

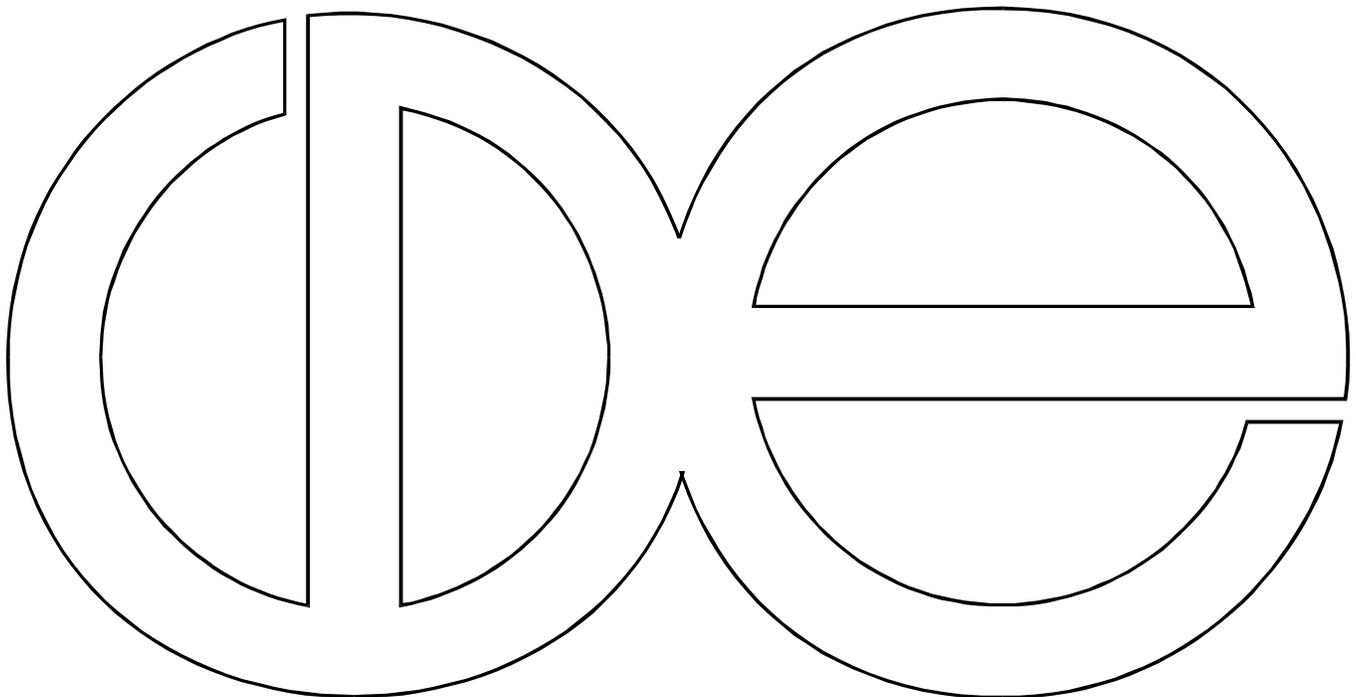
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**Work, Family, and Exercise:
Toward an Ecological Perspective**

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Running Head: Work, Family, and Exercise

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Abstract

Objectives. Rational decision models (i.e., value expectancy models) have dominated exercise research. Guided by ecological theory, this study proposed that contextual factors within the family and work microsystems, and the work-family mesosystem would be associated with participation in regular vigorous exercise habits.

Methods. Cross-sectional self-report data from a national sample of employed midlife adults (N=1,806) was used to assess the association between multiple dimensions of work characteristics, family solidarity, work-family spillover and vigorous exercise.

Results. Multivariate analyses, controlling for individual factors such as perceived control over health, confirmed that contextual factors were associated with regular vigorous exercise among women and men. Women's exercise habits benefited from emotional closeness with their spouse and positive work to family spillover; they were undermined by negative spillover from work to family. Among men, more decision latitude at work and more positive spillover from family to work was associated with greater odds of vigorous exercise.

Conclusions: These results support an ecological perspective on physical activity habits. Contextual factors influence participation in proactive health behavior above and beyond individual factors.

