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Daily Work Qualities, Psychosocial Factors, and Depression in the US: Age Variations

Jinyoung Kim
Seoul National University

Using a national telephone probability sample of 2,592 U.S. adults collected in 1995 and 1998, this study examines the age variations in the relationships between daily work qualities or psychosocial factors and depression. Survey items measured symptoms of depression, fulfilling or nonroutine quality of respondent's primary daily work/activity, social support, and sense of control. In the results, the different dimensions of work qualities and psychosocial factors have different effects on depression across adult ages. First, the effect of daily work fulfillment on depression varies across adult ages, but the effect of work complexity on depression is constant across ages. The beneficial effect of work fulfillment on depression appears to be stronger in older ages. Second, the effect of social support on depression change varies across adult ages, but the effect of sense of control does not vary substantially across ages. Only work fulfillment and social support have more beneficial effects on depression of older adults, suggesting policy implications for effective social interventions to help reduce the depression of older adults.

KEY WORDS Fulfilling or Nonroutine Quality of Daily Work/Activity, Social Support, Sense of Control, Older Adults

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교신저자: 김진영, 서울대학교(jy21kim@gmail.com).
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I. INTRODUCTION

Daily work qualities such as fulfillment and complexity or psychosocial factors such as sense of control and social support are well-known as having significant effects on depression (Link, Lennon, & Dohrenwend, 1993; Ross & Drentea, 1998; Ross & Mirowsky, 1989; Wheaton, 1983). Although many previous studies examined their effects on depression, few studies examined age variations in their effects on depression across entire adult ages. A main motivation to study the age variations is to find more effective factors for psychological well-being of certain age groups such as older adults.

Particularly, this study is interested in effective factors for psychological well-being of older age groups because older adults are known as suffering from higher depression than the middle-aged. According to a study (Bruce & Leaf, 1989), about 15% to 30% of the elderly suffer from minor depression, which can affect mortality. According to Mirowsky and Ross (1992), depression, among older adults is not a myth - the malaise of older adults mainly reflected depression not physical disease. Additionally, they suggested the U-shaped curve in the relationship between age and depression. Older adults suffered from depression more than the middle-aged, and the depression of older adults tended to increase with age because of life-cycle losses such as retirement, spouse's death, and physical/cognitive decline in their cross-sectional analyses.

Certain previous studies found increasing effects of socioeconomic status such as educational attainment on depression with age (Kim & Durden, 2007). Although educational attainment is important for the psychological well-being of older adults, it is difficult for them to increase their educational level. Daily work qualities or psychosocial factors are relatively easy to change to improve psychological well-being of older adults. This study examines two dimensions of daily work qualities and psychosocial factors, respectively. Different dimensions of work qualities and psychosocial factors might have different effects on depression across age. Certain dimension might play a more important role in certain age groups such as older adults. This study intends to reveal the differential roles in order to provide more specific implications for social or personal interventions to improve psychological well-being of certain age groups.

1. Work Qualities and Psychological Well-Being

Regardless of whether the work is paid or unpaid, the characteristics of primary daily work – e.g., fulfillment and complexity – had significant effects on psychological well-being in previous studies (Lennon, 1994; Link et al., 1993; Ross & Van Willigen, 1997). Although many previous studies examined the relationship between occupational work quality and mental health, they frequently excluded works (activities) of retirees or homemakers (Kohn & Schooler, 1982; Reynolds, 1997). A few studies examined the relationship between employment status and psychological functioning or well-being, utilizing work qualities as a mediating factor to explain the worse psychological functioning or well-being of homemakers or retirees than that of the employed (Bird & Ross, 1993; Ross & Drentea, 1998). The non-employed generally had more routine and unfulfilling daily activities than the employed, and these partially explained the worse psychological functioning or well-being among the non-employed.

Does, then, the effect of daily work quality on psychological well-being change across adult ages? If daily work quality has a strong effect on psychological well-being in older adults, health researchers and policy makers need to pay more attention to daily work quality among retirees or elderly homemakers to improve their psychological well-being. Notwithstanding these theoretical and practical implications, few studies have compared the importance of daily work quality for psychological well-being across all adult age groups.

Work fulfillment or complexity has been examined in several previous studies on psychological functioning or well-being (Bird & Ross, 1993; Kobasa et al., 1981; Ross & Drentea, 1998; Ross & Wright, 1998), and the concept of work fulfillment originated from Marx's work-alienation-theory (1884/1964). "Alienation is any form of separation from the work itself, from oneself, or from others" (Ross & Drentea, 1998: 319). Work fulfillment is an opposite concept of work estrangement; fulfilling work is meaningful, interesting (Lowe & Northcott, 1988), provides intrinsic gratification (Ross & Wright, 1998).

