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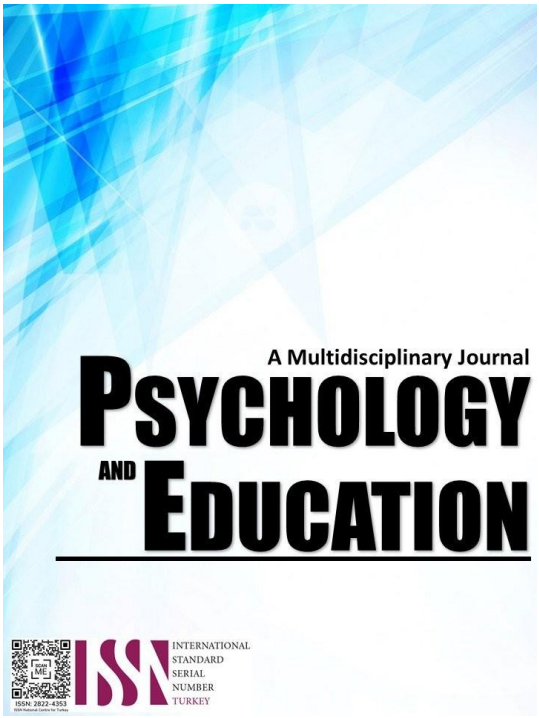

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Research Article

The Feeding Practices of Children in San Placido, Roxas, Isabela: A Basis to Conduct A Nutrition Program

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Abstract

Malnutrition is a persistent and complex global health issue that affects millions of children. While existing studies have explored various factors related to child nutrition, limited research has comprehensively investigated the multifaceted relationships between infant, neonatal, and current feeding practices, and children's nutritional status within the specific context of a rural community. This research aims to determine the association and relationships between the feeding practices of children in San Placido, Roxas, Isabela with their nutritional status. Employing a community-based case study design which combines both quantitative and qualitative methods. The quantitative approach utilizes descriptive-correlational methods to assess neonatal, infant, and current feeding practices, as well as their relationship with children's nutritional status. While the qualitative aspect delves into the government's efforts to combat malnutrition. Key findings reveal that the timing of introducing complementary foods to infants exhibits a significant correlation with children's nutritional status on Weight-for-Age Z-Score, Height-for-Age Z-Score, and Weight-for-Height Z-Score. Furthermore, current feeding practices, although significant in Weight-for-Age Z-Score in emotion regulation and Height-for-Age Z-Score in pressure and modeling, they do not significantly affect Weight-for-Height Z-Score. Moreover, the study shows no association between neonatal feeding practices and children's nutritional status except for Weight-for-Age Z-Score in feeding practices and the delivery of colostrum in the first three days. As part of the government's efforts to combat malnutrition, school feeding emerges as a recognized nutrition intervention within the San Placido community. The multifaceted relationship between feeding practices in the context of child nutrition serves as a foundation for future research, policy initiatives, and potential interventions, aiming for effective and sustainable improvements in child health and well-being.

Keywords: *malnutrition, feeding practices, rural community, children nutrition, nutrition program*

Introduction

Proper nutrition in children is an essential part of human development. However, if proper nutrition is deprived, it will result in children developing malnutrition. Malnutrition is one of the most challenging and complex global problems that affect human development; it is also a serious problem and a prevalent condition in the whole world. In fact, in 2020, 149 million children under five years stunted, 45 million children were estimated to be too thin for their height, and 38.9 million of them were overweight (World Health Organization [WHO], 2021).

Throughout developing countries, malnutrition is a major public health problem, particularly in Southern and South-east Asian countries (Chaudhury et al., 2009; Baranwal et al., 2010). In the Philippines, malnutrition is still a prevalent and deadly condition among children. According to United Nations Children's Fund (UNICEF), 95 children in the Philippines die from malnutrition every day, and 27 out of 1,000 Filipino children do not make it past their fifth birthday (United Nations International Children's Emergency Fund [UNICEF], n.d.). Moreover, stunting is the primary concern of the Philippines because one-third of Filipino children are stunted, which can become permanent and even fatal (UNICEF, n.d.). Additionally, in the recent findings, Department of Health has flagged the persistent malnutrition in the Philippines, noting that the stunting rate among 0-23 months had plateaued over the last 10 years (Business World, 2023).

Region 2, also known as the region of Cagayan Valley, is one of the seventeen regions in the Philippines. The region consists of the provinces of Batanes, Cagayan, Isabela, Nueva Vizcaya, and Quirino. Although it has a positive economic outlook, malnutrition is still a major health concern particularly in stunting and wasting. The National Nutrition Survey of 2015 reveals that 28.8% and 7.1% of children under five years old are stunted and wasted, respectively. Specifically, an estimated of 139,798 children are stunted and 34,500 children are wasted. (Department of Science and Technology - Food and Nutrition Research Institute [DOST-FNRI], 2015).

In the province of Isabela, malnutrition is prevalent among children ages 0 to 59 months old according to the expanded national nutrition survey conducted by the NNC (2018). In children ages 0 to 59 months old, the prevalence of stunting (28.8%) is higher than that of underweight (23.2%) followed by being wasted (7.6%) and being overweight (3.1%) (DOST-FNRI, 2020).

Additionally, it can be said that in terms of neonatal and infant feeding practices, only some caretakers observe the recommended practices. In fact, only 50.9% of caretakers continued breastfeeding, 67.4% of them practiced exclusive breastfeeding, and 68.3% of them initiated breastfeeding within one hour at birth. The same can be said in terms of their complementary feeding under infant feeding practices. Only 20.5% observed minimum acceptable diet, 30.4% observed minimum dietary diversity, and 92.1% observed minimum

meal frequency (DOST-FNRI, 2020).

The government has been trying to combat malnutrition in the Philippines in the last few decades by conducting essential nutrition program. In Region 2, the Regional Plan of Action for Nutrition (RPAN) has a total of 11 programs and 48 projects. It composes of nutrition specific, nutrition sensitive, and enabling programs focusing in catering the first 1000 days due to its huge impact on the child's nutritional status (DOST-FNRI, 2018). However, there is little to no improvement of the state of malnutrition in the Philippines over the last 15 years. In fact, the country ranked fifth among countries in the East Asia and Pacific region with the highest prevalence of stunting (UNICEF, 2020). This may imply that the efficacy of the nutrition interventions of the government has no significant impact and there may be a need to adjust the nutrition programs and projects to fit the situation of each province, municipalities, cities, and even communities.

Several researches have been carried out to investigate malnutrition-dependent factors. Some studies have reported that the sex and age of the children have an influence on their nutritional status (Garenne et al., 2021; Thurstans et al., 2020; Demilew & Abie, 2017). Meanwhile, some studies have pointed out that the socio-demographic profile of the caretakers such as type of family, socio-economic status, and educational attainment determine their children's nutritional status (Hosain & Khan, 2018; Fatemeh et al., 2012; Ciptanurani & Chen, 2021; Asim & Nawaz, 2018).

Another factor associated with malnutrition is the past feeding practices, which include the neonatal and infant feeding practices of the child. These include complementary feeding, breastfeeding, and weaning. Multiple researchers discovered that these feeding practices play an important role in the child's nutritional status. According to a case-control study conducted by Tette et al. (2016), faulty feeding practices include early weaning, shorter duration of exclusive breastfeeding, mixed feeding, bottle feeding, and limited consumption of fruits. Additionally, the odds of being malnourished were three times higher in children with feeding problems compared with those without it.

Similarly, the feeding practices that parents observe when their children is 2 years old and above is also a factor associated with children's nutrition. Parents and caretakers have a huge influence on their children's overall attitude and behavior towards food. Factors such as monitoring, child control, emotion regulation, pressure, modeling, healthy eating guidance, and restriction are associated with children's nutritional status (Santos et al., 2022; Savage, 2007; Pace et al., 2019; Thompson, 2019; Draxten et al., 2014; Nicklaus & Remy, 2013; Rollines et al., 2014).

Malnutrition

The first 1,000 days of a child's life are crucial for their development, learning, and thriving, as their developing brain grows during this period, highlighting the importance of proper feeding and care. This is because the first 1,000 days, roughly between the span of the conception of the child and their second birthday, is where they are most fragile and susceptible to diseases. One of which is malnutrition. Malnutrition has been used to describe deficiency, excess, or imbalance of a wide range of nutrients which results in measurable adverse effects on body composition, function, and clinical outcome (Saunders & Smith, 2010). Additionally, it refers to excess or deficiencies in nutrient intake. These nutrients include iron, vitamin A, and vitamin D. Moreover, it includes both undernutrition and overnutrition (WHO, 2021).

An individual has to meet the recommended intake of nutrients and energy to maintain good health, if they failed to do so, that is where undernutrition in individuals exists. Undernutrition denotes insufficient intake of energy and nutrients (Maleta, 2006). Undernutrition in people is oftentimes considered obvious by their physical appearance. Doctors can usually diagnose undernutrition based on the person's appearance. Undernutrition encompasses underweight people, who have protruding bones, dry and inelastic skin, and unhealthy and dry hair (Morley, 2021).

The first five years of life is a critical period in which undernutrition occurs. In most developing countries stunting tends to become evident as early as two to three months, while underweight and wasting tend to become evident between four and six months of age (Maleta, 2006). Moreover, there are four sub-forms of undernutrition which include stunting, wasting, underweight, and deficiencies in vitamins and minerals (WHO, 2021).

Stunting, sometimes referred to as chronic malnutrition, is one of the leading measures used to assess childhood malnutrition. A child is defined as 'stunted' if they are too short for their age which indicates that their growth and development have been hindered (Ritchie, 2022). It indicates that a child has failed to reach their growth potential as a result of disease, poor health, and malnutrition. The WHO categorizes children who are stunted as those whose height is lower than average for their age, and at least two standard deviations below (height-for-age < -2 SD) the World Health Organization's Child Growth Standards 2006 (WHO, 2006).

There are a lot of factors that cause nutritional stunting such as lack of breastfeeding until six months of age, later introduction of complementary feeding, insufficient maternal nutrition, inadequate complementary feeding, and impaired absorption of nutrients (Prendergast & Humphrey, 2014). Moreover, a study conducted in Kalinga, Philippines found that mother's insufficient knowledge on exclusive breastfeeding, frequency of and proper way of breastfeeding, the continuance of breastfeeding beyond six months, benefit of exclusive breastfeeding for six months to mothers, and low self-confidence in preparing complementary food were all associated with stunting (Piniliw, 2021). This highlights the importance of maternal nutrition of children in the first 1,000 days to prevent the prevalence

of stunting.

Wasting, also referred to as acute malnutrition, is children having low weight-for-height which usually indicates a severe weight loss. There are two types of acute malnutrition; severe and moderate. Severe acute malnutrition denotes severe starvation in which if it is not treated immediately it will result to death. It affects 16 million children globally (WHO, 2021). Meanwhile, moderate acute malnutrition signifies moderate starvation which is less detrimental. However, if remained untreated it may result to severe acute malnutrition. It affects approximately 34 million children globally (WHO, 2021). The WHO categorizes children who are wasted as those whose weight is lower than average for their height, and at least two standard deviations below (weight-for-height < -2 SD) the WHO's Child Growth Standards Median (WHO, 2006).

In the first six months of life, the burden of wasting and severe wasting was the highest compared to older age groups (Child Human Rights Defenders [CHRD] & UNICEF India Country Office, 2021). There are a lot of factors that cause nutritional wasting. A community-based cross-sectional study in Southern Ethiopia found that larger family size, poor household wealth index, non-exclusive breastfeeding, and insufficient maternal knowledge are some factors associated with wasting. (Toma et al., 2023). Additionally, nutritional wasting is associated with lower maternal education, low birth weight, and being a male child (CHRD & UNICEF India Country Office, 2021). This emphasizes the need for immediate preventive measures for wasting to not be detrimental to the child's health.

Chronic and acute malnutrition are not mutually exclusive to one another. A child may develop acute malnutrition if they are chronically malnourished and vice versa. Underweight includes elements of both stunting and wasting. Children who are underweight have a low weight-for-age and they may be stunted, wasted, or both (WHO, 2021). The WHO categorizes children who are underweight as those whose weight is lower than average for their age, and at least two standard deviations below (weight-for-age < -2 SD) the WHO's Child Growth Standards Median (WHO, 2006).

Underweight indicates malnutrition in children and results in long-term effects such as abnormalities in physical and mental health (Acquah et al., 2019). Children who are underweight, particularly those under the age of three when the brain is quickly developing, can have developmental problems. For optimal development, the brain needs nutrition. Underweight children may lack essential nutrients as a result of malnutrition and malabsorption. This may affect brain growth and cause developmental milestones to be delayed. According to a cross-sectional study age, wealth status, mother's education, region, ethnicity, household toilet facility, and the source of drinking water significantly predicted underweight in the children (Acquah et al., 2019). The study also suggests for health institutions and other health sectors stakeholders to create interventions that focuses on complimentary feeding, poverty alleviation, and health status of children to combat underweight in children in Ghana.

Another for of undernutrition exist in the lack of specific key micronutrients essential for human development. Micronutrient deficiencies, sometimes referred to as hidden-hunger, result from inadequate intake of essential vitamins and minerals such as such as vitamin A, iron, zinc and iodine (Valid Nutrition, n.d.). It occurs when the body lacks sufficient amounts of micronutrients due to inadequate dietary intake, absorption, or suboptimal utilization of vitamins or minerals. It also causes morbidity and mortality in individuals, affecting human potential worldwide (Bailey et al., 2015). Furthermore, deficiency in iron is the most common nutritional disorder in the world with over 2 billion people or 30% of the world's population are anemic. Specifically, 50% of pregnant women and 40% of preschool children are affected by iron deficiency (WHO, 2021).

Micronutrient deficiencies can lead to severe health issues such as increased infection risk, birth defects, blindness, reduced growth, cognitive impairment, decreased school performance, work productivity, and even death (Roth et al., 2015; van Hagen P, 2017). Inadequate dietary intake, increased requirements of the body, and/or increased losses from the body are among the factors that cause micronutrient deficiencies (Adekelan, 2003). Children are in their growth and development phase and have nutritional requirements which means that micronutrients are relevant (Prieto & Cid, 2011). This stresses the importance of a balanced diet for children to ensure that they will receive the optimal requirement of micronutrients.

While undernutrition is the lack of intake of nutrients, overnutrition arises from excessive intake of nutrients, leading to the accumulation of body fat that impairs health (Mathur & Pillai, 2019). Overnutrition is accompanied by being overweight and obese. Although obesity and overweight are used separately, they are interrelated. When a person is overweight, their risk of developing health issues increases. This risk rises with increasing weight. If overweight persist in children serious health problems like osteoarthritis, diabetes, cardiovascular disease, and some types of cancer can be brought on by obesity. These illnesses result in significant disability and early death. These illnesses result in significant medical expenses for both individuals and families as well as long-term suffering (WHO, 2013).

The WHO categorizes children who are overweight as those whose weight is higher than average for their height, and it is greater than 2 standard deviations above (weight-for-height < +2 SD) WHO Child Growth Standards median. Meanwhile, obesity is weight-for-height greater than 3 standard deviations above (weight-for-height < +3 SD) the WHO Child Growth Standards median (WHO, 2006). According to a study, maternal overweight, less engagement in physical activities, regular snacking/binging, and gender were factors associated with being overweight in preschool children (Kurspahić-Mujčić & Mujčić, 2020). The same study suggests that health programs that try to lower childhood obesity or overweight should primarily educate mothers about the severe risks associated with

childhood obesity and the significance of modeling a healthy lifestyle for their children.

Neonatal Feeding Practice

Neonatal feeding, a critical aspect within the first 28 days of life, involves providing essential nourishment to babies through the administration of milk, whether colostrum or formula, to meet their nutritional needs. Initiating breastfeeding within the first hour after birth is crucial not only for shielding infants from infections but also for fostering essential emotional bonding between mother and baby, positively influencing the duration of exclusive breastfeeding (WHO, n.d).

Colostrum, the first milk produced by the mammary glands immediately after birth, is a thick, yellowish fluid rich in antibodies, proteins, vitamins, and minerals. It provides crucial nutrients and immune protection to newborns (Ballard & Morrow, 2013; WHO, n.d).

Neonatal feeding methods include breastfeeding and bottle feeding, each with distinct characteristics. Breast milk, the preferred choice, offers essential nutrients, immune protection, and easy digestibility. In contrast, formula milk, while meeting nutritional needs, lacks immune system benefits and requires preparation and equipment (Feleke, 2014). Both methods can sufficiently nourish neonates, emphasizing the importance of aligning with the unique needs of mothers and neonates.

Exclusive breastfeeding, the practice of feeding newborn infants only breast milk for the first six months of life, is recommended by WHO and UNICEF due to its numerous health benefits and contribution to optimal growth and development (WHO, 2017). However, pre-lacteal feeding, a common practice in some cultures, poses risks to infants and mothers. This practice can disrupt breastfeeding, alter gut bacteria balance, and increase the risk of infections and malnutrition. Examples include honey, sugar water, herbal concoctions, and cow's milk (Amele et al., 2019). Discouraging pre-lacteal feeding is essential to avoid adverse outcomes such as decreased milk supply and increased infection risk.

Despite the general recommendation for exclusive breastfeeding, challenges and limitations may arise. Some mothers may face difficulties with milk production, latch issues, or returning to work, hindering exclusive breastfeeding. In such cases, supplementation with formula or other complementary foods may be necessary (Tampah-Naah et al., 2019).

Regardless of the chosen feeding method, maintaining good sanitation practices is paramount to reduce the risk of enteric pathogens causing diarrheal diseases, particularly given neonates' vulnerable immune systems (Feleke, 2014). Effective sanitation, including fecal material isolation and minimizing pathogen exposure, serves as a vital protective measure for both breastfed and bottle-fed infants.