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Work, Family, and Exercise: Toward an Ecological Perspective

Positive health behaviors, such as vigorous exercise, serve as an important pathway to physical and psychological well-being throughout adulthood.^{1,2} The benefits of regular exercise for promoting longevity,³⁻⁶ reducing the incidence of chronic and acute morbidity,⁷ and for facilitating higher levels of psychological well-being⁸ are well established. Unfortunately our understanding of the determinants and correlates of physical activity habits remains relatively incomplete⁹ due, in part, to dominating theoretical perspectives in health behavior research.

Value expectancy theories, which posit health behavior as a logical decision-making process by which the individual considers the pros and cons of the specific behavior, have dominated the exercise and health behavior literature.¹⁰ Consequently, health promotion interventions have relied primarily on social marketing approaches¹¹ to change behavior by raising public consciousness about the benefits and the efficacy of health practices in promoting positive health. However, results from the Midcourse Evaluation of the Healthy People 2000 Objectives¹² indicate that this approach is inadequate. Indeed, health promotion interventions used thus far have not accomplished even 50% of the year 2000 objectives aimed at increasing the number of adults who report participating in regular physical activity.

Several gaps in our understanding of physical activity result from the current over-emphasis on value expectancy theories. First, value expectancy models do not give adequate attention to contextual or ecological factors that may directly influence, or moderate, individual level factors in shaping an individual's health practices. Specifically, we know very little about how factors in the salient adult domains of work and family influence exercise habits, and even less about how aspects of the work-family interface influence salutary health practices. Next, value expectancy models assess only the influence of behavior-specific constructs (e.g., self

efficacy for exercise, social support for exercise, perceived norms regarding exercise) without considering how more global everyday life experiences (e.g., general family relationship quality and employment quality) might influence physical activity. Finally, much of the research reported in the health behavior literature uses data from small or non-representative samples which make generalizations tenuous.

The overarching goal of this research project was to help address these gaps in our understanding of the determinants of exercise behaviors by examining the extent to which multiple dimensions of family solidarity,¹³ work characteristics¹⁴ and work-family spillover are associated with vigorous exercise among a nationally representative sample of employed middle-aged adults.

Ecological Factors and Health Behaviors

Ecological theory, as explicated by Bronfenbrenner and colleagues,¹⁵⁻¹⁹ can serve as a valuable tool for further understanding and modeling the determinants of positive health behaviors.²⁰⁻²³ Bronfenbrenner's model suggests that human behavior, including exercise patterns, is influenced by a variety of biological, psychological and social factors. Bronfenbrenner's model also provides a basis for a contextual examination of health behavior by emphasizing the importance of an individual's life settings (i.e., microsystems) such as the workplace and the family as well as the interface between these settings (i.e., mesosystems) in influencing behavior.

The workplace is a target for implementing health promotion interventions,²⁴ yet workplace factors are not systematically examined as potential sources of variability explaining health behavior. This lack of attention has occurred despite cross cultural research implicating workplace characteristics such as decision latitude, psychological job pressures and supportive relationships in the workplace¹⁴ as important predictors of health outcomes.²⁵⁻²⁸

Analyses of longitudinal and cross-sectional data from non-representative samples has indicated that work characteristics such as prestige, control over work tasks, and job related demands are predictive of health risk behaviors.²⁹⁻³¹ Studies consistently suggest that more job strain is associated with more health damaging behaviors among men, especially when respondents report low levels of decision latitude. Unfortunately much previous work in this area has used either a combined index of proactive and risky health behaviors, or substance use/abuse alone as the primary outcome. Consequently, it remains unclear if work characteristics influence wellness maintenance behaviors (e.g., exercise), in the same way as they influence risk taking behaviors such as smoking.³² Nevertheless, current evidence suggests that job characteristics do influence the relative risk of myocardial infarction³³ through behavioral pathways.

Longitudinal and cross-sectional analyses of data from non-representative samples support the theoretical position that family relationships influence an individual's participation in health behaviors. Emotionally close family relationships, as well as happy, stable, and satisfying marriages predict less health risk behaviors.³⁴⁻³⁶ The effects of family relationships on health behaviors are typically mediated by depressive symptoms – that is, closer family relationships lead to fewer depressive symptoms, which in turn leads to less participation in health risk behaviors.

Ecological theory also suggests that interactions between different important life settings for individuals can have an important impact on behavior and development. An influential mesosystem for a growing number of men and women is the intersection of work and family.³⁷ Here again, despite growing interest in the work-family interface,³⁸ very little research has examined the influence of work-family factors on physical health in general, let alone health behaviors.

