

Breakfast Skipping Behaviour Among Secondary School Students in Bachok, Kelantan

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Abstract

Breakfast is often labeled as the day's most vital meal, yet many young people continue to omit it despite its nutritional and health value. In Malaysia, most investigations have concentrated on urban adolescents, while breakfast habits in rural communities remain less understood. This research aimed to determine how often secondary school students in Bachok, Kelantan skip breakfast and to identify links with perceived weight status, socio-demographic variables, and personal routines. Using the Health Promotion Model and the Theory of Planned Behavior as guiding frameworks, a cross-sectional survey was carried out among 259 students chosen through simple random sampling. Data were collected with a validated

questionnaire and analyzed using chi-square tests. Results indicated that although the majority recognized the importance of breakfast, a sizeable group admitted to skipping it. Key reasons included beliefs about body weight, lack of prepared meals, low appetite, and food dislike. In contrast to earlier urban-based findings, the shortage of time was not a major reason in this rural context. Instead, household environment, food access, and body image concerns were the strongest influences. These findings highlight the need for tailored strategies to improve adolescent eating practices, including correcting misconceptions about weight control, strengthening family and school support, and ensuring rural canteens provide nutritious, appealing breakfast choices.

Keywords:

Breakfast skipping, secondary school, weight perception, health promotion model, Theory of Planned Behavior

1 Introduction

Breakfast plays a critical role in the diet of children and teenagers, as it is the first opportunity to replenish energy and nutrient stores after the overnight fast. A growing body of evidence suggests that regular breakfast intake supports concentration, memory, attention, and problem-solving abilities among school-aged children (Rampersaud et al., 2005). More recent work has shown that adolescents who consume balanced breakfasts perform better in terms of cognition and learning outcomes compared with their peers who regularly skip the meal (Adolphus et al., 2021).

Beyond its effect on learning, breakfast is also linked to diet quality, body weight management, and the prevention of chronic illness in later life (Deshmukh-Taskar et al., 2010; El Ati et al., 2024; Hovdenak et al., 2024). Those who consistently eat breakfast record higher nutrient intakes and healthier dietary patterns, while those who skip it face greater risks of nutrient deficiencies, overweight, and obesity. Nevertheless, skipping breakfast remains widespread across the globe, including in Malaysia (Nurul-Fadhilah et al., 2013; Sincovich et al., 2022).

Adolescence represents a period of major physical, emotional, and social change. During this stage, dietary patterns are established that often extend into adulthood, shaping long-term health outcomes (Merten et al., 2009). However, teenagers are especially vulnerable to erratic eating practices, influenced by academic stress, peer expectations, and concerns about body image. Missing breakfast is one of the most common habits reported and has been associated with immediate outcomes such as fatigue and lower academic performance, as well as long-term effects like excessive fat gain and metabolic problems (Pearcey & de Castro, 2002; El Ati et al., 2024).

In Malaysia, previous studies have mostly investigated adolescent eating behaviors in large cities. Moy and Gan (2006), for example, found high rates of breakfast omission among Kuala Lumpur schoolchildren, citing busy mornings and time limitations as the main reasons. Nurul-Fadhilah et al. (2013) also reported a connection between irregular breakfast intake and higher body fat levels. However, research is limited in rural areas where the food environment, household income, and family routines differ substantially. Rural families may rely heavily on home-prepared meals, have fewer food

outlets nearby, and operate with tighter financial constraints, all of which shape breakfast practices (Rampal et al., 2007; Man et al., 2020).

Bachok, a district in Kelantan dominated by agriculture, presents an important case to explore these issues. Household food preparation here often follows traditional patterns, and adolescents' routines are not the same as those of their urban peers. This study therefore examines breakfast-skipping behavior among adolescents in Bachok, focusing on its relationship with weight perception, socio-demographic background, and personal habits. The findings aim to clarify gaps in the literature and provide insights to design context-appropriate interventions for rural Malaysian adolescents.

2 Literature Review

2.1 Breakfast Consumption Patterns

Breakfast is commonly highlighted as the most important meal of the day, and consistent evidence links its regular intake with better dietary balance, higher consumption of key nutrients such as calcium, iron, and fiber, and improved academic outcomes. Earlier studies laid this foundation (Rampersaud et al., 2005; Deshmukh-Taskar et al., 2010), while more recent research across different populations continues to confirm the benefits of breakfast for memory, attention, and overall nutritional quality (Adolphus et al., 2021; Peña-Jorquera et al., 2021; Woods et al., 2022; Wang et al., 2023; El Ati et al., 2024).

