



Associations between Skipping Meals, Eating Alone, and Overweight or Obesity: A Secondary Data Analysis of the Korea National Health and Nutrition Examination Survey

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Purpose: Emerging evidence indicates that eating patterns—particularly skipping meals and eating alone—are associated with excess body weight. However, few studies have assessed whether these behaviors contribute to weight gain across different age groups. This study examined the associations of skipping breakfast or dinner, and of eating those meals alone, with overweight or obesity among Korean adults compared to children and adolescents.

Methods: This cross-sectional secondary analysis used data from the 2019 Korea National Health and Nutrition Examination Survey. Information on skipping meals, eating alone, and sociodemographic characteristics was obtained via self-report for adults and proxy report for participants under 12 years of age. Overweight or obesity was determined from measured height and weight. Multivariable logistic regression analyses were performed separately by age group. **Results:** Among adults, eating dinner alone was associated with higher odds of obesity (odds ratio [OR] = 1.27, 95% confidence interval [CI] = 1.06–1.52). Among adolescents, skipping dinner three or more times per week was associated with higher odds of obesity (OR = 2.60, 95% CI = 1.04–6.54). No significant associations were observed in children. Skipping breakfast or eating breakfast alone was not significantly associated with overweight or obesity in any age group. **Conclusion:** Although the cross-sectional design precludes causal inference, the findings suggest age-specific links between eating behaviors and weight status. For adults, reducing solitary dinners may help prevent obesity, whereas for adolescents, preventing frequent dinner skipping could be beneficial. Nursing strategies promoting shared mealtimes in adults and regular dinners in adolescents may help address obesity in Korea.

Key Words: Feeding behavior; Nutrition surveys; Overweight

INTRODUCTION

Obesity is a major global public health challenge, contributing to chronic disease and rising healthcare costs [1–3]. In South Korea, 39% of adults and 19% of children are classified as overweight or obese [4,5], with rates increasing since 1998 [6,7]. Government-supported obesity prevention programs have targeted lifestyle behaviors, often

through nutrition education. While these interventions have yielded some benefits, their effects have generally been minimal to modest [8,9], possibly due to limited consideration of broader eating behavior contexts such as meal skipping and eating alone. With changing work environments and household dynamics [10,11], these behaviors are becoming more common. Although they likely influence dietary intake and weight status, research specifically

examining skipping meals or eating alone remains limited [12].

Meal skipping is often used as a weight-control strategy despite evidence linking it to weight gain [13]. Meta-analyses have shown that skipping breakfast is associated with an increased risk of overweight or obesity [14,15]. Skipping dinner has also been linked to weight gain in adults, potentially due to increased appetite and compensatory overeating later in the day [16]. These patterns and their effects may differ by age group because of variations in daily routines and family roles. Few studies have examined breakfast or dinner skipping across multiple age groups, despite its potential to inform age-specific public health interventions.

Eating alone is another behavior linked to obesity risk that may vary by age. In South Korea, it is increasingly common among adults—due to the rise in single-person households—and among children and adolescents, driven in part by dual-earner parents [10,11]. Older adults may eat alone due to living alone, while adolescents may do so because of after-school activities or a lack of family meals. Eating alone can lower diet quality and increase the likelihood of overconsumption; those who eat alone tend to consume higher-calorie, nutrient-poor meals and spend less time eating [12,17]. In contrast, shared meals are associated with greater fruit and vegetable intake and lower sugar-sweetened beverage consumption [18,19]. These differences suggest that eating alone could promote weight gain by compromising diet quality and encouraging excessive energy intake. However, few studies have examined its impact on weight across different age groups. Understanding how eating alone interacts with age-related factors is essential for developing effective, targeted dietary interventions.