Only a few studies have examined the independent effects of both work and family factors on health and health behaviors,^{31,39} and only three empirical reports were found assessing the impact of work-family spillover on health behaviors.⁴⁰⁻⁴² Results from these studies consistently suggest that contextual factors such as poor marital quality, low control over the job, and negative spillover from work to family promote more participation in health risk behaviors. However, these studies use index measures of health behavior or substance use behaviors, therefore it is unclear if work-family spillover influences exercise patterns in the same way as substance use behaviors.³² Additionally, analytic samples are small and non-representative. Finally, this work-family research does not examine the possibility that the interface between work and family can be positive as well as negative.⁴³⁻⁴⁶

Individual Characteristics and Vigorous Exercise

Ecological theory postulates that certain individual characteristics invite or discourage reactions from the social environment.¹⁹ Strands of evidence suggest that gendered patterns of socialization for men and women regarding work and family, resulting in greater family role salience for women and greater work role salience for men, as well as gender differences in behavioral expectations for men and women help explain some of the variance in health and health behaviors between men and women.⁴⁷⁻⁴⁹ Therefore we might expect that family factors will influence women's exercise patterns more than men's, and work factors will influence men's exercise patterns more than women's. Moreover, the asymmetrical boundary hypothesis⁵⁰ suggests that the boundary from family to work is more permeable for women, whereas the boundary from work to family is more permeable for men; consequently, work to family spillover may have more impact on women and family to work spillover may have more impact on men.

Research Hypotheses

In sum, guided by ecological theory and previous research, this study investigated the following hypotheses.

H1. Individuals with higher levels of decision latitude at work, and who work in a more supportive environment will be more likely to participate in regular vigorous exercise. Individuals working in more psychologically demanding jobs will be less likely to participate in regular vigorous exercise.

H2. Greater family solidarity (i.e., higher perceived levels of affectual solidarity and higher levels of normative solidarity) will be associated with a greater likelihood of participating in regular vigorous exercise.

H3. More positive spillover between work and family will be associated with a greater likelihood of vigorous exercise, while more negative spillover will be associated with a lower likelihood of vigorous exercise.

H4. Gender will moderate the effects of work, family, and the work-family interface on physical activity patterns. Family factors will have more influence on women's regular vigorous exercise than men's, while work factors will have more influence on men's exercise habits than women's. More positive and less negative work to family spillover will be associated with more impact on women's vigorous exercise than men's, whereas more positive and less negative family to work spillover will be associated with greater odds of vigorous exercise among men compared to women.

Method

Data

The analytic sample used in this study (N=1,806) includes employed adults aged 35-65 who participated in the National Survey of Midlife Development in the United States (MIDUS) collected in 1995 by the John D. and Catherine T. MacArthur Foundation Network on Successful Midlife Development. Sampling weights correcting for selection probabilities and non-response allow this sample to match the composition of the U.S. population on age, sex, race and education. MIDUS respondents completed a telephone interview and two self-administered mailback questionnaires. The response rate for the telephone interview and mailback questionnaires were 70% and 86.8% respectively, yielding an overall response rate of 60.8% for both parts of the survey.

Measures: Dependent Variable

Activities that promote a training effect (i.e., exercising at 60% or more of maximum heart rate, for twenty minutes or longer, three or more times per week)⁵¹ are typically defined as vigorous exercise.⁵²⁻⁵⁵ *Vigorous exercise* in this study was operationalized by summing the responses to the following questions: (1) “During the summer, how often do you engage in vigorous physical activity (for example, running or lifting heavy objects) long enough to work up a sweat?” and (2) “During the winter, how often do you engage in vigorous physical activity long enough to work up a sweat?” Response categories were several times a week or more, about once a week, several times a month, about once a month, less than once a month, or never. Respondents who reported several times a week or more to both questions were coded as 1, otherwise 0.

Table 1, providing the descriptive statistics for the analysis variables, indicates that the proportion of people who engage in vigorous exercise differs by gender. Consistent with most of the exercise adherence literature, chi-square analyses of this analytic sample indicated that women are significantly less likely to engage in regular vigorous exercise.

[Insert Table 1 about here]

Measures: Independent Variables

Work Characteristics

Decision Latitude was assessed by summing responses to eight items measuring the amount of control the individual has over their work environment and tasks, and the specialization of labor (e.g., “How often does your work demand a high level of skill or expertise?”; $\alpha = .98$). (See Appendix for a list of all index items.) *Job pressure* measured the amount of psychological strain associated with working by summing responses to four items (e.g., “In the past year, how often have you had too many time demands made on you?”; $\alpha = .83$). *Support at work* measured the extent to which the respondent perceived their relationships with co-workers and supervisors as supportive using a five item scale (e.g., “How often do you get help and support from your coworkers?”; $\alpha = .94$). Response categories for all the work characteristics measures ranged from never =1 to all the time=5.