In contrast, adolescents who forgo breakfast often substitute it with calorie-dense snacks later in the day, a behavior associated with poor diet quality and excess weight gain. Within Malaysia, irregular breakfast habits have been linked to higher body fat and central obesity (Nurul-Fadhilah et al., 2013), and international studies also show connections between skipping breakfast, overweight, and cardiovascular risks in teenagers (Hallström et al., 2012; Wang et al., 2023). These findings highlight the need to understand both how frequently breakfast is skipped and the underlying motivations.

Although time limitations are often cited as the main reason for missing breakfast, evidence across different contexts remains mixed. Many young people instead point to a lack of appetite in the morning, the absence of ready-to-eat meals, or dislike of available options (Szajewska & Ruszczyński, 2010). Cultural background and family routines also play a part in shaping how breakfast is perceived. More recently, researchers have argued that breakfast skipping is the result of multiple interacting influences including time constraints, hunger cues, food supply, weight concerns, household practices, and socioeconomic standing. The significance of each factor differs by age, sex, and socioeconomic background (Badrasawi et al., 2021; Sincovich et al., 2022; Hovdenak et al., 2024). Malaysian studies report similar patterns, with adolescents commonly missing breakfast due to time pressure, limited food availability at home, and concerns about body weight (Nurul-Fadhilah et al., 2013; Moy & Gan, 2006).

2.2 Sociodemographic Factors

Breakfast practices are strongly shaped by demographic background. Age is a consistent predictor: older adolescents are more likely to skip breakfast than younger ones, reflecting greater independence in decision-making and less structured routines (Merten et al., 2009; Sincovich et al., 2022). Gender also plays a role, with female students generally reporting higher rates of skipping, often tied to body image and weight-control motivations (Keski-Rahkonen et al., 2003; Tee et al., 2018; Yeo et al., 2024).

Socioeconomic circumstances are another important influence. Families with limited income frequently struggle to provide varied food options, which may reduce the likelihood of daily breakfast (Timlin & Pereira, 2007). In urban Malaysia, Moy and Gan (2006) found that breakfast omission among schoolchildren was strongly related to tight schedules and long commutes. In rural households, however, the challenge is different—meals are usually home-prepared, and barriers tend to involve food monotony or scarcity rather than lack of time. Recent work shows that children from lower-income backgrounds are more likely to skip breakfast at least once a week, a pattern linked to higher risks of overweight and abdominal obesity (Mikulic et al., 2024). Likewise, Tee et al. (2018) demonstrated that breakfast omission among Malaysian youth varied with age, gender, ethnicity, household income, and activity levels. Earlier work by Rampal et al. (2007) also highlighted disparities in nutritional status between rural and urban groups, although breakfast-specific comparisons were limited. Taken together, these findings indicate that age, sex, household resources, family arrangements, and living environment are all central in shaping breakfast behavior.

2.3 Review of theory

This study is informed by theoretical perspectives that elucidate the factors influencing adolescents' breakfast habits. Earlier research shows that breakfast consumption is often linked to healthier lifestyles, including greater physical activity and improved dietary quality (Deshmukh-Taskar et al., 2010). More recent studies highlight that female students, older adolescents, and those living in disadvantaged or rural settings are more prone to skipping breakfast regularly, with these demographic differences most evident among habitual skippers. In contrast, occasional breakfast omission tends to occur across groups more evenly (Sincovich et al., 2022; Hovdenak et al., 2024).

To better interpret these behaviors, the Health Promotion Model (HPM) developed by Pender et al. (2015) offers a useful framework. The model emphasizes that health behaviors are shaped by perceptions of benefits, barriers, self-efficacy, and social or situational influences. When applied to breakfast, adolescents who believe that eating in the morning enhances concentration, energy, and overall health are more likely to eat it consistently. On the other hand, those who perceive barriers—such as low appetite, unappealing food choices, or concerns about weight—are more likely to skip breakfast. Empirical evidence supports this view, demonstrating that adolescents'

perceptions of benefits and barriers strongly predict their breakfast practices (Yahia et al., 2021).