Daily work quality in older adults might have a stronger effect on psychological well-being. For example, it has been suggested that retirees should substitute new roles and meaningful activities for those lost with occupation to maintain a positive sense of self (Herzog & House, 1991; Passuth & Bengston, 1988). Therefore, desirable daily activity after retirement might be important for keeping a positive self-image and improving

psychological well-being among the elderly. According to a study conducted by Riddick and Daniel (1984) on older female homemakers and retirees, leisure activity was the most important factor for predicting life satisfaction. Leisure activities as well as productive activities are important for the psychological well-being of the elderly (Reitzes et al., 1995).

2. Sense of Control, Social Support and Psychological Well-Being

According to Wheaton (1983), social support decreased distress directly and buffered the negative effects of stressful life events. Social support may have a direct beneficial effect on psychological well-being as well as buffering effects (Thoits, 1982). Social relationship can be important resource in crises because it is likely easier to change than personality traits.

The second psychosocial factor is sense of control. According to Wheaton (1983), fatalism likely results in psychological disorder. Fatalism weakens the motivation and rationales to confront and cope with problems. Persons believing that they can control their own lives, can cope with adverse situations well and, consequently, have a lower risk of depression. Those with higher sense of control are more active in solving problem in adverse situations. Therefore, they can reduce the risk of depression (Ross & Mirowsky, 1989).

According to functional substitution hypothesis, social support and sense of control are alternative resources to reduce stress (Turner & Noh, 1983). Social support provides confidence for one's worth, and sense of control provides confidence for one's ability. One can substitute the other in buffering stress, and one decreases the additional beneficial effect of the other. Results of a study supported this functional substitution hypothesis (Ross & Mirowsky, 1989). Personal control's beneficial effect on depression was stronger when level of social support was lower, and social support's beneficial effect on depression was also stronger when level of personal control was lower. If level of one is higher, the need for the other is reduced. Nevertheless, the persons having higher social support and higher sense of control demonstrated the lowest depression in the study.

The beneficial effect of social support on depression in older adults has been found in many previous studies (Chi & Chou, 2001; Dean, Kolody, & Wood, 1990; Russell & Cutrona, 1991). The importance of self-efficacy, mastery, or sense of control on depression

and health in older adults has also been suggested in previous studies (Blazer, 2002; House et al, 1994; Rodin, 1986). However, few studies examined the age variations in the relationship between social support or sense of control and depression across adult ages. It is important to identify more effective resources that have stronger effects on depression in certain age groups such as older adults. Social interventions can improve their psychological well-being effectively by supplementing crucial resources in certain age groups.

3. Research Questions

I intend to answer three specific questions: (1) Does the beneficial effect of daily work fulfillment or work complexity on depression vary across adult ages? (2) Does the beneficial effect of social support or sense of control on depression vary across adult ages? (3) Do the different dimensions of work qualities and psychosocial factors have different effects on depression across adult ages?

II. METHODS

1. Data

This study depends on data from the survey of Aging, Status, and the Sense of Control (ASOC). ASOC is a national telephone probability sample of 2,592 U.S. households. The first wave of interviews was completed at the beginning of 1995. Sampling, pretesting, and interviewing for the surveys were conducted by the Survey Research Laboratory of the University of Illinois (SRL-UI). A pre-screened random-digit dialing method was used in selecting respondents. The survey was limited to English-speaking adults, and interviews were completed with 71.6 percent of contacted and eligible persons.

ASOC survey has two subsamples designed to produce an 80 percent over-sample of people aged 60 or older at baseline. Of 2,592 respondents, ranging in age from 18 to 95 at baseline, 58 percent were under age sixty (N=1,496) and 42 percent were sixty years old or older (N=1,097). Tables, figures, and text report results for the entire unweighted sample, unless otherwise noted. The oversample of seniors does not bias results because age is an independent variable in all of my models (Winship & Radbill, 1994). The de-

mographic characteristics of the baseline ASOC sample match those for the U.S. adult householder population reasonably well (U.S. Bureau of the Census 1995).

The longitudinal analyses in this study use the first and the second waves of ASOC data from 1995 and 1998. The number of respondents who participated in the first and the second surveys is 1,377 (53.1%). Younger people, nonwhites, persons not married, and persons with low levels of education and income in 1995 were less likely to be reinterviewed in 1998. The follow-up models in this study adjust for these predictors of attrition, thereby correcting any bias due to the attrition predictable from them (Mirowsky & Ross, 2007; Winship & Radbill, 1994).