In summary, while the adverse health consequences of poor dietary intake are well established, few studies have examined how the timing (meal skipping) and social context (eating alone) of meals influence weight status. By exploring the associations between meal skipping, eating alone, and overweight or obesity—particularly across different age groups—this study seeks to address a critical gap in the literature. Therefore, the objectives of the current study are to: a) describe the frequency of skipping meals (i.e., breakfast or dinner) and eating meals alone by age group, and b) examine the associations between these behaviors and overweight or obesity status among adults (≥ 19 years), compared to children (2–11 years) and ado-

lescents (12–18 years) in South Korea. Clarifying the roles of meal skipping and eating alone in obesity will inform the development of age-specific nursing interventions targeting these modifiable eating behaviors and enhance the effectiveness of obesity prevention programs.

METHODS

1. Data Source and Data Collection

This study employed a cross-sectional secondary analysis of the 2019 Korea National Health and Nutrition Examination Survey (KNHANES) using de-identified, publicly available data. This annual national surveillance system is conducted with approval from the Research Ethics Review Committee of the Korea Disease Control and Prevention Agency. Each year, the KNHANES survey collects data from approximately 10,000 individuals across 4,800 households, selected using stratified multistage cluster sampling methods. In the first sampling stage, 192 survey districts were chosen based on local government level (county, city, or town) and housing type (house or apartment). Within each district, 25 households were randomly selected and invited to participate.

For data collection, trained staff conducted a health interview and physical examination in a designated mobile vehicle. One week after these assessments, dietitians administered a nutrition survey at the participants' homes. Sociodemographic characteristics, including sex, education level, and household income quartile, were collected during the health interview. The health examination included measurements of height and weight. For children under 12 years, a parent or guardian provided proxy responses for health and eating behaviors. Children younger than two years were excluded from the study because body mass index (BMI) percentile data were not available for this age group. The nutrition survey assessed eating behaviors such as meal frequency, meal companionship, and meal consumption outside the home. Food intake was also evaluated using a single 24-hour dietary recall. The latest versions of the 2019 KNHANES data were used (health interview and examination data, version September 13, 2022; nutrition survey data, version August 12, 2022). Data were obtained from the KNHANES website (<https://knhanes.kdca.go.kr/knhanes/main.do>) following completion of the data user consent form and compliance statement.

2. Analytic Sample

From all participants in the 2019 KNHANES, a total of 7,596 individuals, including 875 children, 489 adolescents, and 6,232 adults, had BMI percentile or both height and weight information available. These correspond to an estimated weighted population of approximately 50,582,797 people: 4,561,049 children, 3,358,197 adolescents, and 42,663,551 adults. Individuals with missing values for any age-specific covariates were excluded from the regression analysis to maintain sampling weights and ensure representative estimates from the complex survey data.

3. Study Variables

1) Independent variables

Eating behaviors in this study were defined by meal skipping and eating alone, using relevant questions from the nutrition survey. To determine the frequency of meal skipping, participants were asked: “In the past year, how many times have you had breakfast per week?” and “In the past year, how many times have you had dinner per week?” Response options were “5–7 times/week,” “3–4 times/week,” “1–2 times/week,” and “not at all (0 time/week).” To address the skewed distribution of responses, the frequencies were reverse-coded and dichotomized as “< 3 times/week” and “≥ 3 times/week,” in line with prior meta-analytic evidence using this cutoff to define meal skipping and its link to overweight and obesity [15].

Eating breakfast or dinner alone was evaluated with the questions: “In the past year, when you had breakfast, have you usually eaten with other people?” and “In the past year, when you had dinner, have you usually eaten with other people?” with yes/no response options. These questions were only posed to those who reported eating breakfast or dinner at least three times per week. Thus, participants who ate these meals fewer than three times per week were excluded from the eating alone analysis.

2) Dependent variables

Overweight or obesity was determined by BMI for adults and BMI percentile for children and adolescents. BMI was calculated as weight in kilograms divided by height in meters squared (kg/m^2). Adults with a BMI of $23 \text{ kg}/\text{m}^2$ or higher were classified as overweight or obese, according to the BMI classification for Asians established by the World Health Organization Regional Office for the Western Pacific

Region [20]. The dataset provided BMI percentiles for children and adolescents in four categories: less than 5th percentile (<5th), 5th to less than 85th percentile ($5\text{th} \leq \text{BMI percentile} < 85\text{th}$), 85th to less than 95th percentile ($85\text{th} \leq \text{BMI percentile} < 95\text{th}$), and 95th percentile or greater ($\geq 95\text{th percentile}$). Children and adolescents at or above the 85th percentile were considered overweight or obese.