The Theory of Planned Behavior (TPB) by Ajzen (1991) provides an additional lens for understanding food-related decisions. According to this theory, attitudes, subjective norms, and perceived behavioral control shape intentions and, ultimately, behavior. In the case of breakfast, attitudes reflect whether adolescents believe that eating in the morning supports or hinders weight management. Subjective norms capture the influence of family and peers in promoting or discouraging breakfast consumption, while perceived behavioral control relates to the ability of adolescents to integrate breakfast into their daily routines, depending on food availability and time constraints. These dimensions explain why even within similar environments, some adolescents consume breakfast regularly while others consistently skip it.

Anchored in these frameworks, the present study examines the associations between breakfast skipping and three sets of factors: perceived weight status, socio-demographic characteristics, and individual habits. From this objective arise three hypotheses. First, breakfast skipping is expected to be significantly associated with adolescents’ perceptions of weight, particularly their belief that eating in the morning influences body weight. Second, breakfast skipping is anticipated to be linked to socio-demographic variables such as age, gender, income, and the rural–urban divide. Third, it is hypothesized that breakfast skipping will be associated with habit-related factors, including food availability, appetite in the morning, and taste preferences. By testing these hypotheses, the study contributes both descriptive evidence and theoretical insight into the behavioral mechanisms that shape breakfast practices among adolescents in rural Malaysia. The framework for this study is summarized in Figure 1, which positions perceived weight status, socio-demographic characteristics, and individual habits as independent variables influencing breakfast-skipping behavior as the dependent variable (Badrasawi et al., 2021; Asma Ali et al., 2019; Pengpid & Peltzer, 2020).

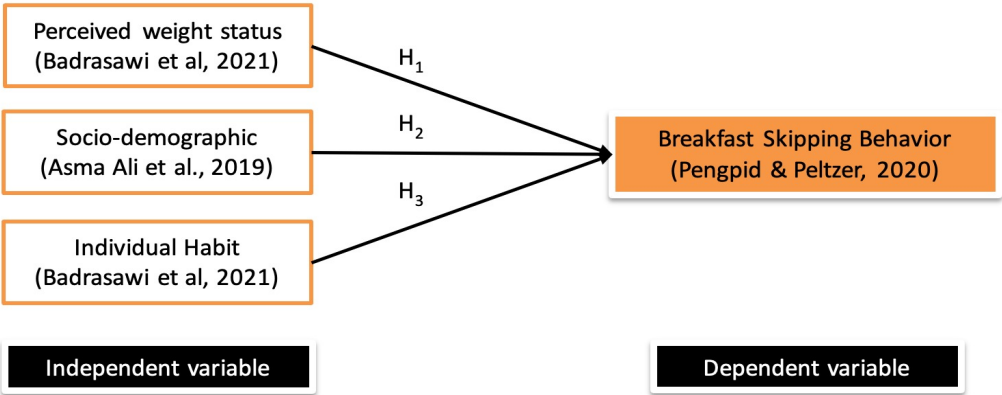


Figure 1: Study framework

3 Methodology

This research employed a cross-sectional design to investigate the factors associated with breakfast skipping among adolescents in Bachok, Kelantan. A cross-sectional approach was deemed appropriate because it allowed the study to capture the behaviors and related influences within a defined period, offering a snapshot of patterns in the target population. The setting was a secondary school located in Bachok, a rural district where agriculture remains the dominant economic activity and household practices are often traditional. This environment provided an important context for examining adolescent eating behaviors, particularly since most prior research in Malaysia has concentrated on urban schools.

The study population comprised 788 students enrolled from Form 1 to Form 6. From this population, a sample of 259 students was selected using the Krejcie and Morgan (1970) sample size determination table. Simple random sampling was applied to ensure fairness and minimize bias. A complete list of students was obtained, and random numbers were generated to select participants until the target sample was reached. This process guaranteed that each student had an equal chance of being included, thereby strengthening the representativeness and validity of the findings.

