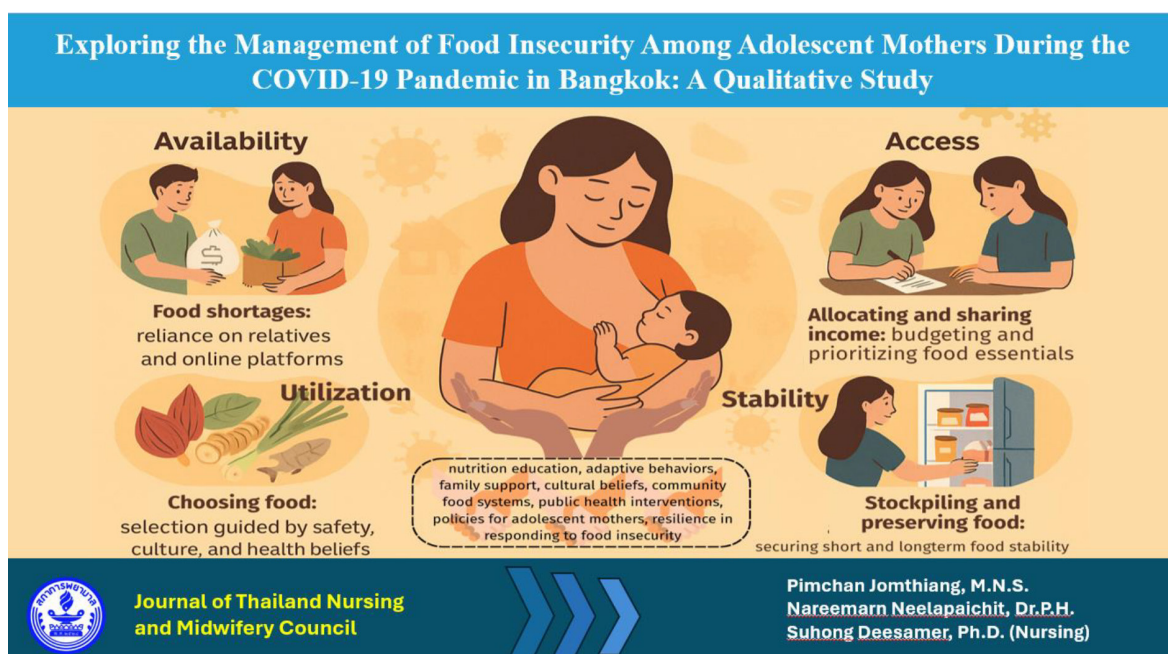


Exploring the Management of Food Insecurity Among Adolescent Mothers During the COVID-19 Pandemic in Bangkok: A Qualitative Study¹

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Extended Abstract

Introduction The COVID-19 pandemic has profoundly disrupted global food systems through border closures, supply chain delays, and economic hardship, thereby exacerbating food insecurity, particularly among vulnerable populations such as adolescent mothers. These adolescent mothers face compounded socio-economic challenges that directly impact their access to food, nutrition, and health. In Thailand, the complexity of food insecurity is further intensified by the

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limitations of targeted policy measures and the lack of comprehensive health data on adolescent mothers during times of crisis. Most existing studies have primarily focused on the general population or adult mothers, resulting in a significant gap in understanding the unique vulnerabilities, coping mechanisms, and management strategies employed by adolescent mothers in urban contexts.

Objective This study aims to explore food insecurity management strategies of adolescent mothers affected by the COVID-19 pandemic in the Bangkok Metropolitan area.

Design This study employed a qualitative descriptive research design, guided by Bronfenbrenner's Ecological Systems Theory, which conceptualizes human development as occurring within nested subsystems, namely the microsystem, mesosystem, exosystem, macrosystem, and chronosystem. This framework highlights how individual experiences are influenced by interactions within the contexts of family, community, society, and time. Additionally, the study integrates the Food and Agriculture Organization's (FAO) four dimensions of food security, including availability, access, utilization, and stability, to explain the multifaceted aspects of food insecurity.

Methodology The study participants consisted of 15 postpartum adolescent mothers aged 15–19 years, recruited from a tertiary hospital in Bangkok through purposive sampling based on predefined inclusion and exclusion criteria. Data were collected through three rounds of in-depth interviews with each participant, guided by a semi-structured interview protocol that had been content-validated by three experts. Additional data were obtained through field notes. Data collection continued until thematic saturation was reached, at which point no new themes emerged in the final interviews. The data were analyzed using content analysis to interpret the participants' experiences and strategies for managing food insecurity within the context of a public health crisis.