3) Covariates

Participant characteristics assessed consistently across all age groups included sex, household income quartile, and daily energy intake. Adults and adolescents self-reported biological sex at birth (male or female), while parents provided this information for children. Household income quartiles were based on self- or proxy-reported average monthly household income, adjusted for household size. The first through third quartiles corresponded to \$909.93 (KRW 1,060,700), \$1,733.47 (KRW 2,020,700), and \$2,727.64 (KRW 3,179,600) according to the 2019 average won-dollar exchange rate (\$1 = 1,165.697 KRW) [21]. For analysis, the first and second quartiles were combined as less than 50% income level. Daily energy intake was estimated using one 24-hour dietary recall and dichotomized as within or outside the recommended daily intake for age and sex [22].

Additional covariates included in the regression models differed by age group. In the child model, the child's energy intake, mother's weight status, and mother's working hours were controlled for. The adolescent model included both parents' weight statuses. For adults, covariates comprised sex, marital status, education level, daytime work schedule (working between 6 am and 6 pm), weekly working hours (> 40 hours), and frequency of eating meals not prepared at home (such as takeout, delivery, or prepackaged foods).

4. Ethical Considerations

This study was exempted from institutional review board review (IRB No: INJE 2021-11-042), as it was a secondary analysis of publicly available data with no direct contact or additional data collection from participants.

5. Statistical Analysis

All statistical analyses were performed by age group using SAS statistical software, version 9.4 (SAS Institute, Cary, NC, USA). All results were estimated with SAS survey pro-

cedures incorporating sampling weights. These weights, provided by KNHANES, improve the representativeness and accuracy of population estimates by adjusting for unequal sampling probabilities and non-response bias [23].

The PROC SURVEYFREQ procedure was used to estimate proportions of sociodemographic characteristics by age group. The Rao-Scott chi-square test was used to determine whether sociodemographic characteristics differed by weight status. Any characteristics showing statistically significant differences by weight status ($p < .05$) were included as covariates in the regression models.

Multiple logistic regression models were conducted using PROC SURVEYLOGISTIC to estimate odds ratios (ORs) and 95% confidence intervals (CIs) for associations between skipping breakfast or dinner, eating alone, and overweight or obesity within each age group. Selection of covariates for each model was guided by age-specific char-

acteristics and statistically significant differences observed in bivariate analyses for each age group.

RESULTS

1. Characteristics of Study Participants

The characteristics of study participants are summarized in Table 1 for children and adolescents, and in Table 2 for adults.

1) Children

Among children, 51.4% were boys, and approximately 39.1% belonged to households in the lower half of the income distribution. Nearly half (48.2%) consumed more calories than the age-specific recommended intake. Most children did not skip dinner three or more times per week

Table 1. Characteristics of Children and Adolescents and Their Parent

Variables	Weighted n (weighted %)	
	Children (2–11 years)	Adolescents (12–18 years)
Participant characteristics		
Male sex	2,343,334 (51.4)	1,784,453 (53.1)
Household income quartile (< 50% [†])	1,782,310 (39.1)	1,324,838 (39.7)
Daily energy intake (> recommended level [‡])	2,078,805 (48.2)	1,111,269 (35.2)
Skipping meals (≥ 3 times/week)		
Breakfast	752,376 (17.4)	1,368,937 (43.4)
Dinner	15,561 (0.4)	194,441 (6.2)
Eating alone		
Breakfast	434,309 (11.1)	871,121 (39.8)
Dinner	72,913 (1.7)	455,908 (14.6)
Non-home-cooked food consumption [§] (≥ 5 times/week)	4,192,090 (97.1)	2,919,181 (92.5)
Parental characteristics		
Parents' education level (≤ high school)		
Father	1,032,576 (31.6)	810,842 (38.9)
Mother	1,139,867 (27.8)	1,340,278 (44.4)
Parents' not being daytime workers (6 am–6 pm)		
Father	485,075 (15.1)	286,478 (13.8)
Mother	233,233 (9.5)	391,874 (17.1)
Parents' working hours (> 40 hours/week)		
Father	1,860,256 (40.8)	1,189,601 (35.4)
Mother	483,879 (10.6)	581,137 (17.3)
Parents' overweight or obesity		
Father	2,570,211 (59.6)	1,625,995 (51.5)
Mother	1,501,940 (34.8)	1,311,177 (41.6)

