



## Parental Occupational Status and Suicidal Ideation in Adolescent: Cross-Sectional Secondary Data Analysis

So Hee Kim, RN, MS<sup>a</sup>, Ji-Su Kim, RN, PhD<sup>b</sup>, Hae Young Yoo, RN, PhD<sup>b</sup>, Eunjung Ryu, RN, PhD<sup>b,\*</sup>

<sup>a</sup> School of Graduate, Chung-Ang University, Seoul, Republic of Korea

<sup>b</sup> Department of Nursing, Chung-Ang University, Seoul, Republic of Korea

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### ABSTRACT

**Purpose:** This study aimed to identify the effect of parental occupational status on adolescents' suicidal ideation from a representative sample of the Korean population.

**Design and methods:** A cross-sectional analysis was performed. Participants were 3201 adolescents aged 12–18 years from the Korean National Health and Nutrition Examination Survey.

**Results:** Adolescents experiencing suicidal ideation were found to be more likely to be female, have a history of smoking or alcohol use, a shorter sleep duration, greater perception of stress, and greater experience of depression when compared to those who did not report suicidal ideation. There was a statistically significant difference in perception of stress, experience of depression, and experience of suicidal ideation according to parental occupational status. Adolescents' suicidal ideation was associated with parents' employment status, work status, work schedule patterns, and working hours per week.

**Conclusions:** Parental occupational status was associated with adolescents' suicidal ideation, but fathers' and mothers' occupational status affected children's suicidal ideation in different ways. Adolescents' suicidal ideation seems to have been affected by economic difficulty and stress, resulting from the father's occupational status, amount of time spent interacting with the mother, and the mother's employment status. Policies are needed to improve the quality of employment to reduce the financial difficulties and stresses of the father. A strategy for work-family compatibility is needed so that the mother can have enough time with her children while she has a job.

**Practice implications:** It is necessary to consider parents' occupational status when assessing adolescents' suicidal ideation and providing interventions.

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### Introduction

According to the 2016 cause of death statistics, suicide is the leading cause of death in teenage and young adults aged 20 to 29 years in South Korea, with the suicide rate rising over the past decade (Korea Statistics, 2018). An estimated 804,000 suicide deaths occurred worldwide in 2012, representing an annual global age-standardized suicide rate of 11.4 per 100,000 people (15.0 for males and 8.0 for females) and globally, suicide is the second leading cause of death in those 15–29 years old (World Health Organization, 2014). Youth suicide is not only an individual and family problem, it is also a serious social problem given the loss of society's valuable human resources, alluding to the pressing nature of this issue (Park & Jang, 2013).

Suicide encompasses the behavioral motivations of the victim, as well as the outcomes of the action (Bronisch, 2007). Although suicidal

ideation does not necessarily lead to suicide attempts or actual suicide (Jamison, 2011), people with suicidal ideation are highly likely to plan and attempt suicide (Nock et al., 2008). Adolescents' suicidal ideation was reported to be a major predictor of suicide attempts (G. Kim & Park, 2015), and adolescents who had suicidal ideation were 12 times more likely to attempt suicide through the age of 30 compared to those who did not experience suicidal ideation in their youth (Reinherz, Tanner, Berger, Beardslee, & Fitzmaurice, 2006). Thus, more attention should be paid to suicidal ideation to prevent suicide among youth.

According to two meta-analyses, adolescents' suicidal ideation is associated with a wide range of demographic, personal, familial and social characteristics (Evans, Hawton, & Rodham, 2004; Kim & Lee, 2009). A large number of factors which may contribute towards the occurrence of suicidal phenomena have been identified, including individual characteristics, such as depression, low self-esteem, family and social factors (B. Y. Kim & Lee, 2009).

In particular, depression and stress increase suicidal ideation among adolescents (Evans et al., 2004; Kim & Lee, 2009), while family

\* Corresponding author at: Department of Nursing, Chung-Ang University, 84 Heuksuk-ro Dongjak-gu, Seoul 06974, Republic of Korea.  
E-mail address: [go2ryu@cau.ac.kr](mailto:go2ryu@cau.ac.kr) (E. Ryu).

environmental variables, such as family support, communication with parents, and parenting attitudes, prevent suicidal ideation among adolescents (Kim & Lee, 2009). According to a meta-analysis regarding the protective factors against suicidal ideation, self-esteem had the greatest influence, followed by positive parenting attitude, teacher support, and friend attachment (Hong, No, & Jung, 2016). The positive parenting attitude of the parent was reported to be a more important protective factor than support from the teacher and attachment to the close friend, suggesting that the role of parents is very important for adolescents (Hong et al., 2016).

Studies of the relationship between adolescents' suicides and their parents have focused on family commitment and support, parent-child conflict, parenting style, and parent-child communication. Although parents' low socioeconomic status is known to be a major risk factor for adolescents' health (Park & Jang, 2013), the socioeconomic indicators in previous studies were limited to income and education levels (Agerbo, Nordentoft, & Mortensen, 2002), and only the classification of parents' occupation was surveyed as a demographic variable.