Results Content analysis revealed four major themes: 1) Food Shortages: Relying on Relatives and Online Services; 2) Allocating and Sharing Income: budgeting and prioritizing food essentials; 3) Choosing Food, Choosing Sources, Choosing What to Eat; and 4) Stockpiling, Prioritizing, and Preserving Food: securing short- and long-term food stability. These themes align with the four dimensions of food security as defined by the Food and Agriculture Organization (FAO): availability, access, utilization, and stability. Cultural beliefs and community support systems played a significant role in shaping the participants' responses to food insecurity during the crisis.

Recommendation This study emphasizes the critical role of family support in managing food insecurity among postpartum adolescent mothers during the COVID-19 pandemic. While various coping strategies such as budgeting, food sharing, and the use of traditional practices contributed to resilience and adaptive capacity during the crisis, limitations in dietary diversity were still evident. These findings highlight an initial need for targeted policy development aimed at enhancing access to resources, strengthening family and community networks, and promoting culturally appropriate nutrition education. Furthermore, integrating adolescent mothers into future crisis preparedness plans is essential. Additional research is recommended to explore the long-term impacts and to develop sustainable support mechanisms.

Keywords adolescent mothers/ COVID-19/ food insecurity/ qualitative study/ management

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การจัดการความไม่มั่นคงทางอาหารของแม่วัยรุ่นในช่วงการระบาดของ โรคโควิด-19 ในกรุงเทพมหานคร: การวิจัยเชิงคุณภาพ¹

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บทคัดย่อขยาย

บทนำ การระบาดของโรคโควิด-19 ส่งผลกระทบต่อระบบอาหารทั่วโลกอย่างรุนแรง ผ่านการปิดพรมแดน ความล่าช้าในห่วงโซ่อุปทานและวิกฤตเศรษฐกิจ ส่งผลให้ปัญหาความไม่มั่นคงทางอาหารทวีความรุนแรงขึ้น โดยเฉพาะในกลุ่มเปราะบาง เช่น แม่วัยรุ่น ซึ่งต้องเผชิญกับปัญหาวิกฤตด้านเศรษฐกิจสังคมที่ส่งผลต่ออาหาร โภชนาการและสุขภาพ สำหรับประเทศไทยปัญหาความมั่นคงทางอาหารมีความซับซ้อนยิ่งขึ้นจากข้อจำกัดด้านมาตรการที่มุ่งเป้าหมายเฉพาะกลุ่มและข้อจำกัดของข้อมูลด้านสุขภาพของแม่วัยรุ่นในช่วงภาวะวิกฤต การศึกษาส่วนใหญ่มุ่งเน้นไปที่ประชากรทั่วไปหรือมารดาวัยผู้ใหญ่ จึงยังขาดความเข้าใจในความเปราะบางเฉพาะตัวและกลยุทธ์ในการรับมือและการจัดการของแม่วัยรุ่นในบริบทเมือง

วัตถุประสงค์ เพื่อศึกษาการจัดการความไม่มั่นคงทางอาหารของแม่วัยรุ่นที่ได้รับผลกระทบจากการระบาดของโรคโควิด-19 ในเขตกรุงเทพมหานคร

การออกแบบวิจัย การศึกษานี้เป็นการวิจัยเชิงคุณภาพแบบบรรยาย โดยใช้กรอบแนวคิดทฤษฎีระบบนิเวศของบรอนเฟนเบรนเนอร์ ซึ่งมองการพัฒนาของมนุษย์ว่าเกิดขึ้นภายใต้ระบบย่อยที่ซ้อนทับกัน ประกอบด้วย ไมโครซิสเต็ม เมโซซิสเต็ม เอ็กโซซิสเต็ม แมโครซิสเต็ม และโครโนซิสเต็ม สะท้อนให้เห็นว่าประสบการณ์ของแต่ละบุคคลได้รับอิทธิพลจากปฏิสัมพันธ์ในบริบทของครอบครัว ชุมชน สังคม และเวลา นอกจากนี้ยังบูรณาการแนวคิด 4 มิติของความมั่นคงทางอาหารขององค์การอาหารและเกษตรแห่งสหประชาชาติ ได้แก่ ความเพียงพอของอาหาร การเข้าถึงอาหาร การใช้ประโยชน์ของอาหาร และเสถียรภาพของอาหาร เพื่ออธิบายความซับซ้อนของปัญหาความไม่มั่นคงด้านอาหาร