2. Measurement

Depression is measured with a form of the Center for Epidemiological Studies' Depression Scale (CES-D) reflecting depressed mood, physiological malaise, and the absence of positive emotions (Radloff, 1977). Respondents were asked, "On how many days in the past week have you" (1) "had trouble getting to sleep or staying asleep," (2) "felt you just couldn't get going," (3) "had trouble keeping your mind on what you were doing," (4) "felt that everything was an effort," (5) "felt sad," (6) "felt lonely," (7) "felt you couldn't shake the blues," (8) "enjoyed life" (9) "felt hopeful about the future," and (10) "felt happy." Items 1 through 7 are coded from 0 (never) to 7 (everyday), and items 8 through 10 are coded in reverse. The depression scale is the mean response to the ten items, and alpha reliability of the scale is .842.

This study utilizes work fulfillment and complexity as measures to assess general quality of daily work. In order to examine this, we need survey data including measurements for daily work quality which are equally valid for the working-age group and the retirement-age group. In this survey, respondents subjectively assessed the fulfilling or nonroutine quality of their primary daily work, whether paid or unpaid. Fulfilling work is enjoyable and gives people a chance to develop and to learn new things. Nonroutine work is relatively complex and involves solving problems. This study has interests in the quality of daily activities in older adults, most of whom do not have an official occupation. Therefore, it is necessary to utilize a subjective measure to assess their activity or work quality, and work fulfillment or complexity is appropriate measures to assess general work quality among the elderly.

For work qualities, fulfilling work is the mean of two items at baseline (the number of missing cases is 69), and alpha reliability of the scale is .683. The first indicator is measured by agreement (4 point scale) with a statement about the work or activities they mostly do in a day, "My work (daily activities) gives me a chance to do things I enjoy." The second indicator is "My work (daily activities) gives me a chance to develop and to learn new things." Nonroutine work is the mean of Z-scores of two items which measure work complexity at baseline (the number of missing cases is 104). The first item measures whether their primary daily work or activity involves (1) "Doing the same thing in the same way repeatedly," (2) "Doing the same thing in a number of different ways," or (3) "Doing a number of different kinds of things." The second item asks "In my work (daily activities), I have to figure out how to solve problems." Responses include (1) strongly disagree (2) disagree (3) agree (4) strongly agree. The reason why Z-scores of the two items are used to generate the variable of nonroutine work is that the scales of the two items are different with each other. The different scales need to be standardized with Z-scores.

For psychosocial factors, social support is the mean of four indicators representing emotional and instrumental support, and alpha reliability of the scale is .888: (1) "I have someone I can turn to for support and understanding when things get rough," (2) "I have someone I can really talk to," (3) "I have someone who would help me out with things," and (4) "I have someone who would take care of me if I were sick." Responses are "strongly disagree" (coded 1), "disagree" (2), "agree" (3), and "strongly agree" (4).

The sense of control is the mean of eight indicators: a) claiming control about success- i) "I am responsible for my own success" and ii) I can do just about anything I really set my mind to," b) claiming control about failure- i) "My misfortunes are the results of mistakes I have made" and ii) I am responsible for my failure," c) denying control about success- i) "The really good things that happen to me are mostly luck" and ii) "There is no sense planning a lot-if something good is going to happen it will," and d) denying control about failure- i) "Most of my problems are due to bad breaks" and ii) I have little control over the bad things that happen to me." Responses are coded so that -2 = strongly disagree, -1 = disagree, 0 = neutral (don't know), 1 = agree, and 2 = strongly agree (Items in c and d are reverse coded). As differing from other scales, these items utilize the category of "I don't know". The respondents who chose the category of "I don't know" are considered having a neutral position in each question. This design has the same number

of indicators claiming control as denying control, and the same number questions about good outcomes as about bad ones, eliminating any risk of bias from agreement tendencies and from self-defense or self-blame (Mirowsky & Ross 1991). Alpha reliability of the scale is .581.

