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Association Between Economic Activity and Depressive Symptoms Among Women With Parenting Children

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ABSTRACT

Background: Balancing parenting and work life poses challenges for women with children, potentially making them vulnerable to depression owing to their dual responsibilities. Investigating working mothers' mental health status is important on both the individual and societal levels. This study aimed to explore the relationship between economic activity participation and depressive symptoms among working mothers.
Methods: This study was a cross-sectional study and used data from the Korea National Health and Nutrition Examination Survey collected in 2014, 2016, 2018, and 2020. The participants in the study were women aged 19 to 50 who were residing with their children. In the total, 3,151 participants were used in the analysis. The independent variable was economic activity, categorized into two groups: 1) economically active and 2) economically inactive. The dependent variable was the depressive symptoms, categorized as present for a Patient Health Questionnaire-9 score of ≥ 10 and absent for a score < 10. Multiple logistic regression analysis was performed to assess the association between economic activity and depressive symptoms, and sensitivity analyses were performed based on the severity of depressive symptoms.
Results: Among women with children, economically active women had reduced odds ratio of depressive symptoms compared with economically inactive women (odds ratio [OR], 0.54; 95% confidence interval [CI], 0.36–0.80). In additional analysis, women working as wage earners had the lowest odds of depressive symptoms (OR, 0.43; 95% CI, 0.28–0.66). Women working an average of 40 hours or less per week were least likely to have depressive symptoms (OR, 0.42; 95% CI, 0.25–0.69).
Conclusion: Economic activity is significantly associated with depressive symptoms among women with children. Environmental support and policy approaches are needed to ensure that women remain economically active after childbirth.

Keywords: Economic Activity; Depressive Disorder; Women; Working Women; Parenting

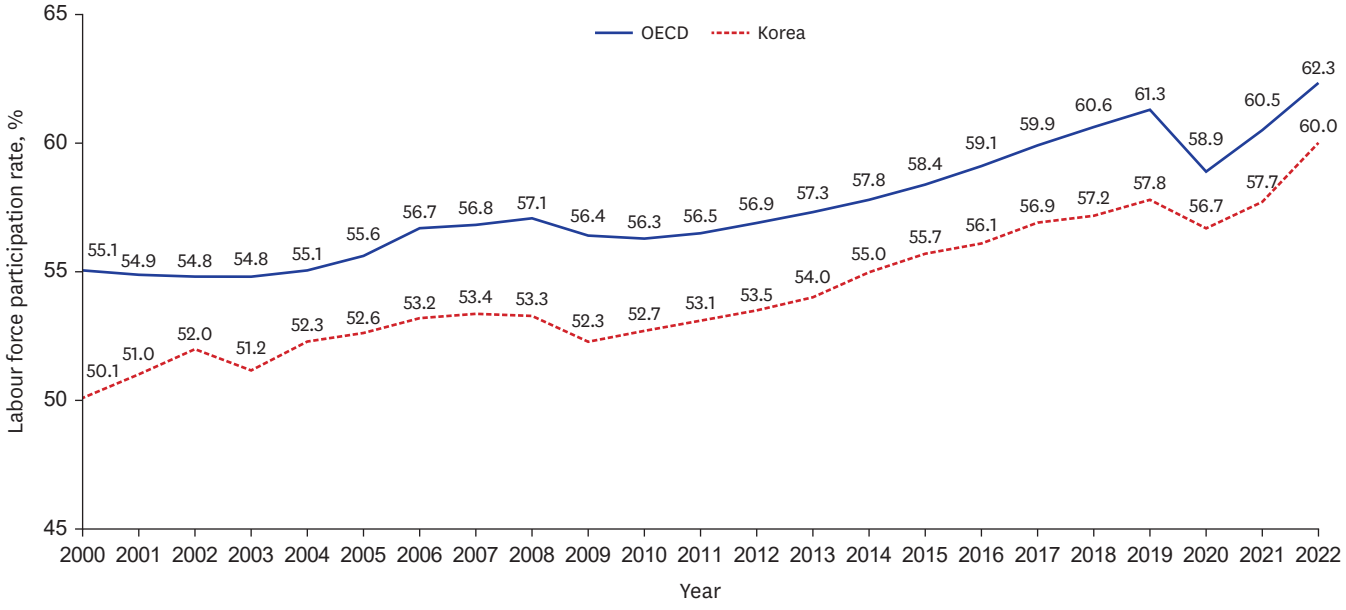

Fig. 1. Labor force participation rate of women aged 15–64 (2000–2022).
(Data: OECD Labour Force Statistics, 2022).

Disclosure
The authors have no potential conflicts of interest to disclose.