The role of healthcare professionals, particularly doctors and nurses, significantly influences breastfeeding outcomes. Pediatric interns display more support than third-year residents, and nurses play a pivotal role in initiating and sustaining breastfeeding. Enhancing healthcare professionals' knowledge, particularly in areas like lactation physiology, is essential for improved support and breastfeeding success (Radzyminski & Callister, 2015).

Infant Feeding Practices

Infant feeding practices encompass a spectrum of approaches to nourishing infants and young children, involving the provision of breast milk, formula, and the eventual introduction of solid foods (WHO, n.d).

Continuation of breastfeeding is the recommended practice for newborns in the first six months of life until at least twelve months of age alongside appropriate complementary foods for up to two years or beyond (WHO, 2018). Breast milk stands as the optimal source of nutrition, containing vital nutrients, antibodies, and immune protection. This approach, endorsed by WHO and UNICEF, not only promotes optimal growth and development but also establishes a foundation for long-term health benefits, including a reduced risk of obesity and chronic diseases in later life (WHO, 2017; Dieterich et al., 2012).

Despite the general recommendation for the continuation of breastfeeding, challenges and limitations may arise. Some mothers may encounter difficulties with milk production, latch issues hindering the continuation of breastfeeding. In such cases, supplementation with formula or other complementary foods may become necessary (Tampah-Naah et al., 2019).

Complementary feeding becomes essential around the age of six months when breast milk alone is no longer sufficient. This practice entails introducing solid, semi-solid, or soft foods alongside continued breast or formula milk (WHO, 2021). It plays a pivotal role in providing essential nutrients for growth and development, shaping healthy eating habits during the transition into early childhood. The introduction of Snacks is great for helping young children go between meals without getting cranky from hunger. But Studies show that the earlier children are exposed to junk food, the greater the chance they'll have future health problems from eating too much of it. In other words, when children start eating junk food matters, and the earlier they begin, the more their health is at risk. Therefore, promoting healthy snack food choices is important to foster optimal nutrition and well-being (Olson, 2014).

In contrast, formula feeding involves the use of prepared formula rather than breast milk, potentially impacting the infant's nutrition and immune system (RxList, n.d). The introduction of other liquids or foods too early may increase the risk of infections and allergies (AAP, 2012). Non-exclusive breastfeeding poses risks, including decreased breast milk intake and an elevated risk of infections and allergies (AAP, 2012). Advocacy for exclusive breastfeeding during the initial six months is crucial to overcoming these challenges

and ensuring optimal growth, development, and adherence to global public health guidelines (Feleke, 2021).

Current Feeding Practice

Future eating patterns and the development of eating behaviors are largely set during the first five years of life. Children's early experiences with food and eating are greatly influenced by their parents and caretakers, and these experiences have a lasting impact on their eating habits and nutritional status (Savage et al., 2007). That is why parents and caretakers should know the appropriate feeding practices to observe in every situation. To guarantee that children will be able to adapt the right eating behavior, dietary intake, and food choice later in life.

There are seven factors of feeding practices assessed by the Comprehensive Feeding Practices Questionnaire (CFPQ). These factors are used to determine various aspects of parental feeding practices. Being aware of the factors that may influence a child's weight, dietary intake, and eating behaviors is essential for planning preventive programs that can offer a solution to malnourished children. Minae et al. (2018) revised the CFPQ with the aim to be used for planning preventive overweight, obesity, and underweight programs for 2–5-year-old children. The seven factors include restriction, healthy eating guidance, modeling, parental pressure, monitoring, emotional regulation, and child control.

Monitoring indicates how much caretakers follow the child's consumption of unhealthy food and it simply measures how aware the caretakers are on the particular foods and drinks that the child consumes. Enlightening the child about the importance of healthy eating and the consequences of excessive intake of unhealthy foods are crucial. Thus, it is important to offer healthier alternatives to their favorite unhealthy snacks. Monitoring is also referred to as one of the responsive feeding practices in which it involves responding to a child's eating habit. Santos et al. (2020) found out through correlational analyses that children's healthy food consumption has a direct relationship with monitoring. Thud, children's healthy food consumption is associated to the caretaker's higher use of monitoring and vice versa.

Child control determines how much parents let the child control their eating behavior. It refers to a child's ability to control themselves with the food they eat without parental guidance, and only with their own temperance. Children eat and stop eating in response to hunger and fullness (Baumeister & Vohs, 2004). The self regulation of children involves satiation and satiety. Satiation refers to the signals that happen in a course of one meal which denotes the end of the meal. While satiety refers to signals inhibit eating before hunger returns (Blundell et al., 2010).

Emotion regulation is one of the components of self-regulation in which poor emotional regulation has been associated with higher risk of being overweight and obese in children (Miller et al., 2016). Emotion regulation determines how much parents use food in order to regulate the child's emotional condition. Because children are not yet knowledgeable in controlling their emotions, they commonly experience emotional dysfunction. This involves tantrums, screaming, yelling, crying, and other high negative reaction. Parents in these situations often use food to regulate their children's emotional dysfunction. However, this can have both positive and negative consequences. And if food is consistently used as a way to soothe emotions, it can lead to unhealthy eating habits and weight issues, possibly resulting in eating disorders and a restricted range of coping behavior (Humburg, 2014).

Parent pressure determines how much parents use pressure in order to increase their child's food intake. It has something to do with practices that involves getting the children to eat more than they would prefer. Although caretakers may think it is good for the children, it imposes different kinds of health risks. Santos et al. (2022) found that children's lower consumption of healthy foods is associated with higher pressure used by the caretakers. Importantly, the pressure to eat may have the unintended consequence of disrupting the development of intuitive and adaptive eating and has been associated with a tendency to overeat and greater risk for overweight. (Thompson, 2019).

Modeling is a feeding practice that focuses on parents getting the child to eat healthy foods by showing them its nutritional value by eating eat themselves. Sometimes caretakers even use enthusiastic remarks about the healthy foods for the children to excited about it as well. Parental role modeling of healthful eating behaviors has been shown to be positively correlated to children's dietary intake and preference for fruits and vegetables. Children who reported parental role modeling of vegetable consumption at snack and green salad at dinner were significantly more likely than those who did not, to meet the daily fruit and vegetable consumption recommendations (Draxten et al., 2014).

Healthy eating guidance determines how much a parent teaches and encourages healthy eating for the child. Promoting healthy eating habits is essential in ensuring the nutrients that the children need. This may involve discussing about the nutritional value of healthy foods, involving the children in meal preparation, and encouraging children to explore new food options (Minaie et al., 2023). All of these are to guide the children into healthy eating practices that they should observe. Guiding children into developing healthy eating choices proves to be effective in their food choices. A study about a 'Planning Health in School' program (PHS-pro) brought about a significant change in children's eating behavior. This program focuses in teaching the children about nutrients in food through eight learning modules delivered monthly over a full school year. Children have a higher consumption of vegetable soup, milk products, and fruit. Meanwhile, consumption of high-energy dense food and soft drinks significantly decreased (Vieira & Carvalho, 2021). This signifies that healthy eating guidance can bring significant positive effects in children's eating choices.

Restriction demonstrates how much a parent controls a child's food intake and weight gain. Restriction is a combination of restriction for weight control and for health subscales. Restrictive child-feeding practice is one of the important practices that can affect children's weight. Additionally, it reduces obesity, free radicals, and enhances accessible antioxidants, all of which contribute to people living longer lives (Astagimath & Rao, 2004). Restricting children's access to appetizing foods increases their intake, selection, and behavioral response, as demonstrated by Fisher and Birch's 1999 experiment. When the restricted food was briefly made available, they discovered that children ate more of it and made more comments about it. Long-term effects, however, were not noted when children were given unlimited access to the restricted food three weeks following the restriction. This shows that children are more interested in food that are restricted to them due to their curiosity and rebellious behavior. This goes to show that restricting food is not going to work often times.

Malnutrition of Children in Rural Areas

Rural zones are the areas outside of the major urban areas, including the total territory and other resources of the countryside (UNICEF, n.d.). Children's health in rural areas is unstable since access to healthcare is a privilege reserved for a small, wealthy segment of the community (Humanium, n.d.). The health of children living in poverty continues to be in very poor condition due to this severe lack of resources.

The Philippines' rural population was reported to be 52.32% in 2021, according to a collection of economic growth compiled by the World Bank from officially recognized sources (MacroTrends, 2023). Additionally, the Philippines' rural population has grown substantially in the last 50 years, from 26.5 million to 60.1 million, growing at an increasing yearly rate that peaked in 1997 at 2.66% and then dropped to 0.91% in 2022 (Knoema, 2018). According to WHO estimates, malnutrition causes 54% of child deaths worldwide, whereas childhood underweight causes 35% of fatalities in children under the age of five. 52.0% of school-age children in poor nations are stunted, and between 34.0 and 62.0% of them are underweight.

Poor dietary habits seem to be the main cause of this issue. The environment and a child's parents are other elements that can contribute to malnutrition in rural children. Parents must ensure the health and safety of their kids (Wahed et al., 2017). Children from rural schools are more likely to skip breakfast or have a short lunch, consume more sweets than they should, and eat fewer fruits and vegetables.

Underweight is the most common symptom of malnutrition in rural areas, whereas wasting is more typical in urban areas (Emam et al., 2005). Micronutrient deficiencies, including those in iron and vitamin A, and poor dietary quality appear to be the primary causes of this issue (Wahed et al., 2017). A child's likelihood of being malnourished is increased if they are older than 12 months, have an uneducated mother, live in a low-income household, had a recent birth, or reside in a certain area of the country (Endris et al., 2017).

The current research employs a case study with a descriptive-correlational design to investigate the feeding practices of children in San Placido. It will be focusing on assessing the feeding practices of the children in San Placido. In contrast, the anchor study conducted by Ansuya et al. (2018) utilized a case-control study design to examine the associations of different risk factors for malnutrition among preschool children in rural Karnataka. The researchers aim to address two significant research gaps in the context of malnutrition in San Placido.

First, the limited health studies in San Placido: One of the major research gaps is the lack of comprehensive health studies focusing on malnutrition in San Placido. San Placido lacks in-depth knowledge regarding the faulty feeding practices associated with malnutrition among children in this particular rural community. This research seeks to fill this gap by conducting a detailed study to provide valuable insights into the nutritional status, risk factors for malnutrition, and faulty feeding practices in San Placido.

Second, the reliability of government nutrition programs in rural communities: Another crucial research gap is the effectiveness and suitability of the nutrition programs conducted by the government in addressing the concerns of specific rural communities like San Placido. It is essential to evaluate whether the existing nutrition programs adequately meet the needs and challenges of the rural population, considering their unique circumstances, cultural practices, and feeding patterns.

Furthermore, this research specifically focuses on feeding practices, which is an area that previous studies have not thoroughly explored in the context of malnutrition. While other studies have considered various factors, this study recognizes the significance of feeding practices as a crucial contributor to malnutrition outcomes. By emphasizing feeding practices, this study aims to gain a deeper understanding of the feeding patterns, eating choices, and behaviors of children in San Placido and their impact on their nutritional status. By addressing these research gaps, this study contributes to the existing body of knowledge by providing insights into the risk factors and feeding practices associated with malnutrition among children in a rural setting. In addition, the findings of this research helps identify the strengths and weaknesses of government nutrition programs and inform the development of targeted interventions that are better suited to the unique needs of rural communities. Ultimately, this study seeks to improve the effectiveness of nutrition programs and promote better health outcomes for children in San Placido.

Research Questions

This study aimed to determine the association and relationship of feeding practices of children in San Placido with malnutrition. Specifically, this study sought to answer the following questions:

1. What are the neonatal feeding practices of children in San Placido?
2. What are the infant feeding practices of the children in San Placido?
3. What are the current feeding practices of children in San Placido in terms of:
   3.1 monitoring;
   3.2 child control;
   3.3 emotion regulation;
   3.4 modeling;
   3.5 pressure;
   3.6 healthy eating guidance; and
   3.7 restriction?
4. What is the WAZ, HAZ, and WHZ nutritional status of children when grouped according to their profile variables:
   4.1 sex;
   4.2 age;
   4.3 type of family;
   4.4 caretaker's educational attainment; and
   4.5 socio-economic status?
5. Is there a significant association between the children's neonatal feeding practices with their nutritional status:
   5.1 WAZ nutritional status;
   5.2 HAZ nutritional status; and
   5.3 WHZ nutritional status?
6. Is there a significant association between the children's infant feeding practices with their nutritional status:
   6.1 WAZ nutritional status;
   6.2 HAZ nutritional status; and
   6.3 WHZ nutritional status?
7. Is there a significant relationship between the children's current feeding practices with their nutritional status:
   7.1 WAZ nutritional status;
   7.2 HAZ nutritional status; and
   7.3 WHZ nutritional status?
8. What efforts does the government make to lessen the impact of malnutrition in the community?

Methodology

Research Design

This study is a community-based case study that employed both quantitative and qualitative methods. For the quantitative approach, descriptive-correlational was used. Descriptive methods were utilized to determine the neonatal, infant, and current feeding practices of the children in San Placido. This method was also used in observing the nutritional status of children when grouped according to their profile variables. Lastly, correlational methods were used to find relationships and associations between past and current feeding practices to children's nutritional status.

For the qualitative approach, a case study was implemented to conduct an in-depth investigation of the feeding practices of the children in a rural community in the context of malnutrition. Specifically, it focused on determining and assessing the certain feeding practices done by the caretakers of the children in San Placido. An open-ended question was used to assess their awareness of programs that they participated in and held in their community.

Participants

The respondents of this study were the caretakers of children in San Placido, Roxas, Isabela. By using the Raosoft Calculator with a 95%confidence interval, the calculated sample size is 175. The sampling method that was applied is stratified purposive sampling in which the respondet's children that was involved are those who are 2 to 5 years old and those who have complete anthropometric measurements. Those who did not meet the criteria were excluded from the study. A total of 155 respondents were gathered in this process. The respondents were classified according to their children's nutritional status. This was determined using the anthropometric measurements of the children in San Placido. There were three separate ways that the children were classified. For their computed weight-for-age z-score (WAZ); they were classified into undernutrition, well-nourished, and over-nutrition, for their computed height-for-age z-score (HAZ); they were classified into stunting, normal, and tall. Lastly, for their weight-for-height z-score (WHZ), they were classified into wasting, normal, and overweight/obesity.

Table 1 shows the socio-demographic profile of the respondents. As can be seen, most of the respondent's children were male, followed by females. The ages of the respondent's children decrease in each age from 2-year-olds having the most and 5-year-olds having the least. Furthermore, almost half of the respondent graduated in high school with most of them belonging to nuclear families. In addition, more than half of the respondents have a monthly income below P10,957.

Table 1. *The Socio-Demographic Profile of the Respondent's Children*

Variables	*f*	*%*
Sex		
Male	97	62.6
Female	58	37.4
Age		
2 Years Old	60	38.7
3 Years Old	47	30.3
4 Years Old	29	18.7
5 Years Old	19	12.3
Caretaker's Educational Attainment		
Elementary Graduate	25	16.1
High School Graduate	64	41.3
College Undergraduate	30	19.4
College Graduate	36	23.2
Type of Family		
Nuclear	120	77.4
Extended	35	22.6
Socioeconomic Status		
Below 10,957	79	51.0
10,957-21,914	29	18.7
21,914-43,828	17	11.0
43,828-76,669	22	14.2
76,669-131,484	1	.6
131,484-219,140	1	.6
219,140-Above	6	3.9
Total	155	100.0

Legends: f = frequency % = percentage

Instruments

A survey questionnaire was used to collect and gather the data needed to conduct the study. The questionnaire that was utilized in this study was adapted from the research of Ansuya et al. (2018), entitled " Risk factors for malnutrition among preschool children in rural Karnataka: a case-control study" and the Comprehensive Feeding Practices Questionnaire (CFPQ). The questionnaire was modified to align with the significance and the target respondents of the study, the questionnaire then comprised five (5) parts, including the respondents' profile, anthropometric measurements, past feeding practices, current feeding practices and a qualitative section with one (1) open-ended question.

The demographic profile of the respondents was obtained through the first part of the questionnaire, which included questions about the child's age, sex, birthday, caretaker's educational attainment, type of family, and monthly income.

The second part of the questionnaire focused on anthropometric measurements such as weight, and height., which were collected to assess the nutritional status of the children.

The third part of the questionnaire included closed-ended questions that aimed to gather information about the children's past feeding practices that may affect their nutritional status currently. This part was adapted from the questionnaire of Ansuya et al. (2018). Specifically, the questions that were included are from part 4 of the questionnaire, items 2.1, 2.2, 2.3, and 2.5 from the neonatal feeding practices, and 3.3 and 3.5 from the infant feeding practices. Furthermore, the closed-ended questions and its choices in the quantitative section were chosen based on the core indicators for assessing infant and young children feeding practices (WHO, 2008). The items that are based on the core indicators are items 2, 3, 4, 5, 6, and 7 for the neonatal feeding practices, and items 1, 2, and 4 for the infant feeding practices. The core indicators chosen are early initiation of breastfeeding, breastfeeding, bottle-feeding, colostrum, pre-lacteal feeds, exclusive breastfeeding, complementary feeding, weaning, continuation of breastfeeding, meal frequency, and snack time (WHO, 2008). The items that were translated were checked by the language coordinator. Together, the closed-ended questions in the third part of the questionnaire comprises of 13 questions and provides a comprehensive picture of the children's past feeding practices. Moreover, this part of the questionnaire was validated by the Municipal Health Officer of Dupax Del Norte Dr. Clarita Egmin Epi.