[†]Bottom 50% of income level of all households in South Korea; [‡]Recommendation for daily energy intake is based on the Ministry of Health and Welfare of Korea's Dietary Reference Intakes for Koreans 2020 by age group; [§]"Other than home-cooked food" includes delivered food, packaged food, school meals, and food provided by religious groups; ^{||}Overweight or obesity was defined as a body mass index (BMI) is 23 kg/m² or higher, the BMI classification for Asians established by the World Health Organization Regional Office for the Western Pacific.

Table 2. General Characteristics of Adults

Variables	Weighted n (weighted %) Adults (19 years or older)
Male sex	21,373,405 (50.1)
Marital status (married)	32,856,271 (77.0)
Education level ($\leq$ high school)	22,681,134 (56.4)
Not a daytime worker (6 am–6 pm)	5,255,276 (17.7)
Weekly working hours (> 40 hours/week)	12,030,419 (28.2)
Household income quartile ($< 50\%$ [†])	17,286,555 (40.8)
Daily energy intake ($>$ recommended level [‡])	14,237,159 (35.6)
Weight status (overweight or obese [§])	22,702,042 (56.9)
Skipping meals (≥ 3 times/week)	
Breakfast	16,966,965 (42.4)
Dinner	4,018,396 (10.0)
Eating alone	
Breakfast	12,399,905 (45.1)
Dinner	8,958,915 (23.0)
Non-home-cooked food consumption (≥ 5 times/week)	18,106,498 (45.3)

[†]Bottom 50% of income level of all households in South Korea; [‡]Recommendation for daily energy intake is based on the Ministry of Health and Welfare of Korea's Dietary Reference Intakes for Koreans 2020 by age group; [§]Overweight or obesity was defined as a body mass index (BMI) of 23 kg/m² or higher, the BMI classification for Asians established by the World Health Organization Regional Office for the Western Pacific; ^{||}"Other than home-cooked food" includes delivered food, packaged food, school meals, and food provided by religious groups.

(0.4%), while 17.4% reported skipping breakfast at least three times weekly. Eating breakfast alone was reported by 11.1%, whereas only 1.7% ate dinner alone. Consumption of non-home-cooked food five or more times per week was reported by 97.1% of children.

With respect to parental characteristics, 31.6% of fathers and 27.8% of mothers had a high school education or less. Non-daytime work (after 6 pm or before 6 am) was reported by 15.1% of fathers and 9.5% of mothers. Additionally, 40.8% of fathers and 10.6% of mothers worked more than 40 hours per week. The prevalence of overweight or obesity was 59.6% among fathers and 34.8% among mothers.

2) Adolescents

Among adolescents, 53.1% were male, and a total of 39.7% were in the lower half of the household income distribution. About one-third (35.2%) exceeded the recommended daily energy intake. Skipping breakfast three or more times per week was common (43.4%), whereas frequent dinner skipping was less prevalent (6.2%). Eating breakfast alone was reported by 39.8%, and eating dinner alone by 14.6%. Frequent consumption (≥ 5 times per week) of non-home-cooked foods was reported by 92.5% of adolescents.

Regarding parental characteristics, 38.9% of fathers and

44.4% of mothers had a high school education or less. Non-daytime work was reported by 13.8% of fathers and 17.1% of mothers. A total of 35.4% of fathers and 17.3% of mothers worked more than 40 hours per week. The prevalence of overweight or obesity was 51.5% among fathers and 41.6% among mothers.