Author Contributions
Conceptualization: Kim CR, Yun I. Data curation: Kim CR, Kim SY. Formal analysis: Kim CR, Yun I. Methodology: Kim CR, Kim SY. Software: Kim CR, Yun I. Supervision: Park EC, Shin JY. Validation: Kim CR, Shin JY. Visualization: Kim CR, Park EC, Shin JY. Writing - original draft: Kim CR. Writing - review & editing: Kim CR, Yun I, Kim SY, Park EC, Shin JY.

INTRODUCTION

Since the industrial era, women's economic activity has increased globally and remains vigorous in contemporary society.[1] In 2022, the employment rate for 15–64 years old in South Korea was 68.5%, with women accounting for 60.0% of this figure. This rate notably exceeded the OECD average of 62.3% for the same year (**Fig. 1**).[2] Gender-neutral job choices have widened the occupational range among women,[3] enhancing economic participation[4] and positively influencing household income and national growth,[5] along with their social status.[6]

The economic activity of working mothers constitutes a significant portion of women's economic participation. Despite the challenges of raising children, 60% of married women in South Korea with children aged < 18 years actively participate in the economy.[7] Working mothers maintain economic activity by adjusting their work patterns to accommodate childcare, or by re-entering the workforce in new jobs that meet their childcare needs.[8,9]

However, working mothers are facing the dual demands of childrearing and professional roles, a balancing act that often decreases their personal time and increases stress.[10] Additionally, they must concurrently manage their work tasks and child-related events. Unforeseen circumstances requiring the sudden use of annual leave or early departure can impede their ability to fully concentrate on work,[11] and the additional burden of household tasks after work further constrains personal time.[8,12]

The phenomenon of work-family conflict imposes substantial stress and strain on employed women.[13] Prior investigations have illuminated that role overload among women with dependents precipitates familial discord, adversely impacting their psychological well-being.[14-18] This revelation has spurred scholarly inquiry into variables that could ameliorate work-family tension.[19,20] Notably, the provision of support from external sources is underscored as crucial in enhancing the life quality of working mothers.[14]

Although women with children face challenges associated with balancing work, their participation in economic activities can still have significant personal meaning.[21] By tackling various work responsibilities, women can experience self-efficacy and gain confidence in planning purposeful and meaningful lives.[22] Thus, women's economic activities enhance their empowerment both in the workplace and at home, positively impacting them at the personal level.[14]

Working mothers face a range of issues that critically affect their mental health, making the examination of their mental well-being during this period vital from both social and economic perspectives. This study aimed to investigate the relationship between economic activity and depressive symptoms in women with children. Additionally, we examined whether different economic activity conditions were associated with depressive symptoms. Our findings underscore the significance of formulating mental health policies and response strategies tailored to working mothers.

METHODS

Study design and data source

We used data from the Korea National Health and Nutrition Examination Survey (KNHANES) from 2014, 2016, 2018 and 2020. The KNHANES is a nationally-representative statistical survey organized by the Korea Centers for Disease Control and Prevention, in order to identify health status and health behaviors of Korean population. It has been conducted every three years since 1998 and annually since 2007. The survey used stratified and multistage cluster probability sampling to select individuals aged 1 year and older residing in South Korea. KNHANES collects health interviews, physical examinations, and nutritional surveys to provide the basis for health-related policies in South Korea. All health screening procedures are performed by trained medical staff following standardized protocols.[23]

Participants

The total number of female participants in the four-year study was 16,947. Of these, 6,738 women between the ages of 19 and 50, who were currently living with children, were included in the analysis. Participants included both married (2,986, 94.8%) and single women (165, 5.2%). After excluding missing values for each question, 3,151 women were finally selected for the analysis (**Fig. 2**).

Variables

The independent variable was economic activity, and the respondents were categorized into two groups: 1) those who were economically active and 2) those who were economically inactive. The criteria for economic activity included working at least 1 hour in the past week for income or working as a contributing family worker for over 18 hours. This classification adheres to the criteria established by the Korean Economically Active Population Survey. Individuals on temporary leave from their usual employment were included in the economically active group. In additional analysis, we used the Korean Standard Classification of Occupations codes to classify economic activity by job type. The average weekly working hours were analyzed based on the legal working hours of 40 hours per week, as stipulated in the Korean Labor Standard Act, with overtime hours categorized into 10-hour increments.[24]