It is relevant for nurses to assess the impact of parental occupation on adolescents' health and what resources and support parents are willing to provide for them as the basis for planning and implementing care to address their needs. Bourdieu (1977) conceptualized this intergenerational transmission of knowledge, skills, and interests as cultural capital that nurses can integrate with the provision of care for adolescents and their families. This study aimed to investigate the effects of parental occupational status on adolescents' suicidal ideation. Data from the fifth National Health and Nutrition Examination Survey (NHANES) were used to analyze parental occupational status from multiple perspectives, including job classification, employment status, work status, work schedule pattern, and working hours per week, and to identify the effects of parental occupational status on adolescents' stress, depression, and suicidal ideation.

## Methods

### Study sample

This study was based on the raw data collected by the Korean National Health and Nutrition Examination Survey (KNHANES); the KNHANES was conducted every year from 2008 to 2013 by the Korean Centers for Disease Control and Prevention (KCDC). The KNHANES is a nationally representative, cross-sectional survey targeting non-institutionalized Korean people that uses a stratified and multistage probability sampling design with rolling survey sampling model. The sampling units were based on the population and housing consensus from the National Census Registry in Korea. Sample weights were calculated by nonresponse, complex survey design, and post stratification to represent the Korean population with sample participants. To ensure that the sample was nationally representative, primary sampling units were selected in stage 1, and divided into segments based on sex and population ratios in stage 2. Systematic sampling was then performed to select 20 households within each segment, from which participation was requested of all individuals residing within the households who were at least one year of age.

The institutional review board of the KCDC approved the study protocol and all the surveys were conducted with the participants' consent. Participants' consent for additional contact and the use of unique personal identification numbers were collected for potential follow-up surveys and/or electronic linkage with other secondary data, such as mortality, healthcare utilization and cancer registries (Kweon et al., 2014). Of 4847 adolescents who participated in six cross-sectional surveys, 3201 adolescents aged 12–18 years were enrolled into the study and the study excluded 1646 with missing values.

### Measures

#### Suicidal ideation

Suicidal ideation was assessed with the question "Have you ever thought of committing suicide in the last year?" Participants answered "Yes" or "No" to this question.

#### Parental occupational status

Employment was dichotomized into current employment or not currently employed. Occupational status consisted of job classification, employment status, work status, and work schedule pattern. Job classification was made in accordance with the major categories of the Korean Standard Classification of Occupations. This job classification classifies a job into non-manual, service/sales, and manual workers according to the degree of physical labor. Managers, professionals and related workers, and clerks were classified as non-manual workers, and service and sales workers were placed into one distinctive group. Manual workers consisted of agricultural/fishery skilled workers, skilled workers, machinery assembly and operation workers, and laborers. Employment status was classified into paid, self-employed, and unpaid family workers. Work status was classified as full-time or casual based on time spent working. Full-time work refers to work in which an employee works a regular, prescribed schedule (i.e., regular hours from business start to end hours). Casual work refers to employment with fewer hours than other people engaged in the same job, or wages are paid on an hourly basis. Work schedule pattern was characterized as daytime or other (i.e., working hours excluding day shifts, including evening, night, day and night regular shift work, 24-hour shift work, and irregular shift work).

#### Demographic characteristics

Based on a review of the literature, demographic variables that were expected to be confounding factors in the present study include age, sex, living place, economic status, history of smoking or consuming alcohol, regular exercise, sleep duration, obesity (reference BMI), perception of stress, and experience of depression in adolescents. Age and educational status were used as participants' parental demographic variables.

Living place in a metropolitan area or city was classified as urban, and residence elsewhere as rural. The economic level of the household was classified according to equivalent income (average monthly household income divided by the number of family members): the lowest 25% was designated as the 1st quartile, and the subsequent three 25% levels as the 2nd, 3rd, and 4th quartiles. Cigarette and alcohol use were defined as ever having smoked or consumed alcohol. Regular exercise was defined as strenuous or moderate physical activity performed for at least 20 min at one time, at least three times a week. Sleep duration was calculated using the responses to questions regarding mean daily sleep time. Stress was categorized by grouping participants' answers of "I feel stressed very much," "I feel stressed a lot," and "I feel stressed a little" into "Yes" and "I hardly feel stressed" into "No." Depressive symptoms were analyzed by asking "Have you felt sad or depressed for at least 2 consecutive weeks within the last year to the extent of disturbing your daily life?" Participants answered "Yes" or "No" to this question. Parental educational level was stratified into four groups as  $\leq 6$  years, 7–9 years, 10–12 years, and  $\geq 13$  years.

