussed above, our evidence indicates that there are counterbalancing advantages of employment for blue collar women, since labor force participation had more beneficial health effects for blue collar married women than for white collar married women.

A final set of analyses showed no significant differences in the health effects of part-time and full-time employment. Similarly, previous analyses of longitudinal data for white married women indicated no significant differences in the health effects of part-time and full-

time employment.²⁷ However, for black married women, one of two analyses in the previous study indicated that full-time employment had more beneficial health effects than part-time employment. Possible reasons why full-time employment might have more beneficial health effects than part-time employment include more income, more fringe benefits, and better job characteristics for full-time jobs. In contrast, a previous hypothesis had proposed that part-time employment has more beneficial health effects than full-time employment, since part-time employment may provide many of the benefits of employment without as much role overload and role conflict as full-time employment.²⁷ Our data indicate that any benefit that part-time workers may experience due to less role overload and role conflict is counterbalanced by the disadvantages of part-time employment.

Several findings from this study and a companion study from this research project¹⁰ provide evidence against the hypothesis that labor force participation has harmful effects on health due to role overload and role conflict. There appears to be no difference in the health effects of full-time and part-time employment, even though women employed full-time would be expected to experience more role overload and role conflict. Also, labor force participation did not have more detrimental effects on health for mothers than for women without children, even though mothers would be expected to experience more role overload and role conflict.¹⁰ Even among married white collar women, the one group for whom we observed harmful health effects of labor force participation, we found no evidence that labor force participation had more detrimental effects on health for full-time workers or for mothers (additional analyses—data not shown). Thus, we found no evidence for harmful health effects due to role overload and role conflict, and our evidence suggests that, for white collar married women, the apparent harmful health effects of labor force participation were not due to role overload and role conflict. It should be noted that these findings are based on data for a sample of older middle-aged women, and more detrimental effects due to role overload and role conflict might be observed for samples of younger women with more young children.

Conclusions

Longitudinal data for a national sample of older middle-aged women indicate that the health effects of labor force participation vary for different groups of women. Our evidence indicates that labor force participation had beneficial effects on health for unmarried women and for married black women, but not for married white women. Additional evidence indicates that labor force participation had more beneficial effects on health for blue collar married women than for white collar married women. It appears that employment increases social support, and the increase in social support has particularly beneficial effects for unmarried women and for married women whose husbands are not emotionally supportive confidants. Labor force participation appears

to have harmful effects on health for married white collar women, possibly because, for these women, harmful effects due to job stresses are not outweighed by beneficial effects due to social support. We did not find evidence for harmful health effects due to role overload and role conflict among employed women. Although full-time employment would be expected to result in more role overload and role conflict than part-time employment, no difference was found in the health effects of full-time and part-time employment.

In future research it will be important to test the generality of the relationships observed in this study by analyzing longitudinal data for other groups of women. Also, to test hypotheses concerning the causal mechanisms responsible for the effects of labor force participation on women's health, it will be important to evaluate postulated intervening variables, such as social support.

Acknowledgment

This study was funded in part by a University of Pennsylvania Research Foundation Grant.

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