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การดำเนินการวิจัย ผู้ให้ข้อมูลประกอบด้วย แม่วัยรุ่นหลังคลอด อายุ 15–19 ปี จำนวน 15 คน จากโรงพยาบาลตติยภูมิแห่งหนึ่งในกรุงเทพมหานคร เลือกแบบเฉพาะเจาะจงตามเกณฑ์คัดเข้าและเกณฑ์คัดออก เก็บรวบรวมข้อมูลโดยการสัมภาษณ์เชิงลึกรายละเอียด 3 ครั้ง โดยใช้แนวทางการสัมภาษณ์กึ่งโครงสร้างที่ได้รับตรวจสอบเนื้อหาโดยผู้ทรงคุณวุฒิ 3 ท่าน และข้อมูลจากการสังเกตภาคสนาม การเก็บรวบรวมข้อมูลดำเนินไปจนกระทั่งข้อมูลถึงจุดอิ่มตัว ซึ่งไม่พบประเด็นใหม่เพิ่มเติมในการสัมภาษณ์ช่วงสุดท้าย วิเคราะห์ข้อมูลด้วยวิธีการวิเคราะห์เนื้อหา เพื่อแปลความหมายของประสบการณ์และกลยุทธ์ในการจัดการความไม่มั่นคงด้านอาหารภายใต้บริบทวิกฤตสาธารณสุข

ผลการวิจัย ผลการวิเคราะห์ข้อมูลพบ 4 ประเด็นสำคัญ ได้แก่ 1) อาหารขาดตลาด พึ่งพาญาติและออนไลน์ 2) จัดสรรปันรายได้ 3) เลือกอาหาร เลือกแหล่ง เลือกกิน และ 4) กักตุน จัดลำดับถนอมอาหาร ทั้งนี้ประเด็นที่พบสอดคล้องกับ 4 มิติของความมั่นคงด้านอาหาร ได้แก่ ความเพียงพอของอาหาร การเข้าถึงอาหาร การใช้ประโยชน์ของอาหาร และเสถียรภาพของอาหาร โดยความเชื่อทางวัฒนธรรมและระบบสนับสนุนจากชุมชนมีบทบาทสำคัญในการจัดการปัญหา

ข้อเสนอแนะ การศึกษานี้เน้นย้ำถึงความสำคัญของการสนับสนุนจากครอบครัวในการจัดการความไม่มั่นคงด้านอาหารของแม่วัยรุ่นหลังคลอดในช่วงการระบาดของโรคโควิด-19 แม้อุปกรณ์ต่าง ๆ เช่น การวางแผนงบประมาณ การแบ่งปันอาหาร และการใช้ภูมิปัญญาท้องถิ่น จะช่วยสร้างความเข้มแข็งและความยืดหยุ่นต่อวิกฤต แต่ยังคงพบข้อจำกัดในด้านความหลากหลายของอาหาร จึงควรรวบรวมเป็นข้อเสนอเพื่อพัฒนานโยบายที่มุ่งเป้าเพื่อเพิ่มการเข้าถึงทรัพยากร เสริมสร้างเครือข่ายครอบครัวและชุมชน และส่งเสริมการศึกษาด้านโภชนาการที่เหมาะสมกับบริบททางวัฒนธรรม รวมถึงการบูรณาการกลุ่มแม่วัยรุ่นในแผนการเตรียมความพร้อมรับมือภาวะวิกฤตในอนาคต และควรมีการวิจัยเพิ่มเติมเพื่อศึกษาผลกระทบในระยะยาวและแนวทางการดูแลช่วยเหลือที่ยั่งยืน

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คำสำคัญ แม่วัยรุ่น โรคโควิด-19 ความไม่มั่นคงทางอาหาร การวิจัยเชิงคุณภาพ การจัดการวันที่ได้รับ 18 เม.ย. 68 วันที่แก้ไขบทความเสร็จ 14 พ.ค. 68 วันที่รับตีพิมพ์ 29 พ.ค. 68

Introduction

The COVID-19 pandemic caused global disruptions, including border closures, supply chain interruptions, and labor shortages, severely impacting agricultural and food markets. These disruptions intensified food insecurity, particularly among vulnerable groups like adolescent mothers, who face economic pressures, limited resources, and unique nutritional needs.¹⁻⁴

Food insecurity, defined as inconsistent access to sufficient, safe, and nutritious food, disproportionately affects vulnerable populations. The pandemic worsened inequalities, particularly in low and middle-income countries with weaker social safety nets and reliance on informal markets.⁵ Even in high-income countries, low-income households struggled with rising food prices and reduced employment opportunities.^{6,7}

During pregnancy, food insecurity has severe effects due to increased nutritional demands for supporting fetal growth. Adolescent mothers are especially vulnerable, as their children face a higher risk of nutritional deficiencies, perpetuating a cycle of malnutrition.⁸ Food insecurity is linked to adverse maternal and child health outcomes, including low birth weight, developmental delays, and postpartum complications.⁹⁻¹² Adolescent mothers in Thailand face challenges such as dropping out of school, limited job opportunities, and financial dependence on family.¹³ The pandemic exacerbated these issues by disrupting food systems, increasing reliance on processed foods, and deepening food access inequalities.¹⁴ However, research on how adolescent mothers cope with food insecurity during crises in Thailand remains limited.