#### Statistical analysis

The SAS survey procedure (ver. 9.3; SAS Institute Inc., Cary NC, USA) was used to run a complex sample design based on analysis of the survey data; this provided sampling weights and nationally representative estimates. All data were presented as mean  $\pm$  SE for continuous variables or proportion (SE) for categorical variables. The participants were divided into two categories based on experience of suicidal ideation. The differences between demographic, occupational status, and suicidal ideation were analyzed using chi-square and *t*-test. Logistic regression models were used to calculate multivariate adjusted odd ratio

(ORs) and 95% confidence interval (CIs). In multivariate analyses of the experience of suicidal ideation, we first adjusted for age and sex (model 1). In addition, we adjusted for the variables as Model 1 plus smoking, alcohol drinking, regular exercise, economic status and sleep duration as confounding factors. A  $p$  value  $< 0.05$  was considered statistically significant.

## Results

Table 1 displays the differences in suicidal ideation according to demographic characteristics. Participants experiencing suicidal ideation were found to be more likely to be female ( $p = 0.011$ ), have a history of smoking ( $p < 0.001$ ), have a history of alcohol use ( $p = 0.002$ ), have a short sleep duration ( $p = 0.026$ ), have a greater perception of stress ( $p < 0.001$ ), and experience greater depression ( $p < 0.001$ ) when compared to those who did not report suicidal ideation.

Table 2 shows the differences in perception of stress, experience of depression, and suicidal ideation according to parental occupational status among adolescents. First, there was a statistically significant difference in perception of stress according to fathers' work status ( $p = 0.009$ ). That is, the rate of perception of stress was high when the fathers' work status was classified as "other" and casual. Second, there were statistically significant differences in suicidal ideation according to fathers' work status ( $p = 0.006$ ) and mothers' work schedule pattern ( $p = 0.007$ ). Specifically, results revealed that adolescents who had fathers with a work status classified as "other" or casual, or whose mothers' work schedule pattern was classified as "other," experienced greater suicidal ideation.

The association between parental occupational status and suicidal ideation among adolescents is shown in Tables 3 and 4. Participants' age and sex were adjusted in Model 1 and additional adjustments for smoking, drinking, regular exercise, obesity, economic status and sleep duration were included in Model 2. Statistically significant results were observed for parents' employment status, parents' work status, parents' work schedule pattern, and parents' working hours per week. In comparison with the fathers' employment status, the respective adjusted ORs (95% CI) for adolescent suicidal ideation was 1.58 (1.05, 2.39) in self-employed for Model 1 and 1.61 (1.06, 2.45) for Model 2. For mothers' employment status, the respective adjusted ORs for Models 1 and 2 were as follows: unpaid family workers showed 2.04 times (1.05, 3.97) and 2.23 times (95% CI: 1.11, 4.46) higher risk of suicidal ideation of adolescent. When compared to father's work status of full-time worker, the adjusted ORs for groups with other and with casual worker were 1.71 (1.16, 2.52) and 2.68 (0.87, 8.19) in Model 1 and 1.75 (1.17, 2.60) and 3.78 (1.08, 3.18) in Model 2. For mothers' work status, the respective adjusted ORs for Models 1 and 2 were as follows: casual, 0.51 (0.26, 0.99) and 0.48 (0.25, 0.94). For fathers' work

schedule pattern, the respective adjusted ORs for Models 1 and 2 were as follows: others, 1.69 (1.06, 2.69) and 1.62 (1.01, 2.63). For mothers' work schedule pattern, the respective adjusted ORs for Models 1 and 2 were as follows: others, 1.98 (1.24, 3.15) and 2.01 (1.26, 3.22). For fathers' work, working hours per week, the respective adjusted ORs for Models 1 and 2 were as follows: unemployed, 2.47 (1.09, 5.60) and 2.53 (1.22, 5.24). For mothers' working hours per week, the respective adjusted ORs for Models 1 and 2 were as follows:  $>60$  h, 1.91 (1.11, 3.28) and 1.95 (1.13, 3.38).

## Discussion

This cross-sectional study used data from the NHANES to investigate the effects of parental occupational status on adolescents' suicidal ideation, depression, and stress. Adolescents' suicidal ideation was associated with parents' employment status, work status, work schedule patterns, and working hours per week. Previous studies exploring the association between adolescents' health and parents' demographic characteristics have not consistently adjusted for suicidal ideation as has been noticed earlier in this paper (Agerbo et al., 2002; Evans et al., 2004; Kim & Lee, 2009; Park & Jang, 2013).

Adolescents' suicidal ideation was higher when the father was unemployed or self-employed, as opposed to when the father was a paid worker, and also higher when the father worked casual hours as opposed to when the father was a full-time employee. In Korea, unemployed, self-employed, and casual workers have lower income than full-time wage workers (Jung, 2012; Lee, 2017). Household income was associated with adolescents' depression and suicidal ideation (Agerbo et al., 2002), where adolescents with a lower economic status experienced higher stress, depression, and suicidal ideation (Park, Yang, & Choi, 2015). Financial difficulty affects adolescents through the mediatory effects of parents' mental health and the adverse effects on their parenting styles (Lee, Wickrama, & Simons, 2013). According to the Family Stress Model (FSM), family economic hardship and pressure are related indirectly to children's adjustment through their influence on the behavioral and emotional functioning of parents (Conger, Conger, & Martin, 2010). When economic pressure is high, parents are at increased risk for emotional distress (e.g., depression, anxiety, anger, and alienation) and for behavioral problems (e.g., substance use and antisocial behavior) (Conger & Donnellan, 2007). These emotional or behavioral problems predict increased marital conflict and reduced marital warmth, and this process diminishes nurturing and involved parenting (Conger & Donnellan, 2007). The last step in the FSM indicates that parental nurturance and involvement leads to greater emotional, behavioral, cognitive, and physical well-being for children (Conger & Donnellan, 2007). The result of our study seems to be similar to the FSM. We speculate that the reason the father's occupational status influenced the suicidal ideation of young children is because financial difficulties have increased the father's psychological distress and changed his childrearing attitude.