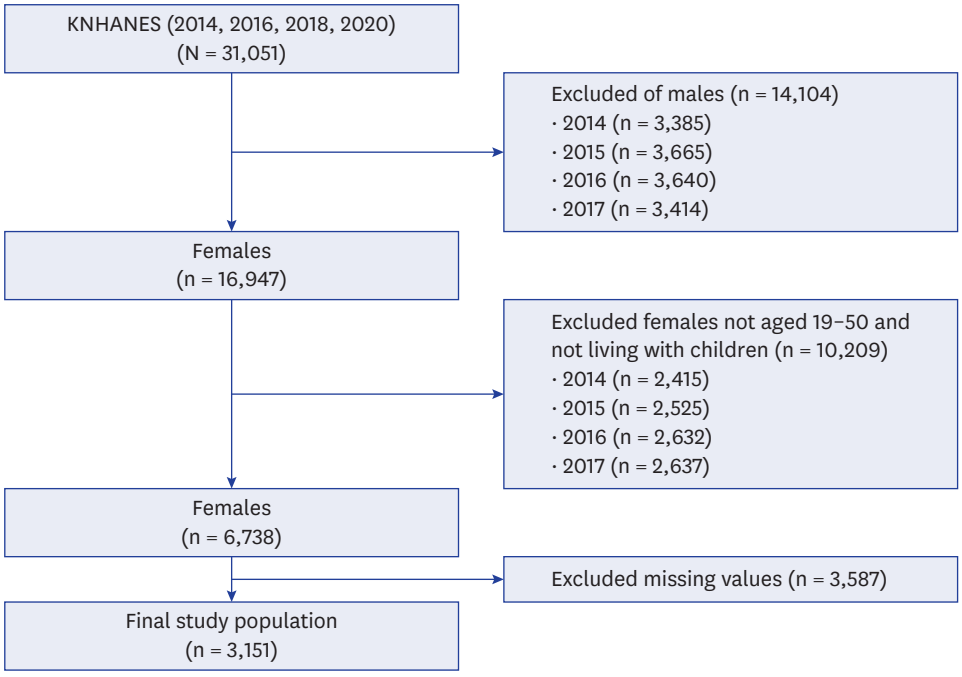

Fig. 2. Flow chart of participating women in the study.

The dependent variable was depressive symptoms, which were measured using the Patient Health Questionnaire-9 (PHQ-9). The PHQ-9 consists of nine questions about depressive symptoms experienced in the last two weeks, based on the diagnostic criteria for major depressive disorder in the Diagnostic and Statistical Manual of Mental Disorders.[25] To assess the level of depressive symptoms, respondents self-reported the frequency of their symptoms for each item as not at all, several days, more than one week, or nearly every day, with scores of 0, 1, 2, and 3 assigned to each response, respectively. The total PHQ-9 score ranged from 0 to 27, with scores of ≥ 10 and < 10 indicating the presence and absence of depressive symptoms, respectively. For sensitivity analysis of multinomial regression, we categorized the severity of depressive symptoms based on PHQ-9 scores into four categories: 1) none (PHQ-9 score 0–4), 2) mild (PHQ-9 score 5–9), 3) moderate (PHQ-9 score 10–14), 4) and severe (PHQ-9 score ≥ 15).[26]

The covariates in this study included demographic factors such as sex, age, education level, and marital status; socioeconomic factors such as household income and the number of economically active family members, excluding the respondent; and health behavior factors such as chronic diseases, smoking, drinking, and a diagnosis of depression. Additionally, we considered factors potentially influencing economic activity, such as the number of children and the age of the last child.[10,27]

Statistical analysis

The chi-square test was used to determine the general characteristics of the respondents. Multiple logistic regression analysis adjusting for covariates was performed to investigate the association between economic activity and depressive symptoms in women with children. To examine the complex relationship between economic activity and depressive symptoms among women with children, we conducted subgroup analyses stratified by independent variables. We also conducted additional analyses of economic activity conditions

by occupation type, employment status, full-time status, and hours worked to assess the association of different economic activity conditions with depressive symptoms. To analyze the severity of depressive symptoms, we conducted multinomial logistic regression using four dependent categories. The results were presented as odds ratios (ORs) with 95% confidence intervals (CIs). All statistical analyses were performed using SAS software (version 9.4; SAS Institute, Cary, NC, USA). A *P* value of < 0.05 was considered statistically significant.

Ethics statement

The KNHANES was reviewed and approved by the Institutional Review Board of the Korea Disease Control and Prevention Agency (IRB Nos. 2013-12EXP-03-5C, 2018-01-03-P-A, 2018-01-03-2C-A). All respondents in the KNHANES provided written informed consent. No additional ethical approval was required for the current study because the KNHANES complied with the Declaration of Helsinki and publicly provided de-identified data.

RESULTS

Table 1 shows the general characteristics of the respondents. Of the 3,151 participants, 150 (4.8%) were women with depressive symptoms and 3,001 (95.2%) were women without. In the group of economically active women, 66 (3.7%) had depressive symptoms. In contrast, among those not engaged in economic activities, 84 (6.3%) had depressive symptoms. For women with children, there was a significant association between economic activity and depressive symptoms.

Table 2 shows the results of the multiple regression analysis of the association between economic activity and depressive symptoms. Economically active women were associated with reduced odds ratio of having depressive symptoms, compared to those economically inactive (OR, 0.54; 95% CI, 0.36–0.80).