3) Adults

Among adults, 50.1% were men and 77.0% were married. More than half (56.4%) had a high school education or less. In terms of employment, 28.2% worked more than 40 hours per week, and 82.3% were employed during daytime hours (between 6 am and 6 pm). A total of 40.8% belonged to the lower half of the household income distribution.

Regarding dietary patterns, 35.6% of adults consumed more calories than recommended by national dietary guidelines. The prevalence of overweight or obesity was 56.9%. Skipping breakfast three or more times per week was reported by 42.4% of adults, while dinner skipping was less common (10.0%). Eating breakfast alone was reported by 45.1%, and 23.0% reported eating dinner alone. Frequent consumption (≥ 5 times per week) of non-home-cooked foods—including delivered meals, packaged foods, or meals provided by religious groups or schools—was reported by 45.3% of adults.

2. Association between Skipping Meals or Eating Alone and Being Overweight/Obese

The associations between eating behaviors and overweight or obesity were analyzed separately for each age group.

1) Children

Skipping breakfast three or more times per week was not

significantly associated with overweight or obesity (OR=0.66, 95% CI=0.30–1.47). Eating breakfast alone was also not significantly associated with overweight or obesity in children (OR=1.21, 95% CI=0.63–2.31) (Table 3).

2) Adolescents

Table 4 presents the associations between eating behaviors and overweight or obesity among adolescents. Skipping breakfast three or more times per week was not sig-

Table 3. Association between Skipping Breakfast or Eating Alone and Children's Obesity Status

Variables	Categories	Children's overweight or obesity [†]	
		OR	95% CI
Skipping meals			
Breakfast	≥ 3 times/week	0.66	0.30–1.47
	< 3 times/week (ref.)		
Eating alone			
Breakfast	Yes	1.21	0.63–2.31
	No (ref.)		
Mother's weight status	Overweight or obese [*]	2.23	1.30–3.82
	Normal or underweight (ref.)		
Mother's weekly working hours	> 40 hours/week	1.85	0.91–3.75
	≤ 40 hours/week (ref.)		
Daily energy intake	> Recommended level	1.63	1.10–2.41
	≤ Recommended level (ref.)		

CI = confidence interval; OR = odds ratio; ref. = reference; [†]Children whose body mass index (BMI) percentile was at or above the 85th percentile were classified as overweight or obese; ^{*}Parental overweight or obesity was defined as a BMI is 23 kg/m² or higher, the BMI classification for Asians established by the World Health Organization Regional Office for the Western Pacific.

Table 4. Association between Skipping Meals or Eating Alone and Adolescents' Obesity Status

Variables	Categories	Adolescents' overweight or obesity [†]			
		OR	95% CI	OR	95% CI
Skipping meals					
Breakfast	≥ 3 times/week	0.80	0.39–1.66		
	< 3 times/week (ref.)	1.00			
Dinner	≥ 3 times/week			2.60	1.04–6.54
	< 3 times/week (ref.)			1.00	
Eating alone					
Breakfast	Yes	0.99	0.51–1.92		
	No (ref.)	1.00			
Dinner	Yes			1.43	0.77–2.65
	No (ref.)			1.00	
Father's weight status	Overweight or obese [†]	3.38	1.70–6.70	2.69	1.53–4.71
	Normal or underweight (ref.)	1.00		1.00	
Mother's weight status	Overweight or obese [§]	2.60	1.37–4.94	2.35	1.34–4.11
	Normal or underweight (ref.)	1.00		1.00	

CI = confidence interval; OR = odds ratio; ref. = reference; [†]Adolescents whose body mass index (BMI) percentile was at or above the 85th percentile were classified as overweight or obese; [§]Parental overweight or obesity was defined as a BMI is 23 kg/m² or higher, the BMI classification for Asians established by the World Health Organization Regional Office for the Western Pacific.

nificantly associated with overweight or obesity (OR=0.80, 95% CI=0.39–1.66), nor was eating breakfast alone (OR=0.99, 95% CI=0.51–1.92). However, adolescents who skipped dinner at least three times per week were significantly more likely to be overweight or obese than those who skipped dinner less frequently (OR=2.60, 95% CI=1.04–6.54). Eating dinner alone was not significantly associated with overweight or obesity in adolescents (OR=1.43, 95% CI=0.77–2.65).