Family Solidarity

Family affectual solidarity assessed the level of emotional closeness between the respondent and their family, ranging from high emotional closeness to high levels of burden, using an eight item scale (e.g., “How much do members of your family really care about you?”; $\alpha = .82$). Responses ranged from not at all = 1 to a lot =4. Using similar items, *spouse affectual solidarity* measured the level of emotional closeness between the respondent and their

spouse/partner using a 12-item scale of closeness and burden items ($\alpha=.92$). Finally, *normative solidarity* measured the respondent's perceived strength of family obligation and commitment to family roles using a four item index (e.g., "How much obligation would you feel to drop your plans when your children seem very troubled?"; 0 = none to 10 = very great; $\alpha = .77$).

Work-family Spillover

Negative spillover from work to family measured the respondent's perception of how much work interfered with functioning at home. Responses to four items were summed (e.g., "How often does stress at work make you irritable at home?"; $\alpha = .82$). Conversely, *positive spillover* assessed the extent to which the respondent felt that their work promoted better family functioning (e.g., "How often do the things you do at work help you deal with personal and practical issues at home?"; $\alpha = .72$). *Negative spillover* from family to work assessed the extent to which the respondent felt their family life was interfering with their success on the job (e.g., "How often does stress at home make you irritable at work?"; $\alpha = .79$). Finally *positive spillover* from family to work measured the extent to which respondents felt their family life helped them perform better on the job (e.g., "How often does talking with someone at home help you deal with problems at work?"; $\alpha = .68$). Response categories for all items ranged from never=1 to all the time=5.

Individual Characteristics

Since previous research has suggested that age, sex, household income, education, race, marital status, parental status, hours worked/week, and perceived control over health are important correlates of exercise⁵⁶⁻⁵⁸ we controlled for these variables in all analyses.

Missing Data

In order to retain as many cases as possible, if a respondent answered more than half the items comprising an index, the mean of the valid responses for the respondent was used for the index value. If the respondent answered less than half of the items for the index, the index value for that respondent was coded as missing. Missing flags (indicator variables) were then created for independent variables with missing data.⁵⁹ Respondents missing on the outcome measure were not included in the analyses.

Analytic Sequence

First, multivariate logistic regression models (using unweighted data) that included gender interaction variables were estimated across the entire sample of men and women to evaluate whether the effects of work and family factors on exercise differed by gender.⁶⁰ Then, the first three hypotheses were tested by estimating models where vigorous exercise was first regressed on the control variables and work characteristic measures; then the outcome was regressed on the control variables and the family solidarity measures; and finally the outcome was regressed on the control variables and the work-family spillover measures. A final model estimated the independent (unique) associations between all of the independent variables, the control variables, and vigorous exercise.

Results

Results from preliminary gender combined analyses indicated that significant gender interaction effects were found in the unique effects model assessing the associations between work, family, work-family spillover, and vigorous exercise. Therefore, gender separate models for men and women are reported in Table 2 to more clearly evaluate gender differences.

[Insert Table 2 about here]

Work Characteristics and Vigorous Exercise

Estimates reported in Table 2, Model 1 indicated that among both men and women, a higher level of decision latitude was associated with a greater likelihood of engaging in regular vigorous exercise. These results provide partial support for the first hypothesis which posited that higher levels of decision latitude and support at work, and lower levels of pressure on the job would be associated with more vigorous exercise.

Although no significant gender interactions were found in the preliminary model combining women and men, gender separate models indicated different correlates of exercise behavior for women and men. Consistent with the fourth hypothesis regarding gender differences, results suggested that more pressure on the job was associated with a decreased likelihood of participating in vigorous exercise among men only. Among women only, and in contrast to our gender hypothesis, gender separate analyses indicated that a higher level of support at work was associated with *lower* odds of participating in regular vigorous exercise.