For control variables, age is scored in number of years, and sex is coded 1 for female, 0 for male. Race is coded 1 for whites, 0 for nonwhites. Education is scored in number of years of schooling. Occupational prestige of current or last occupation is scores from NORC/GSS '89 codes. The missing cases about 6.4% were assigned the mean value. Marital status is coded 1 for persons currently married, 0 otherwise. Employment status is coded 1 for persons currently employed, 0 otherwise. Family income represents the respondent's total household income in 1993 before taxes. Seventy one percent reported their family income, and the other 29% were asked a series of questions which allowed an estimation of their income range within $10,000 intervals. These respondents were then assigned the income-range midpoint. 17% of the sample was added with this procedure. The final missing cases about 12.2% were assigned the mean value. Finally, physical impairment is measured by seven items of "How much difficulty do you have: going up and down stairs? kneeling and stooping? lifting or carrying objects less than 10 pounds? using your hands or fingers? seeing, even with glasses? hearing? and walking?" I coded the responses 2 for a great deal of difficulty, 1 for some difficulty, and 0 for no difficulty. Physical impairment is the mean response to all the seven items, and alpha reliability of the scale is .788.

3. Analysis

Regarding causality issue, the association between work qualities, psychosocial factors, and psychological well-being might contain the possibility of social selection. To exclude the possibility of reverse causality from psychological well-being to daily work qualities or psychosocial factors, this study employs a longitudinal modeling approach - examining the change in depression over three years.

Interactions between work qualities or psychosocial factors and age predict depression at baseline for the full sample and changes in depression over the subsequent three years for persons with data from the follow-up. If the interaction coefficients display a significant negative value, it indicates that the factors have stronger effects on depression in

older ages. If the interaction coefficients display a significant positive value, it indicates that the factors have stronger effects on depression in younger ages.

The distribution of depression at baseline is positively skewed. Therefore, square-root transformation is used to avoid the violation of the normality assumption in OLS regression. Age term is modeled as the deviation from age 45, which is a value close to the mean for U.S. adults, and the variables of fulfilling work, nonroutine work, social support, and personal control are mean-centered. This centering method reduces multicollinearity. This method changes the meaning of the intercept in a regression equation but does not change the meanings of regression coefficients for independent variables.

III. RESULTS

1. Descriptive Characteristics of Daily Works

Daily work qualities were measured in terms of fulfillment and complexity of respondent's primary daily task. The primary daily task included both paid work and unpaid activity, and Table 1 presents the subcategories of unpaid activity. All the values in Table 1 were adjusted for the over-sampling of the elderly. 58.5 percent of U.S. adults reported paid work as their primary daily task, and 41.5 percent of them reported an unpaid activity as their primary task.

In overall comparison of the mean values in Table 1, paid work is more fulfilling and nonroutine than unpaid activity. In terms of psychological well-being, the individuals who

Table 1. Descriptive Statistics for Outcome Variables across Subcategories of Primary Daily Task, Means with Standard Deviations in Parentheses (for Weighted Sample), ASOC 1995.

Primary Daily Task	Percentage	Fulfilling Work Quality	Nonroutine Work Quality	Depression
Paid Work	58.5	3.227*** (.595)	.155*** (.784)	.883*** (1.092)
Unpaid Activity	41.5	3.058 (.599)	−.217 (.774)	1.156 (1.414)
Housework	18.6	3.043 (.635)	−.232 (.781)	1.175 (1.431)
Care for Child, Ill, or Elderly	2.4	3.155 (.600)	−.252 (.783)	1.106 (1.155)
Garden/Home Maintenance	4.6	2.948 (.590)	−.320 (.789)	1.256 (1.423)

Table 1. Continued

Primary Daily Task	Percentage	Fulfilling Work Quality	Nonroutine Work Quality	Depression
Volunteer/ Chunrch Work	1.9	3.052 (.574)	−.095 (.740)	1.292 (1.365)
Recreation in the Home	6.3	3.071 (.539)	−.227 (.729)	1.205 (1.527)
Recreation Outside	3.0	3.074 (.638)	−.149 (.841)	1.087 (1.503)
Schoolwork etc.	4.7	3.124 (.597)	−.184 (.769)	.918 (1.411)
	100 (N=2,592)			

Note: *** indicates that the means for paid work and unpaid activity are significantly different at $p < .001$.

reported a paid work as their primary task have lower depression, compared to unpaid workers. Unpaid activities are classified with six categories in Table 1. In the six categories, the most fulfilling activity is care for children or the elderly, and the most nonroutine activity is volunteer/church work. The least fulfilling and the most routine activity is garden or home maintenance. The individuals who reported school work as their primary task show the lowest depression. Unexpectedly, those who reported volunteer or church work as their primary daily task show the highest depression. In the case of housework, which occupies the largest portion of unpaid activity, work qualities and depression are slightly worse than the averages of all unpaid activities.

To compare the effect of daily work quality on depression across ages, the measures of work quality need to be equally valid for the paid work and the unpaid activity. Subsidiary analyses were conducted for the validity using two-group confirmatory factor structure (available on request), and the results indicate that the measures of work fulfillment or work complexity are equally valid for both groups – the latent factor structure of work fulfillment or work complexity is not different between the paid work and unpaid activity groups.