Table 3 presents the results of the subgroup analysis stratifying the independent variables using multiple regression. Among women in their 40s and 50s with children, the odds of depressive symptoms were reduced in the economically active group compared to the economically inactive group (OR, 0.39; 95% CI, 0.23–0.66). Among women whose youngest child was aged 16 years of age or older, the odds of depressive symptoms were lower in the economically active group compared to the non-economically active group (OR, 0.33; 95% CI, 0.13–0.83).

Table 4 shows the results of additional analyses conducted to confirm the association of economic activity with depressive symptoms according to various economic activity conditions. In the analysis of employment status, women working as wage earners had the lowest odds of depressive symptoms compared to other occupational groups (OR, 0.43; 95% CI, 0.28–0.66). Women working an average of 40 hours or less per week had the lowest odds of depressive symptoms (OR, 0.42; 95% CI, 0.25–0.69).

Fig. 3 shows the results of the analysis according to the severity of depressive symptoms. Economically active women had the lowest odds of having severe depressive symptoms compared to economically inactive women (mild: OR, 0.73; 95% CI, 0.57–0.92; moderate: OR, 0.61; 95% CI, 0.38–0.99; severe: OR, 0.24; 95% CI, 0.11–0.50).

Table 1. General characteristics of the study population

Variables	Depression (PHQ-9 score ≥ 10)			
	Total	Yes	No	*P* value
Total (N = 3,151)	3,151 (100.0)	150 (4.8)	3,001 (95.2)	
Economic activity				< 0.001
Yes	1,808 (57.4)	66 (3.7)	1,742 (96.3)	
No	1,343 (42.6)	84 (6.3)	1,259 (93.7)	
Age, yr				< 0.001
19–29	99 (3.1)	14 (14.1)	85 (85.9)	
30–39	1,258 (39.9)	68 (5.4)	1,190 (94.6)	
40–50	1,794 (56.9)	68 (3.8)	1,726 (96.2)	
Education level				0.003
High school graduate or less	1,196 (38.0)	74 (6.2)	1,122 (93.8)	
College degree or higher	1,955 (62.0)	76 (3.9)	1,879 (96.1)	
Marital status				< 0.001
With spouse	2,986 (94.8)	127 (4.3)	2,859 (95.7)	
Without spouse (divorced, widowed)	165 (5.2)	23 (13.9)	142 (86.1)	
Age of the last child, yr				0.252
≤ 6	1,302 (41.3)	71 (5.5)	1,231 (94.5)	
7–15	1,212 (38.5)	49 (4.0)	1,163 (96.0)	
≥ 16	637 (20.2)	30 (4.7)	607 (95.3)	
No. of children				0.003
1	1,188 (37.7)	74 (6.2)	1,114 (93.8)	
≥ 2	1,963 (62.3)	76 (3.9)	1,887 (96.1)	
Household income				0.002
Low	624 (19.8)	37 (5.9)	587 (94.1)	
Mid	1,966 (62.4)	102 (5.2)	1,864 (94.8)	
High	561 (17.8)	11 (2.0)	550 (98.0)	
Working family members				0.546
0	909 (28.8)	49 (5.4)	860 (94.6)	
1	1,911 (60.6)	85 (4.4)	1,826 (95.6)	
≥ 2	331 (10.5)	16 (4.8)	315 (95.2)	
Diagnosis of depression				< 0.001
Yes	688 (21.8)	31 (6.3)	109 (93.8)	
No	2,463 (78.2)	119 (4.3)	2,892 (95.7)	
Chronic disease[a]				0.038
Yes	166 (5.3)	43 (15.7)	645 (84.3)	
No	2,985 (94.7)	107 (4.2)	2,356 (95.8)	
Smoking				< 0.001
Yes	166 (5.3)	26 (15.7)	140 (84.3)	
No	2,985 (94.7)	124 (4.2)	2,861 (95.8)	
Drinking				0.478
Yes	2,448 (77.7)	113 (4.6)	2,335 (95.4)	
No	703 (22.3)	37 (5.3)	666 (94.7)	

Values are presented as number (%).
PHQ-9 = Patient Health Questionnaire-9.
[a]Chronic conditions included high blood pressure, diabetes, dyslipidemia, cardiovascular disease, and cancer.