3) Adults

Among adults, there was no significant association between skipping breakfast (OR=1.23, 95% CI=0.93–1.63), eating breakfast alone (OR=0.86, 95% CI=0.70–1.05), or skipping dinner (OR=1.02, 95% CI=0.74–1.42) and being overweight or obese (Table 5). However, adults who ate dinner alone were significantly more likely to be overweight or obese compared to those who ate dinner with others (OR=1.27, 95% CI=1.06–1.52).

DISCUSSION

In this secondary analysis of a nationally representative dataset from South Korea, eating dinner alone was significantly associated with overweight or obesity among South Korean adults. We suspect this association may arise because adults are more likely to prepare and serve healthier foods during family meals to support family members' well-being [24]. In contrast, when eating alone, individuals often prioritize convenience over nutrition. Those who frequently eat alone not only skip meals 2.7 to 5.4 times more often, but also report lower overall diet quality and fruit and vegetable intake, regardless of sex or living arrangement [17,25]. In post hoc analysis, interactions between eating alone and skipping breakfast ($p=.904$) or dinner ($p=.635$) were not statistically significant, suggesting that eating alone independently affects overweight or obesity risk in adults. The likely mechanism underlying this association is the reduced diet quality observed in individuals who eat alone. Future studies should explore whether diet quality mediates the relationship between eating alone and

Table 5. Association between Skipping Meals or Eating Alone and Adults' Obesity Status

Variables	Categories	Adults' overweight or obesity [†]			
		OR	95% CI	OR	95% CI
Skipping meals					
Breakfast	≥ 3 times/week	1.23	0.93–1.63		
	< 3 times/week (ref.)	1.00			
Dinner	≥ 3 times/week			1.02	0.74–1.42
	< 3 times/week (ref.)			1.00	
Eating alone					
Breakfast	Yes	0.86	0.70–1.05		
	No (ref.)	1.00			
Dinner	Yes			1.27	1.06–1.52
	No (ref.)			1.00	
Sex	Male	2.33	1.89–2.88	2.70	2.23–3.27
	Female (ref.)	1.00		1.00	
Marital status	Married	2.07	1.53–2.80	1.94	1.58–2.37
	Not married (ref.)	1.00		1.00	
Education level	≤ High school	1.40	1.15–1.71	1.30	1.10–1.54
	> High school (ref.)	1.00		1.00	
Daytime worker	No	0.98	0.75–1.27	0.88	0.71–1.09
	Yes (ref.)	1.00		1.00	
Weekly working hours	> 40 hours	1.48	1.20–1.82	1.30	1.09–1.56
	≤ 40 hours (ref.)	1.00		1.00	
Non-home-cooked food consumption	≥ 5 times/week	0.88	0.72–1.08	1.00	0.84–1.19
	< 5 times/week (ref.)	1.00		1.00	

CI = confidence interval; OR = odds ratio; ref. = reference; [†]Overweight or obesity was defined as a body mass index (BMI) is 23 kg/m² or higher, the BMI classification for Asians established by the World Health Organization Regional Office for the Western Pacific.

adult weight status.

A noteworthy finding was that, in adolescents, skipping dinner, rather than eating alone, was a significant risk factor for overweight or obesity. While our analysis of eating alone excluded those who skipped three or more meals per week, potentially limiting our ability to assess these associations fully, several explanations are possible. The influence of eating alone on adolescent diet quality may be attenuated if parents or caregivers prepare meals in advance. By contrast, skipping dinner could contribute directly to energy imbalance and subsequent weight gain in adolescents. In a retrospective cohort study of young college students (65% of whom were 18 years old and classified as adolescents in our study), those who skipped dinner had more irregular evening energy intake and experienced greater weight gain than those who ate dinner daily [16]. Additionally, it is possible that meal skipping among overweight or obese adolescents reflects attempts at weight control, introducing the potential for reverse causality.