2. Cross-Sectional Analyses

The first and second models of Table 2 examine whether the effect of daily work quality on depression differs across adult ages. In all the models of Table 2, diverse socio-demographic variables and physical impairment are controlled because they might be

associated with both daily work quality and depression. The main results of Model 1 are the effects of fulfilling work and age on depression. This model includes the interaction terms between age and fulfilling work, and the fulfilling work variable is mean-centered. Therefore, the regression coefficient of age in Model 1 represents the effect of age on depression for those with average level of fulfilling work. When age increases 1 year, depression for those with average level of fulfilling work decreases 0.107. The reference age group is those aged 45. Therefore, the regression coefficient of fulfilling work in Model 1 represents the effect of fulfilling work on depression for those aged 45. Finally, the interaction effect between age and fulfilling work is significant and negative (-.025). It indicates that the effect of work fulfillment on depression increases with advancing age. In other words, the relationship between work fulfillment and depression is stronger in older ages.

The second model of Table 2 examines the interaction effect between age and

Table 2. Depression (Square Rooted) Regressed on Work Qualities, Psychosocial Factors, and their Age Interactions: U.S., ASOC 1995.

Model	1	2	3	4	5
Female	.034 (.022)	.027 (.022)	.053* (.022)	.027 (.022)	.047* (.022)
White	-.063* (.031)	-.056† (.032)	-.054† (.031)	-.045 (.031)	-.047 (.031)
Employed	-.041 (.025)	-.056* (.026)	-.070 (.025)	-.060* (.025)	-.045† (.025)
Married	-.168*** (.022)	-.165*** (.023)	-.138*** (.023)	-.162*** (.022)	-.149*** (.022)
Years of Schooling	-.016*** (.005)	-.018*** (.005)	-.018*** (.005)	-.014** (.005)	-.013** (.005)
Occupational Prestige	.002* (.001)	.001 (.001)	.001 (.001)	.001 (.001)	.002 (.001)
Family Income [b] (squre-Rooted)	-.002 (.005)	-.002 (.005)	.000 (.005)	.000 (.005)	.001 (.005)
Physical Impairment	.699*** (.036)	.768*** (.036)	.757*** (.036)	.738*** (.036)	.668*** (.036)
Age [a]	-.107*** (.007)	-.116*** (.007)	-.125*** (.007)	-.120*** (.007)	-.117*** (.007)
Fulfilling Work	-.209*** (.019)				-.170*** (.021)
Fulfilling Work × Age [a]	-.025* (.010)				-.030** (.011)

Table 2. Continued

Model	1	2	3	4	5
Nonroutine Work		−.052*** (.015)			.021 (.016)
Nonroutine Work × Age [a]		−.001 (.007)			−.003 (.008)
Social Support			−.193*** (.022)		−.116*** (.023)
Social Support × Age [a]			−.001 (.012)		.005 (.012)
Personal Control				−.201*** (.024)	−.152*** (.024)
Personal Control × Age [a]				.022† (.012)	.022† (.012)
Constant	.951*** (.067)	1.003*** (.070)	.985*** (.068)	.941*** (.069)	.860*** (.050)
R^2	.287	.250	.268	.266	.309

Note: N = 2,560. Metric coefficients with standard error in parentheses are shown.
The variables of fulfilling work, nonroutine work, social support, and personal control are mean-centered.
a Age is modeled as (Age−45)/10. b Unit: $1,000.
† $p < .10$, * $p < .05$, ** $p < .01$, *** $p < .001$ (2-tailed tests)

nonroutine work on depression. No significant interaction exists and the negative coefficient of nonroutine work (−.052) indicates that the beneficial effect of work complexity on depression is constant across adult ages.

Two psychosocial factors, sense of control and social support, are examined as the same procedures with work qualities in order to test their interactions with age on depression. Model 3 of Table 2 examines whether the effect of social support on depression varies across ages. Age is modeled as the deviation from age 45 in the model, and thus the negative coefficient of social support (−.193) indicates that higher social support is related to lower depression for those aged 45. No significant interaction with age indicates that the negative relationship between social support and depression is constant across adult ages.

Model 4 of Table 2 examines the interaction effect of sense of control and age on depression. The negative coefficient of sense of control (−.201) indicates that higher sense of control is related to lower depression for those aged 45. The interaction effect between sense of control and age is marginally significant and positive (.022), and it suggests the possibility that the relationship between sense of control and depression diminishes in

older ages. That is, sense of control's beneficial effect on depression may be greater in younger ages.