Globally, studies on food insecurity during the pandemic have mainly focused on general populations, low-income families, and rural communities.^{15,16} These studies often overlook the specific challenges of adolescent mothers, particularly in urban settings. Existing research on maternal food insecurity tends to center on adult

mothers, neglecting younger mothers' unique vulnerabilities and coping strategies.^{15,17} In Thailand, particularly in the Bangkok Metropolitan Area, where urban poverty and economic disparities persist, postpartum adolescent mothers represent a particularly vulnerable group. The COVID-19 pandemic has intensified food insecurity among this population by disrupting income sources, limiting access to nutritious food, and straining fragile support systems. Research on food security has primarily focused on rural communities, agricultural systems, and food-sharing programs.^{14,18} Research on adolescent mothers in urban contexts is limited, with existing studies focusing mainly on non-crisis situations.¹⁹ There is limited understanding of how adolescent mothers manage food insecurity during crises, especially the COVID-19 pandemic, which has heightened food insecurity and disproportionately affected them. This study addresses these gaps by exploring how adolescent mothers in urban areas navigated food insecurity during the COVID-19 pandemic. Understanding their experiences and management strategies provides insights into the unique challenges faced by this vulnerable group, with the intention of informing targeted, culturally sensitive interventions and policies to address the multifaceted nature of food insecurity and effectively promote maternal and child health outcomes in urban Thai communities.

Research Objective

This study aims to explore how adolescent mothers affected by the COVID-19 pandemic manage food insecurity.

Conceptual framework

This study was grounded in a constructivist paradigm, which assumes that knowledge is co-constructed through individuals' interactions with their social and environmental contexts. It values multiple realities and the subjective meanings that

individuals assign to their lived experiences. Accordingly, the study was guided by Bronfenbrenner's Ecological Systems²⁰ Theory and the Food and Agriculture Organization's (FAO) concept of food security to explore food insecurity among postpartum adolescent mothers during the COVID-19 pandemic.

The ecological perspective enabled an in-depth examination of five interrelated levels- individual, interpersonal, community, cultural, and temporal- demonstrating how these layers shaped the adolescent mothers' experiences of food insecurity. FAO's four dimensions of food security- availability, access, utilization, and stability were applied to analyze how factors at each ecological level influenced food adequacy, resource access, culturally informed food practices, and coping mechanisms during crises. This integrated framework offered a comprehensive lens to understand the complex interactions influencing food insecurity and highlighted the need for contextually responsive interventions for this vulnerable population.

Methodology

Research Design and Paradigm

This study employed a qualitative descriptive design grounded in a pragmatic paradigm to explore postpartum adolescent mothers' experiences with food insecurity during the COVID-19 pandemic. The approach aimed to generate in-depth, practical insights for contextual understanding and health service improvement.

Research Setting and Context

The study was conducted at Bhumibol Adulyadej Hospital, a tertiary hospital in Bangkok, Thailand. Interviews took place in private consultation rooms, participants' homes, or by phone, depending on their preference and convenience, ensuring privacy and comfort during data collection.

Researcher Characteristics and Reflexivity

The principal researcher was a registered nurse and a graduate student in community health

nursing with prior experience in adolescent maternal care. Reflexivity was maintained by acknowledging the researcher's dual role as both clinician and investigator. Personal biases were bracketed to minimize influence on data collection and interpretation.

Sampling Strategy

Purposive sampling was used to recruit adolescent mothers who met the following inclusion criteria: aged 15-19 years; recently gave birth and received care at Bhumibol Adulyadej Hospital between November 17, 2021, and August 12, 2022; monthly personal income under 10,000 Baht (approximately 300 USD); fluent and literate in Thai; identified as impacted by COVID-19; screened as food insecure using validated tools; had access to a mobile phone and the internet. Exclusion criteria included having medical complications requiring ongoing treatment, involvement in legal proceedings, or withdrawal during the interview process. Recruitment continued until thematic saturation was reached, resulting in 15 participants.

Ethical Consideration

Ethical approval was obtained from the Human Research Ethics Committees of Ramathibodi Hospital (ID: 2021/769) and Bhumibol Adulyadej Hospital (ID: 90/64). Written informed consent was obtained from all participants. For minors under 18, parental consent was also required. Participant confidentiality was maintained through anonymization and secure data storage.