Family Solidarity and Vigorous Exercise

Results from Table 2, Model 2 partially support Hypothesis 2 which anticipated that higher levels of family solidarity would be associated with a greater likelihood of participating in vigorous exercise. More emotional closeness with a spouse/partner was associated with more vigorous exercise among women. Specifically, for every unit increase in the amount of spouse affectual solidarity, the odds of engaging in regular vigorous exercise increased by a factor of 67% among women. Among men, trend level effects indicated that more family and spouse affectual solidarity may also be associated with greater odds of vigorous exercise.

Work-Family Spillover and Vigorous Exercise

Work to Family Spillover

Gender separate analysis of the association between work to family spillover and vigorous exercise (Table 2, Model 3) generally supported Hypothesis 3. More negative spillover from work to family was associated with less vigorous exercise among women and men. Additionally when aspects of the work domain promoted functioning in the family domain the odds of exercising three or more times per week increased among women. Specifically, for every unit increase in the amount of positive spillover from work to family, the odds of engaging in the regular vigorous exercise increased by a factor of 42% among women.

Family to Work Spillover

Analysis of the effects of family to work spillover on regular vigorous exercise (Table 2, Model 4) provided additional support for Hypothesis 3. Negative spillover from family to work was associated with lower odds of regular exercise among men. More positive spillover from family to work was also associated with greater odds of regular vigorous exercise among men only. As expected by hypothesis 4, work to family spillover was a stronger correlate of vigorous exercise among women than men, family to work spillover was a stronger correlate of exercise habits among men than women.

Unique Effects of Family, Work and Work-Family Spillover on Vigorous Exercise

Multivariate analysis of the association between family solidarity, work characteristics, work-family spillover, and vigorous exercise provided additional support for the ecological perspective on exercise. Evidence reported in Table 2, Model 5 indicated that each “system” (i.e., family and work microsystem, and the work-family mesosystem) exerts a significant unique effect on the likelihood of engaging in vigorous exercise for men or women.

In terms of the additive effects of family and work factors on vigorous exercise, several of the effects noted in the domain specific models were in evidence again, albeit to a lesser degree, in

the full model (Table 2, Model 5). As hypothesized, higher levels of decision latitude at work, spouse affectual solidarity, lower negative work to family spillover and higher positive work to family spillover were found again to be associated with greater odds of engaging in vigorous exercise among women. Counter to the hypothesis however, a higher level of support at work was associated with less rather than greater odds of vigorous exercise. We are not certain how to interpret this finding. It may be that a third unmeasured factor – e.g., personal emotional problems is causing both an increase in work support and a decrease in exercise.

Among men, only a higher level of decision latitude and a higher level of positive spillover from family to work promoted the odds of engaging in regular vigorous exercise. More pressure at work was also associated (at a trend level) with lower odds of vigorous exercise.

In partial support of Hypothesis 4, preliminary models combining both women and men revealed significant Gender X Positive Spillover from Work to Family and Gender X Positive Spillover from Family to Work interactions. Consistent with our hypothesis, gender separate models indicated that positive spillover from work to family was associated with more vigorous exercise among women, but not men. By contrast, more positive spillover from family to work was associated with more exercise among men, but not women.

Discussion, Summary and Conclusions

The overall goal of this study was to use ecological theory to guide a systematic examination of the effects of everyday contextual factors on the propensity to engage in regular vigorous exercise among midlife women and men. Results generally support the research hypotheses and the ecological perspective of behavior that postulates that above and beyond individual level factors (e.g., control over health), contextual factors arising from salient settings influence positive health behaviors such as vigorous exercise.

Results from this study replicate and extend previous research in several important ways. First, research consistently indicates that exercise specific support is important to facilitate healthful behaviors, however this position assumes that behavior specific support has the same effect regardless of the nature of the more global relationship. Results from this analysis suggest that quality of the marital relationship may moderate the effect of behavior specific support for exercise (received from the spouse). For example, future analyses may find that women in emotionally close marital relationships, who receive high levels of behavior specific support are likely to exercise, while individuals in distant marriages may not exercise despite behavior specific support from the spouse.

These results also extend previous research regarding work characteristics influence specific health outcomes such as myocardial infarction.³³ Specifically, these results suggest one potential pathway by which job factors influence health; that is, perhaps individuals with high levels of decision latitude experience lower rates of cardiovascular disease because they are more likely to engage in regular vigorous exercise. This hypothesis has received some support recently;³¹ however the data came from a non-representative sample, and the outcome measure was an index of health related behaviors. It is important to specify the distinct determinants of different health behaviors since health behavior is a multidimensional construct.^{32,61} This research extends previous research by examining the specific effects of work characteristics on vigorous exercise. Our results provide strong evidence that work characteristics, particularly decision latitude, may influence the likelihood that both men and women will engage in regular exercise, which is likely to have an important impact on subsequent health status.