DISCUSSION

This study used four years of data from KNHANES to examine the association between economic activity and depressive symptoms in a cross-sectional study among women with children. Among women with children, economic activity was associated with lower depressive symptoms. These findings are consistent with previous research that has found a link between overall employment and fewer mental health issues.[28-30]

In this study, economic activity was associated with lower depressive symptoms among women in their 40s and older. One possible explanation for this finding is that middle-aged

Table 2. Results of factors associated with depressive symptoms

Variables	Depression (PHQ-9 score ≥ 10)	
	OR	95% CI
Economic activity		
Yes	0.54	0.36–0.80
No	1.00	
Age, yr		
19–29	1.00	
30–39	0.41	0.20–0.86
40–50	0.26	0.11–0.61
Education level		
High school graduate or less	1.12	0.72–1.75
College degree or higher	1.00	
Marital status		
With spouse	1.00	
Without spouse (divorced, widowed)	3.79	1.95–7.37
Age of the last child, yr		
≤ 6	1.00	
7–15	0.89	0.52–1.54
≥ 16	1.06	0.48–2.31
No. of children		
1	1.00	
≥ 2	0.87	0.58–1.31
Household income		
Low	1.50	0.60–3.73
Mid	2.34	1.04–5.27
High	1.00	
Working family members		
0	0.49	0.25–0.96
1	0.66	0.34–1.26
≥ 2	1.00	
Diagnosis of depression		
Yes	6.80	4.00–11.55
No	1.00	
Chronic disease[a]		
Yes	1.31	0.82–2.07
No	1.00	
Smoking		
Yes	3.53	1.89–6.59
No	1.00	
Drinking		
Yes	0.97	0.60–1.56
No	1.00	

ORs were adjusted for other covariates.
PHQ-9 = Patient Health Questionnaire-9, OR = odds ratio, CI = confidence interval.
[a]Chronic conditions included high blood pressure, diabetes, dyslipidemia, cardiovascular disease, and cancer.

women may experience a gradual decline in maternal responsibilities as their children grow older, allowing them to devote more time and resources to their personal lives. This finding is in line with previous research suggesting that the younger the children, the more difficult it is to juggle economic activities.[31] Additionally, middle-aged women may be at higher risk of depression during this period as they may experience feelings of loss and emptiness due to their children's independence.[32,33] Economic activity can positively impact women's mental health by providing opportunities for them to reassess their life purpose and gain satisfaction and self-actualization from their work.

Interestingly, women's economic activity was associated with lower depressive symptoms, regardless of the number of children they had. This is in contrast with prior research

Table 3. The results of subgroup analysis stratified by independent variables

Variables	Depression (PHQ-9 score ≥ 10)		
	Economic activity		
	No	Yes	
	OR	OR	95% CI
Age, yr			
19–29	1.00	0.79	0.23–2.75
30–39	1.00	0.77	0.45–1.33
40–50	1.00	0.39	0.23–0.66
Education level			
High school graduate or less	1.00	0.50	0.27–0.91
College degree or higher	1.00	0.59	0.35–0.99
Marital status			
With spouse	1.00	0.68	0.46–1.02
Without spouse (divorced, widowed)	1.00	0.09	0.02–0.33
Age of the last child, yr			
≤ 6	1.00	0.60	0.34–1.07
7–15	1.00	0.67	0.36–1.22
≥ 16	1.00	0.33	0.13–0.83
No. of children			
1	1.00	0.51	0.27–0.96
≥ 2	1.00	0.54	0.32–0.90
Household income			
Low	1.00	0.21	0.07–0.62
Mid	1.00	0.80	0.50–1.28
High	1.00	0.25	0.07–0.85
Working family members			
0	1.00	0.36	0.17–0.77
1	1.00	0.77	0.46–1.28
≥ 2	1.00	0.32	0.08–1.22
Diagnosis of depression			
Yes	1.00	0.16	0.05–0.50
No	1.00	0.73	0.47–1.11
Chronic disease[a]			
Yes	1.00	0.35	0.15–0.82
No	1.00	0.60	0.37–0.97
Smoking			
Yes	1.00	2.97	0.91–9.71
No	1.00	0.45	0.29–0.70
Drinking			
Yes	1.00	0.67	0.44–1.01
No	1.00	0.29	0.10–0.82

ORs were adjusted for other covariates.
PHQ-9 = Patient Health Questionnaire-9, OR = odds ratio, CI = confidence interval.
[a]Chronic conditions included high blood pressure, diabetes, dyslipidemia, cardiovascular disease, and cancer.

suggesting increased mental stress in mothers with more children.[34] This discrepancy may indicate that economic activity plays a role in alleviating the mental stress experienced by working mothers during childcare. Engaging in economic activities expands the scope of a woman's life, which might otherwise be focused solely on childrearing, to include various interactions and work experiences. This expansion could be a constructive way to resolve mental conflicts arising from childcare. Economic activity plays a crucial role in harmonizing childrearing and personal growth for women.