Data collection was carried out through a structured questionnaire available in both English and Bahasa Melayu to ensure clarity and accessibility. The instrument consisted of six sections: demographic information, breakfast habits, meal-skipping patterns, perceived weight status, socio-demographic details, and individual habit-related factors. Items were adapted from previously validated instruments, making them both reliable and culturally appropriate for the Malaysian adolescent population. Before the main study, a pilot test involving 79 students from a nearby school with similar characteristics was conducted. Feedback from the pilot was used to refine the questionnaire, focusing on removing ambiguity and adjusting the language to suit the respondents' age group. The pilot test yielded a Cronbach's alpha value of 0.710, which falls within the acceptable range for internal consistency, as recommended by Nunnally and Bernstein (1994).

The survey was administered during regular school hours with prior approval from the school administration. Before completing the questionnaire, students were informed of the study's objectives, assured that their participation was voluntary, and guaranteed that their responses would remain confidential. Consent from parents was secured through the school, while verbal assent was obtained from the students themselves. Questionnaires were distributed in classrooms and completed under the supervision of the researchers, who were available to clarify queries without influencing the responses. On average, each session took about 20 minutes to complete. Ethical considerations were observed throughout the process to protect the rights and privacy of all participants.

For data analysis, the Statistical Package for the Social Sciences (SPSS) Version 28 was employed. Descriptive statistics were first generated to summarize the demographic background and breakfast-related behaviors of the respondents. The chi-

square test was then used to examine relationships between breakfast skipping and the three sets of hypothesized determinants: perceived weight status, socio-demographic characteristics, and individual habits. This test was chosen because it is suitable for categorical variables and cross-sectional data, allowing for the assessment of associations between independent and dependent variables. A significance level of $p < .05$ was used to determine statistical relevance. The findings are presented in tables, accompanied by interpretations that discuss both significant and non-significant outcomes.

4 Findings

A total of 259 students participated in the survey, representing adolescents from Form 1 to Form 6 in Bachok, Kelantan. The demographic composition of the sample reflected the school's overall population in terms of age and gender. Most respondents were between 13 and 15 years old, comprising 87.3 percent of the group, while those aged 16 to 18 made up the remaining 12.7 percent. Female students accounted for a higher proportion of participants at 60.2 percent, compared with 39.8 percent male participation. With regard to academic levels, 32.0 percent of students were in Form 1, 25.1 percent in Form 2, and 30.5 percent in Form 3, while only 12.4 percent were in the upper secondary levels of Form 4 to Form 6.

Table 1: Demographic Profile of Respondents

Demographic Characteristics		N	%
Age	13–15	226	87.3
	16–18	16	6.2
	19 and above	17	6.6
Gender	Male	103	39.8
	Female	156	60.2
Level of Education	Form 1	83	32.0
	Form 2	65	25.1
	Form 3	79	30.5
	Form 4	0	0.0
	Form 5	1	0.4
	Form 6	31	12.0
Allowance/day (RM)	0–5	93	35.9
	6–8	123	47.5
	10 and above	43	16.6
Total		259	100

Allowance patterns further illustrated the socioeconomic background of respondents. More than one-third of the students (35.9 percent) reported receiving between RM0 and RM5 per day, while nearly half (47.5 percent) received between RM6 and RM8. A smaller proportion, 16.6 percent, reported receiving RM9 or more. These figures highlight variations in daily spending capacity among students, reflecting differences in household financial resources.

Breakfast-related behaviors showed that although most students valued breakfast, their actual practices did not always align with this belief. Almost all respondents expressed positive attitudes, with 46.7 percent strongly agreeing and 51.8 percent agreeing that breakfast is important. Nonetheless, approximately 16 and 17 percent reported skipping breakfast either daily or weekly. Household influence also shaped practices, as 35.5 percent stated that their skipping behavior mirrored family members, while 51.0 percent said their skipping occurred independently of family patterns.

Weight perception emerged as another major factor. A total of 68.3 percent of respondents reported feeling that they needed to lose weight. More than half of the students (55.2 percent) disagreed with the idea that breakfast contributes to weight gain, yet 37.1 percent believed that skipping breakfast was an effective way to control weight. These results underline how weight-related concerns and misconceptions affect eating habits in this group.

The chi-square analysis demonstrated significant associations between breakfast skipping and several variables. Perceptions that breakfast contributes to weight gain, beliefs that one needs to lose weight, and the view that skipping helps with weight control were all significantly related to breakfast-skipping behavior. Socio-demographic factors also played a role. Students who were not living with their parents were more likely to skip breakfast, and significant differences were observed between rural and urban contexts. However, family income did not show a significant relationship with breakfast behavior.