Suicidal ideation increased threefold among adolescents with fathers employed as casual employees compared to those of children with fathers who work full-time, and the former group also had a high perception of stress. Casual employees in Korea are generally subject to inferior labor conditions, such as being excluded from paid holidays, annual leaves, paid vacations, severance pay, health insurance, national pension, and employment insurance (Lee, 2017), and most are nonstandard workers, who experience significantly more stress than standard workers (Koh et al., 2004).

Suicidal ideation was higher among adolescents of mothers who are unpaid family workers compared to those of mothers who are paid workers. Further, suicidal ideation was also higher among adolescents of mothers who work  $>60$  h per week compared to those of mothers who work  $<40$  h per week. Unpaid family workers are family members or relatives of a self-employed individual, who work for at least one-third of the business's regular working hours without being paid.

**Table 1**  
Demographic characteristics of sample ( $N = 3201$ ).

Variables	Suicidal ideation		$p$
	No ( $n = 2814$ ) % (SE)	Yes ( $n = 387$ ) % (SE)	
Age (year), mean (SE)	15.06 $\pm$ 0.04	15.09 $\pm$ 0.12	0.788
Sex (male)	56.3 (1.1)	48.0 (3.1)	0.011
Living place (urban)	83.2 (1.8)	88.8 (2.7)	0.061
Economic status (1st quartile)	11.0 (1.0)	12.3 (2.5)	0.570
Ever smoked (yes)	15.3 (0.9)	26.1 (3.1)	$<0.001$
Ever drank alcohol (yes)	26.1 (1.1)	37.0 (2.9)	0.002
Regular exercise (yes)	31.7 (1.0)	31.8 (2.9)	0.962
Sleep time (hour)	7.19 $\pm$ 0.04	6.87 $\pm$ 0.09	$<0.001$
Obesity (BMI)	18.1 (0.8)	19.7 (2.5)	0.5828
Stress (yes)	21.1 (1.0)	60.1 (2.9)	$<0.001$
Depression (yes)	6.8 (0.6)	34.1 (3.14)	$<0.001$
Father's age (year), mean (SE)	46.70 $\pm$ 0.20	46.80 $\pm$ 0.40	0.885
Mother's age (year), mean (SE)	43.45 $\pm$ 0.12	43.36 $\pm$ 0.32	0.792

Note. SE = standard error.