Research Instruments

Part I: Screening Instruments

1. Food Insecurity Questionnaire, adapted from Piaseu et al.,²¹ was used as a screening tool to identify eligible participants who had experienced food insecurity during the COVID-19 pandemic. The data obtained from this instrument were not analyzed quantitatively but were used to ensure that all participants met the inclusion criteria.

2. The COVID-19 Impact Screening Tool was developed by researchers based on a literature review to identify individuals affected by the COVID-19 pandemic in ways that could contribute to food insecurity. The tool began with one screening question (“impacted” or “not impacted” by COVID-19) followed by 10 items administered only to those who responded “impacted.” The items assessed aspects such as job loss, income reduction, limited food access, and increased household burden. The results derived from this instrument served to confirm that each participant met the predefined inclusion criteria.

Part II: Data Collection Instruments

1. Personal Questionnaire and Nutritional Data Record adapted from Prommi et al.¹⁹ additional items were adapted to reflect the postpartum context.

2. Nutritional Data Record (adapted from Prommi et al.¹⁹) Additional items were adapted to reflect the postpartum context.

3. The Semi-Structured Interview Guide was developed based on the FAO’s four dimensions of food security and reviewed by three experts to ensure content relevance and clarity. Prior to the main data collection, a pilot test involving two postpartum adolescent mothers with similar characteristics to the study participants was conducted. Their feedback led to minor but meaningful revisions that improved the clarity, sequencing, and overall flow of the interview questions.

Data Collection Procedures

Each participant took part in three rounds of in-depth interviews: 48–72 hours postpartum, 1–2 weeks postpartum, and 6–8 weeks postpartum. Each session lasted approximately 45–60 minutes and began with general questions to build rapport. Interviews were conducted in Thai, audio-recorded with consent, and transcribed verbatim. Field observations and brief questionnaires were used to triangulate interview data. Data collection continued until thematic saturation was achieved.

Data Processing and Analysis

Interview recordings were transcribed verbatim and cross-checked with field notes. The researcher summarized key findings after each session to ensure clarity and consistency. Data were analyzed using content analysis, following the frameworks of Benner.^{22,23} The process involved open coding, identifying subthemes, and synthesizing themes through iterative comparison. Thematic structures were organized into themes, categories, and sub-categories.

Trustworthiness

To ensure the rigor of the study, Lincoln and Guba’s criteria²⁴ for trustworthiness were applied: Credibility: Member checking and peer debriefing; Transferability: Thick description of context and participants; Dependability: Detailed documentation of procedures; Confirmability: Verbatim transcription and advisor validation. These strategies promoted transparency, neutrality, and depth in the findings.

Results

The participants included 15 adolescent mothers aged 15–19, with an average age of 17.2 years. Most of them had no underlying health conditions (86.67%) and lived with their partners (93.33%). In terms of education, 73.33% completed secondary school, and 20.00% were in vocational education. Before pregnancy, participants were students (26.67%) or engaged in small businesses (20.00%). By the postpartum period, 40.00% were unemployed, and 40.00% continued working in sales or small businesses.

Four main themes emerged as described below:

Theme 1: Food Shortages: Relying on Relatives and Online Services

Food shortages during the pandemic forced adolescent mothers to rely heavily on relatives and online services to secure essential supplies. Due to restricted hours and closures of food vendors, adolescent mothers faced food shortages. These

challenges were consistently described during interviews and noted in field observations, such as expressions of stress, tone of voice, and nonverbal gestures when discussing food access. This was supported by field observations, which captured participants' emotional expressions and nonverbal reactions during discussions about food access. As one adolescent mother shared:

"There were more closures. They used to stay open until midnight, but now they close at 8 p.m. We were scared too." (P005)

Participants received food from rural family members or community assistance, such as "Sharing Boxes" or meals from local programs.

"We received meat, vegetables, and rice in sacks from the countryside. It's my partner's father's farm. They send us sacks of rice, enough to eat, so we've never had to buy any." (P004)

"We got a 'Sharing Box' through an online platform with items like instant noodles and canned fish." (P009)

Theme 2: Allocating and Sharing Income

Participants faced significant financial challenges during the COVID-19 pandemic, as many lacked stable income due to leaving work in the later stages of pregnancy. The economic slowdown caused by pandemic restrictions further reduced family incomes and job opportunities, leaving these mothers reliant on family support. Field notes reflected visible worry and tension while recounting these economic hardships. One mother shared her experience of her job during the pandemic:

"There were fewer customers. Sales dropped from tens of thousands a day to just a few thousand. My salary also went down because my aunt still had to cover shop expenses, and when sales were low, wages were reduced." (P014)