Contrary to expectations, neither eating breakfast alone nor skipping breakfast was associated with overweight or obesity in any age group. This differs from previous studies reporting significant associations between breakfast skipping and overweight or obesity [14,26]. One possible explanation is that the value of eating breakfast together may be diminished when the meal itself is frequently skipped. In our sample, roughly 40% of adults and adolescents skipped breakfast three or more times per week—a higher rate than reported in the United States [27]. Another consideration is that the survey may have defined breakfast as a “morning meal,” and individuals consuming grab-and-go items such as cereal bars or fruit may have reported not having a “meal.” Prior research found that consuming ready-to-eat cereal or other breakfast foods was associated with higher diet quality than skipping breakfast altogether [28]. Thus, use of the term “meal” in the survey may have led to an overestimation of breakfast skipping and diluted observed associations with diet quality and weight status. Further research should examine not only the frequency of breakfast consumption but also the types of foods eaten at breakfast.

This study has several strengths and limitations. It is among the first to investigate the roles of meal skipping and eating alone in overweight or obesity using a nationally representative sample spanning children, adolescents, and adults in South Korea. This broad age range enabled us to identify which eating contexts are more critical for specific meals or age groups, providing a foundation for

tailored intervention development. An additional strength was the use of measured height and weight to assess overweight and obesity. Limitations include the cross-sectional design and the focus on breakfast and dinner, dictated by the structure of the secondary dataset. Longitudinal cohort studies or ecological momentary assessment methods could clarify directionality by examining changes in diet quality and weight relative to eating environment, including eating alone, food source, and preparation method. Another limitation is that questions about eating alone were posed only to individuals consuming breakfast or dinner at least three times per week, which may have introduced selection bias. Although we adjusted for demographic differences—such as education and weekly working hours—between those asked and not asked about eating alone, the importance of shared meals may be diminished when a meal is skipped frequently. Moreover, we were unable to account for additional factors that contextualize eating alone, such as the types, timing, and locations of foods consumed. Future research should incorporate more detailed assessments of food consumption throughout the day.

The current study’s findings have important implications for nursing practice. For adolescents, school-based nursing interventions should focus on monitoring meal skipping—especially dinner—as it may indicate irregular routines or intentional weight control efforts. Nurses should promote regular, healthy eating habits and address underlying reasons for meal skipping by offering counseling or referrals as needed. For adults, nurses in primary care or community settings could screen for eating alone during routine health assessments and encourage shared mealtimes or participation in social meal programs. Promoting these behaviors in adults who frequently eat alone may help improve dietary quality and prevent obesity.

CONCLUSION

In conclusion, this study found that eating dinner alone was significantly associated with higher odds of overweight or obesity among South Korean adults, while skipping dinner—but not eating alone—was associated with overweight or obesity in adolescents. These findings indicate that specific eating behaviors are linked to weight outcomes in age-dependent ways, underscoring the need for age-tailored interventions. For adults, primary care and community-based strategies that promote shared evening meals

may help mitigate the negative impact of eating alone on diet quality and weight. For adolescents, school-based nursing interventions should focus on preventing dinner skipping and fostering regular evening meals to support obesity prevention. Future longitudinal research is needed to clarify the causal pathways connecting eating behaviors and weight status and to inform the design of targeted dietary interventions that consider age, meal type, and social eating context.

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CONFLICTS OF INTEREST

The authors declared no conflict of interest.

AUTHORSHIP

Study conception and/or design acquisition - YJC and JL; analysis - YJC; interpretation of the data - YJC and JL; drafting and critical revision of the manuscript for important intellectual content - YJC and JL.

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DATA AVAILABILITY STATEMENT

Data can be obtained from KNHANES repository source (<https://knhanes.kdca.go.kr/knhanes/main.do>).

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