**Table 2**  
Parental occupational status and mental health of adolescents (N = 3201).

Variables	Stress			Depression			Suicidal ideation		
	No (n = 2375) % (SE)	Yes (n = 826) % (SE)	p	No (n = 2900) % (SE)	Yes (n = 301) % (SE)	p	No (n = 2814) % (SE)	Yes (n = 387) % (SE)	p
<b>Father</b>									
Job classification			0.569			0.900			0.605
Unemployed	9.4 (1.1)	8.9 (1.5)		9.3 (1.1)	9.1 (2.6)		8.9 (1.0)	12.6 (3.4)	
Non-manual	36.3 (2.1)	32.5 (2.8)		35.6 (1.9)	32.4 (4.6)		35.3 (1.9)	35.3 (4.4)	
Service/sales	13.7 (1.3)	16.0 (2.4)		14.2 (1.2)	14.6 (3.3)		14.3 (1.2)	13.8 (2.9)	
Manual	40.6 (2.0)	42.6 (3.3)		40.8 (1.9)	43.9 (5.1)		41.5 (1.9)	38.3 (4.8)	
Employment status			0.329			0.677			0.056
Unemployed	9.4 (1.1)	8.9 (1.5)		9.3 (1.1)	9.1 (2.6)		8.9 (1.0)	12.6 (3.4)	
Paid	53.1 (2.0)	48.4 (3.1)		51.6 (1.9)	56.1 (4.7)		53.4 (1.9)	40.9 (4.5)	
Self-employed	36.3 (2.1)	40.9 (3.2)		37.8 (2.0)	32.9 (4.4)		36.5 (1.9)	44.5 (4.9)	
Unpaid family workers	1.2 (0.4)	1.9 (0.7)		1.3 (0.3)	1.9 (1.1)		1.3 (0.3)	1.9 (1.0)	
Work status			0.009			0.331			0.006
Others <sup>a</sup>	46.9 (2.0)	51.6 (3.1)		48.4 (1.9)	43.9 (4.7)		46.6 (1.9)	59.1 (4.5)	
Full-time	52.1 (2.0)	45.6 (3.0)		50.2 (1.9)	53.3 (4.8)		52.0 (1.9)	38.4 (4.4)	
Casual	1.0 (0.4)	2.9 (0.9)		1.3 (0.4)	2.8 (1.5)		1.3 (0.4)	2.6 (1.4)	
Work schedule pattern			0.355			0.784			0.061
Unemployed	9.4 (1.1)	8.9 (1.5)		9.3 (1.1)	9.1 (2.6)		8.9 (1.0)	12.6 (3.4)	
Daytime	77.1 (1.5)	74.6 (2.5)		76.3 (1.5)	78.6 (3.7)		77.6 (1.5)	67.8 (4.2)	
Other <sup>b</sup>	13.5 (1.3)	16.5 (2.2)		14.4 (1.2)	12.3 (2.9)		13.5 (1.2)	19.7 (3.3)	
Working hours per week			0.693			0.813			0.096
Unemployed	5.6 (0.9)	5.9 (1.3)		5.7 (0.8)	5.1 (1.9)		5.3 (0.8)	8.9 (2.9)	
Below 40 h	28.7 (1.8)	32.0 (2.8)		29.8 (1.7)	26.0 (4.2)		30.5 (1.8)	21.0 (3.7)	
40–60 h	46.0 (1.9)	43.3 (3.0)		45.0 (1.7)	48.6 (5.0)		44.8 (1.7)	49.6 (4.8)	
>60 h	19.8 (1.7)	18.9 (2.3)		19.5 (1.6)	20.4 (4.1)		19.4 (1.6)	20.5 (3.5)	
Educational level (yrs)			0.135			0.615			0.294
≤6	5.9 (1.1)	3.6 (1.0)		5.4 (0.9)	5.2 (1.9)		5.6 (1.0)	3.0 (1.3)	
7–9	10.0 (1.1)	9.3 (2.0)		9.5 (1.0)	13.0 (4.0)		9.4 (1.0)	13.2 (3.7)	
10–12	42.1 (2.0)	49.2 (3.3)		43.6 (2.0)	45.7 (4.9)		43.5 (2.0)	46.7 (4.9)	
≥13	42.0 (2.1)	37.9 (3.1)		41.5 (2.0)	36.1 (4.7)		41.5 (2.0)	37.0 (4.5)	
<b>Mother</b>									
Job classification			0.476			0.831			0.414
Unemployed	44.0 (1.5)	46.9 (2.4)		44.5 (1.4)	46.7 (3.8)		44.8 (1.4)	44.1 (3.5)	
Non-manual	20.3 (1.4)	17.2 (1.8)		19.4 (1.3)	20.6 (3.1)		19.6 (1.3)	19.0 (2.9)	
Service/sales	21.0 (1.3)	21.1 (2.1)		21.1 (1.2)	19.9 (3.2)		21.3 (1.2)	18.5 (2.6)	
Manual	14.8 (1.1)	14.8 (1.7)		15.0 (1.1)	12.9 (2.4)		14.3 (1.0)	18.3 (3.0)	
Employment status			0.302			0.578			0.185
Unemployed	44.0 (1.5)	46.9 (2.4)		44.5 (1.4)	46.7 (3.8)		44.8 (1.4)	44.1 (3.5)	
Paid	36.7 (1.5)	34.3 (2.3)		36.1 (1.4)	36.4 (3.8)		36.6 (1.4)	32.2 (3.4)	
Self-employed	13.9 (1.1)	12.0 (1.6)		13.4 (1.0)	13.4 (2.6)		13.2 (1.0)	14.8 (2.5)	
Unpaid family workers	5.4 (0.7)	6.9 (1.2)		6.0 (0.8)	3.5 (1.2)		5.4 (0.6)	8.9 (2.6)	
Work status			0.555			0.989			0.083
Others <sup>a</sup>	63.3 (1.5)	65.7 (2.3)		63.9 (1.4)	63.6 (3.8)		63.4 (1.4)	67.8 (3.4)	
Full-time	26.5 (1.4)	25.6 (2.2)		26.3 (1.3)	26.2 (3.6)		26.2 (1.3)	26.6 (3.3)	
Casual	10.2 (0.9)	8.7 (1.3)		9.8 (0.9)	10.1 (2.4)		10.4 (0.9)	5.5 (1.5)	
Work schedule pattern			0.370			0.854			0.007
Unemployed	44.0 (1.5)	46.9 (2.4)		44.5 (1.4)	46.7 (3.8)		44.8 (1.4)	44.1 (3.5)	
Daytime	46.5 (1.5)	42.7 (2.5)		45.8 (1.4)	43.5 (3.9)		46.3 (1.4)	40.3 (3.6)	
Other <sup>b</sup>	9.5 (0.9)	10.4 (1.5)		9.7 (0.8)	9.8 (2.5)		8.9 (0.8)	15.6 (2.6)	
Working hours per week			0.739			0.354			0.121
Unemployed	35.4 (1.5)	36.4 (2.2)		35.5 (1.4)	36.8 (3.6)		35.5 (1.4)	36.4 (3.3)	
Below 40 h	37.7 (1.5)	35.5 (2.2)		37.7 (1.4)	31.5 (3.5)		37.6 (1.4)	33.4 (3.3)	
40–60 h	20.4 (1.3)	22.1 (2.1)		20.4 (1.2)	24.4 (3.6)		20.9 (1.2)	20.1 (3.3)	
>60 h	6.6 (0.8)	6.1 (1.1)		6.3 (0.7)	7.3 (2.0)		5.9 (0.7)	10.2 (2.3)	
Educational level (yrs)			0.105			0.135			0.251
≤6	5.6 (0.7)	4.1 (0.9)		5.4 (0.7)	3.4 (1.2)		5.2 (0.6)	5.7 (1.8)	
7–9	6.5 (0.7)	9.4 (1.4)		6.9 (0.7)	10.5 (2.3)		6.8 (0.7)	10.0 (2.0)	
10–12	58.9 (1.5)	57.1 (2.3)		58.2 (1.4)	60.0 (3.8)		58.3 (1.4)	59.1 (3.4)	
≥13	29.0 (1.4)	29.4 (2.2)		29.5 (1.4)	26.1 (3.1)		29.7 (1.3)	25.2 (2.8)	