Families faced additional expenses for protective personal equipment and baby supplies. To manage limited resources, families allocated income carefully, stocked up on raw ingredients, and cooked at home to save costs. One mother described their frugal approach:

"My mom stocked up on food and froze raw ingredients. We had to eat whatever was available." (P004)

Sometimes, families reduced the variety of meals to save money, opting for simpler dishes or cooking in bulk for multiple servings. Another mother explained:

"We cut down from three-four dishes to just two and started cooking at home instead of buying ready-made food. It was cheaper and lasted for multiple meals." (P005)

Rising food prices during the pandemic significantly influenced purchasing decisions. Families prioritized cheaper options, such as chicken over pork, and bought vegetables in bulk to save money. Participants also cooked large quantities of food for the whole family or relied on home-cooked meals to reduce costs, for example:

"We buy vegetables and stock up. My mom makes soup for my dad, and we buy chicken because pork is expensive now." (P005)

Some used online food delivery services to access meals and groceries, and prioritized affordable options and restaurants nearby to minimize delivery fees:

"I use food delivery apps daily, choosing places nearby to keep delivery fees low." (P015)

Theme 3: Choosing Food, Choosing Sources, Choosing What to Eat

Participants carefully selected food during the pandemic to support breastfeeding and maintain their health. Their decisions were guided by advice from family, friends, online sources, and healthcare professionals, prioritizing foods believed to be nutritious for their child. As one mother shared:

“I choose my food, and I think I’m getting all the nutrients I need. I eat vegetables and pork, and some days I eat basil stir-fry, vegetables, and fish. I don’t really know much, but I follow what people tell me to eat, and my mom also advises me.” (P014)

Safety concerns were prominent, with mothers being cautious about contamination from food markets and stores. They preferred familiar vendors or securely packaged items from convenience stores. One participant explained:

“Sometimes we don’t know if food from outside, like from the market, is clean because COVID can spread through the air. We don’t know if it’s really clean, and even if we wash it, it doesn’t mean all the germs are gone. I worry about whether the food is contaminated. Fresh food might carry germs through the air, or from the stores themselves, but shopping malls are also risky because items are handled by many people.” (P014)

Cultural beliefs also shaped food practices, especially the use of herbs for boosting immunity and preventing illness. Mothers incorporated herbs like fingerroot and lemongrass into their diets, believing in their health benefits. These behaviors were noted during interviews and corroborated in field notes. This was supported by field observations of household practices and health beliefs. One mother stated:

“We used fingerroot, lemongrass, and other herbs, all herbal remedies. After boiling them, we would cover ourselves with a cloth and inhale the steam, letting it rise up for a long time. We did this for months, around my third or fourth month of pregnancy.” (P002)

Some participants focused on foods believed to increase milk production, such as banana blossom and ginger dishes. They consumed these foods based on advice from family, even if they were uncertain of their effectiveness. For example:

“I ate stir-fried ginger with chicken and curry with banana blossom. My mom and dad told me to eat a lot so my milk would be good. Does it really help? I don’t know, but I ate it anyway.” (P003)

“To boost milk supply, I eat things like ginger or similar foods. My mom makes banana blossom curry for me to eat curry with banana blossom, ginger, chicken, Yes, I mostly eat those kinds of foods.” (P005)

Theme 4: Stockpiling, Prioritizing, and Preserving Food

With uncertainties in food availability, the participants resorted to stockpiling, prioritizing, and preserving food to ensure long-term security. Due to the ongoing COVID-19 pandemic, families planned to ensure sufficient food supplies. The duration of stockpiling ranged from two to three days to several months. Fresh food was usually stored for shorter periods, while dry goods could be stockpiled for longer, depending on income, food prices, and the opportunity to receive or purchase food. The distribution of food often depended on the severity of the COVID-19 outbreak. During periods of stricter social distancing measures, such as stay-at-home orders, bans on gatherings, and remote work, there was an increase in food distribution. As the restrictions eased, food distribution decreased, for example:

“I stock up on vegetables and prenatal supplements, drinking water, meat, things like that. I buy it for the day and leave some in the fridge to cook the next day. The longest I stockpile is dry food: rice, instant noodles, porridge, and milk, especially boxed milk.” (P002)

The participants’ families managed their food to make it last longer, especially when they received food from other provinces. They would preserve it for future consumption.

“We get things like meat and vegetables from the countryside. My mom prepares some of it herself, making dried food to store.” (P004)

Field notes collected during and after the interviews were used to triangulate data and supported the thematic development. Observations of participants’ homes, emotional tones, and household routines provided additional insights into food access, coping strategies, and stress responses.