Finally, the four factors, work fulfillment, work complexity, social support, and sense of control might be interrelated in their relationships with depression. To examine net effect of one factor when other three factors are controlled and to check a factor with the strongest age interaction effect, the full model including all the factors and related variables is examined. In the results of Model 5 of Table 2, the effect of work complexity become non-significant when other three factors are controlled, suggesting that other three factors might explain its effect on depression. The significance levels of work fulfillment, social support, and sense of control do not change substantially in Table 2 when other factors are controlled. In the results of Model 5, only the interaction of age and work fulfillment is significant, suggesting the possibility that work fulfillment is the most important factor among the four factors on depression of older adults.

3. Longitudinal Analyses

Although previous studies on work qualities and depression demonstrated the existence of the causal direction from work qualities to depression, certain studies also suggested the possibility of the reverse causal direction from depression to work qualities

Table 3. Change in Depression Regressed on Work Qualities, Psychosocial Factors, and their Age Interactions: U.S., ASOC 1995 and 1998.

Model	1	2	3	4	5
Female	.039 (.027)	.035 (.028)	.046 (.028)	.024 (.028)	.038 (.028)
White	.016 (.044)	.022 (.045)	.022 (.044)	.029 (.045)	.015 (.044)
Employed	.009 (.031)	.001 (.032)	−.005 (.031)	.004 (.032)	−.005 (.031)
Married	−.029 (.029)	−.020 (.029)	−.013 (.029)	−.016 (.029)	−.026 (.029)
Years of Schooling	−.006 (.006)	−.008 (.006)	−.008 (.006)	−.006 (.006)	−.003 (.006)
Occupational Prestige	.002† (.001)	.001 (.001)	.001 (.001)	.001 (.001)	.002 (.001)
Family Income [b] (squre-Rooted)	−.002 (.006)	−.003 (.006)	−.001 (.006)	.000 (.006)	.000 (.006)
Physical Impairment	.354*** (.054)	.407*** (.054)	.398*** (.053)	.398*** (.054)	.342*** (.053)

Table 3. Continued

Model	1	2	3	4	5
Depression At Baseline	−.569*** (.026)	−.536*** (.025)	−.549*** (.025)	−.545*** (.026)	−.577*** (.026)
Age [a]	−.024* (.009)	−.027** (.010)	−.032** (.010)	−.030** (.010)	−.031** (.010)
Fulfilling Work	−.179*** (.031)				−.181*** (.034)
ΔFulfilling Work	−.141*** (.027)				−.115*** (.029)
Fulfilling Work × Age [a]	−.024† (.014)				−.016 (.015)
Nonroutine Work		−.005 (.021)			.040† (.023)
ΔNonroutine Work		−.021* (.010)			.000 (.011)
Nonroutine Work × Age [a]		.001 (.010)			.006 (.011)
Social Support			−.106** (.035)		−.052 (.036)
ΔSocial Support			−.128*** (.031)		−.082** (.032)
Social Support × Age [a]			−.046** (.016)		−.039* (.017)
Personal Control				−.099** (.036)	−.072* (.036)
ΔPersonal Control				−.112** (.034)	−.094** (.034)
Personal Control × Age [a]				−.013 (.016)	−.003 (.016)
Constant	.323*** (.093)	.348*** (.070)	.341*** (.093)	.310*** (.068)	.307** (.050)
R^2	.290	.266	.279	.272	.304

Note: N = 1,346. Metric coefficients with standard error in parentheses are shown.
The variables of fulfilling work, nonroutine work, social support, and personal control are mean-centered.
a Age is modeled as (Age−45)/10. b Unit: $1,000.
† p < .10, * p < .05, ** p < .01, *** p < .001 (2-tailed tests)

(Kohn & Schooler, 1973, 1982; Link et al., 1993). Higher depression might lower work qualities. Cross-sectional models such as the models of Table 2 can not prove the causal direction from work qualities to depression. Therefore, longitudinal models, which satisfy the condition of time order for causality, are examined in Table 3.

The dependent variable in the longitudinal models is the change in depression over

three years between 1995 and 1998. In addition to the same socio-demographic control variables with those in the models of Table 2, depression at baseline is controlled in order to examine the net effect of work qualities at baseline on depression change over time. Another factor to take into account is the change in work qualities over the three years. Work qualities are time-variant, and this characteristic might attenuate the effect of work qualities at baseline on depression change. To include the change in work qualities over time as a control in the multivariate models can resolve this potential problem (Mirowsky & Ross, 2007; Yang, 2006).