Individual habit factors were also important. Students who reported that no ready-prepared food was available at home were more likely to skip. Lack of appetite in the morning and dislike of available foods were both significantly linked to skipping. Interestingly, lack of time, which is often cited as the main reason in urban contexts, was not significant in this rural sample.

Table 2: Summary of Significant Chi-Square Associations

Variable	χ^2 Value	df	p-value	Hypothesis Supported
Perceived weight status				
Breakfast increases weight	19.469	6	.003	Yes
I need to lose weight	8.204	3	.042	Yes
Skipping breakfast helps weight control	18.295	6	.006	Yes
Socio-demographic				
Staying with parents' influences skipping	29.999	12	.003	Yes
Rural vs. urban skipping	17.953	6	.006	Yes
Family income influences skipping	5.922	6	.432	No
Individual Habit				
Lack of ready food	19.093	6	.004	Yes
Not feeling hungry	14.941	6	.021	Yes
Disliking food choices	35.446	12	.000	Yes
No time for breakfast	16.668	12	.163	No

N = 259

Overall, the findings indicate that breakfast-skipping behavior among adolescents in Bachok was driven more by weight-related perceptions, living arrangements, and food-related factors than by time constraints. While the majority of students acknowledged the importance of breakfast, a notable minority continued to omit it, often due to body image concerns or food-related barriers such as limited availability, low appetite, or dislike of the options provided. These results suggest that interventions in rural communities should not assume that time scarcity is the main obstacle but should instead focus on correcting misconceptions about weight control and addressing household food practices.

5 Discussions

The present study examined the factors associated with breakfast-skipping behavior among adolescents in Bachok, Kelantan, with a particular focus on weight perceptions, socio-demographic background, and individual habits. The findings revealed that while most respondents acknowledged the importance of breakfast, a considerable proportion continued to skip it, reflecting a gap between knowledge and practice. This pattern aligns with earlier studies in Malaysia and internationally, which similarly reported that positive attitudes toward breakfast often fail to translate into consistent behavior (Nurul-Fadhilah et al., 2013; Sincovich et al., 2022).

One of the most prominent results was the influence of body weight perceptions. A majority of respondents expressed concern about the need to lose weight, and many believed that skipping breakfast could serve as a strategy for weight control. These misconceptions echo findings from Keski-Rahkonen et al. (2003) and Tee et al. (2018), who reported that female adolescents, in particular, were more likely to miss breakfast due to body image concerns. The current study, therefore, reinforces the role of weight-related beliefs as a significant driver of unhealthy eating practices. Such misconceptions warrant targeted educational interventions that emphasize the evidence linking breakfast consumption to healthier weight outcomes and better dietary balance (Deshmukh-Taskar et al., 2010; El Ati et al., 2024).

Socio-demographic factors were also shown to shape breakfast practices. Living arrangements influenced behavior, as students who were not staying with their parents were more likely to skip breakfast. This finding suggests that the presence of parents or caregivers contributes to greater meal regularity, a pattern consistent with previous research that identified family routines as an important determinant of adolescent eating habits (Moy & Gan, 2006; Rampal et al., 2007). Differences between rural and urban settings were also significant, highlighting how environmental context influences access to food and mealtime routines. Interestingly, household income did not emerge as a significant factor in this study. This contrasts with international findings where lower income has been consistently linked to higher rates of breakfast omission (Timlin & Pereira, 2007; Mikulic et al., 2024). A possible explanation is that in rural communities like Bachok, the reliance on home-prepared meals reduces the impact of household income compared with urban settings, where food purchases play a larger role.

Individual habit-related factors were equally important. Students who lacked access to ready-prepared food, who reported low appetite in the morning, or who disliked the available options were significantly more likely to skip breakfast. These findings are in line with earlier studies showing that taste preference and household food preparation play crucial roles in shaping adolescent eating behavior (Szajewska & Ruszczyński, 2010; Badrasawi et al., 2021). However, unlike studies conducted in urban environments, lack of time was not identified as a significant barrier in this rural population. This supports the idea that interventions must be tailored to context. While time scarcity may be the dominant explanation in urban centers (Moy & Gan, 2006), rural interventions should instead prioritize improving food availability, enhancing the appeal of breakfast options, and addressing misconceptions around appetite and weight control.