The fourth part of the questionnaire is a 5-point Likert questionnaire which was adapted from the Comprehensive Feeding Practices Questionnaire (CFPQ). This questionnaire is highly used to measure multiple parental feeding practices. The revised version of a study from Iran was used, which features only 39 items and condensed into 7 factors of parental feeding practices (Minaie et. al, 2023). Additionally, this version aligns with the aim of the research which aims to be used in planning preventive overweight, obesity, and underweight programs for children aged 2-5 years old. Moreover, the items correspond to the 7 factors such as Monitoring; items 1, 2, 3, and 4, Child Control; items 5, 6, and 10, Emotion Regulation; items 8, 7, and 9, Pressure; items 13, 24, 31, and 39, Modeling; 34, 36, 37, and 38, Healthy Eating Guidance; 11, 12, 15, 17, 18, 19, 20, 25, 26, and 30, and Restriction; 14, 16, 21, 22, 23, 27, 28, 29, 32,

33, and 35. The items that were translated were also checked by the language coordinator. Moreover, this part of the questionnaire has undergone pilot testing to check the reliability of the questionnaire. Table 1 shows the Cronbach's Alpha of the CFPQ 5-likert questionnaire of the study. Based on the cronbach's alpha, which is 0.927, it has an excellent reliability level.

Table 2. *Cronbach's Alpha Score of the CFPQ 5-Likert Questionnaire*

Reliability Statistics

Cronbach's Alpha	N of Items
0.927	39

The final part of the questionnaire included one open-ended question asking the respondents to share their thoughts related to their nutritional status, specifically about the support provided by the government in their area to reduce the impact of malnutrition. The aim of this question was to gain insights into the respondents' perceptions and awareness of the government's efforts to address malnutrition in their community. The responses to this question can provide valuable information for policymakers and stakeholders to identify gaps and opportunities for improvement in the government's efforts to reduce the impact of malnutrition in the community.

Overall, the questionnaire was designed to collect comprehensive data that would help the researchers identify the risk factors for malnutrition among children in San Placido. By using a combination of closed-ended and open-ended questions, the questionnaire allowed the researchers to collect both quantitative and qualitative data, providing a more holistic view of the factors that contribute to malnutrition among children in San Placido.

Procedure

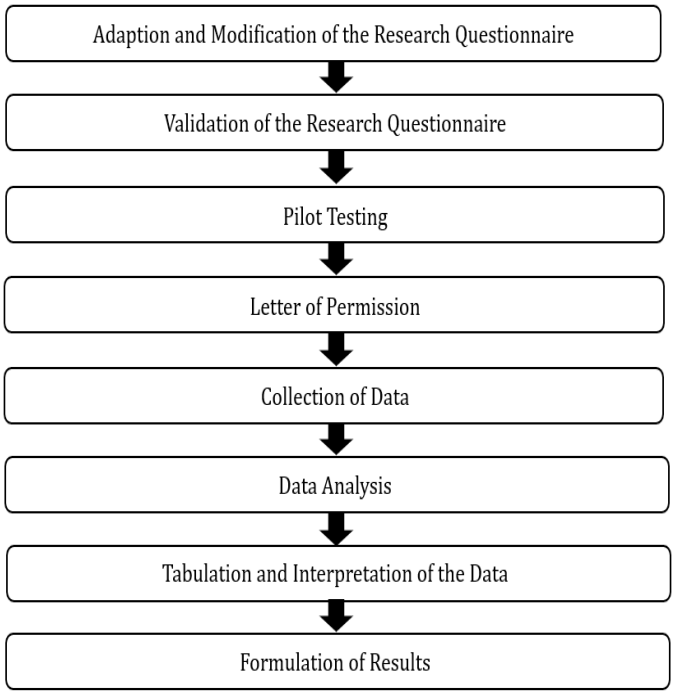

Figure 1. *Data Gathering Procedure*

The study's data-gathering procedure began with the modification of the adapted research survey questionnaire. The third part of the questionnaire was adapted from Ansuya et al. (2022) and from the WHO core indicators (2008) and the fourth part of the questionnaire was adapted from Minaie et al (2023). The modification of the questionnaire involves translation, localizing the words, fixing the format, and adding more significant questions that fits the goal of this study. Finalization was done by examining whether grammatical, spelling, and punctuation errors are present in the questionnaire to avoid further confusion for the respondents. The questionnaire was validated by the research teacher, research adviser, research coordinator, and the school principal of Saint Mary's University Senior High School. Moreover, it was checked and validated by the Municipal Health Officer of Dupax Del Norte Dr. Clarita Egmin Epi. After considering their suggestions, it was then finalized. The finalized paper went through a pilot test in which the caretakers of children 2-5 years old in rural communities were the respondents. Before the data collection, a letter of permission was sent to the barangay captain to allow the researchers to conduct the study in San Placido, Roxas, Isabela. And fortunately, the barangay captain allowed the researchers to float the survey questionnaires.

The data collection began with the gathering of the anthropometric measurements of the children from the existing files of the Barangay

Health Workers (BHW). A letter was sent to the barangay deputy in charge of the BHW, Teresita Ramos, allowing the researchers to collect said data. And the BHW gladly allowed the researchers to use the recent OPT of the community. The collected data were then processed using WHO Anthro to calculate z-scores. The children were then classified depending on their weight-for-age z-score (WAZ), height-for-age z-score (HAZ), and weight-for-height z-score (WHZ). The World Health Organization 2006 Growth Standard was used as a basis in classifying the children. Once the children were classified, the caretakers of the children was given a questionnaire to complete. The researchers guided them as they answer the questionnaire to clarify things that they do not understand. To the caretakers who do not know how to read, it was read to them by the researchers. The completed questionnaires were collected and the data provided by the participants were tabulated for organization and analysis. Based on the analysis of the data, the researchers derived conclusions from the study's findings. These conclusions were then presented, accompanied by suggestions and recommendations for future research endeavors.

Treatment of Data

This study utilized a descriptive-correlational, mixed-methods approach to address the research questions. Hence, to treat the gathered data, the following tools and techniques were used:

a.) Frequency Count and Percentage Distribution. This statistical tool was used to determine the identity of the respondent's child. The frequency count showed how many respondents and their children falls into each category in terms of age, sex, caretaker's educational attainment, type of family, socio-economic status, and their nutritional status. It was useful in identifying the past feeding practices and current feeding practices of the children in San Placido. And lastly, it was used to know how many respondents are under each classification based on their answers in the open-ended questions.

b.) Mean Score and Standard Deviation. This statistical tool was used to compute the current feeding practices of children in San Placido. The mean indicated how often each item is observed together with the level of agreement and disagreement with the different statements on the scale. Overall, it indicated how often each item is done.

Table 3. *Likert Scale Interpretation of the Current Feeding Practices (Items 1-10)*

Mean Score	*Qualitative Description*	*Interpretation*
4.21 – 5.00	Always	Always Done
3.42 – 4.20	Mostly	Mostly Done
2.61 – 3.41	Sometimes	Sometimes Done
1.81 – 2.60	Rarely	Rarely Done
1.00 – 1.80	Never	Never Done

Table 4. *Likert Scale Interpretation of the Current Feeding Practices (Items 11-39)*

Mean Score	*Qualitative Description*	*Interpretation*
4.21 – 5.00	Agree	Always Done
3.42 – 4.20	Slightly Agree	Mostly Done
2.61 – 3.41	Neutral	Sometimes Done
1.81 – 2.60	Slightly Disagree	Rarely Done
1.00 – 1.80	Disagree	Never Done

c.) Correlational Statistics; Pearson's r correlation and Chi-Square Test. These statistical tools were used to determine if there is a significant relationship between the children's feeding practices with their nutritional status. Specifically, the chi-square test was used to associate the past feeding practices and the children's nutritional status. Pearson's r correlation test was used to find the relationship between the current feeding practices and the children's nutritional status.

d.) Thematic Analysis. This qualitative analysis method allowed for a comprehensive understanding of the support provided by the government.

Results and Discussion

This section presents the results and discussion of data gathered from the questionnaires distributed to the corresponding caretakers of 2-5 years old children in San Placido, Roxas, Isabela. The said data were presented in tabular form in accordance with the specific questions posited on the statement of the problem. This chapter comprises the analysis, presentation and interpretation of the findings resulting from this study and discusses the light of previous research findings and available related literature that was applicable in order to identify similarities and differences between this study and previous study and literature.

Section 1. Neonatal Feeding Practices

Table 5 presents data on the respondents' practices and experiences related to newborn or neonatal care. It includes information on; breastfeeding practices, guidance from healthcare professionals, exclusive breastfeeding duration, colostrum consumption, pre-lacteal feeds, and challenges in feeding.

Table 5 provides valuable insights into neonatal care and feeding practices. It reveals that 42 respondents (27.1%) sought guidance

from healthcare professionals, while 113 (72.9%) did not. When it comes to initiating breastfeeding within the first hour of birth, 97 respondents (62.6%) adhered to this practice, but 58 (37.4%) did not. In terms of feeding practices, 109 respondents (70.3%) chose breastfeeding, while 46 (29.7%) opted for bottle feeding. The data also shows the duration of exclusive breastfeeding, with 25 respondents (16.1%) practicing it for less than 6 months and 82 respondents (52.9%) for more than 6 months. Regarding colostrum consumption within the first three days, 100 respondents (64.5%) ensured it, while 55 (35.5%) did not. Pre-lacteal feeds were not provided by 109 respondents (70.3%) Sanitizing nipples was a common practice, with 125 respondents (80.6%). However, challenges or difficulties with feeding were reported by 45 respondents (29.0%), while 110 (71.0%) did not face such issues.

Table 5. *The Children's Neonatal Feeding Practices (n=155)*

Variables	*f*	*%*
See Guidance from Healthcare Professionals		
Yes	42	27.1
No	113	72.9
Initiated Breastfeeding Within 1 Hour of Birth		
Yes	97	62.6
No	58	37.4
Feeding Practice		
Breastfeeding	109	70.3
Bottle Feeding	46	29.7
How Long of Exclusive Breastfeeding		
Less than 6 months	25	16.1
6 months	48	31.0
More than 6 months	82	52.9
Drank Colostrum for The First Three Days		
Yes	100	64.5
No	55	35.5
Pre-Lacteal Feeds Before Starting Breastfeeding		
Yes	46	29.7
No	109	70.3
Sanitize Nipples		
Yes	125	80.6
No	30	19.4
Experience Challenges or Difficulties Feeding		
Yes	45	29.0
No	110	71.0

Legends: f = frequency; % = percentage

This emphasizes the importance of healthcare education, promotion of early breastfeeding, support for exclusive breastfeeding, and addressing challenges to ensure the well-being of newborns. It highlights a significant gap in healthcare education and outreach. Encouraging caregivers to consult healthcare professionals for guidance on neonatal care can lead to better-informed decisions and healthier outcomes for newborns. emphasizes the importance of continued education and support for this practice. Additionally, breastfeeding is encouraged as it aligns with recommendations for optimal infant nutrition. Strategies to further promote and support breastfeeding could yield even more positive outcomes. demonstrating their commitment to providing long-term, high-quality nutrition. Encouraging this practice and addressing any barriers to its continuation can contribute to improved infant health. indicating awareness of its nutritional benefits. Sanitizing nipples is a positive practice in terms of hygiene, but the challenges or difficulties experienced by a portion of our respondents indicates a need for greater support and resources for caregivers facing feeding issues. This data aligns with the principles of high-quality universal newborn health care, emphasizing the importance of immediate and essential care for newborns.

These practices demonstrate a commitment to ensuring the well-being of newborns. Moreover, the high percentage of infants initiated into breastfeeding within the first hour of birth and the continuation of exclusive breastfeeding for over six months highlight the promotion of optimal nutrition, in line with recommendations for supporting infant growth and development (WHO, n.d).

Section 2. Infant Feeding Practices.

Table 6 presents data on the respondent's practices and experiences related to infant care. Table 6 includes information on; introduction of complementary foods, meal frequency, giving snacks to infants, continuation of breastfeeding, and challenges in breastfeeding is provided.

Table 12 offers valuable insights into infant care and feeding practices. The data indicates that 72 respondents (46.5%) introduced complementary foods to their infants at the recommended age of 6 months. Moreover, 85 respondents (54.8%) continued to provide their infants with three meals a day after the age of 6 months. Additionally, 101 respondents (65.2%) included snacks in their infants' diets after 6 months. In terms of breastfeeding continuation, 51 respondents (32.9%) breastfed for more than 2 years. However, it's

noteworthy that 50 respondents (32.3%) faced breastfeeding challenges. This indicates an awareness of the importance of appropriate nutrition for infants and emphasizing their commitment to meeting their child's nutritional requirements. Moreover, the inclusion of snacks in the diets of infants, reflects an additional effort to address the nutritional needs of growing children. The data also sheds light on the continuation of breastfeeding underscoring a dedication to extended breastfeeding, which has known health benefits for both mother and child. However, it's worth noting that a substantial proportion of respondents experienced challenges with breastfeeding. These challenges may require further investigation and support to ensure that breastfeeding is encouraged and made more accessible for those facing difficulties. This data aligns with recommendations from the WHO for appropriate infant nutrition. The WHO (2021). emphasizes the significance of introducing complementary foods at the age of 6 months to support infant growth and development. However, it is recommended to start with one to two meals a day rather than three to allow infants to adapt to the new experience of eating. This gradual approach not only focuses on fulfilling nutritional needs but also on skill development and experimentation, as a sudden transition to three meals a day can be overwhelming for infants (D'Andrea, 2023).

Table 6. *The Children's Infant Feeding Practices (n=155)*

Variable	*f*	*%*
Introduce Complimentary Food		
Before 6 months	23	14.8
6 months	72	46.5
After 6 months	60	38.7
Meals Frequency (After 6 Months)		
1 meal a day	23	14.8
2 meal a day	34	21.9
3 meal a day	85	54.8
More than 3 meal a day	13	8.4
Give Baby (After 6 Months) Snacks		
Yes	101	65.2
No	54	34.8
Continuation Of Breastfeeding		
Less than 2 years	60	38.7
2 years	44	28.4
More than 2 years	51	32.9
Experience Any Challenges Breastfeeding		
Yes	50	32.3
No	105	67.7

Section 3. Current Feeding Practices

Tables 7, 8, 9, 10, 11, 12, and 13 are the current feeding practices that caretakers exhibit which was divided into seven factors; monitoring, child control, emotion regulation, pressure, modeling, healthy eating guidance and restriction. Each of the factors were presented to show the degree of frequency of each feeding practices. Overall, it imparts relevant information towards the feeding practices that parents observe with their children currently.

Table 7. *The Children's Feeding Practice in terms of Monitoring (n=155)*

Items	$\bar{x}$	*SD*	*Interpretation*
1. How much do you keep track of the sweets (candy, ice cream,) that the child eats?	3.37	1.23803	Sometimes Done
2. How much do you keep track of the junk food (potato chips, cracklings) that the child eats?	3.75	1.16549	Mostly Done
3. How much do you keep track of the high-fat foods (pork) that the child eats?	3.70	1.19726	Mostly Done
4. How much do you keep track of the sugary drinks (soda/pop, kool-aid) the child drinks?	3.88	1.20785	Mostly Done
Total	3.675		Mostly Done

Legend: Always Done = 4.21 – 5.00; Mostly Done = 3.41 – 4.20; Sometimes Done = 2.61 – 3.40; Rarely Done = 1.81 – 2.60; Never Done 1.00 – 1.80; $\bar{x}$= Mean; SD = Standard Deviation.

Table 7 shows the children's feeding practices in terms of monitoring. As can be seen, monitoring is mostly done ($\bar{x}$ = 3.675) by the caretakers. Item one, "How much do you keep track of the sweets (candy, ice cream,) that the child eats?", got the lowest mean ($\bar{x}$ = 3.37) which means it is sometimes done. This means that the caretakers monitor the foods and drinks that their child consume often times, because they know that it is their job. However, the caretakers seem to not monitor how much sweets their children eat that often. This may be because children are attracted to sweets naturally.

Santos et al. (2022) claim that higher monitoring is associated with healthy food consumption of children ages 3-5 years old. This signifies that monitoring is an essential feeding practice for children for them to prefer eating healthy food. Monitoring enables the caretakers to act accordingly on the quality and quantity of the foods and drinks that children eat. However, it is recommended that

caretakers should only focus on what the child eats and let the child determine how much they will eat it. Although their minds may mislead them when selecting which foods to eat, a healthy child's body do a great job of asking for the ideal amount of food (American Academy of Pediatrics [AAP], 2009).

Children are born to love the taste of sugar and sweets, which attracts them to their mother's milk. They prefer higher level of sugar than adults do, which has been true for nearly a decade. However, this is alarming because children's intake of sugar remains higher than that recommended by health organizations worldwide (Mennella et al., 2015). Eating lots of added sugar early in life is linked to obesity, high blood pressure and type 2 diabetes (Cleveland Clinic, 2019). Which is why sweets should be monitored regularly by the caretakers to avoid such health risks.

Table 8. *The Children's Feeding Practices in Terms of Child Control*

Items	$\bar{x}$	*SD*	*Interpretation*
5. Do you let the child eat whatever s/he wants?	3.15	1.14412	Sometimes Done
6. At dinner, do you let the child choose the food/s s/he wants from what is served?	3.28	1.18297	Sometimes Done
10. Do you allow the child to leave the table when she/he is full, even if the family is not done eating?	3.13	1.18272	Sometimes Done
Total	3.200		Sometimes Done

Legend: Always Done = 4.21 – 5.00; Mostly Done = 3.41 – 4.20; Sometimes Done = 2.61 – 3.40; Rarely Done = 1.81 – 2.60; Never Done 1.00 – 1.80; $\bar{x}$= Mean; SD = Standard Deviation.