No new codes or themes emerged during the final three interviews, demonstrating that thematic saturation had been achieved. Participant responses became increasingly repetitive, and no new insights were identified across the main themes. The consistency of data confirmed the sufficiency of the sample size and the completeness of thematic development.

Discussion

This study provides valuable insights into how postpartum adolescent mothers managed food insecurity during the COVID-19 pandemic, framed within the Food and Agriculture Organization of the United Nations (FAO)’s four dimensions of food security.²⁵ The findings are discussed under the following themes:

1) Food Availability: Adolescent mothers in this study experienced food shortages due to reduced food sources, limited hours of operation, and disruptions in food distribution channels caused by public health measures. These findings align with global literature, even in countries with robust food systems, where lockdowns limited access to healthy food and increased reliance on lower-quality alternatives, contributing to food insecurity among pregnant women.^{15,26} In Thailand, similar disruptions resulted from the closure of food vendors and supply chain disturbances, driving up food prices.¹⁴

To manage these shortages, adolescent mothers relied on family networks for support, receiving shared meals, homegrown produce, or food packages from rural relatives. This behavior corresponds with findings

by Prommi et al.¹⁹ on the role of family support in non-crisis periods and by Zinga et al.,¹⁶ who reported similar reliance among pregnant women in Australia. Pike et al.²⁷ also emphasized the role of mothers and mothers-in-law in supporting young mothers’ nutritional needs.

Government, private-sector, and community food assistance programs, such as “Sharing Boxes” containing non-perishables, provided critical relief. Families shared homegrown produce or rice from rural areas, emphasizing the importance of close relationships during crises. Community assistance, including meal box distribution and informal food-sharing practices by communities and NGOs, significantly reduced food insecurity.^{14,28} In urban settings, networks like housewife groups were pivotal in addressing the crisis and promoting sustainable food security.²⁸ The reliance on traditional family networks and modern digital tools highlights the importance of informal and formal support mechanisms during crises.

2) Food Access: The findings highlight the significant financial challenges postpartum adolescent mothers faced during COVID-19, compounded by reliance on family support and adaptations to food procurement and consumption behaviors. Pandemic restrictions caused an economic slowdown, reducing family incomes and job opportunities, and leaving many adolescent mothers without stable income as they stopped working during late pregnancy. This aligns with studies by Azevedo et al.,⁶ Pérez-Escamilla et al.,³ and Muluve et al.,²⁹ which found that reduced income and employment during the pandemic disproportionately affected vulnerable groups.

Family support was critical in managing financial constraints. Families reduced expenses, stocked up on raw ingredients, and prepared meals at home to save costs. Strategies like bulk cooking, choosing cheaper options like chicken over pork, and limiting dish variety were common, consistent with Singh et al.,³⁰ who reported similar measures in resource-limited households during crises.

Rising food prices during the pandemic influenced how postpartum mothers managed their budgets, opting for affordable staple foods and limiting food choices to make money last longer. This aligns with findings by Azevedo et al.⁶ and Dolin et al.¹⁵, showing that families prioritized cost-effective food options in crises.

Online food delivery services provided postpartum mothers with convenient access to groceries and meals while minimizing virus exposure.²⁶ Mothers prioritized nearby restaurants to reduce delivery fees and chose inexpensive meals. This strategy echoes findings by Zinga et al.¹⁶, who noted that pregnant women avoided supermarkets and opted for local convenience stores, even at higher costs, to reduce contact and stay safe.

Despite these coping strategies, additional expenses, such as protective personal equipment, COVID-19 tests, and baby supplies, posed significant challenges. Families showcased resilience by managing limited resources effectively, underscoring the importance of family interactions in addressing financial and food insecurity. These findings highlight the need for targeted support programs to address the unique financial and nutritional challenges faced by postpartum adolescent mothers during public health crises.

3) Food Utilization: The findings highlight how postpartum adolescent mothers adapted their food choices during the pandemic, guided by cultural beliefs, family advice, and heightened health concerns. These mothers prioritized foods perceived as beneficial for their child and their own recovery, even with limited nutritional knowledge. This aligns with Prommi et al.,¹⁹ who noted the significant influence of cultural beliefs on food choices during pregnancy and postpartum periods.

In non-crisis situations, cultural beliefs on food use, particularly herbs, focus on postpartum recovery and promoting milk production.¹⁹ During the pandemic, however, herb use expanded to include disease prevention. Herbs such as fingerroot,

lemongrass, and ginger were used not only for traditional postpartum health benefits but also for boosting immunity and protecting against COVID-19. This reflects the adaptive use of cultural practices in addressing emerging health concerns during a public health crisis.