<sup>a</sup> Other: non-employees or non-contractors as identified by the KNHANES (e.g., unemployed, self-employed, and unpaid family workers).

<sup>b</sup> Other: working hours excluding day shift as identified by the KNANES (e.g., evening, night, day and night regular shift work, 24 hour shift work, and irregular shift work).

Unpaid family workers have longer average working hours, with fewer weekly holidays, compared to those of paid workers (Chin, 2015). In a previous study, 33% of unpaid family workers had no days off in a week (Chin, 2015). In another study, much of a woman's time working in the home involves housework, and time spent on family care was reported to be <20% (Son, 2005). Based on these studies, it can be assumed that when a mother is an unpaid family worker, she spends a small amount of time with her children. The same would be true for mothers who work >60 h per week.

Adolescence is a period characterized by rapid physical, psychological, and social growth and the development of autonomy, but it is also a period in which children are still heavily influenced by their parents. The relationship between parents and adolescents is primarily developed through daily family activities and parental support (Hair, Moore, Garrett, Ling, & Cleveland, 2008). A good relationship between parents and adolescents increases the child's self-esteem while lowering rates of risky behaviors, such as drug abuse and delinquency (Hair et al., 2008; Parker & Benson, 2004). The relationship between parents

**Table 3**Association between paternal occupational status and suicidal ideation of adolescent by multiple logistic regression analysis ( $N = 3201$ ).

Variables	Categories	Model 1	Model 2
		OR (95% CI)	OR (95% CI)
Job classification	Non-manual	1	1
	Unemployed	1.43 (0.72, 2.82)	1.39 (0.73, 2.62)
	Service/sales	0.95 (0.54, 1.68)	0.86 (0.49, 1.51)
	Manual	0.92 (0.58, 1.44)	0.88 (0.55, 1.41)
Employment status	Paid	1	1
	Unemployed	1.86 (0.96, 3.61)	1.89 (1.00, 3.55)
	Self-employed	1.58 (1.05, 2.39)	1.61 (1.06, 2.45)
	Unpaid family workers	2.01 (0.66, 6.08)	1.53 (0.48, 4.84)
Work status	Full-time	1	1
	Others <sup>a</sup>	1.71 (1.16, 2.52)	1.75 (1.17, 2.60)
	Casual	2.68 (0.87, 8.19)	3.78 (1.08, 3.18)
Work schedule pattern	Daytime	1	1
	Unemployed	1.64 (0.86, 3.15)	1.67 (0.91, 3.04)
	Others <sup>b</sup>	1.69 (1.06, 2.69)	1.62 (1.01, 2.63)
Working hours per week	Below 40 h	1	1
	Unemployed	2.47 (1.09, 5.60)	2.53 (1.22, 5.24)
	40–60 h	1.59 (0.97, 2.60)	1.50 (0.91, 2.47)
	>60 h	1.51 (0.88, 2.60)	1.42 (0.81, 2.49)
Educational status (years)	≤6	1	1
	7–9	2.64 (0.89, 7.85)	2.56 (0.89, 7.34)
	10–12	1.97 (0.77, 5.05)	2.03 (0.85, 4.82)
	≥13	1.65 (0.64, 4.24)	1.74 (0.73, 4.17)

Model 1: age and sex adjusted. Model 2: age, sex, smoking, drinking, regular exercise, obesity, economic status and sleep time adjusted.