Table 8 reveals the children's feeding practices in terms of child control. As can be seen, child control is sometimes done ($\bar{x}$ = 3.20) by caretakers, with item 10, "Do you allow the child to leave the table when she/he is full, even if the family is not done eating?", getting the lowest mean ($\bar{x}$ = 3.13), which is also sometimes practice. This implies that caretakers do not totally trust their children with foods that much and they do not want their children to be picky eaters. In addition, among the practices, the third item is less favored meaning caretakers seem to not allow the children to leave the table if the whole family is not done eating, it may imply that the Filipino tradition of having family meals is still being upheld and valued, although not often. Moreover, family meals can be a great solution in building up the self-control of children when it comes to food, so it is recommended that the tradition should be more upheld in Filipino households.

Parental guidance and support are crucial in children ages 2-5 years old for a steady growth and development (Savage, 2007). However, in most cases parents aren't present in which they are taken care of their relatives. Specifically in the Philippines, one in three youth grow up without both parents (University of the Philippines Population Institute [UPPI], 2022). In the recent survey, only 67% of the youth grew up with both parents and the rest grew up with one or no present parental figure. The common reasons of this are parent working away (45%), marital separation (38%), and the death of any parent (17%) (UPPI, 2022). And in most cases, the parents need to work leaving the children either with their relative or to their schools. Considering that in most cases children are not under the supervision of a parent, having a sense of control within the children themselves is essential. So that they know how to act accordingly if there are limited food choices on the table and they have the freedom to choose what to eat.

Every mealtime, each member of a Filipino family eagerly anticipates returning home to share dinner and spend time together. This is a common tradition that exist in every Filipino household. As a result, Filipino family members develop a strong and lasting bond with one another (NNC, 2022). It is a common practice that no one should leave the table if not everyone is done eating yet, this ensures respect to the family time that they have. Family meals actually have a lot of benefits for the children's nutrition and their eating behavior. Hammon & Fiese (2011) claim that when families eat together three or more times a week, children and teenagers are more likely to be in a healthy weight range and have better dietary and eating habits compared to families who only have two or three meals together each week.

Table 9. *The Children's Feeding Practices in Terms of Emotion Regulation*

Items	$\bar{x}$	*SD*	*Interpretation*
7. When the child gets fussy, is giving him/her something to eat or drink the first thing you do?	3.17	1.30344	Sometimes Done
8. Do you give the child something to eat or drink if she/he is bored?	3.34	1.23413	Sometimes Done
9. Do you give the child something to eat or drink if s/he is upset even if you think s/he is not hungry?	3.34	1.20754	Sometimes Done
Total	3.27		Sometimes Done

Legend: Always Done = 4.21 – 5.00; Mostly Done = 3.41 – 4.20; Sometimes Done = 2.61 – 3.40; Rarely Done = 1.81 – 2.60; Never Done 1.00 – 1.80; $\bar{x}$= Mean; SD = Standard Deviation.

Table 9 conveys the children's feeding practices in terms of emotion regulation. As can be seen, emotion regulation is sometimes done ($\bar{x}$ = 3.27) by the caretakers, and item seven, "When the child gets fussy, is giving him/her something to eat or drink the first thing you do?", got the lowest mean ($\bar{x}$ = 3.17) which also means it is sometimes done. This reveals that caretakers do not often rely on food as a way to regulate their children's emotion and calm down their tantrums. This may imply that caretakers know the risk and

consequences of using food as way too calm down children.

Emotionally dysregulated children may find it difficult to control their negative feelings and may turn to food, specifically appetizing food, as a coping mechanism. This behavior is referred to as emotional eating (Pace et al., 2019). Using food as a way to regulate the emotion of a child is not recommended since it poses dependency and attachment to appetizing food, which includes high-fat and sugary food. In fact, Michels et al. (2012) claims that consumption of high-fat and sugary foods has been linked to emotional eating, while consumption of fruits and vegetables has decreased. This may be the reason why caretakers tend to avoid using appetizing food to regulate children's emotion. This practice is not recommended especially if the parents first option is to turn to foods and drinks to regulate their children's emotion. There are better alternatives to calm their children down. For instance, they may get down to their level and softly talk to them and encourage their children to communicate what is wrong. This builds mutual understanding between the parent and the child and is far more beneficial than just relying with food.

Table 10. *The Children's Feeding Practices in Terms of Pressure*

Items	$\bar{x}$	*SD*	*Interpretation*
13. The child should always eat all of the food on his/her plate	4.02	1.14796	Mostly Practice
24. If the child says, "I'm not hungry," I try to get him/her to eat anyway	3.69	1.35593	Mostly Practice
31. If the child eats only a small helping, I try to get him/her to eat more	3.94	1.20969	Mostly Practice
39. When s/he says s/he is finished eating, I try to get the child to eat one more bite of food	4.11	1.20372	Mostly Practice
Total	3.94		Mostly Practice

Legend: Always Done = 4.21 – 5.00; Mostly Done = 3.41 – 4.20; Sometimes Done = 2.61 – 3.40; Rarely Done = 1.81 – 2.60; Never Done 1.00 – 1.80; $\bar{x}$= Mean; SD = Standard Deviation.

Table 10 presents he children's feeding practices in terms of pressure. As can be seen, pressure is mostly done ($\bar{x}$ = 3.94) by the caretakers, with the item 39, "When s/he says s/he is finished eating, I try to get the child to eat one more bite of food", got the highest mean ($\bar{x}$ = 3.69) which is also mostly done. This suggest that caretakers mostly pressure their children one way or another to eat more food than they would like. The caretakers may think that it is important to have parental pressure directed to children from time to time so they would eat "enough" food, but it does not benefit the children a lot. Additionally, getting the children to have one more bite of food when they are finished eating is one of the common tactics that parents use to pressure their children to eat more.

Children should not be pressured in eating since it may lead to them be more reckless in choosing what food to eat when they are not in the presence of their caretakers. Results from laboratory studies and long-term studies suggest that children who experience high levels of pressure are more likely to consume sugar-sweetened beverages, appetizing snack foods, and calorie-dense foods than those who experience lower levels (Loth, 2016). This signifies that pressuring children may lead them to consume unhealthy foods. Parental pressure to eat, in which parents do not respond to the child's satiety signals and encourage their food intake, may cause children to be unable to regulate their own food intake (Thompson, 2019). This means that parents should know the signals that the children really are full and stop persisting the children to eat more. This will let the children know that they are in full control on how much they can eat, which will help them regulate their own food intake. Even if the caretakers have good intention in pressuring their children to eat, it is important to trust their children in deciding how much they will eat. This will enable the children to trust their own body in making decision about their food intake. So that the development of intuitive and adaptive eating won't be hindered.

Table 11. *The Children's Feeding Practices in Terms of Modeling*

Items	$\bar{x}$	*SD*	*Interpretation*
34. I model healthy eating for the child by eating healthy foods myself	3.80	1.30633	Mostly Done
36. I try to eat healthy foods in front of the child, even if they are not my favourite	4.01	1.11947	Mostly Done
37. I try to show enthusiasm about eating healthy foods	4.01	1.28925	Mostly Done
38. I show the child how much I enjoy eating healthy foods	4.18	1.15360	Mostly Done
Total	4.00		Mostly Done

Legend: Always Done = 4.21 – 5.00; Mostly Done = 3.41 – 4.20; Sometimes Done = 2.61 – 3.40; Rarely Done = 1.81 – 2.60; Never Done 1.00 – 1.80; $\bar{x}$= Mean; SD = Standard Deviation.

Table 11 shows that the children's feeding practices in terms of modeling. As can be seen, modeling is mostly done ($\bar{x}$=4.00) by the caretakers. And item 34, "I model healthy eating for the child by eating healthy foods myself" got the lowest mean ($\bar{x}$ =3.80) which is mostly done. This means that there are a lot of caretakers that use modeling as a way to encourage their children to eat healthy foods. This may encourage children to meet the fruit and vegetable (F&V) recommendation which is good for them. However, it is ironic that caretakers do not practice this correctly because they themselves sometimes do not eat healthy food. Which may make their modeling strategies ineffective, since children may see their parents not obliging to the same rule, they set for them.

Parental role modeling of healthy food has a great influence in children's dietary intake, especially in fruits and vegetables. In fact, a

child's dietary intake and preference for fruits and vegetables are positively correlated with the role modeling of healthy foods by their parents, which is a significant social factor. Numerous studies have demonstrated this relationship (De Bourdeaudhuij et al., 2008; Young et al., 2004). This denotes that caretakers should practice modeling the nutritional value of healthy foods more often for their children to learn from them. However, what the parents show and model to their children should also be observed by them. This is because children may get the notion that it is ok to not follow the rules because their parents sometimes do not. Draxten et al. (2014) emphasize that children who had parents who demonstrated regular fruit and vegetable consumption at snack time were considerably more likely to meet daily consumption recommendations. This indicate that children are aware of their parents' eating behaviors and on occasion report this behavior similarly to their parents. Which means children are observant in how their parents eat as well and have the tendency to imitate or copy it. This suggest that parents should not only just focus in educating their children in the nutritional value of healthy foods, rather they should also apply this knowledge and show a healthy lifestyle and diet. This is to ensure that the children will most likely adopt that lifestyle as well.

Table 12. *The Children's Feeding Practices in Terms of Healthy Eating Guidance*

Items	$\bar{x}$	*SD*	*Interpretation*
11. Most of the foods I keep in the house is healthy	3.92	1.08434	Mostly Done
12. I involve the child in planning family meals	3.88	1.16192	Mostly Done
15. I allow the child to help prepare family meals	3.63	1.39642	Mostly Done
17. A variety of healthy foods are available to the child at each meal served at home	3.96	1.16710	Mostly Done
18. I encourage the child to try new foods	4.12	1.15069	Mostly Done
19. I discuss with the child why it's important to eat healthy foods	4.25	1.09065	Always Done
20. I tell the child that healthy food tastes good	4.23	1.14839	Always Done
25. I discuss with the child the nutritional value of foods	3.96	1.21079	Mostly Done
26. I encourage the child to participate in grocery shopping	3.66	1.39311	Mostly Done
30. I encourage the child to eat a variety of foods	3.91	1.26577	Mostly Done
Total	3.952		Mostly Done

Legend: Always Done = 4.21 – 5.00; Mostly Done = 3.41 – 4.20; Sometimes Done = 2.61 – 3.40; Rarely Done = 1.81 – 2.60; Never Done 1.00 – 1.80; $\bar{x}$= Mean; SD = Standard Deviation.

Table 12 shows the children's feeding practices in terms of healthy eating guidance. As can be seen, healthy eating guidance is mostly done ($\bar{x}$=3.952) by the caretakers. Item 19 ($\bar{x}$=4.21), "I discuss with the child why it's important to eat healthy foods", and Item 20 ($\bar{x}$=4.23), "I tell the child that healthy food tastes good", got the highest mean in which they are both always done by the caretakers. This implies that caretakers know that guiding the children into health eating is crucial for them to understand the value of eating healthy and nutritious food. Additionally, discussing the importance of eating healthy foods and telling children that they are delicious are some of the most common practices that caretakers observe daily.

Healthy eating guidance allows caretakers to do necessary steps into teaching their children the importance of eating healthy. And there are significant ways that caretakers can do to guide their children. First is involving their children in meal preparation. In this way, children will develop an understanding on the ingredients that are used in a meal. This greatly influences their diet and vegetable intake. van der Horst et al. (2014) confirms that including children in meal preparation can increase vegetable intake. This indicates that encouraging parents to let their children help prepare balanced and healthy meals could be a useful intervention method to help them eat more vegetables while improving their diets. Second is encouraging children to eat a variety of healthy food. Repeatedly exposing children to a variety of foods continues to be effective increasing the acceptance of new foods.

Moreover, early childhood is a time when variation is crucial. With recurrent exposure to a range of healthful choices this can be a sensible first attempt with food introduction (Anzman-Frasca et al., 2017). Furthermore, children who are served a variety of fruits or vegetables consumed more of each compared to children served a single fruit or vegetable type (Anzman-Frasca et al., 2017). And lastly, educating about the nutritional value of healthy food is the most common tactic as shown in the results. While the first two tactics are about involving and exposing the children, in here it's about teaching the children. Early adoption of healthy eating practices is crucial since it indicates that the eating patterns and habits of children carry over into their adulthood (Nicklaus & Remy, 2013). In order to establish healthy eating habits later in life, it is essential that children receive education about eating well during this time. That is why caretakers are encourage to teach their children with proper nutrition education, for them to develop healthy eating practices.

Table 13 shows the children's feeding practices in terms of restriction. As can be seen restriction is mostly practice ($\bar{x}$=3.73) by the caretakers. With the item 14, "I have to be sure that the child does not eat too many high-fat foods", getting the highest mean ($\bar{x}$=4.24) which is always practice. This insinuates how much caretakers do not want their children to eat too much high-fat food. This concern is v Although restriction may seem to be a necessary action in preventing overnutrition of children, it imposes negative influences in the children dietary intake and feeding habits. Restricting food intake can result in overeating when not hungry and an increased preference for and consumption of the restricted foods when they are available (Rollines et al., 2014). Results confirm that the use of restriction does not reduce children's consumption of these foods, particularly among children with lower regulatory or higher appetitive tendencies. This indicates that the restricting the food the children that the eat only establishes their eagerness to eat them

more. This can be seen to the 1999 experiment of Fisher and Birch. This signify that it is better to teach the children about the reasons to not eat some foods than just plainly restricting it from them. alid, since high-fat food poses a high risk in overweight and obesity in children.

Table 13. *The Children's Feeding Practices in Terms of Restriction*

Items	$\bar{x}$	*SD*	*Interpretation*
14. I have to be sure that the child does not eat too many high-fat foods.	4.24	2.01966	Always Done
16. If I did not guide or regulate the child's eating, s/he would eat too much of his/her favorite foods.	3.70	1.16426	Mostly Done
21. I encourage the child to eat less so he/she won't get fat.	3.70	1.34055	Mostly Done
22. If I did not guide or regulate the child's eating, he/she would eat too many junk foods.	3.81	1.37272	Mostly Done
23. I give the child small helpings at meals to control his/her weight	3.76	1.20110	Mostly Done
27. If the child eats more than usual at one meal, I try to restrict his/her eating at the next meal.	3.59	1.32261	Mostly Done
28. I restrict the food the child eats that might make him/her fat.	3.60	1.29234	Mostly Done
29. There are certain foods the child shouldn't eat because they will make him/her fat.	3.68	1.19932	Mostly Done
32. I have to be sure that the child does not eat too much of his/her favorite foods.	3.68	1.25840	Mostly Done
33. I don't allow the child to eat between meals because I don't want him/her to get fat.	3.63	1.34367	Mostly Done
35. I often put the child on a diet to control his/her weight.	3.68	1.25747	Mostly Done
Total	3.74		Mostly Done

Legend: Always Done = 4.21 – 5.00; Mostly Done = 3.41 – 4.20; Sometimes Done = 2.61 – 3.40; Rarely Done = 1.81 – 2.60; Never Done 1.00 – 1.80; $\bar{x}$= Mean; SD = Standard Deviation.

Section 4. Nutritional Status of the Children and Their Profile Variables.

This section explores the significance of the profile variables of the children in their nutritional status. First, tables 14, 15, and 16 shows the WAZ, HAZ, and WHZ nutritional status of the children when grouped according to the children's sex. This section gives valuable insights into how sex differences contribute to the over all nutritional status of the children. Second, tables 17, 18, and 19 shows the WAZ, HAZ, and WHZ nutritional status of the children when grouped according to the children's age. This section discusses how age plays a vital role into the nutritional status of the children. Third, tables 20, 21, and 22 shows the WAZ, HAZ, and WHZ nutritional status of the children when grouped according to their caretaker's educational attainment. This section indicates the importance of the education of the caretakers for it may have an effect on their decision-making process in the way they care for their children.

Fourth, tables 23, 24, and 25 shows the WAZ, HAZ, and WHZ nutritional status of the children when grouped according to the type of family they belong to. This section depicts how the number of family members in a household can be a determinant factor of children's nutritional status. And lastly, tables 26, 27, and 28 shows the WAZ, HAZ, and WHZ nutritional status of the children. This section entails a great understanding of how poverty have an indirect influence to the children's nutritional status. It also gives valuable insights on how people below the economic threshold suffers greatly from malnutrition. Over all, this section provided detailed understanding on how the profile variables of children ages 2-5 years old play out on their nutritional status in a rural setting.

Table 14. *The WAZ Nutritional Status of The Children in San Placido When Grouped According to Their Sex (n=155)*

Sex	*Nutritional Status WAZ*					
	Undernutrition		*Well-nourished*		*Over-nutrition*	
	f	*%*	*f*	*%*	*f*	*%*
Male	9	64.3	87	62.6	1	50.0
Female	5	35.7	52	37.4	1	50.0
Total	14	100.0	139	100.0	2	100.0

Legends: f = frequency % = percentage

Table 14 shows the WAZ nutritional status of the children in San Placido when grouped according to their sex. As can be seen, there are more males (64.3%) that are undernourished than females (35.7%). This implies that undernutrition is prevalent in male than in females, and that male children are more prone to being undernourished. This may be because of sex differences, specifically in the biological and social aspect. Male children ages 2-5 years old are likely to be undernourished when compared to their female counter parts. Garenne et al. (2021) asserts that boys are more vulnerable to undernutrition than girls. This is according to the analysis of 128 Demographic and Health Surveys (DHS) from Africa, composed of developing countries, which included 700,114 children under five years old. The mortality level tended to decline when the sex ratio of undernutrition prevalence was increasing. This means that girls have an increasing advantage when the health situations improve (Garenne et al., 2021).