The work-family spillover literature is also extended by considering the effects of spillover on vigorous exercise. Again, previous work indicated that spillover between work and family

promoted substance use behaviors;⁴⁰⁻⁴² however the sample in each of these studies was limited, and the results could not be necessarily generalized to other health behaviors. The evidence reported here indicates that both positive and negative dimensions of spillover between work and family influence participation in regular physical activity.

Our study also has limitations. First, the data were all obtained through self-reports, which may mean that a common method factor may explain some of the associations found in these analyses. Additionally, a more stringent operationalization of ecological theory would require the incorporation of many more factors from additional systems or levels (e.g., neighborhood factors, job characteristics provided by other informants). These data are cross-sectional, therefore conclusive inferences regarding causality cannot be made. Finally, some of the results from this study may be confounded by the individual's relative level of physical fitness, which is not included as a variable in these analyses.

These cautions notwithstanding, our findings generally support the value of taking an ecological perspective on exercise. Consistent with research hypotheses our findings indicate that aspects of the work and family microsystems, along with perceptions of the work-family mesosystem are independently associated with vigorous exercise among midlife, employed adults. Moreover, results from this study indicate that the associations between work and family factors and exercise differ by gender. Given these results, it is important that future health behavior research continue to recognize the direct and indirect effects of ecological factors, such as employment characteristics, and family relationships while remaining attentive to individual level factors to most accurately specify and understand health behaviors.

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Table 1: Descriptive statistics for analysis variables

| Variable | All | | | Women | | Men | | Gender Difference |
|-----------------------------------|--------|--------|-----------|--------|--------|--------|--------|-------------------|
| | M | SD | Range | M | SD | M | SD | |
| Outcomes | | | | | | | | |
| Regular Vigorous Exercise | 0.33 | 0.47 | 0-1 | 0.21 | 0.41 | 0.45 | 0.50 | *** |
| Work Characteristics | | | | | | | | |
| Decision Latitude | 3.64 | 0.73 | 1-5 | 3.55 | 0.72 | 3.73 | 0.72 | *** |
| Pressure at Work | 3.19 | 0.68 | 1-5 | 3.20 | 0.71 | 3.19 | 0.65 | |
| Support at Work | 3.65 | 0.73 | 1-5 | 3.72 | 0.73 | 3.58 | 0.72 | *** |
| Family Solidarity | | | | | | | | |
| Family Affectual | 3.11 | 0.51 | 1-4 | 3.10 | 0.52 | 3.13 | 0.50 | |
| Spouse Affectual | 3.14 | 0.56 | 1-4 | 3.07 | 0.61 | 3.21 | 0.49 | *** |
| Normative | 8.08 | 1.69 | 0-10 | 8.34 | 1.65 | 7.82 | 1.70 | *** |
| Work-Family Spillover | | | | | | | | |
| Negative | 2.65 | 0.73 | 1-5 | 2.63 | 0.76 | 2.68 | 0.71 | |
| Positive | 2.87 | 0.74 | 1-5 | 2.90 | 0.74 | 2.83 | 0.74 | + |
| Family-Work Spillover | | | | | | | | |
| Negative | 2.09 | 0.66 | 1-5 | 2.10 | 0.64 | 2.08 | 0.67 | |
| Positive | 3.35 | 0.76 | 1-5 | 3.31 | 0.76 | 3.39 | 0.75 | * |
| Individual Characteristics | | | | | | | | |
| Age | 46.03 | 7.77 | 35-64 | 46.45 | 7.98 | 45.60 | 7.53 | * |
| Gender (1=female) | 0.51 | 0.50 | 0-1 | | | | | |
| Race/ethnicity (1=black) | 0.11 | 0.31 | 0-1 | 0.13 | 0.33 | 0.09 | 0.28 | * |
| Household Earnings | 50,435 | 38,278 | 0-300,000 | 44,949 | 35,242 | 56,051 | 40,414 | *** |
| Education | 2.70 | 0.97 | 1-5 | 2.66 | 0.94 | 2.74 | 0.99 | + |
| Not Currently Married | 0.29 | 0.45 | 0-1 | 0.36 | 0.48 | 0.21 | 0.41 | *** |
| No Children | 0.11 | 0.31 | 0-1 | 0.09 | 0.29 | 0.12 | 0.33 | + |
| Hours Worked/Week | 44.80 | 16.30 | 3-126 | 40.59 | 16.27 | 49.10 | 15.17 | *** |
| Control over Health | 5.18 | 0.76 | 1-7 | 5.25 | 0.76 | 5.11 | 0.75 | *** |

Source: National Survey of Midlife Development in the United States 1995 (MIDUS).

