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Maternal behavior in providing sweet foods and beverages to toddlers: A case study in Jembrana, Bali

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Abstract

Purpose: This study aims to explore maternal behavior in providing sweet foods and beverages to toddlers in Jembrana, Bali. **Method:** A qualitative case study design was employed, guided by the Health Belief Model to structure data collection and analysis. Twenty participants, including mothers of toddlers and health workers, were selected using purposive sampling from two primary health centers. Data were collected through in-depth interviews and analyzed using qualitative content analysis supported by NVivo 12 Plus. **Results:** Maternal behavior varied in the frequency and types of sweet food and beverage provision, often influenced by perceptions of susceptibility, seriousness, benefits, and barriers. Some mothers showed low perceived susceptibility, believing their children were not at risk, while others recognized the negative health impacts. Perceived benefits included preventing illness and controlling eating habits, while barriers included limited supervision and environmental influences. Family communication, social media, and personal experiences shaped cues to action. **Conclusion:** Maternal behavior in feeding toddlers sweet foods and beverages is shaped by a combination of personal perceptions, family dynamics, and environmental context. Efforts to promote healthier feeding practices should address these multifaceted influences through community-based education and supportive family engagement.

Keywords: feeding practices; maternal behavior; sweet food consumption; toddler nutrition

INTRODUCTION

Nutritional issues in early childhood remain a persistent public health concern in Indonesia. Toddlers, as part of a critical growth period, are highly vulnerable to the adverse effects of poor eating habits. Problems such as underweight, wasting, overweight, and stunting are still commonly found across the country [1,2]. One of the contributing factors is the high consumption of sweet foods and beverages among children. These products are typically high in energy from sugar but low in nutrients, which may lead to increased risks of obesity, appetite suppression, and long-term metabolic disorders [3].

Based on the 2018 Indonesian Basic Health Research (Riskesdas), 40.10% of individuals consume sweet foods at least once daily, and 61.27% consume sweet beverages. In Bali Province, these rates are particularly high among toddlers aged 3 to 4 years. The Ministry of Health regulation (Permenkes No. 30/2013) recommends limiting sugar intake to no more than 10% of daily energy consumption [4]. Studies have shown that a preference for sweet flavors in young children often begins early and is reinforced through repetitive exposure and family food practices [5]. Research has also

found that consuming just one serving of sweet beverages per day can significantly contribute to an increased body mass index (BMI) and weight gain over time [6]. In addition, frequent intake of sweet foods may reduce appetite for staple and nutritious meals, potentially leading to imbalanced nutrition and poor growth outcomes [7].

Mothers, as primary caregivers, play a central role in shaping their children's dietary habits. Their knowledge, beliefs, and daily practices directly affect the availability and types of foods provided at home [5]. To understand the psychological and behavioral factors influencing maternal feeding decisions, the Health Belief Model (HBM) has been widely used. The HBM posits that health behaviors are influenced by individual perceptions of susceptibility, severity, benefits, and barriers, as well as cues to action and self-efficacy [8,9]. Several studies have successfully applied the HBM to examine maternal behavior related to child nutrition and feeding patterns [10,11].

Children's food preferences, especially during toddlerhood, are shaped not only by biological factors but also by social and cultural environments. These preferences are highly influenced by caregivers' behavior, including how they introduce, offer, and manage food choices [12]. However, some quantitative studies applying the HBM found no significant associations between health beliefs and the frequency of sweet food or beverage consumption, nor with children's nutritional status [13,14]. This inconsistency suggests a need to explore maternal behavior more deeply using qualitative approaches.

In Jembrana, Bali, child nutrition challenges remain significant. According to the 2022 Indonesian Nutritional Status Study (SSGI), the district had the highest prevalence of undernutrition in toddlers (10.6%) and a notable rate of overnutrition (3.8%) in the province [15]. Despite interventions such as routine monitoring of complementary feeding (MP-ASI), the impact of maternal behavior on dietary quality remains largely unaddressed. Several contextual factors, such as knowledge, family support, economic status, and cultural habits, continue to influence child feeding practices.