Furthermore, we found important implications from additional analysis of economic activity. In particular, the lower odds of depressive symptoms among women who were economically active as wage earners are consistent with previous research showing that greater job security reduces the prevalence of depression.[35,36] Stable income conditions guaranteed to

Table 4. The results of analysis by various economic activity conditions

Variables	Depression (PHQ-9 score ≥ 10)	
	OR	95% CI
Job types		
Administrators, professionals	0.52	0.26–1.03
Office workers	0.41	0.21–0.81
Service and sales workers	0.80	0.46–1.41
Skilled laborers (agricultural, fishing, assembly workers)	0.50	0.15–1.65
Simple laborers	0.34	0.14–0.87
Unemployed	1.00	
Employment status		
Wage earners	0.43	0.28–0.66
Self-employed and employer	0.95	0.47–1.93
Unpaid family workers	0.74	0.26–2.15
Unemployed	1.00	
Full-time status		
Full-time	0.56	0.32–0.96
Temporary	0.53	0.34–0.84
Unemployed	1.00	
Working hours (per week)		
≤ 40	0.42	0.25–0.69
41–50	0.68	0.38–1.25
51–60	0.95	0.42–2.13
≥ 61	1.10	0.39–3.07
Unemployed	1.00	

ORs were adjusted for other covariates.
PHQ-9 = Patient Health Questionnaire-9, OR = odds ratio, CI = confidence interval.

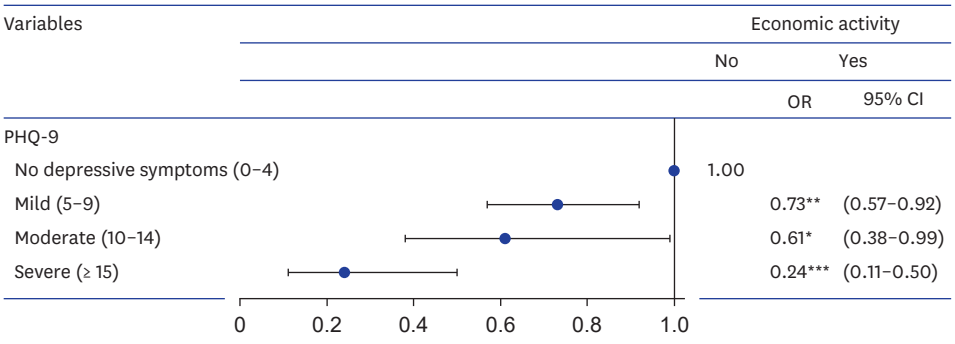

Fig. 3. Results of the analysis according to the severity of depressive symptoms.
OR = odds ratio, CI = confidence interval, PHQ-9 = Patient Health Questionnaire-9.
$^{*}P < 0.05$, $^{**}P < 0.01$, $^{***}P < 0.001$.

wage workers, as opposed to self-employed individuals or unpaid family workers, provide women with a more predictable scenario for childrearing and household management. Consequently, this stability can offer more supportive circumstances for women to balance their roles both at work and at home.

The finding that women working fewer hours than the average legal working week were less likely to experience depressive symptoms suggests that work-life balance can have a significant impact on the mental health of women with children.[37-39] When working women have control over their professional lives, household chores, childcare, and personal leisure activities, they escape feelings of helplessness and can organize their life patterns more effectively. The lower likelihood of depressive symptoms among both full-time and temporary workers suggests that beyond job security, working mother's participation in the economy itself has an important impact on their mental health.

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This study found that working mother's economic participation is significantly related to their mental health. The sense of self-efficacy and security that women with children gain from economic participation can play a positive role in reducing depression. For women to maintain or re-enter economic activities after childbirth, it is essential to ensure stable environments within society, workplaces, and homes that allow them to sustain their lifestyles.[40,41] An environment that supports work-family balance can reduce work-family conflict and have a positive impact on the organization.[42,43] Such support systems provide women with children with the strength to autonomously sustain their lives despite significant life changes and should be considered a crucial factor in understanding the relationship between women's economic activity and mental health.

Therefore, beyond the economic benefits of women's participation in economic activities, there is a need to develop policies that enhance their overall quality of life and mental health. To achieve this, further analysis of the various factors that influence the causes and severity of depressive symptoms experienced by economically active women is required. Policy approaches based on these analyses are expected to contribute not only to the enhancement of women's mental health, but also to societal stability.

This study had some limitations. First, this study had a cross-sectional design; while we found an association between economic inactivity and depressive symptoms, it is challenging to determine a causal relationship between these two factors. Therefore, we cannot conclude that economic inactivity among women with children causes depression. Second, potential covariates that could have impacted the study results may have not been accounted for. As a constraint of utilizing secondary data, we included the age of the youngest child as a variable that indirectly reflects the timing of childbirth. However, this is unlikely to fully capture the timing of a woman's childbirth. Further research is needed using datasets with more precise timing of childbirth. Third, while the data used in this study are nationally representative, they are limited to specific years. Additional research is needed to comprehensively understand the relationship between women's economic activity and depression. Fourth, the use of the PHQ-9 to measure depressive symptoms in women with children did not rule out the possibility of postpartum depression, thus possibly limiting our ability to fully understand the impact of economic activity on depression. Finally, this study did not include women who did not cohabit with their children. Including this group in future research could effectively represent women's economic activities.