Taken together, these results emphasize that breakfast-skipping behavior in rural Kelantan is a multifaceted issue shaped by individual beliefs, family structures, and environmental context. The application of the Health Promotion Model (Pender et al., 2015) and the Theory of Planned Behavior (Ajzen, 1991) helps explain these findings. Adolescents who perceive barriers such as unappealing food or concerns about weight are less likely to eat breakfast, while those with supportive family environments and stronger behavioral control are more likely to maintain regular breakfast habits. Addressing these behavioral drivers requires interventions that correct false beliefs about weight, strengthen parental and school involvement, and ensure that appealing, nutritious food options are readily available in rural school settings.

6 Conclusion

This study investigated breakfast-skipping behavior among adolescents in Bachok, Kelantan, with particular attention to weight perceptions, socio-demographic background, and individual habits. The results showed that although most students valued the importance of breakfast, a substantial proportion still reported skipping it on a regular basis. The analysis revealed that perceived weight status, living arrangements, rural–urban differences, and individual habits such as food availability, appetite, and food preference were the main determinants of breakfast omission. In contrast, household income and time constraints, which are often highlighted in urban-based studies, did not emerge as significant factors in this rural context.

The findings underscore the complex interplay of personal beliefs, household dynamics, and environmental conditions in shaping adolescent eating behavior. Misconceptions regarding weight control were particularly influential, as many students perceived skipping breakfast as a strategy to lose or manage weight. This highlights the urgent need for health education programs that correct these misunderstandings and emphasize the role of regular breakfast consumption in maintaining a healthy body weight and improving academic performance.

Based on the results, several recommendations can be made. Schools should collaborate with health authorities to design targeted educational campaigns that address false beliefs about breakfast and weight control. Such campaigns could be

integrated into the school curriculum and supported by workshops or peer-led initiatives. Family involvement is also essential. Parents should be encouraged to prepare simple, nutritious, and appealing breakfast options, ensuring that food availability and variety are not barriers to regular intake. In addition, school canteens should be supported in providing affordable and attractive breakfast choices that meet nutritional standards, especially in rural settings where food outlets are limited.

Future research could expand on these findings by using longitudinal designs to capture changes in breakfast behavior over time and by incorporating qualitative methods to better understand adolescents' personal experiences and motivations. Further comparisons between rural and urban populations would also help clarify how different environments shape breakfast practices.

In conclusion, breakfast skipping among adolescents in Bachok is a multifaceted issue driven mainly by weight-related perceptions and household or environmental factors. Addressing these barriers through education, family support, and improved access to healthy food options may help promote healthier eating habits and, in the long term, contribute to improved well-being and academic achievement among Malaysian adolescents.