In Model 1 of Table 3, the change in work fulfillment is significantly associated with the change in depression (negative coefficient, −.141), and it indicates that improvement in work fulfillment over time is related to improvement in depression over time. My main interest in this model is in the effects of age and fulfilling work at baseline on depression change. The reference age group is those aged 45. Therefore, the regression coefficient of fulfilling work in Model 1 (−.179) represents the effect of fulfilling work on depression change for those aged 45 at baseline. Net of change in work fulfillment (i.e., regardless of change in work fulfillment), work fulfillment at baseline has a significant effect on depression change, proving the causal direction from work qualities to depression. Persons with more fulfilling work quality at baseline show better change in depression (i.e., more decreased or less increased). The interaction effect between age and fulfilling work at baseline on depression change is marginally significant and negative (−.024). It indicates that the beneficial effect of work fulfillment on depression change is greater in older ages.

In the second model of Table 3, the change in work complexity is significantly associated with the change in depression (negative coefficient, −.021), and it indicates that increase in work complexity over time is related to decrease in depression over time. However, work complexity at baseline has no significant effect on depression change. Therefore, we can not be sure about the causal direction from work complexity to depression. The interaction effect between age and nonroutine work at baseline on depression change is also not significant. It indicates that the negligible effect of work complexity on depression change is constant across ages. In sum, the dimension of work quality that demonstrates age variation in their effects on depression or depression change is work fulfillment not work complexity. The overall results indicate that the beneficial effect of work fulfillment on depression is greater in older ages.

The possibility of social selection in the relationship between psychosocial factors and depression can not be excluded in cross-sectional models. Therefore, longitudinal models with adjusting for depression at baseline are examined in Table 3. Social support and sense of control are time-variant, and thus the changes in social support and sense of control over three years are also adjusted in Models 3 and 4. In the results of Model 3, the change in social support is negatively related to the change in depression - that is, increasing social support over time is related to decreasing depression. The effect of social support at baseline on depression change is -.106-.046(Age-45)/10. For those aged 45 at baseline, the social support at baseline has a beneficial effect (-.106) on depression change, proving the causal direction from social support to depression. The beneficial effect varies across ages, as indicated by the significant negative interaction effect (-.046). The beneficial effect of social support on depression change is greater in older ages.

In the results of Model 4, the change in sense of control is negatively related to the change in depression - that is, increasing sense of control over time is related to decreasing depression. For those aged 45, the sense of control at baseline has a beneficial effect on depression change, proving the causal direction from sense of control to depression. However, its age interaction is not significant, implying that the beneficial effect is constant across ages.

The results of Model 5 of Table 3 provide the information of which factor is the most beneficial on depression change in older ages. Only the interaction effect of age and social support on depression change is significant, suggesting that social support is the most beneficial factor among the four factors on depression change of older adults.

IV. DISCUSSION

In the results, the different dimensions of work qualities and psychosocial factors have different effects on depression across adult ages. First, the effect of daily work fulfillment on depression varies across adult ages, but the effect of work complexity on depression is constant across ages. The beneficial effect of work fulfillment on depression appears to be stronger in older ages. Second, the effect of social support on depression change varies across adult ages, but the effect of sense of control does not vary substantially across ages. Only work fulfillment and social support have more beneficial effects on depression of older adults, suggesting policy implications for effective social interventions to reduce

the depression of older adults.

Why, then, are work fulfillment and social support more beneficial for depression in older individuals? In one study which examined the relationship between job qualities such as nonroutinized work and well-being such as depression, the beneficial effect of good work quality on depression differed by subgroup such as gender group because the effect of work quality on self-concept differed by subgroup (Schieman, 2002). This suggests that the effect of daily work quality on depression might differ by age group because the effect of daily work quality on self-concept may be different between younger adults and older adults. For example, older adults tend to lose diverse roles more quickly in later life than they obtain new roles. Role loss or deficit can influence their identities and can erode their self-esteem and well-being of older persons (Rosow, 1985). Therefore, to have fulfilling daily work may be more important to maintain their self-esteem and mental health. In a study which examined the beneficial effect of volunteer work on depression, age variation was found - the beneficial effect was found only for older adults not for middle-age adults (Li & Ferraro, 2006). They explained the age variation with roles and identity. That is, older adults have less extensive social roles than middle-age adults, so volunteer work can have more importance to maintain their identity and psychological well-being among older adults.