In conclusion, this study showed a significant association between economic activity and depressive symptoms in women with children. Economically active women were least likely to have severe depressive symptoms. The economic participation of these women extends beyond mere financial benefits, positively impacting overall quality of life and mental health. Therefore, it is necessary to provide environmental support and develop comprehensive policies to enable women to continue their economic activities after childbirth.

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REFERENCES

1. Mehra R, Gammage S. Trends, countertrends, and gaps in women's employment. *World Dev* 1999;27(3):533-50. CROSSREF
2. OECD. *Labour Force Statistics*. Paris, France: OECD; 2023.
3. Busch F. Gender segregation, occupational sorting, and growth of wage disparities between women. *Demography* 2020;57(3):1063-88. PUBMED | CROSSREF
4. Ramirez FO, Wotipka CM. Slowly but surely? The global expansion of women's participation in science and engineering fields of study, 1972-92. *Sociol Educ* 2001;74(3):231-51. CROSSREF
5. Baloch A, Shah SZ, Noor ZM, Rasheed B. An empirical analysis of the impact of gender gap on economic growth: a panel data approach. *Empir Econ Lett* 2016;15(12):1157-66.
6. Jensen PH, Møberg RJ. Does women's employment enhance women's citizenship? *Eur Soc* 2017;19(2):178-201. CROSSREF
7. Statistics Korea. *2023 First Half Regional Employment Survey Korea*. Daejeon, Korea: Statistics Korea; 2023.
8. Bianchi SM. Maternal employment and time with children: dramatic change or surprising continuity? *Demography* 2000;37(4):401-14. PUBMED | CROSSREF
9. Baxter J. Mothers' employment transitions following childbirth. *Fam Matters* 2005;71:11-7.
10. Lucia-Casademunt AM, García-Cabrera AM, Padilla-Angulo L, Cuéllar-Molina D. Returning to work after childbirth in Europe: well-being, work-life balance, and the interplay of supervisor support. *Front Psychol* 2018;9:68. PUBMED | CROSSREF
11. Abd Rahman NA, Susanto H. *Effects of Employee Performance on the Implementation of Total Quality Management: Perspective of Working Mothers. Handbook of Research on Big Data, Green Growth, and Technology Disruption in Asian Companies and Societies*. Pennsylvania, PA, USA: IGI Global; 2022, 175-94.
12. Chase-Lansdale PL, Moffitt RA, Lohman BJ, Cherlin AJ, Coley RL, Pittman LD, et al. Mothers' transitions from welfare to work and the well-being of preschoolers and adolescents. *Science* 2003;299(5612):1548-52. PUBMED | CROSSREF
13. Dugan AG, Barnes-Farrell JL. Working mothers' second shift, personal resources, and self-care. *Community Work Fam* 2020;23(1):62-79. CROSSREF
14. Smith EJ. The working mother: a critique of the research. *J Vocat Behav* 1981;19(2):191-211. CROSSREF
15. Hill EJ. Work-family facilitation and conflict, working fathers and mothers, work-family stressors and support. *J Fam Issues* 2005;26(6):793-819. CROSSREF
16. Boyar SL, Maertz CP Jr, Mosley DC Jr, Carr JC. The impact of work/family demand on work-family conflict. *J Manag Psychol* 2008;23(3):215-35. CROSSREF
17. Maji S. Society and 'good woman': a critical review of gender difference in depression. *Int J Soc Psychiatry* 2018;64(4):396-405. PUBMED | CROSSREF
18. Kim SK, Park S, Rhee H. The effect of work-family conflict on depression in married working women. *Journal of Digital Convergence* 2017;15(3):267-75. CROSSREF
19. Erdwins CJ, Buffardi LC, Casper WJ, O'Brien AS. The relationship of women's role strain to social support, role satisfaction, and self-efficacy. *Fam Relat* 2001;50(3):230-8. CROSSREF
20. Michel JS, Kotrba LM, Mitchelson JK, Clark MA, Baltes BB. Antecedents of work–family conflict: A meta-analytic review. *J Organ Behav* 2011;32(5):689-725. CROSSREF
21. McCarten J. *Differences in Depression, Anxiety, Self-Esteem, and Parenting Stress Between Employed and Stay-at-Home Mothers: A Meta-Analysis*. Clemson, SC, USA: Clemson University; 2003:9-21.
22. Momsen KM, Carlson JA. To know I can might be enough: Women's self-efficacy and their identified leadership values. *Advancing Women in Leadership Journal* 2013;33:122-31. CROSSREF
23. Kweon S, Kim Y, Jang MJ, Kim Y, Kim K, Choi S, et al. Data resource profile: the Korea national health and nutrition examination survey (KNHANES). *Int J Epidemiol* 2014;43(1):69-77. PUBMED | CROSSREF
24. Kim W, Park EC, Lee TH, Kim TH. Effect of working hours and precarious employment on depressive symptoms in South Korean employees: a longitudinal study. *Occup Environ Med* 2016;73(12):816-22. PUBMED | CROSSREF
25. Kroenke K, Spitzer RL, Williams JB. The PHQ-9: validity of a brief depression severity measure. *J Gen Intern Med* 2001;16(9):606-13. PUBMED | CROSSREF
26. Shin C, Kim Y, Park S, Yoon S, Ko YH, Kim YK, et al. Prevalence and associated factors of depression in general population of Korea: results from the Korea National Health and Nutrition Examination Survey, 2014. *J Korean Med Sci* 2017;32(11):1861-9. PUBMED | CROSSREF