Although the HBM has been widely used in health behavior research, including maternal nutrition practices, most studies rely on quantitative methods and focus on broad feeding outcomes or stunting prevention. Few have explored the specific behavior of mothers in providing sweet foods and beverages, particularly through a detailed qualitative analysis that captures maternal perceptions and socio-environmental factors. This study addresses that gap by applying the HBM in a qualitative case study to understand how mothers in Jembrana perceive and manage the provision of sweet foods and beverages to toddlers. It contributes to the literature by offering culturally grounded insights that can inform more effective community nutrition interventions.

METHODS

This study employed a qualitative case study design to explore maternal behavior in providing sweet foods and beverages to toddlers. The theoretical framework used was the HBM, which guided both data collection and thematic analysis. The HBM provides a comprehensive framework for examining individual perceptions, including perceived susceptibility, severity, benefits, barriers, and cues to action related to health behaviors.

The study was conducted in two public health centers (Puskesmas) in Jembrana, Bali: Jembrana Health Center 1 and Pekutatan Health Center 2. Participants were selected using purposive sampling with maximum variation, considering age, education, and occupation. A total of 20 informants participated, comprising 14 mothers of toddlers and 6 health workers (nutritionists and health promotion officers). Inclusion criteria included: (1) mothers with children aged 6–59 months, (2) residing within the catchment area of the two health centers, and (3) willing to provide informed consent. Mothers with more than one toddler or children with congenital diseases were excluded.

Data were collected between July 15 and August 31, 2024, through in-depth interviews and participant observation. Interview guidelines were developed based on the HBM components to capture mothers' perceptions and practices. Interviews were conducted in Bahasa Indonesia, lasted 30–60 minutes, and were audio-recorded with consent. Observations were carried out at integrated health posts (Posyandu) to contextualize maternal behavior.

Data were analyzed using qualitative content analysis supported by NVivo 12 Plus software. The analysis followed a stepwise process: transcription of audio recordings, open coding, grouping of codes into categories, theme identification, and interpretation. Credibility of the findings was ensured through member checking, triangulation of data sources, and peer debriefing. Ethical approval was obtained from the Medical and Health Research Ethics Committee of the Faculty of Medicine, Public Health, and Nursing, Universitas Gadjah Mada (No: KE/FK/0985/EC/2024).

RESULTS

This study explored maternal behaviors and perceptions surrounding the provision of sweet foods and beverages to toddlers in Jembrana. The findings are presented based on the constructs of the HBM: maternal behavior, perceived susceptibility, perceived severity, perceived benefits, perceived barriers, and cues to action. These findings illustrate how mothers' knowledge, experiences, emotions, and social environment collectively shape feeding practices.

Maternal behavior in providing sweet foods and beverages

Mothers exhibited diverse patterns in the frequency and types of sweet foods and beverages provided to their toddlers. While some mothers offered sweet products infrequently, others admitted to giving them daily—though often in small portions. Types of sweet products mentioned included wafers, candy, chocolate, ice cream, sweetened bread, UHT milk, sweet tea, and even coffee. This diversity reflects not only taste preferences but also convenience, cultural norms, and a desire to please or pacify their children.

> *"Not every day. Rarely, maybe twice a week. I only give chocolate like Cadbury sometimes, or sweet bread with condensed milk and sugar, but not routinely—maybe just for breakfast." (R15, Contract Employee, 27 years old, child at nutritional risk)*

Health workers supported this observation, explaining that mothers often use sweet foods to manage difficult behaviors or compensate for limited feeding knowledge. Despite the availability of educational materials, sweet foods remain prevalent in daily diets.

Perceived susceptibility

Mothers differed in their perceptions of how vulnerable their children were to the health effects of consuming sweet foods. Those with low perceived susceptibility acknowledged that sugary foods might not be ideal, but they did not believe their own children were likely to suffer negative consequences—especially in the absence of immediate symptoms.

> *"My son often eats chocolate, but he's fine, not sick or anything. He doesn't even cough." (R4, Nurse, 31 years old, undernourished child)*

This perception may be shaped by anecdotal experiences rather than scientific understanding. In contrast, mothers with high perceived susceptibility shared concerns about appetite suppression, poor weight gain, and illness directly resulting from sweet food consumption.