Finally, according to Friske and Chiriboga (1990), young adults described themselves in terms of personal qualities such as being enterprising or being intelligent. By contrast, empty-nesters or retirees tended to focus on hobbies or activities in their statements of self because their activities and interests have stabilized for a long time and represent their self-identity and a central theme in later life.

Social support may also be more important to maintain older adult's psychological well-being because older adults may have less resilience to stressors (Dean, Kolody, & Wood, 1990). Additionally, older adults experience decline in social support with age because the probability to lose spouse, friends, and relatives due to death increases with age. And the loss of social support can have bigger impacts on depression in older adults, compared to the younger, because it may be harder for older adults to build new social support with making new spouse or new friends. Finally, according to Russell and Cutrona (1991), social support may be particularly important for mental health of older adults because it fosters their self-esteem. Social support might play more important roles in maintaining self-esteem of older adults, compared to younger adults, because older adults may have

fewer alternatives to foster self-esteem than younger adults.

To reveal why the effects of work fulfillment and social support on depression are stronger in older ages with examining all potential psychological mediators is beyond the scope of this study. Self-esteem, self-identity, and a positive sense of self may play more important roles in the relationship between work fulfillment or social support and depression in later life. Examining their potential roles to explain the more beneficial effects of work fulfillment and social support on depression in older ages represents a direction for future research.

One limitation of this study is to utilize subjective measures for daily work qualities. Subjective measures might have more measurement errors, compared to objective measures. However, the subjective measures of work in this study exhibited strong positive correlations with objective measurements for work complexity in a previous study (Ross, 2000), suggesting that the subjective measures represent the objective characteristics of their daily works appropriately.

In the contemporary trend that the proportion of the aging population and retirees is increasing, this study's confirmation of the importance of work fulfillment for depression in older adults provides implications for social interventions to improve certain target population's depression through improving their activity qualities. Fulfilling daily activity are important for the psychological well-being of the elderly such as retirees and homemakers, but retirees and homemakers have worse depression and worse daily work quality in general than paid workers (see Table 1). Therefore, social policy might need to encourage older adults in having more desirable daily activities - such as policy support for their community activities or recreational activities. In addition, social support is a more effective resource to reduce depression in older ages, and social support may decrease in older ages due to the higher probability of death of spouse, relative, or friends in older ages. Therefore, social interventions might need to help older adults to get more socially integrated or to build social network in their communities or to find alternative social support when they lost one.

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일상활동의 질과 사회심리적 자원이 우울증에 미치는 영향: 미국 성인집단의 연령별 변이를 중심으로

김진영
서울대학교

본 연구는 18세 이상 미국 성인에 대한 전국 표본의 패널 자료를 이용하여, 일상활동의 질과 사회심리적 요인들이 우울증에 미치는 영향이 연령에 따라 어떻게 달라지는지를 검토한 것이다. 서베이 조사 항목들은 우울 증상들(CES-D), 주요 일상활동의 질(충족도와 복잡성), 사회적 지지와 통제감을 측정하였다. 결과에 따르면, 우선 일상활동의 충족도와 달리 복잡성이 우울증에 미치는 영향은 연령에 상관없이 일정하였다. 둘째, 사회적 지지가 우울증에 미치는 긍정적 효과는 연령에 따라 변화하는데 반해, 통제감의 긍정적 효과는 연령에 따른 실질적인 변화가 없었다. 결론적으로, 일상활동의 질 중 충족감만이 그리고 사회심리적 자원 중 사회적 지지만이 노년으로 갈수록 우울증에 미치는 긍정적 영향력이 더욱 커진다. 이러한 결과는 노인 집단과 같은 특정 연령집단의 우울증을 개선하기 위해 더욱 효과적인 사회적 개입은 어떠한 측면에서 이루어질 필요가 있는지의 정책함의를 제시한다. 노인들의 일상활동이 보다 충족감을 줄 수 있는 것이 되도록, 그들의 여가활동이나 사회활동을 촉진시키는 사회 정책이 개발될 필요가 있으며, 배우자나 동료의 상실을 경험하게 되는 노인들의 사회적 지지를 강화할 수 있도록, 구체적으로 가족 혹은 지역공동체와의 유대를 강화할 수 있도록 돕는 지원 방안 등이 노인들의 우울증 향상에 효과적일 것이다. 미국에 대한 본 연구는 우리나라 노인들의 정신건강 향상을 위해 고려될 필요가 있는 요인들, 혹은 효과적인 개인적 · 사회적 개입을 위해 중요한 요인들이 무엇일 지에 대한 함의를 제공한다.

주요용어 일상활동의 충족감 혹은 복잡성, 사회적 지지, 통제감, 노년