+ $p \leq .10$ * $p \leq .05$ ** $p \leq .01$ *** $p \leq .001$ (two-tailed)

Note: Descriptives based on weighed data (N=1,464)

Gender differences evaluated with t-tests for continuous variables, chi-square tests for categorical variables.

Table 2: Estimated odds ratios for the associations between work characteristics, family solidarity, work-family spillover, and vigorous exercise by gender

| Variable | Model 1 | | Model 2 | | Model 3 | | Model 4 | | Model 5 | |
|-----------------------------------|---------|----------|---------|----------|---------|----------|---------|----------|-------------------|-------------------|
| | Women | Men | Women | Men | Women | Men | Women | Men | Women | Men |
| Work Characteristics | | | | | | | | | | |
| Decision Latitude | 1.61 ** | 1.73 *** | | | | | | | 1.42 * | 1.71 *** |
| Pressure at Work | 0.77 | 0.73 * | | | | | | | 1.08 | 0.78 + |
| Support at Work | 0.75 * | 0.95 | | | | | | | 0.66 * | 0.89 |
| Family Solidarity | | | | | | | | | | |
| Family Affectual | | | 1.01 | 1.29 + | | | | | 0.97 | 1.23 |
| Spouse Affectual | | | 1.67 * | 1.31 + | | | | | 1.65 * | 1.06 |
| Normative | | | 0.95 | 1.06 | | | | | 0.95 | 1.01 |
| Work-Family Spillover | | | | | | | | | | |
| Negative | | | | | 0.66 ** | 0.81 * | | | 0.57 ** | 1.01 |
| Positive | | | | | 1.42 ** | 1.14 | | | 1.38 ^a | 0.90 ^a |
| Family-Work Spillover | | | | | | | | | | |
| Negative | | | | | | | 0.87 | 0.77 * | 1.20 | 0.87 |
| Positive | | | | | | | 1.13 | 1.33 ** | 0.85 ^a | 1.25 ^a |
| Individual Characteristics | | | | | | | | | | |
| Age | 0.98 + | 0.97 *** | 0.98 | 0.97 *** | 0.97 * | 0.97 ** | 0.98 + | 0.97 *** | 0.98 | 0.96 *** |
| Race/ethnicity (1=black) | 0.56 | 1.08 | 0.56 | 1.14 | 0.52 | 1.02 | 0.51 | 1.02 | 0.60 | 1.11 |
| Household Earnings | 1.00 * | 1.00 | 1.00 ** | 1.00 | 1.00 ** | 1.00 | 1.00 ** | 1.00 | 1.00 | 1.00 |
| Education | 1.01 | 1.04 | 1.07 | 1.03 | 1.05 | 1.05 | 1.07 | 1.06 | 0.99 | 1.01 |
| Not Currently Married | 1.44 | 1.24 | 1.57 | 1.26 | 1.48 + | 1.24 | 1.53 + | 1.41 + | 1.55 | 1.06 |
| No Children | 1.30 | 0.85 | 1.26 | 0.83 | 1.26 | 0.88 | 1.22 | 0.85 | 1.39 | 0.87 |
| Hours Worked/Week | 0.99 | 1.00 | 0.99 | 1.00 | 0.99 | 1.00 | 0.99 | 1.00 | 0.99 | 1.00 |
| Control over Health | 1.29 + | 1.80 *** | 1.34 * | 1.76 *** | 1.28 + | 1.75 *** | 1.34 * | 1.73 *** | 1.29 * | 1.92 *** |
| Log Likelihood | 643.99 | 902.45 | 643.67 | 905.97 | 636.02 | 914.79 | 650.50 | 908.45 | 615.53 | 876.74 |
| <i>df</i> | 626 | 680 | 626 | 679 | 628 | 681 | 628 | 681 | 612 | 666 |

Source: National Survey of Midlife Development in the United States 1995 (MIDUS).

+ $p \leq .10$ * $p \leq .05$ ** $p \leq .01$ *** $p \leq .001$ (one-tailed)

^a: A gender interaction effect ($p \leq .05$) was found in preliminary analyses that combined men and women.