> *"His weight dropped. He didn't want to eat. Every time he had snacks, he lost his appetite."*
> *(R1, Housewife, 31 years old, well-nourished child)*

Health workers echoed this concern, noting that even minor illnesses like colds or sore throats often led to significant changes in nutritional status due to low food intake.

> *"Even just one day of illness can cause significant weight loss. Many toddlers here are underweight." (R17, Nutritionist, Public Health Center 1 of Jembrana)*

These differences in perceived susceptibility suggest that risk perception is individualized and may depend on past child health experiences or exposure to health education.

Perceived severity

Most mothers recognized the potential seriousness of health consequences linked to sweet food consumption. They associated excessive intake with coughs, fevers, digestive issues, and more significantly, disruptions to daily life and financial strain. The perception of severity often stemmed not from abstract health risks but from concrete personal experiences dealing with a sick child.

> *"It really affects him. If he eats sweet food too often, he gets sick—coughs, fever. It's hard for me too. I have to take him to the doctor." (R1, Housewife, 31 years old, well-nourished child)*

The emotional and financial burdens of child illness appeared to reinforce vigilance in feeding behavior for some mothers, while others continued sweet food practices despite acknowledging the risks—possibly due to competing factors like convenience, child preference, or social pressure.

Health workers reported similar patterns, noting that monitoring efforts, such as food recall records and integrated health post data, were being used to track diet quality and its association with growth problems like stunting and underweight.

> *"We now record what children eat to understand what contributes to stunting or underweight cases." (R18, Nutritionist, Public Health Center 1 of Jembrana)*

Perceived benefits

Mothers reported having dual perceptions of the benefits related to providing sweet foods. On one hand, many mothers believed that reducing sweet intake helped prevent illness, regulate appetite, and avoid sugar dependency. This informed their decision to limit their consumption of sugary foods.

"Now he rarely gets sick. I think reducing sweet foods helps a lot." (R14, Housewife, 25 years old, child at nutritional risk)

On the other hand, several mothers believed sweet foods served useful functions—such as calming a fussy child, encouraging eating, or managing difficult transitions like separation during work. These practical benefits sometimes outweighed health concerns, especially under stress or time constraints.

"I give sweets when he gets fussy. It calms him down and helps him eat rice afterward."
(R12, Entrepreneur, 32 years old, well-nourished child)

These findings reflect the complexity of perceived benefits, which are not solely health-related but also emotional, practical, and deeply contextual.

Perceived barriers

Barriers to reducing sweet food consumption were multifaceted and often outside the mothers' direct control. Many cited limited supervision, particularly when other family members (fathers, aunts, grandparents) provided sweets despite the mothers' efforts to limit them.

"Sometimes his aunt brings wafers, and his dad buys him snacks after work."
(R7, Housewife, 25 years old, child at nutritional risk)

Other mothers described environmental influences, such as nearby snack vendors, and peer pressure from older siblings or neighborhood children. Even when aware of the risks, mothers often gave in to avoid tantrums or public embarrassment.

"His grandma runs a food stall. So he gets sweets more often."
(R6, Housewife, 24 years old, well-nourished child)

"If he cries and begs, I just give him a little so he doesn't throw a tantrum."
(R7, Housewife, 25 years old, child at nutritional risk)

Health workers pointed out deep-rooted cultural beliefs, such as equating frequent eating with good health, and a general lack of openness to health education among community members.

"In villages, people think 'the more they eat, the healthier they are,' but they don't consider food quality." (R17, Nutritionist, Public Health Center 1 of Jembrana)

These findings underscore the importance of addressing not only maternal knowledge but also broader household and community dynamics in behavior change strategies.

Cues to action

Cues to action were derived from various sources, including family communication, digital and printed information, and personal reflection. Some mothers actively informed family members not to give sweets or tried to influence their home environments by limiting snack visibility.

"I told my mother not to sell those snacks anymore because my child would see them and want them." (R6, Housewife, 24 years old, well-nourished child)

Others mentioned media and technology as triggers. Books, social media platforms, and online parenting groups served as important sources of knowledge and motivation.