<sup>a</sup> Other: non-employees or non-contractors as identified by the KNHANES (e.g., unemployed, self-employed, and unpaid family workers).<sup>b</sup> Other: working hours excluding day shift as identified by the KNANES (e.g., evening, night, day and night regular shift work, 24 hour shift work, and irregular shift work).

and adolescents affects a child's mental health. This was suggested by a report in which depressed adolescents who have a poor relationship with their parents display elevated levels of suicidal ideation (Consoli et al., 2013). Moreover, adolescents with higher levels of parental support and behavioral control by parents demonstrated lower levels of suicidal ideation (Lee, Park, & Kim, 2016), and adolescents with less parental monitoring demonstrated a higher level of suicidal ideation and suicide attempts (King et al., 2001).

On the other hand, adolescents of mothers who are casual workers had lower levels of suicidal ideation than those of mothers who are full-time workers. Part-time working parents spent more time with their children than full-time working parents (Milkie, Mattingly,

Nomaguchi, Bianchi, & Robinson, 2004). Mothers who are part-time workers had less work-family conflict, provided more learning opportunities for their children, and were more involved in their children's school-related activity compared to mothers who work full-time (Buehler & O'Brien, 2011). The time spent together is likely to improve the relationship between mothers and children and reduce the occurrence of risky behaviors such as alcohol use and smoking, which are the major risk factors for suicidal ideation. However, the relationship between a mother's occupational status and the adolescent's mental health cannot be explained solely by the amount of time spent together, because suicidal ideation did not significantly differ between adolescents of mothers who work <40 h per week and those of mothers who

**Table 4**Association between maternal occupational status and suicidal ideation of adolescent by multiple logistic regression analysis ( $N = 3201$ ).

Variables	Classification	Model 1	Model 2
		OR (95% CI)	OR (95% CI)
Job classification	Non-manual	1	1
	Unemployed	0.94 (0.63, 1.41)	0.99 (0.66, 1.47)
	Service/sales	0.86 (0.54, 1.36)	0.86 (0.54, 1.36)
	Manual	1.27 (0.76, 2.13)	1.21 (0.73, 2.02)
Employment status	Paid	1	1
	Unemployed	1.07 (0.77, 1.50)	1.15 (0.83, 1.61)
	Self-employed	1.29 (0.82, 2.04)	1.30 (0.81, 2.09)
	Unpaid family workers	2.04 (1.05, 3.97)	2.23 (1.11, 4.46)
Work status	Full-time	1	1
	Others <sup>a</sup>	1.03 (0.72, 1.46)	1.08 (0.76, 1.53)
	Casual	0.51 (0.26, 0.99)	0.48 (0.25, 0.94)
Work schedule pattern	Daytime	1	1
	Unemployed	1.08 (0.79, 1.47)	1.15 (0.83, 1.58)
	Others <sup>b</sup>	1.98 (1.24, 3.15)	2.01 (1.26, 3.22)
Working hours per week	Below 40 h	1	1
	Unemployed	1.09 (0.78, 1.53)	1.18 (0.84, 1.67)
	40–60 h	1.07 (0.68, 1.69)	1.15 (0.73, 1.84)
	>60 h	1.91 (1.11, 3.28)	1.95 (1.13, 3.38)
Educational status (years)	≤6	1	1
	7–9	1.30 (0.59, 2.85)	1.24 (0.54, 2.86)
	10–12	0.92 (0.44, 1.92)	0.96 (0.42, 2.22)
	≥13	0.77 (0.36, 1.63)	0.82 (0.35, 1.92)

Model 1: age and sex adjusted. Model 2: age, sex, smoking, drinking, regular exercise, obesity, economic status and sleep time adjusted.

<sup>a</sup> Other: non-employees or non-contractors as identified by the KNHANES (e.g., unemployed, self-employed, and unpaid family workers).<sup>b</sup> Other: working hours excluding day shift as identified by the KNANES (e.g., evening, night, day and night regular shift work, 24 hour shift work, and irregular shift work).

are unemployed. In a study investigating parenting satisfaction and childrearing behaviors of employed mothers and unemployed mothers of young children, working mothers displayed a higher level of satisfaction in their parenting role (Kim & Moon, 2006). It was speculated that the employment of married women with children has a positive effect on satisfaction in their roles as parents owing to the financial rewards and the feeling of accomplishment obtained through the desire for self-realization (Kim & Moon, 2006). Work experiences and family experiences can have additive effects on well-being, and participation in both work and family roles can buffer individuals from distress in one of the roles (Greenhaus & Powell, 2006). Experiences in one role can produce positive experiences and outcomes in the other role (Greenhaus & Powell, 2006). Mothers who are part-time workers are more likely to experience positive satisfaction with their parental role through work-family positive spillover. Parents who are satisfied in their roles as parents are more likely to display affectionate attitudes to their children, thereby having a positive impact on them (Lee & Chung, 2007).