Male children being prone to undernutrition is influence by biological and social causes. Thurstans et al. (2020) did a systematic review

and meta-analysis of 43 studies of sex differences in undernutrition, in which 6 (19%) indicated biological factors, 21 (49%) referred to social factors, and 16 (37%) is a combination of the two. The biological factor focused on the sex difference in the immune and endocrine system between boys and girls. The immune system fights off harmful pathogens while the endocrine system ensures proper metabolic functions of peripheral organs. These two systems actually work together, specifically in glucose metabolism, which is an essential part in the nutritional status of people (Wensveen et al, 2019). The immune system of males has a lower immune response and their hormones, which play a vital role in the endocrine system, has lower productions compared to females. This means that they have a biological disadvantage. On the other hand, the social factors include son preference, sibling order, gender dynamic, and preferential feeding practices. It also mentions the gender role of the children, in which girls tend to stay at home where they have access to food, while boys tend to go out to play which limits food availability (Thurstan et al, 2020).

Table 15. *The HAZ Nutritional Status of The Children in San Placido When Grouped According to Their Sex (n=155)*

Sex	*Nutritional Status HAZ*					
	Stunting		*Normal*		*Tall*	
	f	*%*	*f*	*%*	*f*	*%*
Male	18	56.3	78	64.5	1	50.0
Female	14	43.8	43	35.5	1	50.0
Total	32	100.0	121	100.0	2	100.0

Legends: f = frequency % = percentage

Table 15 shows the HAZ nutritional status of the children in San Placido when grouped according to their sex. As can be seen, there are more stunted male children (56.3%) than female children (43.8%). This implies that stunting is prevalent in males and they are more prone to being too short for their age. Male children ages 2-5 years old have a higher prevalence of stunting compared to their female counterparts. Khara et al. (2017) insists that stunting has a higher prevalence in boys. Gender differences were observed with a significantly higher prevalence of concurrence among males, according to the meta-analysis of 84 different countries from Africa and Asia (Khara et al., 2017). This indicates that in developing countries across Africa and Asia there are numerous cases of stunted male children.

The feeding practices are determinant factors of male children being prone to stunting. Untimely initiation of breastfeeding, not-exclusive breastfeeding at the age of 6 months, and untimely introduction of complimentary feeding are significant predictors of stunting in boys in rural areas (Samuel et al. 2022). This indicates the lack of knowledge pertaining to breastfeeding and complimentary feeding with caretakers who have male children. Some studies consider biological factors to be the reason why male children are prone to stunting. First, boys are more susceptible to various diseases which affects their HAZ nutritional status because of the sex difference of the immune and endocrine system (Wensveen et al, 2019). Secondly, Kraemer (2000) suggests that boys have a higher fragility in the first year of life which may influence their growth later in life. Additionally, a study in Madagascar found that gender differences in stunting varies with age. In the first year of life, males are more likely to be stunted, while females are more likely to be stunted in the second year of life (Rakotomanana et al., 2016). This brings a new perspective in the prevalence of stunting between both sexes. Which may indicate that although the sex of the children can be factor of stunting, it still varies greatly with other factors such as their age.

Table 16. *The WHZ Nutritional Status of The Children in San Placido When Grouped According to Their Sex (n=155)*

Sex	*Nutritional Status WHZ*					
	Wasting		*Normal*		*Overweight/Obese*	
	f	*%*	*f*	*%*	*f*	*%*
Male	5	62.5	89	64.0	3	37.5
Female	3	37.5	50	36.0	5	62.5
Total	8	100.0	139	100.0	8	100.0

Legends: f = frequency % = percentage

In Table 16, is the WHZ nutritional status of the children in San Placido when grouped according to their sex. This indicates that there are more wasted male children (62.5%) than female children (37.5%). Meanwhile, there are more overweight/obese female children (62.5%) than male children (37.5%). This suggests that male children are more prone to being wasted, while female children are more prone to being overweight/obese. This could indicate that sex difference is observed in both wasted and overweight/obese children, however it is indirectly proportional with each other. This imply that male children experience less healthy feeding practices and dietary intake while female children also observe less healthy feeding practice but more dietary intake. Countless studies (eg. Samuel et al., 2022; Garenne et al., 2021) have proven the high prevalence of wasting in boys compared to girls, specially in developing countries (eg. Thurstans et al., 2020; Garenne et al., 2021). And numerous studies (eg. Fatemeh et al., 2012; Gaeini et al., 2011) have pointed out that although overweight is more prevalent in female children, there are more obese male children. This result signifies that sex difference does exist in the WHZ nutritional status of children.

There exists a relationship between stunting and wasting, in which wasted children increases with the degree of stunting and the

proportion of stunting increases with the degree of wasting (Garenne et al. 2019). This may indicate that biological factors can also be considered a reason for the high prevalence of wasting in children as it does to stunted male children (Thurstan et al., 2020). It has something to do with the susceptibility and fragility of the immune and endocrine system of male children at a young age (Wensveen et al, 2019). This means that male children are more vulnerable to diseases that may affect the nutritional status of children. Myatt et al. (2018) further proves the relationship of stunting and wasting through his longitudinal cross-sectional study. This involved the analysis of 51 countries in which wasting and stunting were positively and significantly associated with each other in 37 out of 51 (72.55%) countries.

Table 17. *The WAZ Nutritional Status of The Children in San Placido When Grouped According to Their Age (n=155)*

Age	*Nutritional Status WAZ*					
	Undernutrition		*Well-nourished*		*Over-nutrition*	
	f	*%*	*f*	*%*	*f*	*%*
2 Years Old	9	64.3	51	36.7	0	0.0
3 Years Old	2	14.3	43	30.9	2	100.0
4 Years Old	1	7.1	28	20.1	0	0.0
5 Years Old	2	14.3	17	12.2	0	0.0
Total	14	100.0	139	100.0	2	100.0

Legends: f = frequency % = percentage

Table 17 is the WAZ nutritional status of the children in San Placido when grouped according to their age. As can be seen, there are more undernourished 2 years old (64.3%) than 3 years old (14.3%), 5 years (14.3%), and 4 years old (7.1%). This may imply that younger children are more prone to being undernourished, which means the nutrition of children should be focused early on in life.

The prevalence of undernutrition in 24 – 36 months old was 22.1% in slum areas in Ethiopia (Demilew & Abie, 2017). Which means there is high chance of this age group to be undernourished in slum areas. The high prevalence of undernutrition might be due to low levels of parental education. This signifies the need of right parental education of caretakers to ensure the good health of children in younger age group.

Table 18. *The HAZ Nutritional Status of The Children in San Placido When Grouped According to Their Age (n=155)*

Age	*Nutritional Status HAZ*					
	Stunting		*Normal*		*Tall*	
	f	*%*	*f*	*%*	*f*	*%*
2 Years Old	17	53.1	42	34.8	1	50.0
3 Years Old	8	25.0	39	32.2	0	0.0
4 Years Old	4	12.5	24	19.8	1	50.0
5 Years Old	3	9.4	16	13.2	0	0.0
Total	32	100.0	121	100.0	2	100.0

Legends: f = frequency % = percentage

Table 18 shows the HAZ nutritional status of the children in San Placido when grouped according to their age. As can be seen, half of the stunted children are 2 years old (53.1%) and a quarter are 3 years old (25.0%). There are more young stunted children (2-3 years old) than older children (4-5 years old). This implies that younger children are more prone to stunting than older children. Which means there is a need to intervene in the feeding practices of younger children especially in the aspect of their growth.

Karlsson et al. (2023) discovered a higher prevalence of stunting among young children up until the age of 28 months, 2 years old, which is likely due accumulation of harmful exposures to undernutrition and infections. Furthermore, the age for which stunting prevalence was the highest is fairly consistent with other countries, with only some difference in regions, sex and living standard. This may indicate that nutrition interventions should be impose before this age range. This is to make sure that children will get the optimal growth in terms of height or length.

Table 19. *The WHZ Nutritional Status of The Children in San Placido When Grouped According to Their Age (n=155)*

Age	*Nutritional Status WHZ*					
	Wasting		*Normal*		*Overweight/Obese*	
	f	*%*	*f*	*%*	*f*	*%*
2 Years Old	3	37.5	55	39.6	2	25.0
3 Years Old	3	37.5	39	28.1	5	62.5
4 Years Old	1	12.5	27	19.4	1	12.5
5 Years Old	1	12.5	18	12.9	0	0.0
Total	8	100.0	139	39.6	8	100.0

Legends: f = frequency % = percentage

Table 19 is the WHZ nutritional status of the children in San Placido when grouped according to their age. As can be seen, there is a higher prevalence of wasting (75%) and overweight/obesity (87.5%) in younger children (2-3 years old) than in older children (4-5 years old. This implies that young children are more prone to being wasted and overweight/obese, which means that there should be optimal care present in early childhood. However, it may be because height is more challenging to measure in younger children which can have an affect on the WHZ nutritional status of children.

It is more challenging to measure height or length accurately in younger children, where a few centimeters' error can have a significant impact on the WHZ value. An explanation for the wider standard deviations seen in young children, aside from measurement quality issues, is that young children are more likely to cross growth percentiles, whereas children aged 2 years or more tend to grow along the same percentile, a phenomenon known as "growth canalization" (Ricardo et al., 2021). In comparison to older children whose growth channels are more stable, rapid crossing of growth channels in young children could lead to cross-sectional findings of high prevalence of both overweight and wasting. Which can explain the high prevalence of wasting and overweight in the findings of the study.

Table 20. *The WAZ Nutritional Status of The Children in San Placido When Grouped According to Their Caretaker's Educational Attainment (n=155)*

Caretaker's Educational Attainment	*Nutritional Status WAZ*					
	Undernutrition		*Well-nourished*		*Over-nutrition*	
	f	*%*	*f*	*%*	*f*	*%*
Elementary Graduate	3	21.4	22	15.8	0	0.0
High School Graduate	7	50.0	57	41.0	0	0.0
College Undergraduate	4	28.6	25	18.0	1	50.0
College Graduate	0	0.0	35	25.2	1	50.0
Total	14	100.0	139	100.0	2	100.0

Legends: f = frequency % = percentage

Table 20 is the WAZ nutritional status of the children in San Placido when grouped according to their educational attainment. As can be seen, half (50.0%) of the undernourished children came from caretakers who were high school graduates, while none (0.0%) came from college graduates. This may imply that college graduates are more knowledgeable in terms of handling the nutrition of their children, while high school graduates are less knowledgeable.

(Hosain & Khan, 2018) claim that a higher level of parental education was associated with lower levels of stunting and underweight and the risk of childhood stunting and underweight decreased gradually with the increase of maternal and paternal education.

This also aligns with the findings of (Ayalew et al., 2020), which underscore the critical link between nutritional status and academic performance in school-aged children. Ayalew's study indicates that education levels among caregivers play a vital role in the nutritional well-being of children.

Table 21. *The HAZ Nutritional Status of the Children in San Placido When Grouped According to Their Educational Attainment (n=155)*

Educational Attainment	*Nutritional Status HAZ*					
	Stunting		*Normal*		*Tall*	
	f	*%*	*f*	*%*	*f*	*%*
Elementary Graduate	7	21.9	17	14.0	1	50.0
High School Graduate	12	37.5	51	42.1	1	50.0
College Undergraduate	7	21.9	23	19	0	0.0
College Graduate	6	18.8	30	24.8	0	0.0
Total	32	100.0	121	100.0	2	100.0

Legends: f = frequency % = percentage

Table 21 shows the HAZ nutritional status of the children in San Placido when grouped according to their educational attainment. As can be seen, some more stunted children came from caretakers who finished high school (37.5%). This may imply that in terms of the HAZ nutritional status of children, educational attainment is a significant factor in childhood stunting.

(Hosain & Khan, 2018) found that the prevalence of childhood stunting was 47.5% in children whose mothers had no formal education. Although the caretakers in this study are high school graduates and received secondary education this does not imply that they are knowledgeable in the context of childhood malnutrition.

(Ayalew et al., 2020) also emphasize the critical relationship between nutritional status and educational attainment of caregivers where a high prevalence of childhood stunting was identified in children whose mothers had no formal education, supports the notion that educational background is indeed a crucial factor in addressing childhood malnutrition.

Table 22 is the WHZ nutritional status of the children in San Placido when grouped according to the caretakers' educational status. As can be seen, the frequency seems to be scattered equally in both wasting and overweight/obese with no number significantly higher

than the rest. This may imply that the educational attainment of the caretakers may not influence their children's nutritional status.

However, most studies (Demilew & Abie, 2017; Fatemeh et al., 2012) claim a connection exists between these factors. Specifically, those parents who received lower forms of education tend to have overweight children. However, (Rajmil et al., 2014) argue that the educational attainment of the parents does not directly influence the development of overweight or obesity in children; rather, it is the behaviour an is signifies that low parental education does not totally lead to children developing overweight and obesity, the only influence that parental education has is through the overall lifestyle of the children which may lead to overweight.

Table 22. *The WHZ Nutritional Status of The Children in San Placido When Grouped According to Their Educational Attainment (n=155)*

Educational Attainment	*Nutritional Status WHZ*					
	Wasting		*Normal*		*Overweight/Obese*	
	f	*%*	*f*	*%*	*f*	*%*
Elementary Graduate	1	12.5	17	14.0	1	12.5
High School Graduate	2	25.0	51	42.1	3	37.5
College Undergraduate	3	37.5	23	19.0	1	12.5
College Graduate	2	25.0	30	24.8	3	37.5
Total	8	100.0	121	100.0	8	100.0

Legends: f = frequency % = percentage

Table 22 is the WHZ nutritional status of the children in San Placido when grouped according to the caretakers' educational status. As can be seen, the frequency seems to be scattered equally in both wasting and overweight/obese with no number significantly higher than the rest. This may imply that the educational attainment of the caretakers may not influence their children's nutritional status.

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This aligns with (Capanzanam et al., 2018), indicating that caretakers' educational status may not significantly influence their children's nutritional status. The observation that the frequency of wasting and overweight/obese children is scattered equally across different educational levels suggests a lack of clear association between caretakers' education and children's nutritional outcomes. This aligns with Capanzanam et al.'s findings, which highlight the impact of other factors, such as the occupational group of household heads, on the nutritional status of Filipino children.

Table 23. *The WAZ Nutritional Status of The Children in San Placido When Grouped According to Their Type of Family (n=155)*

Type of Family	*Nutritional Status WAZ*					
	Undernutrition		*Well-nourished*		*Over-nutrition*	
	f	*%*	*f*	*%*	*f*	*%*
Nuclear	9	64.3	109	78.4	2	100.0
Extended	5	37.5	30	21.6	0	0.0
Total	14	100.0	139	100.0	2	100.0

Legends: f = frequency % = percentage

Table 23 is the WAZ nutritional status of the children in San Placido when grouped according to their type of family. As can be seen, children that comes from nuclear families are more likely to be undernourished (64.3%) than those who are from extended families (35.7%). This may imply that having less members of a family in a household promotes undernutrition in children ages 2-5 years old in rural community. Some factors like lack of child care and food may result in to the high prevalence of undernutrition in nuclear families.

There is a high prevalence of undernutrition in nuclear families in rural areas. For instance, the proportion of undernutrition was higher among under five children from nuclear families 153 (50.66 %) compared to 104 (44.64 %) children from extended families. This signifies that undernutrition is common to children under the age of five from nuclear families than extended families living in a rural setting. Ahmed et al. (2016) discovered that the associations of household size to the nutritional status of children varies in urban and rural settings. Larger households in urban areas may have a negative influence on children's outcomes, which is frequently attributed to increased competition for the limited number of household resources. It also reports a higher prevalence of undernutrition among under-five children from nuclear families compared to those from extended families in a rural setting. The reference to Ahmed et al.'s discovery that associations between household size and nutritional status vary in urban and rural settings further emphasizes the contextual importance of family structure.

This also aligns with (Reyes et al., 2004), emphasizing the connection between family-related factors and the nutritional status of children in impoverished rural areas. The observation that children from nuclear families are more likely to experience undernutrition

corresponds with Reyes et al.'s findings, which identify family characteristics as determinants of stunting in extreme poverty conditions. The factors like lack of child care and food contribute to the higher prevalence of undernutrition in nuclear families aligns with the broader understanding that family dynamics play a pivotal role in malnutrition outcomes in rural settings.

Table 24. *The HAZ Nutritional Status of The Children in San Placido When Grouped According to Their Type of Family (n=155)*

Type of Family	*Nutritional Status HAZ*					
	Stunting		*Normal*		*Tall*	
	f	*%*	*f*	*%*	*f*	*%*
Nuclear	21	65.6	98	81.0	1	50.0
Extended	11	34.4	23	19.0	1	50.0
Total	32	100.0	121	100.0	2	100.0

Legends: f = frequency % = percentage

Table 24 is the HAZ nutritional status of the children in San Placido when grouped according to their type of family. More than half (65.6%) of the stunted children came from nuclear families and only 11 stunted children (34.4%) came from extended families. This may imply that the children belonging to families with fewer members in one household have a negative influence on their growth. Ciptanurani & Chen (2021) suggests that children from nuclear households were more likely to experience concurrent stunting (5.8%) than children from extended households (4.5%).

This entails that a larger household with more family members is somewhat beneficial to children in rural areas. Children in extended households had lower odds of concurrent stunting and overweight than those from nuclear households (Ciptanurani & Chen, 2021). In which the number of present adults in a large household can mean there is distribution in family roles, some may be working to provide for the family and some can direct their attention and care to the children in the household. This implies that children from nuclear families may not receive enough care from their caretakers especially if both of them are working.

This also aligns with (Reyes et al., 2004) aswell, as both studies emphasize the significant impact of family-related factors on the nutritional status of children in different typed of families.