"I often read the pink book that explains healthy foods like meat, tempeh, and vegetables."
(R1, Housewife, 31 years old, well-nourished child)

Mothers also described behavioral strategies, such as distracting their children with play to shift their focus from sweets to healthier foods.

"I take him to play with friends. When he's hungry afterward, I can offer him healthier food."
(R2, Housewife, 23 years old, well-nourished child)

Health workers served as external cues through educational activities and health monitoring, although the impact was limited by mothers' availability and children's behavior during consultations.

"We work closely with nutritionists and Posyandu cadres to track and educate mothers about children's nutrition." (R17, Nutritionist, Public Health Center 1 of Jembrana)

These diverse cues illustrate how maternal behavior is shaped by an ongoing interaction between internal beliefs, social support systems, and informational environments.

DISCUSSION

This study explored how mothers in Jembrana behave and make decisions when providing sweet foods and beverages to toddlers. The findings revealed that maternal behavior is influenced by various factors, including knowledge, perceptions of risk, family habits, and environmental influences. The results showed that mothers provided sweet foods with varying frequency and types. This aligns with previous research in the United States, where 36% of children consume sweet foods 1–3 times per week and 24% consume them more than four times per week [16]. Types of sweet products given in this study—including candy, chocolate,

sweetened bread, and packaged beverages—contain high levels of added sugar, similar to those highlighted in previous studies [17,18]. The frequent consumption of these products can easily exceed the recommended daily sugar intake and affect toddlers' health and eating patterns [19].

Regarding perceived susceptibility and severity, some mothers underestimated the health risks of sweet foods, believing their children were not vulnerable. Others showed awareness, linking sweet food consumption to loss of appetite, illness, and even weight loss. This supports earlier findings that vulnerability perception varies depending on experience and demographic background [10]. Mothers who perceived high severity were more likely to limit sweet intake to avoid repeated illness and medical costs, similar to studies on the emotional and financial burden of child illness [20,21].

In terms of benefits, mothers recognized that limiting sweet foods could reduce the risk of illness and improve children's eating habits. However, some still saw sweet foods as beneficial, particularly in managing children's emotions or encouraging them to eat. This dual perception is consistent with earlier research showing that sugar may serve both practical and psychological roles for caregivers [22–24].

Barriers to healthy feeding included lack of supervision, family influence, environmental availability, and peer pressure. This finding supports previous research that showed feeding patterns are often influenced more by peers and the surrounding environment than by the parent alone [25]. Moreover, cultural beliefs such as "eating more means being healthier" persist in many communities, showing the need for improved health literacy [7].

Cues to action in this study came from various sources: communication with family, health education, books, and social media. Mothers who had access to relevant information and strong support systems were more likely to implement positive behavior changes. Prior studies have found that mothers who model healthy behaviors or receive accurate health messages are more likely to practice healthier feeding habits [24,26,27].

The findings highlight the importance of strengthening health promotion strategies that focus not only on mothers but also on family members and the broader community. Programs should target family-based education, using integrated health posts (Posyandu), local health workers, and digital platforms to deliver consistent messages about sugar intake and toddler nutrition. Empowering mothers with knowledge and skills to manage external influences—such as peers or snack vendors—is also essential to support healthy behaviors.

This study has several limitations. First, the findings are based on self-reported data, which may be subject to social desirability bias. Second, the study only involved participants from two health centers in Jembrana, limiting its generalizability to other regions. Third, this study did not explore the role of self-efficacy in maternal behavior, which is a key component of the HBM. Future research could include a wider range of settings and explore the interaction between self-efficacy and feeding decisions.

CONCLUSION

This study found that various perceptions, including perceived health risks, benefits, barriers, and external cues shape maternal behavior in providing sweet foods and beverages to toddlers in Jembrana. While some mothers understand the negative health effects of excessive sugar intake and take preventive actions, others continue to provide sweet foods due to emotional, environmental, or social influences. These findings emphasize the need for comprehensive health education that reaches not only mothers but also other family members and the community. It is recommended that future interventions focus on strengthening maternal awareness, promoting supportive family environments, and expanding access to clear and practical nutrition information—both through health workers and digital media. Additionally, future research should include broader geographic settings and assess the role of self-efficacy in shaping maternal feeding behavior.

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