27. Angrist J, Evans WN. *Children and Their Parents' Labor Supply: Evidence From Exogenous Variation in Family Size*. Cambridge, MA, USA: National Bureau of Economic Research; 1996.
28. Modini M, Joyce S, Mykletun A, Christensen H, Bryant RA, Mitchell PB, et al. The mental health benefits of employment: Results of a systematic meta-review. *Australas Psychiatry* 2016;24(4):331-6. PUBMED | CROSSREF
29. Junna L, Moustgaard H, Martikainen P. Current unemployment, unemployment history, and mental health: a fixed-effects model approach. *Am J Epidemiol* 2022;191(8):1459-69. PUBMED | CROSSREF
30. Virgolino A, Costa J, Santos O, Pereira ME, Antunes R, Ambrósio S, et al. Lost in transition: a systematic review of the association between unemployment and mental health. *J Ment Health* 2022;31(3):432-44. PUBMED | CROSSREF
31. Peterson ER, Andrejic N, Corkin MT, Waldie KE, Reese E, Morton SM. I hardly see my baby: challenges and highlights of being a New Zealand working mother of an infant. *Kotuitui* 2018;13(1):4-28. CROSSREF
32. Crockett MW. Depression in middle-aged women. *J Pastoral Care* 1977;31(1):47-55. CROSSREF
33. Talala K, Huurre T, Aro H, Martelin T, Prättälä R. Socio-demographic differences in self-reported psychological distress among 25-to 64-year-old Finns. *Soc Indic Res* 2008;86(2):323-35. CROSSREF
34. Qian G, Mei J, Tian L, Dou G. Assessing mothers' parenting stress: differences between one-and two-child families in China. *Front Psychol* 2021;11:609715. PUBMED | CROSSREF
35. Vives A, Amable M, Ferrer M, Moncada S, Llorens C, Muntaner C, et al. Employment precariousness and poor mental health: evidence from Spain on a new social determinant of health. *J Environ Public Health* 2013;2013:978656. PUBMED | CROSSREF
36. Han KM, Chang J, Won E, Lee MS, Ham BJ. Precarious employment associated with depressive symptoms and suicidal ideation in adult wage workers. *J Affect Disord* 2017;218:201-9. PUBMED | CROSSREF
37. Dinh H, Strazdins L, Welsh J. Hour-glass ceilings: work-hour thresholds, gendered health inequities. *Soc Sci Med* 2017;176:42-51. PUBMED | CROSSREF
38. Young FY. Work-life balance and mental health conditions during a reduction in the number of working hours: a follow-up study of Hong Kong retail industry workers. *Int J Bus Inf* 2018;13:489-504.
39. Sato K, Kuroda S, Owan H. Mental health effects of long work hours, night and weekend work, and short rest periods. *Soc Sci Med* 2020;246:112774. PUBMED | CROSSREF
40. Yoo J. *An Empirical Study on the Labor Force Participation Behavior of Married Women: Focusing on Personal, Household, and Policy-Related Factors.* Seoul, Korea: Korea Association for Policy Analysis and Evaluation; 2015, 23-48.
41. Lee J, Son S. *Mothers' Work-Family Conflict in Dual-Earner Families with Young Children: The Role of Resources and Perceptions Related to Work and Child Care.* Seoul, Korea: Korean Association of Family Relations; 2013, 93-114
42. Thompson CA, Beauvais LL, Lyness KS. When work–family benefits are not enough: the influence of work–family culture on benefit utilization, organizational attachment, and work–family conflict. *J Vocat Behav* 1999;54(3):392-415. CROSSREF
43. Yun J, Kim CY, Son SH, Bae CW, Choi YS, Chung SH. Birth rate transition in the Republic of Korea: trends and prospects. *J Korean Med Sci* 2022;37(42):e304. PUBMED | CROSSREF