Table 25. *The WHZ Nutritional Status of The Children in San Placido When Grouped According to Their Type of Family (n=155)*

Type of Family	*Nutritional Status WHZ*					
	Wasting		*Normal*		*Overweight/Obese*	
	f	*%*	*f*	*%*	*f*	*%*
Nuclear	4	50.0	108	77.7	8	100.0
Extended	4	50.0	31	22.3	0	0.0
Total	8	100.0	139	100.0	8	100.0

Legends: f = frequency % = percentage

Table 25 is the WHZ nutritional status of the children in San Placido when grouped according to their type of family. As can be seen, all of the overweight/obese children (100%) belong to nuclear families. This may imply that smaller household, in which there are less family members, may foster overnutrition in children.

This is may be because of how the resources are distributed where less members of the family means more resources for the children to consume. Such a relationship may arise from the fact that nuclear families, with it having lesser household size, give their members better social care, which increases the likelihood that they will provide essential resources like food (Ciptanurani & Chen, 2021). This simply implies that children, especially those who have less siblings, have the freedom to consume more food because there's less competition.

This aligns with (Oliveira et al., 2007), emphasizing the influence of family structure on childhood obesity. The observation that all overweight/obese children in San Placido belong to nuclear families indicates the pivotal role of family dynamics in nutritional outcomes. The implication that smaller households, like nuclear families, may foster overnutrition aligns with Oliveira recommendation for comprehensive family-focused interventions rather than exclusive child-centered approaches.

Table 26 shows the the WAZ nutritional status of the children in San Placido when grouped according to their socio-economic status. As can be seen, children from households with incomes below 10,957 face a significant challenge, with a noteworthy (50%) experiencing undernutrition. In contrast, (51.1%) of children in this income bracket are considered well-nourished. What's particularly striking is that (50%) of children from these low-income households also grapple with over-nutrition. As we examine households with higher income levels, a notable shift becomes apparent. In households with incomes ranging from 10,957 to 21,914, (35.7%) of children face undernutrition, but none are over-nourished. This trend continues, illustrating that higher income is associated with a decrease in undernutrition, but it also corresponds to a reduction in over-nutrition.

This implies that socio-economic status plays a pivotal role in determining the nutritional well-being of children in San Placido. It underscores the urgency of implementing strategies that are specifically tailored to the economic circumstances of households.

Programs aimed at alleviating undernutrition and over-nutrition should address the unique challenges faced by both low and middle-income families. Furthermore, this data emphasizes the need for comprehensive nutritional education. By offering targeted guidance on healthy eating practices and ensuring that resources are available to households at various income levels, we can take significant steps toward reducing the disparities in children's nutritional status. In addition, fostering community engagement, collaborative efforts involving families, educational institutions, and local organizations can contribute to creating a supportive environment for children's nutrition. This aligns with unstable income having the potential to affect children's proper development, particularly when parents lack the financial resources and psychological support required to maintain consistent parenting practices and expenditure on items that contribute to their children's well-being (Hill et al., 2013).

Table 26. *The WAZ Nutritional Status of The Children in San Placido When Grouped According to Their Socio-Economic Status (n=155)*

Socio-economic Status	*Nutritional Status WAZ*					
	Undernutrition		*Well-nourished*		*Over-nutrition*	
	f	*%*	*f*	*%*	*f*	*%*
Below 10,957	7	50.0	71	51.1	1	50.0
10,957-21,914	5	35.7	24	17.3	0	0.0
21,914-43,828	0	0.0	16	11.5	1	50.0
43,828-76,669	2	14.3	20	14.4	0	0.0
76,669-131,438	0	0.0	1	0.7	0	0.0
131,484-219,140	0	0.0	1	0.7	0	0.0
219,140-Above	0	0.0	6	4.3	0	0.0
Total	14	100.0	139	100.0	2	100.0

Table 27. *The HAZ Nutritional Status of The Children in San Placido When Grouped According to Their Socio-Economic Status.*

Socio-economic Status	*Nutritional Status HAZ*					
	Stunting		*Normal*		*Tall*	
	f	*%*	*f*	*%*	*f*	*%*
Below 10,957	17	53.1	60	49.6	2	100.0
10,957-21,914	6	18.8	23	19.0	0	0.0
21,914-43,828	5	15.6	12	9.9	0	0.0
43,828-76,669	3	9.4	19	15.7	0	0.0
76,669-131,484	0	0.0	1	0.8	0	0.0
131,484-219,140	0	0.0	1	0.8	0	0.0
219,140-Above	1	3.1	5	4.1	0	0.0
Total	32	100.0	121	100.0	2	100.0

Legends: f = frequency % = percentage

Table 27 shows the HAZ nutritional status of the children in San Placido when grouped according to their socio-economic status. As can be seen, children from households with incomes below 10,957 have a high prevalence of stunting, with (53.1%) of children in this group experiencing this issue. In contrast, only (49.6%) are considered to have a normal nutritional status, and (100.0%) are tall. As household income increases, there's a decline in the prevalence of stunting. For households with incomes ranging from 10,957 to 21,914, (18.8%) of children experience stunting, which further decreases with higher income brackets. The percentage of stunted children becomes (15.6%) for those in the income range of 21,914 to 43,828, and (9.4%) for households earning between 43,828 and 76,669.

This implies that socio-economic status plays a crucial role in determining the nutritional status of children in San Placido, particularly regarding stunting. It underscores the need for targeted interventions tailored to the economic circumstances of households. Strategies and initiatives should focus on providing support and resources to families with lower incomes to combat the prevalence of stunting. Furthermore, it is vital to implement programs and initiatives that address the root causes of stunting in these households. Additionally, this emphasizes the importance of promoting economic development and reducing income disparities within the community. By doing so, we can work towards ensuring that every child in San Placido, regardless of their economic background, has an equal opportunity to grow and develop optimally.

Due to the lack of adequate nutrition and food for children raised in poverty, tens of millions of children under the age of 5 suffer from severe wasting, characterized by low weight-for-height, and hundreds of millions experience stunting, which is marked by low height-for-age (Compassion International, 2018).

Table 28 shows The WHZ nutritional status of the children in San Placido when grouped according to their socio-economic status. As can be seen, in households with the lowest income level below 10,957, there is a high percentage of wasting (62.5%), Conversely, children in the same income bracket show a relatively higher percentage of overweight or obesity (50.0%). As income levels rise, the percentage of wasting decreases. In households with incomes ranging from 10,957 to 21,914, only (12.5%) of children experience

wasting, but the percentage of overweight or obese children remains at (12.5%). In households with incomes between 21,914 and 43,828, there is no wasting, but (12.5%) of children are overweight or obese.

This implies that socio-economic status is a critical factor influencing the nutritional status of children in San Placido. It highlights the necessity of developing targeted interventions that address the distinct nutritional challenges faced by children from various income brackets. Efforts should focus on reducing undernutrition among low-income households while also addressing overnutrition issues as income levels rise. Moreover, these findings emphasize the importance of comprehensive nutritional education and community engagement. Guidance on healthy eating practices and accessible resources, taking into account income disparities, can contribute to reducing the disparities in children's nutritional status. Collaborative efforts involving families, educational institutions, and local organizations are also crucial to create a supportive environment for children's nutrition, fostering healthier outcomes across the socio-economic spectrum.

Table 28. *The WHZ Nutritional Status of The Children in San Placido When Grouped According to Their Socio-Economic Status (n=155)*

Socio-economic Status	*Nutritional Status WHZ*					
	Wasting		*Normal*		*Overweight/Obese*	
	f	*%*	*f*	*%*	*f*	*%*
Below 10,957	5	62.5	70	50.4	4	50.0
10,957-21,914	1	12.5	27	19.4	1	12.5
21,914-43,828	0	0.0	16	11.5	1	12.5
43,828-76,669	2	25.0	19	13.7	1	12.5
76,669-131,484	0	0.0	0	0.0	1	12.5
131,484-219,140	0	0.0	1	0.7	0	0.0
219,140-Above	0	0.0	6	4.3	0	0.0
Total	8	100.0	139	100.0	8	100.0

Legends: f = frequency % = percentage

Table 28 shows The WHZ nutritional status of the children in San Placido when grouped according to their socio-economic status. As can be seen, in households with the lowest income level below 10,957, there is a high percentage of wasting (62.5%), Conversely, children in the same income bracket show a relatively higher percentage of overweight or obesity (50.0%). As income levels rise, the percentage of wasting decreases. In households with incomes ranging from 10,957 to 21,914, only (12.5%) of children experience wasting, but the percentage of overweight or obese children remains at (12.5%). In households with incomes between 21,914 and 43,828, there is no wasting, but (12.5%) of children are overweight or obese.

This implies that socio-economic status is a critical factor influencing the nutritional status of children in San Placido. It highlights the necessity of developing targeted interventions that address the distinct nutritional challenges faced by children from various income brackets. Efforts should focus on reducing undernutrition among low-income households while also addressing overnutrition issues as income levels rise. Moreover, these findings emphasize the importance of comprehensive nutritional education and community engagement. Guidance on healthy eating practices and accessible resources, taking into account income disparities, can contribute to reducing the disparities in children's nutritional status. Collaborative efforts involving families, educational institutions, and local organizations are also crucial to create a supportive environment for children's nutrition, fostering healthier outcomes across the socio-economic spectrum.

Community level socioeconomic factors play crucial role in prevalence and incidence of malnutrition. Asim & Nawaz (2018) found that children from low socioeconomic household status are 2.5 times more vulnerable of malnutrition rather than middle or upper socioeconomic household status. Higher vulnerability of food insecurity is associated with households' lower socioeconomic status because nutritious food affordability closely associated with purchasing power.

Section 5. Neonatal Feeding Practices and Children's Nutritional Status

This section explores the association of certain neonatal feeding practices with the nutritional status of children. Tables 38, 39, and 40 will discuss the association and connection that exists in the specific feeding practices that children receive in their neonatal period to their WAZ, HAZ, and WHZ nutritional status. It will elaborate how strong and significant the associations are and provide valuable insights and recommendation for intervention.

Table 29 examines the association between neonatal feeding practices and children's nutritional status, as measured by the Weight-for-Age Z-Score (WAZ). As can be seen, the data suggests that seeking guidance from healthcare professionals does not exhibit a statistically significant association with nutritional status ($\chi2 = 3.551$, $p = 0.169$). However, it's important to note that 95.2% of children who received guidance from healthcare professionals were classified as "well-nourished." This could imply the potential benefit of such guidance in promoting better nutritional outcomes. The timing of initiating breastfeeding within the first hour after birth also shows no significant association with nutritional status ($\chi2 = 2.174$, $p = 0.337$), although 90.7% of children who were breastfed within this timeframe were well-nourished. On the other hand, the choice of feeding practices demonstrates a significant association with nutritional status ($\chi2 = 9.588$, $p = 0.008$). Children who were exclusively breastfed were predominantly well-nourished (93.6%),

whereas a higher percentage of those who were bottle-fed exhibited undernutrition (17.4%). When it comes to the duration of exclusive breastfeeding, there is no significant association with nutritional status. However, it's worth noting that children breastfed for more than 6 months had the highest percentage of well-nourished individuals (91.5%). Drinking colostrum for the first three days of life is significantly associated with nutritional status ($\chi2 = 9.588$, $p = 0.008$). Children who received colostrum tended to be well-nourished (94%), while those who did not had a higher proportion of undernourished children (18.2%). The practice of pre-lacteal feeds before starting breastfeeding did not exhibit a significant association with nutritional status. However, the data shows that a higher percentage of children who received pre-lacteal feeds were well-nourished (93.5%). Lastly, Sanitizing nipples and the experience of challenges or difficulties during feeding did not show significant associations with nutritional status.

Table 29. *Association of Neonatal Feeding Practices to the Children's WAZ Nutritional Status (n=155)*

Variables	*Nutritional Status WAZ*						*Chi-square*	*p-value*
	Undernutrition		*Well-nourished*		*Over-nutrition*			
	f	%	f	%	f	%		
See Guidance from Healthcare Professionals								
Yes	1	2.40	40	95.2	1	2.4	3.551	0.169
No	13	11.50	99	87.6	1	0.9		
Initiated Breastfeeding Within 1 Hour of Birth								
Yes	7	7.2	8	90.7	2	2.1	2.174	0.337
No	7	12.1	51	87.9	0	0.0		
Feeding Practice								
Breastfeeding	1	5.5	102	93.6	1	.9	9.588	0.008
Bottle Feeding	8	17.4	37	80.4	1	2.2		
How Long of Exclusive Breastfeeding								
Less than 6 months	1	12.0	22	88.0	0	0.0	1.406	0.495
6 months	4	8.3	42	87.5	2	4.2		
More than 6 months	7	8.5	75	91.5	0	0.0		
Drank Colostrum for The First Three Days								
Yes	1	4.0	94	94.0	2	2.0	9.588	0.008
No	10	18.2	45	81.8	0	0.0		
Pre-Lacteal Feeds Before Starting Breastfeeding								
Yes	3	6.5	43	93.5	0	0.0	1.406	0.495
No	11	10.1	96	88.1	2	1.8		
Sanitize Nipples								
Yes	12	9.6	111	88.8	2	1.6	0.766	0.682
No	2	6.7	28	93.3	0	0.0		
Experience Challenges or Difficulties Feeding								
Yes	4	8.9	40	88.9	1	2.2	0.433	0.805
No	10	9.1	99	90.0	1	0.9		

Legends: f = frequency % = percentage

This imply that while seeking guidance from healthcare professionals and the timing of initiating breastfeeding within the first hour after birth may not exhibit a strong statistical correlation with WAZ nutritional status, they still hold inherent value in promoting child health. Healthcare professionals should continue to provide guidance to mothers, as this practice may indirectly contribute to the overall well-being of children. The data underscores the substantial influence of exclusive breastfeeding and the provision of colostrum on children's nutritional outcomes, highlighting the importance of promoting and supporting these practices within healthcare systems and communities. The relatively low statistical significance of pre-lacteal feeds suggests the need for a more nuanced understanding of their impact, potentially through further investigation and research.

This aligns with the urgent need for comprehensive interventions in developing regions, addressing not only nutritional practices but also promoting essential health and hygiene standards. The high risk of infections and illnesses, underscores the need for multifaceted strategies aimed at improving infant care and promoting breastfeeding practices. This includes educating mothers and healthcare professionals about the risks associated with pre-lacteal feeds and the importance of colostrum, encouraging breastfeeding initiation within the first hour of birth, and advocating for exclusive breastfeeding for the first six months (Amele, et al., 2019). By doing so, we can hope to reduce the risk of infections and provide a stronger foundation for child health and well-being in these vulnerable populations.

Table 30 delves into the association between neonatal feeding practices and children's nutritional status, focusing on Height-for-Age Z-Score (HAZ) and its categories of stunting, normal development, and tall stature. As can be seen, seeking guidance from healthcare professionals, although not statistically significant ($\chi2 = 5.332$, $p = 0.070$), demonstrates that a higher percentage of children who received guidance were classified as "normal" (90.5%). Initiating breastfeeding within the first hour of birth also does not display a significant association with HAZ nutritional status ($\chi2 = 0.886$, $p = 0.649$), despite the majority of these children being categorized as "normal" (80.4%). Feeding practices, particularly breastfeeding, show no significant relationship with HAZ nutritional status ($\chi2 = 4.387$, $p = 0.112$). However, it's worth noting that a higher proportion of children who were bottle-fed experienced stunting (30.4%).

Regarding the duration of exclusive breastfeeding, no significant associations with nutritional status are observed. Yet, children breastfed for over six months had the highest percentage of "normal" individuals (76.8%). Drinking colostrum during the first three days of life does not significantly affect HAZ nutritional status ($\chi2 = 0.201$, $p = 0.904$). Conversely, the data indicates that children who received colostrum were more likely to be classified as "normal" (78.0%). Pre-lacteal feeds before starting breastfeeding show no significant association with nutritional status. Nevertheless, the data suggests that a higher percentage of children who received pre-lacteal feeds were classified as "normal" (76.1%). Lastly, neither sanitizing nipples nor experiencing feeding challenges display significant associations with their HAZ nutritional status.

Table 30. *Association of Neonatal Feeding Practices to the Children's HAZ Nutritional Status (n=155)*

Variables	*Nutritional Status HAZ*						*Chi-square*	*p-value*
	Stunting		*Normal*		*Tall*			
	f	%	f	%	f	%		
See Guidance from Healthcare Professionals								
Yes	4	9.5	38	90.5	0	0.0	5.332	.070
No	28	24.8	83	73.5	2	1.8		
Initiated Breastfeeding Within 1 Hour of Birth								
Yes	18	18.6	78	80.4	1	1.0	.886	.649
No	14	24.1	43	74.1	1	1.7		
Feeding Practice								
Breastfeeding	18	16.5	90	82.6	1	0.9	4.387	.112
Bottle Feeding	14	30.4	31	67.4	1	2.2		
How Long of Exclusive Breastfeeding								
Less than 6 months	6	24.0	18	72.0	1	4.0	4.263	.372
6 months	7	14.6	40	83.3	1	2.1		
More than 6 months	19	23.2	63	76.8	0	0.0		
Drank Colostrum for The First Three Days								
Yes	21	21	78	78.0	1	1.0	.201	.904
No	11	20	43	78.2	1	1.8		
Pre-Lacteal Feeds Before Starting Breastfeeding								
Yes	10	21.7	35	76.1	1	2.2	.466	.792
No	22	20.2	86	78.9	1	0.90		
Sanitize Nipples								
Yes	26	20.8	97	77.6	2	1.6	.505	.777
No	6	20.0	24	80.0	0	0.0		
Experience Challenges or Difficulties Feeding								
Yes	7	15.6	37	82.2	1	2.2	1.363	.506
No	25	22.7	84	76.4	1	0.9		

This implies that while seeking guidance from healthcare professionals and adhering to early breastfeeding initiation may not demonstrate strong statistical correlations with HAZ nutritional status, these practices hold inherent value in promoting child health. These findings suggest that healthcare professionals should continue to provide guidance to mothers, as it may contribute indirectly to the overall well-being of children, even if the statistical significance is not prominent. The choice of feeding practices, however, appears to have more pronounced implications, as children who were bottle-fed displayed a higher percentage of stunted growth. This underscores the importance of promoting breastfeeding and discouraging bottle-feeding, where feasible. The relatively low statistical significance of exclusive breastfeeding duration, colostrum intake, and feeding-related challenges suggests that their influence on HAZ nutritional status might be more complex than initially presumed. Further research is needed to gain a deeper understanding of these factors and their impact on childhood growth. Overall, these findings underscore the multifaceted nature of neonatal feeding practices and their varying implications for children's nutritional health, emphasizing the need for a comprehensive approach to support mothers and infants in their early developmental stages.