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8 References

- Adolphus, K., Hoyland, A., Walton, J., Quadt, F., Lawton, C. L., & Dye, L. (2021). Ready-to-eat cereal and milk for breakfast compared with no breakfast has a positive acute effect on cognitive function and subjective state in 11–13-year-olds: A school-based, randomised, controlled, parallel groups trial. *European Journal of Nutrition*, 60(6), 3325–3342. <https://doi.org/10.1007/s00394-021-02506-2>
- Ajzen, I. (1991). The theory of planned behavior. *Organizational Behavior and Human Decision Processes*, 50(2), 179–211. [https://doi.org/10.1016/0749-5978\(91\)90020-T](https://doi.org/10.1016/0749-5978(91)90020-T)
- Asma', A., Wan Syakirah Alia, W. M. S., Aziz, Y., & Hayati, M. Y. (2019). Energy contribution of NOVA food groups and socio-demographic determinants of ultra-processed groups among adults in Terengganu, Malaysia. *Food Research*, 3(6), 661–669. [https://doi.org/10.26656/fr.2017.3\(6\).150](https://doi.org/10.26656/fr.2017.3(6).150)
- Badrasawi, M., Anabtawi, O., & Al-Zain, Y. (2021). Breakfast characteristics, perception, and reasons of skipping among 8th and 9th-grade students at governmental schools, Jenin Governance, West Bank. *BMC Nutrition*, 7(42). <https://doi.org/10.1186/s40795-021-00451-1>
- Deshmukh-Taskar, P. R., Nicklas, T. A., O'Neil, C. E., Keast, D. R., Radcliffe, J. D., & Cho, S. (2010). The relationship of breakfast skipping and type of breakfast consumption with nutrient intake and weight status in children and adolescents: The National Health and Nutrition Examination Survey 1999–2006. *Journal of the American Dietetic Association*, 110(6), 869–878. <https://doi.org/10.1016/j.jada.2010.03.023>
- El Ati, J., Doggui, R., Dogui, D., & El Ati-Hellal, M. (2024). Skipping breakfast is associated with inadequate nutrient intakes among Tunisian children: A cross-sectional study. *Frontiers in Pediatrics*, 12, 1427638. <https://doi.org/10.3389/fped.2024.1427638>
- Hallström, L., Labayen, I., Ruiz, J. R., Patterson, E., Vereecken, C. A., & Sjöström, M. (2012). Breakfast consumption and CVD risk factors in European adolescents: The HELENA (Healthy Lifestyle in Europe by Nutrition in Adolescence) Study. *Public Health Nutrition*, 15(10), 1879–1889. <https://doi.org/10.1017/S1368980012000341>
- Hovdenak, I. M., Holsen, I., & Iversen, P. O. (2024). Socioeconomic inequality in breakfast skipping among Norwegian adolescents. *Nutrition Journal*, 23(1), 45. <https://doi.org/10.1186/s12937-024-00998-2>
- Keski-Rahkonen, A., Kaprio, J., Rissanen, A., Virkkunen, M., & Rose, R. J. (2003). Breakfast skipping and health-compromising behaviors in adolescents and adults. *European Journal of Clinical Nutrition*, 57(7), 842–853. <https://doi.org/10.1038/sj.ejcn.1601618>

- Krejcie, R. V., & Morgan, D. W. (1970). Determining sample size for research activities. *Educational and Psychological Measurement*, 30(3), 607–610. <https://doi.org/10.1177/001316447003000308>
- Man, C. S., Salleh, R., Ahmad, M. H., Baharudin, A., Koon, P. B., & Aris, T. (2020). Dietary Patterns and Associated Factors Among Adolescents in Malaysia: Findings from Adolescent Nutrition Survey 2017. *International Journal of Environmental Research and Public Health*, 17(10), 3431. <https://doi.org/10.3390/ijerph17103431>
- Merten, M. J., Williams, A. L., & Shriver, L. H. (2009). Breakfast consumption in adolescence and young adulthood: Parental presence, community context, and obesity. *Journal of the American Dietetic Association*, 109(8), 1384–1391. <https://doi.org/10.1016/j.jada.2009.05.008>
- Mikulic, N., Khouw, I., Ng, S. A., Rojroongwasinkul, N., Vongvimetee, N., Tran, N. T., Tran, V. K., Sekartini, R., Chandra, D. N., Poh, B. K., Wong, J. E., Singh-Povel, C. M., & de Groot, N., on behalf of the SEANUTS II Study Group. (2024). Dairy Consumption at Breakfast among Southeast Asian Children: Associations with Nutrient Intake from the South East Asian Nutrition Surveys II (SEANUTS II). *Nutrients*, 16(19), 3229. <https://doi.org/10.3390/nu16193229>
- Moy, F. M., & Gan, C. Y. (2006). Eating patterns of school children and adolescents in Kuala Lumpur. *Malaysian Journal of Nutrition*, 12(1), 1–10.
- Nunnally, J. C., & Bernstein, I. H. (1994). *Psychometric theory* (3rd ed.). McGraw-Hill.
- Nurul-Fadhilah, A., Teo, P. S., Huybrechts, I., Foo, L. H., & Ng, L. O. (2013). Infrequent breakfast consumption is associated with higher body adiposity and abdominal obesity in Malaysian school-aged adolescents. *Public Health Nutrition*, 16(11), 2019–2026. <https://doi.org/10.1371/journal.pone.0059297>
- Pengpid, S., & Peltzer, K. (2020). Skipping Breakfast and Its Association with Health Risk Behaviour and Mental Health Among University Students in 28 Countries. *Diabetes, Metabolic Syndrome and Obesity*, 13, 2889–2897. <https://doi.org/10.2147/DMSO.S241670>
- Pearcey, S. M., & de Castro, J. M. (2002). Food intake and meal patterns of weight-stable and weight-gaining persons. *American Journal of Clinical Nutrition*, 75(6), 1071–1077. <https://doi.org/10.1093/ajcn/76.1.107>
- Peña-Jorquera, H., Campos-Núñez, V., Sadarangani, K. P., Ferrari, G., Jorquera-Aguilera, C., & Cristi-Montero, C. (2021). Breakfast: A crucial meal for adolescents' cognitive performance according to their nutritional status (The Cogni-Action Project). *Nutrients*, 13(4), 1320. <https://doi.org/10.3390/nu13041320>
- Pender, N. J., Murdaugh, C. L., & Parsons, M. A. (2015). *Health promotion in nursing practice* (7th ed.). Pearson.
- Rampal, L., Rampal, S., Khor, G. L., Zain, A. M., Ooyub, S. B., Rahmat, R. B., Ghani, S. N. & Krishnan, J. (2007). A national study on the prevalence of obesity among 16,127 Malaysians. *Asia Pacific Journal of Clinical Nutrition*, 16(3), 561–566.
- Rampersaud, G. C., Pereira, M. A., Girard, B. L., Adams, J., & Metz, J. D. (2005). Breakfast habits, nutritional status, body weight, and academic performance in children and adolescents. *Journal of the American Dietetic Association*, 105(5), 743–760. <https://doi.org/10.1016/j.jada.2005.02.007>
- Sincovich, A., Moller, H., Smithers, L., Brushe, M., Lassi, Z. S., Brinkman, S. A., & Gregory, T. (2022). Prevalence of breakfast skipping among children and adolescents: A cross-sectional population level study. *BMC Pediatrics*, 22(1), 220. <https://doi.org/10.1186/s12887-022-03284-4>