Food safety concerns also shaped behaviors during the pandemic. Mothers avoided foods perceived as risky and opted for packaged or locally sourced items to minimize contamination risks. This aligns with broader global trends where fear of COVID-19 influenced food purchasing and consumption behaviors²⁶

Adolescent mothers' postpartum food choices were shaped by cultural beliefs, safety concerns, and family influence. While practices such as using herbs for postpartum recovery are deeply rooted in Thai society, the pandemic demonstrated how these traditions evolved to address additional concerns like disease prevention. These findings emphasize the importance of integrating cultural practices into public health strategies and promoting tailored nutritional education for adolescent mothers, particularly during public health crises.

4) Food Stability: Our participants managed food during COVID-19 by stockpiling fresh food for short-term use and dry goods for long-term availability. This strategy was shaped by income, food prices, and access to supplies. Food preservation also played a key role, with families extending the utility of perishables through drying or preserving, particularly when supplies came from rural relatives. These practices reflected concerns over food adequacy and access amid pandemic disruptions. Economic challenges led families to prioritize resource maximization over nutritional quality, focusing on daily consumption to prevent spoilage and reduce costs. Many families cooked at home to save money, while some opted for ready-made meals or trusted food sources, though this often reduced dietary diversity during a critical life stage.^{9,26}

Families supported food management by planning purchases, preserving food, and adapting meal preparation to stretch resources. As with the general population, there was an initial surge in stockpiling staple foods like rice due to fears of shortages. Food consumption patterns shifted as families transitioned to eating at home rather than dining out.²⁶

This study identified four key themes in how postpartum adolescent mothers in Bangkok managed food insecurity during the COVID-19 pandemic: 1) food shortages and reliance on relatives and online platforms; 2) income allocation and sharing; 3) food selection; and 4) food storage and preservation.

These themes reflect the diverse strategies employed to cope with food insecurity, each aligning with the four dimensions of food security as defined by the FAO: availability, access, utilization, and stability. These dimensions are not isolated; rather, they are interconnected and dynamically influence one another.

For instance, limited food availability prompted mothers to seek support from family or register for aid via online platforms. This, in turn, led to financial adjustments (access), such as reallocating income, reducing expenses, and purchasing lower-cost ingredients. These shifts influenced food utilization, including cultural and health-driven choices, such as consuming traditional herbs believed to aid postpartum recovery and lactation. Additionally, uncertainty about future food access encouraged long-term planning, such as stockpiling dry goods and preserving food.

These strategies form an adaptive system shaped by the interplay of individual resources, family support, and sociocultural context. Rather than operating in isolation, these coping mechanisms functioned as an interconnected cycle, where managing shortages led to financial adaptations, which in turn influenced food choices and long-term planning. This continuous feedback loop enabled adolescent

mothers to respond flexibly to evolving circumstances throughout the pandemic. These findings underscore the need for holistic, context-sensitive interventions to support vulnerable groups like adolescent mothers, recognizing the complexity and resilience embedded in their everyday food management.

Limitation

This study had some limitations, including that it targeted postpartum adolescent mothers in a specific hospital, with most participants residing in northern Bangkok, thus limiting the transferability of findings to other settings. Conducted during the COVID-19 pandemic, the findings may not apply to different contexts. The focus on participants living with families excluded the perspectives of those living independently. Additionally, we captured food management practices only within a 6-week postpartum period, missing long-term strategies.

Recommendation

Based on the findings of this study, several recommendations are proposed to address food insecurity among adolescent mothers, particularly during times of crisis such as the COVID-19 pandemic:

1. **Plan for Policy-Level Interventions:** Government agencies and public health organizations should plan to advocate for policy to ensure food accessibility for adolescent mothers. This includes subsidized food programs, direct cash transfers, and integration of food assistance within maternal and child health services.

2. **Strengthening Community Support Networks:** Local communities and civil society organizations should establish and enhance support systems that provide emotional, financial, and food-related assistance for young mothers, particularly those lacking family support.

3. **Youth-Centered Nutritional Education:** Educational programs focusing on affordable,

nutritious meal planning and food preservation techniques should be designed specifically for adolescent mothers, using peer-led models and digital platforms to enhance reach and engagement.

4. **Crisis Preparedness and Resilience Programs:** National and municipal authorities should incorporate adolescent mothers into emergency preparedness planning, ensuring that this vulnerable group is not overlooked during future public health emergencies or economic downturns.

5. **Further Research:** Future studies should explore the long-term impacts of food insecurity on adolescent mothers and their children, including nutritional status, mental health, and child development. Comparative studies across urban and rural settings may also yield insights into region-specific interventions.

By implementing these recommendations, stakeholders can enhance the well-being of adolescent mothers, reduce food insecurity, and build more inclusive, resilient health and social support systems.

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