Appendix

Work Characteristics

Response categories for each of the work characteristics measures include: all of the time (5), most of the time (4), sometimes (3), rarely (2), and never (1).

Note + = item reverse coded.

Decision Latitude

1. How often do you have a choice in deciding how you do your tasks at work?
2. How often do you have a choice in deciding what tasks you do at work?
3. How often do you have a say in decisions about your work?
4. How often do you have a say in planning your work environment – that is, how your workplace is arranged or how things are organized?
5. How often do you learn new things at work?
6. How often does your work demand a high level of skill or expertise?
7. On your job, how often do you have to initiate things – such as coming up with your own ideas, or figuring out on your own what needs to be done?
8. How often does your job provide you with a variety of things that interest you?

Job Pressure

1. How often do you have to work very intensively -- that is, you are very busy trying to get things done?
2. How often do different people or groups at work demand things from you that you think are hard to combine?
3. You have too many demands made on you.*
4. You have a lot of interruption.*

Support at Work

1. How often do you get help and support from your coworkers?
2. How often are your coworkers willing to listen to your work-related problems?
3. How often do you get the information you need from your supervisor or superiors?
4. How often do you get help and support from your immediate supervisor?
5. how often is your immediate supervisor willing to listen to your work-related problems?

All of the above items, except for the items indicated by an asterisk (*), ask the respondent to indicate how often each of the items is true for their job. Those items indicated by an asterisk ask the respondent to indicate how often the item occurred in the past year on their job.

Appendix

Family Solidarity Measures

Affectual Solidarity

Response categories for each of the affectual solidarity measures include a lot (4), some (3), a little (2) not at all (1).

Family Affectual Solidarity

1. Not including your spouse or partner, how much do members of your family really care about you?
2. How much do they understand the way you feel about things?
3. How much can you rely on them for help if you have a serious problem?
4. How much can you open up to them if you need to talk about your worries?
5. Not including your spouse or partner, how often do members of your family make too many demands on you? +
6. How often do they criticize you? +
7. How often do they let you down when you are counting on them? +
8. How often do they get on your nerves? +

Spouse Affectual Solidarity

1. How much does your spouse or partner really care about you?
2. How much does he or she understand the way you feel about things?
3. How much does he or she appreciate you?
4. How much can you rely on him or her for help if you have a serious problem?
5. How much can you open up to him or her if you need to talk about your worries?
6. How much can you relax and be yourself around him or her?
7. How often does your spouse or partner make too many demands on you? +
8. How often does he or she make you feel tense? +
9. How often does he or she argue with you? +
10. How often does he or she criticize you? +
11. How often does he or she let you down when you are counting on him or her? +
12. How often does he or she get on your nerves? +

Normative Solidarity

Response categories for each of the normative solidarity measures are on a continuum from one (none) to ten (very great).

How much obligation would you feel.....

1. To drop your plans when your children seem very troubled?
2. To call, write, or visit your adult children on a regular basis?
3. To drop your plans when your spouse seems very troubled?
4. To take your divorced or unemployed adult child back into your home?
5. To call your parents on a regular basis?

Appendix

Family-work Spillover

The next questions are about how your job may affect your family and personal life, and how your family and personal life may affect your job. How often have you experienced each of the following in the past year? (Response categories for each item include: all of the time (5), most of the time (4), sometimes (3), rarely (2), and never (1).)

Work to Family Negative

1. Your job reduces the effort you can give to activities at home.
2. Stress at work makes you irritable at home.
3. Your job makes you feel too tired to do the things that need attention at home.
4. Job worries or problems distract you when you are at home.

Work to Family Positive

1. The things you do at work help you deal with personal and practical issues at home.
2. The things you do at work make you a more interesting person at home.
3. Having a good day on your job makes you a better companion when you get home.
4. The skills you use on your job are useful for things you have to do at home.

Family to Work Negative

1. Responsibilities at home reduce the effort you can devote to your job.
2. Personal or family worries and problems distract you when you are at work.
3. Activities and chores at home prevent you from getting the amount of sleep you need to do your job well.
4. Stress at home makes you irritable at work.

Family to Work Positive

1. Talking with someone at home helps you deal with problems at work.
2. Providing for what is needed at home makes you work harder at your job.
3. The love and respect you get at home makes you feel confident about yourself at work.
4. Your home life helps you relax and feel ready for the next day's work.

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