This aligns with the critical necessity for continuous advocacy, awareness, and interventions to eliminate the harmful practice of pre-lacteal feeding where the prevalence remains notably high. The consequences of pre-lacteal feeding on child health cannot be overstated, contributing to the morbidity and mortality of infants. Exclusive breastfeeding, an internationally recognized life-saving intervention, is highly effective in preventing various childhood infections and early-childhood deaths. Therefore, there is a clear and immediate need for comprehensive strategies, driven by policy makers, healthcare providers, and community health workers, to address this issue (Amele, et al., 2019). By tackling the root causes of pre-lacteal feeding and promoting exclusive breastfeeding, we can hope to improve child health and save lives in these vulnerable populations.

Table 31 presents an analysis of the association between neonatal feeding practices and children's nutritional status, with a focus on Weight-for-Height Z-Score (WHZ) categories, including wasting, normal, and overweight/obese. As can be seen, guidance from healthcare professionals does not exhibit a statistically significant association with WHZ nutritional status, as indicated by the value of

($\chi2 = 3.190$, $p = 0.203$). However, it is notable that children who received guidance were primarily categorized as "normal" (95.2%), The timing of initiating breastfeeding within the first hour of birth also does not show a significant association with WHZ nutritional status, with a value of ($\chi2 = 2.273$, $p = 0.321$), even though a majority of these children were classified as "normal" (91.8%). Similarly, the choice of feeding practices, whether breastfeeding or bottle feeding, displays no significant association with WHZ nutritional status, with a value of ($\chi2 = 1.992$, $p = 0.369$). It's worth mentioning that a higher percentage of children who were bottle-fed experienced overweight/obese status (6.5%).

Table 31. *Association of Neonatal Feeding Practices to the Children's WHZ Nutritional Status (n=155)*

Variables	Nutritional Status WHZ						*Chi-square*	*p-value*
	Wasting		*Normal*		*Overweight/Obese*			
	f	*%*	*f*	*%*	*f*	*%*		
See Guidance from Healthcare Professionals								
Yes	0	0.0	40	95.2	2	4.8	3.190	.203
No	8	7.1	99	87.6	6	5.3		
Initiated Breastfeeding Within 1 Hour of Birth								
Yes	5	5.2	89	91.8	3	3.1	2.273	.321
No	3	5.2	50	86.2	5	8.6		
Feeding Practice								
Breastfeeding	4	3.7	100	91.7	5	4.6	1.992	.369
Bottle Feeding	4	8.7	39	84.8	3	6.5		
How Long of Exclusive Breastfeeding								
Less than 6 months	3	12.0	21	84.0	1	4.0		
6 months	2	4.2	42	87.5	4	8.3	4.274	.370
More than 6 months	3	3.7	76	92.7	3	3.7		
Drank Colostrum for The First Three Days								
Yes	4	4.0	89	89.0	7	7.0	2.597	.273
No	4	7.3	50	90.9	1	1.8		
Pre-Lacteal Feeds Before Starting Breastfeeding								
Yes	3	6.5	41	89.1	2	4.3	.321	.852
No	5	4.6	98	89.9	6	5.5		
Sanitize Nipples								
Yes	6	4.8	112	89.6	7	5.6	.405	.817
No	2	6.7	27	90.0	1	3.3		
Experience Challenges or Difficulties Feeding								
Yes	3	6.7	39	86.7	3	6.7	.621	.733
No	5	4.5	100	90.9	5	4.5		

Regarding the duration of exclusive breastfeeding, no significant associations are observed with WHZ nutritional status. Nevertheless, it is notable that children breastfed for more than six months predominantly had "normal" WHZ scores (92.7%). The data reveals that drinking colostrum within the first three days of life also does not significantly affect WHZ nutritional status, with a value of ($\chi2 = 2.597$, $p = 0.273$), although children who consumed colostrum were more likely to be categorized as overweight/obese (7.0%). The practice of pre-lacteal feeds before starting breastfeeding shows no significant association with nutritional status, with a value of ($\chi2 = 0.321$, $p = 0.852$). While sanitizing nipples and experiencing challenges or difficulties during feeding also display no significant associations with WHZ nutritional status, it is worth noting that these variables do not significantly affect the nutritional status of children in the analysis.

The data implies that while seeking guidance from healthcare professionals, early breastfeeding initiation, and the choice of feeding practices may not have strong statistical correlations with WHZ nutritional status, these practices still hold inherent value in promoting child health, especially since a majority of children who received guidance or initiated breastfeeding within the first hour were categorized as "normal." The data suggests that exclusive breastfeeding duration and colostrum consumption do not significantly impact WHZ nutritional status. However, children breastfed for an extended period (more than six months) showed a higher percentage of "normal" WHZ scores, indicating the potential benefits of prolonged breastfeeding. The practice of pre-lacteal feeds, sanitizing nipples, and the experience of feeding challenges also do not significantly affect WHZ nutritional status. In summary, these findings highlight the multifaceted nature of neonatal feeding practices and their varying implications for children's WHZ nutritional status, underscoring the need for a holistic approach to support mothers and infants in their early developmental stages and to further investigate the complexities of these associations.

This aligns with the critical need to address pre-lacteal feeding practices comprehensively. Pre-lacteal feeding may not be a direct cause of child mortality, but it operates as a contributing factor. The prevalence of pre-lacteal feeding underscores the importance of ongoing awareness and intervention programs (Amele, et al., 2019). By addressing pre-lacteal feeding practices and promoting exclusive breastfeeding, we can aim to improve child health and reduce the burden of preventable childhood illnesses and death.

Section 6. Infant Feeding Practices and Children's Nutritional Status

This section explores the association of certain infant feeding practices with the nutritional status of children. Tables 32, 33, and 34 discuss the association and connection between the specific feeding practices children receive in their infant period and their WAZ, HAZ, and WHZ nutritional status. They elaborate on how strong and significant the associations are and provide valuable insights and intervention recommendations.

Table 32. *Association of Infant Feeding Practices to the Children's WAZ Nutritional Status (n=155).*

Variables	Nutritional Status WAZ						*Chi-square*	*p-value*
	Undernutrion		*Well-nourished*		*Overnutrition*			
	f	*%*	*f*	*%*	*f*	*%*		
Introduce Complimentary Food								
Before 6 months	6	26.1	17	73.9	0	0.0	12.387	.015
6 months	3	4.2	67	93.1	2	2.8		
After 6 months	5	8.3	55	91.7	0	0.0		
Meals Frequency (After 6 Months)								
1 meal a day	5	21.7	18	78.3	0	0.0	7.792	254
2 meal a day	1	2.9	33	97.1	0	0.0		
3 meal a day	7	8.2	76	89.4	2	2.4		
More than 3 meal a day	1	7.7	12	92.3	0	0.0		
Give Baby (After 6 Months) Snacks								
Yes	7	6.9	92	91.1	2	2.0	2.551	.279
No	7	13.0	47	87.0	0	0.0		
Continuation Of Breastfeeding								
Less than 2 years	6	10.0	52	86.7	2	3.3	3.624	.459
2 years	3	6.8	41	93.2	0	0.0		
More than 2 years	5	9.8	46	90.2	0	0.0		
Experience Any Challenges Breastfeeding								
Yes	6	12.0	44	88.0	0	0.0	1.695	.428
No	8	7.6	95	90.5	2	1.9		

Legends: f = frequency; % = percentage

Table 32 presents the association of Infant Feeding Practices with Children's WAZ Nutritional Status, focusing on the prevalence of stunting, normal growth, and tall stature among children. As can be seen, the table reveals a significant relationship between the timing of introducing complementary foods and children's nutritional status. Children introduced to complementary foods before six months of age exhibit a higher prevalence of stunting, with 26.1% being stunted, while 73.9% display normal growth. In contrast, children introduced to complementary foods at six months or later have a lower prevalence of stunting, with only 4.2% affected. In terms of meal frequency after six months, children who receive just one meal a day tend to experience a higher prevalence of stunting, with 21.7% affected, while 78.3% exhibit normal growth. Conversely, children receiving three or more meals a day have a lower prevalence of stunting, with 8.2% being stunted. The introduction of snacks to babies after six months did not show a significant association with stunting. Regarding the continuation of breastfeeding, the duration of breastfeeding, whether less than 2 years or more than 2 years, does not significantly influence the prevalence of stunting. Challenges experienced while breastfeeding did not show a significant association with stunting. This emphasizes the importance of public health campaigns and interventions that focus on educating parents and caregivers about appropriate infant feeding practices, including timely introduction of complementary foods and maintaining a balanced meal frequency for optimal child nutrition and development. Furthermore, the results highlight the need for tailored interventions that consider the specific context and challenges faced in the promotion of healthy feeding practices for infants and young children in the region.

This aligns with the growing body of evidence emphasizing the critical impact of infant feeding practices on children's nutritional status. Timely introduction of complementary foods and ensuring adequate meal frequency have been recognized as key factors in preventing stunting and promoting normal growth among children. The findings also align with the broader global efforts to improve child nutrition and well-being, highlighting the need for context-specific interventions and education to address malnutrition in early childhood. These results underscore the importance of continued research and policy initiatives aimed at enhancing infant feeding practices to achieve better health outcomes for children, particularly in developing countries (Abate et al., 2023).

Table 33 provides insights into the association between infant feeding practices and children's Height-for-Age Z-Score (HAZ) nutritional status, particularly focusing on stunting, a condition associated with impaired linear growth in children. As can be seen, children introduced to complementary food before 6 months of age exhibit a considerably higher stunting rate (56.5%). In contrast, those introduced to complementary food at 6 months or later show significantly lower stunting rates (9.7% and 20.0%, respectively). In terms of Meals Frequency (After 6 Months), the number of meals children receive does not display a significant association with HAZ nutritional status. However, it's worth noting that a higher meal frequency (more than 3 meals a day) seems to be linked to a lower stunting rate (23.1%). Giving Babies Snacks (After 6 Months) does not exhibit a substantial correlation with stunting. The Continuation of Breastfeeding also does not appear to significantly influence stunting rates. The duration of breastfeeding, whether less than 2 years, 2 years, or more than 2 years, does not lead to notably different stunting rates. Furthermore, experiencing Challenges

with Breastfeeding is not significantly linked to stunting.

Table 33. *Association of Infant Feeding Practices to the Children's HAZ Nutritional Status (n=155)*

Variables	Nutritional Status HAZ						*Chi-square*	*p-value*
	Stunting		*Normal*		*Tall*			
	f	*%*	*f*	*%*	*f*	*%*		
Introduce Complimentary Food								
Before 6 months	13	56.5	9	39.1	1	4.3		
6 months	7	9.7	64	88.9	1	1.4	26.534	.000
After 6 months	12	20.0	48	80.0	0	0.0		
Meals Frequency (After 6 Months)								
1 meal a day	9	39.1	13	56.5	1	4.3		
2 meal a day	6	17.6	28	82.4	0	0.0		
3 meal a day	14	16.5	70	82.4	1	1.2	8.641	.195
More than 3 meal a day	3	23.1	10	76.9	0	0.0		
Give Baby (After 6 Months) Snacks								
Yes	17	16.8	83	82.2	1	1.0		
No	15	27.8	38	70.4	1	1.9	2.873	.238
Continuation Of Breastfeeding								
Less than 2 years	12	20.0	48	80.0	0	0.0		
2 years	7	15.9	36	81.8	1	2.3	2.658	.617
More than 2 years	13	25.5	37	72.5	1	2.0		
Experience Any Challenges Breastfeeding								
Yes	15	30.0	34	68.0	1	2.0		
No	17	16.2	87	82.9	1	1.0	4.375	.112

These findings suggest that introducing complementary food around the age of 6 months might play a vital role in reducing the risk of stunting in children. Nevertheless, other factors not accounted for in this table, such as the quality and diversity of complementary foods, may also contribute to addressing stunting. Moreover, the relatively high stunting rates, even with later introduction of complementary foods, could indicate the presence of other contributing factors necessitating further investigation. Notably, the duration of breastfeeding and the experience of breastfeeding challenges do not seem to be significant factors concerning stunting, as indicated by the relatively similar stunting rates in these categories.

These data align with the growing body of evidence emphasizing the importance of timely introduction of complementary foods for infants around the age of 6 months to prevent stunting. The significant difference in stunting rates based on the timing of introducing complementary food highlights the critical window of opportunity during which appropriate nutrition can positively impact a child's linear growth. This finding supports global recommendations for the timely initiation of complementary feeding practices (White, et al., 2017).

Table 34. *Association of Infant Feeding Practices to the Children's WHZ Nutritional Status (n=155)*

Variables	Nutritional Status WHZ						*Chi-square*	*p-value*
	Wasting		*Normal*		*Overweight/Obese*			
	f	*%*	*f*	*%*	*f*	*%*		
Introduce Complimentary Food								
Before 6 months	5	21.7	16	69.6	2	8.7		
6 months	3	4.2	66	91.7	3	4.2	17.438	.002
After 6 months	0	0.0	57	95.0	3	5.0		
Meals Frequency (After 6 Months)								
1 meal a day	2	8.7	20	87.0	1	4.3		
2 meal a day	1	2.9	30	88.2	3	8.8	3.438	.752
3 meal a day	5	5.9	76	89.4	4	4.7		

More than 3 meal a day	0	0.0	13	100.0	0	0.0		
Give Baby (After 6 Months) Snacks								
Yes	5	5.0	89	88.1	7	6.9	1.862	.394
No	3	5.6	50	92.6	1	1.9		
Continuation Of Breastfeeding								
Less than 2 years	5	8.3	52	86.7	3	5.0		
2 years	1	2.3	41	93.2	2	4.5	2.242	.691
More than 2 years	2	3.9	46	90.2	3	5.9		
Experience Any Challenges Breastfeeding								
Yes	4	8.0	42	84.0	4	8.0	2.570	.277
No	4	3.8	97	92.4	4	3.8		

Legends: f = frequency % = percentage

Table 34 provides valuable insights into the Association of Infant Feeding Practices with Children's WHZ Nutritional Status, specifically focusing on the prevalence of wasting, normal growth, and overweight/obesity among children. As can be seen, children who were introduced to complementary foods before 6 months of age accounted for 21.7% of the total sample. In contrast, children introduced to complementary foods at the recommended 6-month mark or later represented 69.6% of the sample. A small percentage, 8.7%, was in the overweight/obese category. When looking at meal frequency, children who received one meal a day made up 8.7% of the sample, with the majority (87.0%) having a normal WHZ. A small percentage (4.3%) fell into the overweight/obese category. There was no significant percentage of children with wasting. The data also indicates that 5.0% of children received snacks after 6 months. Of these children, the majority (88.1%) had a normal WHZ, while 6.9% were in the overweight/obese category. A small percentage (5.0%) had wasting. The analysis of breastfeeding duration shows that 8.3% of children were breastfed for less than 2 years. The majority of these children (86.7%) had a normal WHZ. A small percentage (5.0%) were in the overweight/obese category. Additionally, 3.3% were classified as tall. Lastly, the finding indicates that 8.0% of children experienced challenges while breastfeeding. The majority of these children (84.0%) had a normal WHZ, and 8.0% were in the overweight/obese category.

This implies that meal frequency, giving babies snacks after six months, and the duration of breastfeeding may not be the primary determinants of children's Weight-for-Height (WHZ) nutritional status. The data suggests that these feeding practices do not strongly correlate with the likelihood of children having wasting or falling into the overweight/obese category. Additionally, experiencing challenges during breastfeeding does not appear to be significantly linked to WHZ status in this sample. Consequently, it raises the possibility that other factors, such as the quality of complementary foods, overall dietary patterns, genetics, or socioeconomic conditions, may have a more substantial influence on children's WHZ nutritional status in this population. Further research and a more comprehensive investigation of these potential factors may be necessary to gain a deeper understanding of the determinants of children's nutritional status and to inform targeted interventions for improved child nutrition in this region.

This aligns with the complexity of infant feeding practices and their multifaceted relationship with children's nutritional status, highlighting that no single factor can entirely explain the observed outcomes. The interplay of various factors, including the quality of complementary foods and broader socioeconomic conditions, suggests that a holistic approach is needed to address child nutrition effectively in this region (Hector, 2011).

Section 7. Current Feeding Practices and Children's Nutritional Status

This section explores the relationship between certain current feeding practices with the nutritional status of children. Tables 35, 36, and 37 goes in depth in the relationship that exist between the current feeding practices that caretakers observe and practice to their children's nutritional status.