Suicidal ideation was higher among adolescents of parents who are shift workers than those of parents who are daytime workers. Mothers' frequent night shifts undermine the quality of the family environment and deprive children of family meals, both of which are associated with depression among children (Han & Miller, 2009). Fathers' shift work also affects adolescents' depression by weakening the children's intimacy with their fathers (Han & Miller, 2009), and the mothers' or fathers' shift work significantly reduces their time with their children, thereby increasing adolescents' delinquent behaviors (Han, Miller, & Waldfoegel, 2010). In addition, working mothers who work shifts have poorer sleep quality as well as higher levels of psychological distress and parenting stress compared to working mothers who work day shifts, which signifies that the physical and psychological impairment caused by shift work has adverse effects, not only on one's self but also on the relationship with one's children (Park, 2014).

In the present study, parental occupational status affected adolescents' suicidal ideation. One interesting finding is that fathers' and mothers' occupational status affects children's suicidal ideation in different ways. For instance, suicidal ideation increases in adolescents when a father is a casual worker, but it decreases when a mother is a casual worker. Furthermore, whereas suicidal ideation is higher among adolescents of mothers who work >60 h per week, it is not affected by fathers who work >60 h per week. In the case of fathers, financial difficulty and stress caused by occupational status affects adolescents' suicidal ideation, and for mothers, the amount of time they spend with their children and the satisfaction in their roles as parents determined by their occupational status affect adolescents' suicidal ideation. In Korean society, there has been a distinction between the roles of men and women in a family, where men are generally the primary breadwinners in the family while women are in charge of housework and childrearing. However, with social changes, the concept of paternity is expanding to multiple concepts that encompass not only the role of the father as a provider but also as a friend with emotional intimacy (Kim, Hwang, Sun, & Kim, 2008). Men are currently adapting to such changes, maintaining their position as the family's provider while also accepting the outside expectations of being a good father and the demand to participate in childrearing (Na, 2014).

Meanwhile, despite the growing social participation of women, childrearing and housework are still perceived as a mother's responsibilities, subjecting working married women to double—paid and unpaid—labor (Kim, 2005). In response to being given the primary responsibility of unpaid labor in the family, women employ a strategy for adjusting their paid working hours, where they reduce night overtime or holiday labor and, instead, choose casual labor (Son, 2005). Such a strategy may be accepted as successful, in that adolescents of casual working mothers displayed lower rates of suicidal ideation. However, new strategies to ensure harmony between work and family for mothers are direly needed in that discriminatory casual labor may

have a negative impact on mother and that women's labor may be fixed in the form of non-regular workers.

This study has a few limitations that should be considered when interpreting the results. First, raw data from the NHANES were analyzed; thus, confounding variables such as domestic violence, school violence, and academic stress, which were not surveyed in the NHANES but might affect the suicidal ideation of the adolescent, could not be controlled, and fathers' and mothers' occupation states could not be investigated in pairs. According to a previous study (Han & Miller, 2009), for example, parent's working condition (e.g. work shift) significantly had affected their adolescent children's depression, but the NHANES data does not provide such detailed information. We expect that the relationship between parental occupational status and an adolescent's mental health will be more clearly identified when parental occupational states are analyzed in pairs. And this study used a representative sample of Korean youth, but it has limitations as data by cross-sectional survey. Cohort studies are needed to clarify the causal relationship between suicidal ideation and related factors. Finally, we attempted to interpret the findings of this study based on a review of the relevant literature, but we did not conduct a survey of parents' stress, amount of time spent with children, and satisfaction with roles as parents. These variables should be assessed in future studies to examine their mediatory effects in the relationship between parental occupational status and children's suicidal ideation.

#### *Practice implication*

Little attention has been paid to know the impact of parent occupation on interactions with their child. This study suggests that parent occupations may be influence to the emotion of adolescents. It has implications for clinical practice in primary care and community settings. Using a family centered approach, pediatric nurses have the opportunity to identify their family needs early. While differences in support and challenge were expected to be related to parent's occupation, fathers' and mothers' occupational status is likely to influence children's suicidal ideation in different ways. Therefore, the first critical step for the healthy family needs to assess family as a unit. Nurses also need to understand the distinction between the roles of men and women in a family in terms of cultural context. Community based interventions, such as a civic group and after school program, might be helpful to child's mental health. Healthcare professionals can assist parents to make effort to prioritize children's needs in finding a balance between work and family.

Parent-child relationship is the basis and the beginning of the relationship with others. Further research is needed to assess the extent to which parental occupation status affects the mental health of adolescents in terms of family relational functioning. Nurses and other health care professionals will apply not only to inform focused concepts for systemic interventions in families in crisis, but also aim at preventing mental health problems in children.

#### **Conflict of interest**

The authors declare that they have no conflict of interests.

#### **CRedit authorship contribution statement**

**So Hee Kim:** Formal analysis, Methodology, Project administration, Resources, Writing - original draft, Writing - review & editing. **Ji-Su Kim:** Conceptualization, Data curation, Formal analysis, Methodology, Resources, Validation, Writing - review & editing. **Hae Young Yoo:** Data curation, Formal analysis, Writing - review & editing. **Eunjung Ryu:** Conceptualization, Data curation, Formal analysis, Funding acquisition, Investigation, Methodology, Project administration, Resources, Software, Supervision, Validation, Visualization, Writing - original draft, Writing - review & editing.

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