- Szajewska, H., & Ruszczyński, M. (2010). Systematic review demonstrating that breakfast consumption influences body weight outcomes in children and adolescents in Europe. *Critical Reviews in Food Science and Nutrition*, 50(2), 113–119. <https://doi.org/10.1080/10408390903467514>
- Tee, E. S., Nurliyana, A. R., Norimah, A. K., Mohamed, H. J. B. J., Tan, S. Y., Appukutty, M., Hopkins, S., Thielecke, F., Ong, M. K., Ning, C., & Nasir, M. T. M. (2018). Breakfast consumption among Malaysian primary and secondary school children and relationship with body weight status - Findings from the MyBreakfast Study. *Asia Pacific Journal of Clinical Nutrition*, 27(2), 421–432. <https://doi.org/10.6133/apjcn.062017.12>
- Timlin, M. T., & Pereira, M. A. (2007). Breakfast frequency and quality in the etiology of adult obesity and chronic diseases. *Nutrition Reviews*, 65(6), 268–281. <https://doi.org/10.1301/nr.2007.jun.268-281>
- Wang, K., Zhang, Y., Feng, Y., & Zhou, S. (2023). The effect of breakfast on childhood obesity: A systematic review and meta-analysis. *Frontiers in Nutrition*. <https://doi.org/10.3389/fnut.2023.1222536>
- Woods, N., Seabrook, J. A., Haines, J., Stranges, S., Minaker, L., O'Connor, C., Doherty, S., Gilliland, J., et al. (2022). Breakfast consumption and diet quality of teens in Southwestern Ontario. *Current Developments in Nutrition*, 7(2), 100003. <https://doi.org/10.1016/j.cdnut.2022.100003>
- Yahia, N., Wang, D., Rapley, M., & Dey, R. (2016). Assessment of weight status, dietary habits and beliefs, physical activity, and nutritional knowledge among university students. *Perspectives in public health*, 136(4), 231–244. <https://doi.org/10.1177/1757913915609945>
- Yeo, G. S., Lee, S. T., Wong, J. E., Khouw, I., Safii, N. S., Poh, B. K., & SEANUTS II Malaysia Study Group (2024). Association of breakfast skipping on nutrient intake and adiposity in Malaysian children: Findings from SEANUTS II. *Appetite*, 201, 107607. <https://doi.org/10.1016/j.appet.2024.107607>