Table 35. *The Relationship Between Current Feeding Practices and Children's Nutritional Status WAZ*

Variables		*Monitoring*	*Child Control*	*Emotion Regulation*	*Pressure*	*Modelling*	*Healthy Eating Guidance*	*Restriction*
Nutritional Status WAZ	r	.242**	.068**	.189*	.289**	.212*	.327**	.284**
	p	.002	.399	.018	.0001	.008	.0001	.0001
	QD	Very Low Correlation	*Moderately Low Correlation*	Very Low Correlation	Very Low Correlation	Very Low Correlation	Very Low Correlation	Very Low Correlation

*Legends: r = Pearson's r correlation; p = p-value; ±0.80 - ±0.99 Very High Correlation; ±0.60 - ±0.79 Moderately High Correlation; ±0.40 - ±0.59 High Correlation; ±0.20 - ±0.39 Moderately Low Correlation; ±0.01 - ±0.19 Very Low Correlation b*p≤0.05; **p≤0.01*

Table 35 presents the relationship between current feeding practices and children's nutritional status WAZ. Evidently, Monitoring demonstrates a very strong, very low positive correlation with WAZ (r= 0.242, p= 0.002). Child Control displays a very strong, moderately low positive correlation with WAZ (r= 0.068, p= 0.399). While, Emotion Regulation shows a very strong, very low positive

correlation (r=.189, p=.081). Pressure exhibits a very strong, very low positive correlation with WAZ (r=.289, p=.0001). Modelling demonstrates a strong, very low positive correlation with WAZ (r=.212, p=.008). Finally, Healthy Eating Guidance and Restriction both show a very strong, very low positive correlation with WHZ (r=.327, p=.0001; r=.284, p=.0001).

This implies that Monitoring, Child Control, Emotion Regulation, Pressure, Modelling, Healthy Eating Guidance, and Restriction, as they are currently assessed, do not appear to have a significant impact on Nutritional Status. Therefore, interventions or changes in these factors may not be directly influencing the WAZ nutritional status.

This aligns with Santos et, al. (2022) and Scaglioni et, al. (2018) findings that emphasize that current assessments may not be directly indicative of their impact on nutritional status. Suggesting that the factors presented alone may not be significant determinants of nutritional status. This indicates that multiple factors, beyond those measured in the study, may contribute to children's nutritional status.

Table 36. *The Relationship Between Current Feeding Practices and Children's Nutritional Status HAZ*

Variables		*Monitoring*	*Child Control*	*Emotion Regulation*	*Pressure*	*Modelling*	*Healthy Eating Guidance*	*Restriction*
Nutritional Status HAZ	r	.227**	.103*	.068**	.196*	.205*	.251*	.197*
	p	.005	.202	.403	.014	.010	.002	.014
	QD	Very Low Correlation	*Moderately Low Correlation*	*High Correlation*	Very Low Correlation	Very Low Correlation	Very Low Correlation	Very Low Correlation

*Legends: r = Pearson's r correlation; p = p-value; ±0.80 - ±0.99 Very High Correlation; ±0.60 - ±0.79 Moderately High Correlation; ±0.40 - ±0.59 High Correlation; ±0.20 - ±0.39 Moderately Low Correlation; ±0.01 - ±0.19 Very Low Correlation b*p≤0.05; **p≤0.01*

Table 36 presents the connection between current feeding practices and children's nutritional Status HAZ. The results indicate that Monitoring exhibits a very strong, very low positive correlation with HAZ (r= .227, p= .005). While, Child Control shows a strong, moderately low positive correlation with HAZ (r = .103, p= .202). Emotion Regulation demonstrates a very strong, high positive correlation with HAZ (r= .068, p= .403). In contrast, Pressure, Modelling and Healthy Eating Guidance, and Restriction, all reveals a strong, very low positive correlation with HAZ (r= .196, p= .014; r= .205, p= .010; r= .251, p= .002; r= .197, p= .014, respectively).

These results imply that the assessed feeding practices may not be strong determinants of children's nutritional status except for emotion regulation. The positive correlation indicates that better emotional regulation may be linked to a higher height-for-age status among children. This calls for a nuanced approach in understanding the multifaceted nature of factors influencing child nutrition, emphasizing the need for comprehensive assessments that consider a broader spectrum of variables beyond those examined in this study.

Supporting this are existing research, as exemplified by Santos et al. (2022), underscores the importance of emotional regulation in shaping children's eating behaviors. The correlation between emotion regulation and HAZ emphasizes the role of emotional well-being in overall growth. However, the overall low correlations highlight the complexity of these relationships, indicating that factors beyond the measured feeding practices may play crucial roles in determining children's nutritional outcomes. This underscores the necessity for ongoing research to uncover additional variables and potential interactions that contribute to a more comprehensive understanding of the intricate dynamics influencing children's nutritional well-being.

Table 37. *The Relationship Between Current Feeding Practices and Children's Nutritional Status WHZ*

Variables		*Monitoring*	*Child Control*	*Emotion Regulation*	*Pressure*	*Modelling*	*Healthy Eating Guidance*	*Restriction*
Nutritional Status HAZ	r	-.040*	.014*	.097**	.060**	.106*	.110*	.094**
	p	.624	.859	.231	.461	.191	.174	.243
	QD	Moderately High Correlation	Very High Correlation	Moderately Low Correlation	High Correlation	Very Low Correlation	Very Low Correlation	Moderately Low Correlation

*Legends: r = Pearson's r correlation; p = p-value; ±0.80 - ±0.99 Very High Correlation; ±0.60 - ±0.79 Moderately High Correlation; ±0.40 - ±0.59 High Correlation; ±0.20 - ±0.39 Moderately Low Correlation; ±0.01 - ±0.19 Very Low Correlation b*p≤0.05; **p≤0.01*

Table 37 presents the the relationship between current feeding practices and children's nutritional status WHZ. Evidently, Monitoring displays a very strong, moderately high negative correlation with WHZ (r= -.040, p= .624), In contrast, Child Control shows a very strong, very high positive correlation with WHZ (r= .014, p= .859). Emotion Regulation exhibits a strong, moderately low positive correlation with WHZ (r= .097, p= .231). Pressure shows a strong, high correlation (r= .060, p= .461). While, Modelling and Healthy

Eating Guidance both reveal a strong, very low positive correlation with WHZ. Finally, Restriction shows a very strong, moderately low positive correlation.

The data reveal a complex pattern of correlations, where certain feeding practices exhibit unexpected associations with WHZ. Notably, the very strong, moderately high negative correlation between Monitoring and WHZ suggests that increased supervision may be linked to a slight decrease in weight-for-height. Conversely, the very strong, very high positive correlation between Child Control and WHZ indicates that children's autonomy in controlling their eating behaviors is associated with a significant increase in weight-for-height. Pressure demonstrates a strong, high correlation with WHZ (r= .060, p= .461). This implies that there is a notable association between pressure-related feeding practices and children's weight-for-height status. The positive correlation suggests that higher levels of pressure exerted during feeding may be linked to an increase in weight-for-height. This finding adds another layer of complexity to the overall pattern of correlations, highlighting the need for a nuanced understanding of the various factors influencing children's nutritional outcomes. Further investigation into the specific aspects of pressure-related feeding practices and their impact on weight-for-height could provide valuable insights for developing targeted interventions to promote healthy nutritional status in children.

This aligns with existing research on the relationship between children's autonomy, emotional regulation, and nutritional outcomes aligns with the observed correlations. A study conducted by Grammer et al. (2021) found similar positive associations between children's autonomy, emotional regulation, and weight-for-height status. Their research indicated that children who exhibited greater autonomy in their eating behaviors tended to have higher weight-for-height ratios. Additionally, the study highlighted the importance of emotional regulation in influencing nutritional outcomes, emphasizing the need for a holistic approach in understanding the intricate connections between feeding practices and children's nutritional status.

Section 8. Government's Nutrition Interventions

Table 38 discusses numerous interventions that the government implemented in the community of San Placido, as well as showing what is the most recognized among the interventions done. It elaborates certain programs focused on helping the caretakers to prevent the development of malnutrition, while also discussing how helpful and significant they are to the caretakers.

Table 38. *Efforts that the Government do to Lessen the Impact of Malnutrition in the Community*

Theme	*f*	*%*
School Feeding	104	81.25
Vitamins	21	16.41
LUSOG Program	3	2.34
Total	128	100.0

Legends: f = frequency; % = percentage

Table 38 shows the efforts that the government do to lessen the impact of malnutrition in the community. As can be seen, most of the caretakers' experience about the efforts that the government do to lessen the impact of malnutrition in the community is school feeding (f = 104), then vitamins (f = 21), and the LUSOG Program (f = 3).

This implies that school feeding is the most widely recognized initiative among caretakers, with 104 respondents acknowledging its importance. Additionally, vitamins and the LUSOG Program also play a role, as indicated by 21 and three respondents, respectively. This may suggest that the School-Based Feeding Program (SBFP) is a particularly prominent and well-received strategy in the government's efforts to combat malnutrition. Feeding programs entail delivering or providing a meal or snack to beneficiaries, most of whom are children, and are frequently completed within a set time frame. To address the scarcity of nutritious food available to children, most non-governmental organizations or even institutions run feeding programs. Besides, this is one of the initiatives undertaken by organizations, individuals, and communities to address the issue of malnutrition and food insecurity (Child Hope Philippines, 2021).

However, this nutrition intervention is not enough to fully address malnutrition. Simply delivering lunch to children enrolled in a school does not ensure proper growth and development. Although it provides children with nutritious lunch there are still things to consider. First, this program can only be access if the children is enrolled in a school. This means that to the caretakers who can not enroll their children due to financial constraints, they are left with nothing.

Second, this program is primarily focused on the children and not so much with their caretakers. The caretakers have a huge responsibility in making sure that the right practices were done to the children, both in the past and in the present. By conducting programs that focuses on educating caretakers about proper neonatal and infant feeding practices it may help them have a clear understanding on what to do and what not to do, this is especially for new caretakers. Additionally, by teaching them about what parental feeding practices to observe currently. They may consider changing the way they approach their children in their overall dietary intake. This is to ensure that the children will observe healthy dietary habits, right food choices, and good attitude towards food.

Lastly, is the efficacy of School Based Feeding Programs (SBFP). An observational study of Tan (2013) of students in the Banhigan Elementary School in Cebu have proven that feeding programs are ineffective. The nutritional status of children, more or less, remained in underweight and severely underweight based on the comparison of their nutritional status before and during the feeding program. Rivera (2017) argues that the inefficacy of SBFP is overall due to beneficiaries' lack of participation and struggle in managing the

budget. Specifically, the results of her study point out to the inability of parents to attend regularly in the preparation of food for SBFP, dislike of pupil beneficiaries of vegetable, indifference of pupil beneficiaries to the feeding program, and recipients did not bring their own plates and spoon. For the SBFP to be effective in delivering nutritious food, the children together with the caretakers should be participative. Caretakers have a huge part in this program for they will be responsible in the attitude of their children towards the nutritious food. They should do necessary practices such as modeling and healthy eating guidance to encourage their children to eat the nutritious food being administered in the SBFP.

Another problem of the SBFP is with the struggle of managing the budget intended for it. The delay of the budget is regarded as "always a problem" in the study by 83.06% of the respondents. This entails that because of the delay it prompts the personnels involve in the SBFP to use their own money just to follow the scheduled time for feeding programs. Additionally, it also presents more work for them because they need to buy commodities needed for the program in the market. This presents a huge problem, especially to the personnels, because they have a hard time in the implementation of the SBFP because of budget or funding issues.

Meanwhile, supplementation will be distributed universally during national campaigns and made available in evacuation centers during emergencies, disasters, and calamities (Department of Health [DOH], 2003). The BRO LUSOG or Laban sa Undernutrition, sa Sakit, Obesity at Gutom sa Barangay Program will run for a period of six months across all barangays in various municipalities of Isabela. During this six-month timeframe, each malnourished child, whose weight is confirmed by the Isabela Provincial Health Office (IPHO) Nutrition team, will be provided with a nutritionally balanced meal. Additionally, this meal will include 'Gourmix,' a cereal food rich in nutrients like rice, white corn, texturized vegetable protein, and essential vegetables such as malunggay, ground munggo, and turmeric ginger. Because of its high protein content, antioxidant properties, and excellent nutritional value, the Supplemental Feeding Program aims to ensure that undernourished children receive the proper nutrition alongside their regular meals (The Province of Isabela, 2021). However, there seems to be not that much participants in the implementation of the BRO LUSOG program. This may imply that not all of the residents in the community were participants of the said program and did not get to receive the benefit of this program.

Conclusion

The study's findings and outcomes led the researchers to draw the following conclusions. First, the majority of the respondents' children are male and 2 years old based on the number of children aged 2-5 years old. Most of the respondents are high school graduates and most of them belong to a nuclear family. And lastly, nearly all of them have a monthly income below 10,957Php, that is because most of them are high school graduates and it's hard to find a job with high income without a degree.

Next, for the past feeding practices, most beneficial practices were done and only some were not. For the neonatal practices, most of the respondents initiated breastfeeding from the first hour of birth, breastfed their children, ensured colostrum consumption, and practiced nipple sanitation, these habits continue to have essential value in enhancing child health. While the majority of them did not seek guidance from healthcare professionals, observed exclusive breastfeeding for six months, and provided pre-lacteal feeds. And most of the respondents faced challenges in the neonatal period. Meanwhile, for the infant practices, most of the respondents introduced complementary feeding in the recommended age, provided three meals after the age of six months, included snack after the age of six months, and continued breastfeeding for more than two months, to prevent stunting and promote normal growth among children. And majority of the respondents face problems in the infant period.

The feeding practices that the caretakers currently observe mostly aligned to the 7 factors. However, some failed to acknowledge which factors were beneficial to the children and which were not. The current feeding practices that are sometimes done by the respondents are child control and emotion regulation, this is because caretakers do not really trust their children with food and they know the risk and consequences of using food as a way to calm down children. Meanwhile monitoring, modeling, and healthy eating guidance, are feeding practices that are mostly done by the caretakers because these practices are effective in maintaining a healthy and normal growth. Unfortunately, restriction and pressure are feeding practices that are also mostly done by the caretakers. This is alarming, because although these feeding practices are done by the respondents with the right intention, it actually promotes a bad image to healthy foods and promotes unhealthy eating.

The researchers also found out that the likelihood of malnutrition when the children are grouped according to their profile variables are as follows. First, male children are more prone to undernutrition, stunting and wasting than female children. While female children are more prone to overweight/obese this is because of sex differences, specifically in the biological and social aspect. Second, children who are 2 years old are more prone to undernutrition, stunting, wasting, and becoming overweight/obesity since younger children are more prone to being undernourished. Then, children who have high school graduate caretakers are more prone to undernutrition and stunting. This is because college graduates are more knowledgeable in handling the nutrition of their children. Next, children who belong to nuclear families are prone to undernutrition, stunting, and being overweight/obese because having less members of a family in a household promotes undernutrition in rural areas. And lastly, children who have caretakers that have a monthly income below 10,957Php are prone to undernutrition, stunting, wasting, overweight/obese this is because socio-economic status plays a pivotal role in the nutrition status of children in San Placido.

Then, there were interesting links of certain past feeding practices to children's nutritional status. For the association of neonatal feeding practices with the nutritional status of the children, initiating breastfeeding within the first hour of birth and seeking guidance from

healthcare professionals, while intrinsically valuable, did not demonstrate statistically significant correlations with children's nutritional outcomes. However, the study underscores the pivotal role of feeding choices, with exclusive breastfeeding being a significant determinant of optimal child nutrition. Early consumption of colostrum within the first three days of life was associated with improved nutritional status. Meanwhile, for the association of infant feeding practices with the nutritional status of the children, the timing of introducing complementary foods significantly affects WAZ scores, emphasizing the pivotal role of adhering to the recommended introduction period. Conversely, HAZ scores appear to be positively associated with meal frequency, notably three or more meals a day. However, it's essential to acknowledge that the parenting practices analyzed do not exhibit a strong influence on WHZ scores,

The relationship established between the current feeding practices of children and their nutritional status are as follows. Emotional regulation is positively associated with higher WAZ scores, while pressure and modeling are linked to increased HAZ scores. However, it is essential to recognize that the parenting practices we examined do not appear to significantly impact WHZ scores.

And finally, school feeding is the most recognized nutrition intervention by the respondents that the government does to lessen the impact of malnutrition in the community of San Placido. However, it isn't the most effective nutrition intervention because it lacks in some aspects. That is why the government should still formulate better nutrition intervention programs that should be available to all.

Based on the research results and findings, the researchers pointed out recommendations of organizations and people involved in our study. First, the researchers recommend that barangay officials and school administration continue their collaborative efforts to enhance awareness and education regarding the importance of proper feeding practices and child nutrition within San Placido. They should consider further developing and implementing educational programs, workshops, and awareness campaigns to improve child nutrition in the community. Additionally, the integration of nutrition education into the school curriculum should be explored, and regular communication channels should be established to ensure a coordinated approach.

Second, the researchers strongly encourage the government to prioritize efforts aimed at improving the reliability and accessibility of government nutrition programs in rural communities like San Placido. Policymakers should work towards reaching the most vulnerable populations and consider expanding the outreach of government health centers and clinics within the community. Addressing poverty and enhancing economic well-being at the community level is vital to effectively combat childhood malnutrition.

Third, the researchers encourage the residents of San Placido to actively engage in educational programs and initiatives that aim to enhance their awareness of proper feeding practices and child nutrition. They should actively participate in exclusive breastfeeding, timely colostrum consumption, and recommended complementary feeding practices. Residents should also take full advantage of available government nutrition programs, healthcare services, and resources to improve their children's health and well-being.

Lastly, The researchers of this study recommend that future researchers explore the feasibility and effectiveness of nutrition programs and government initiatives in similar rural communities to enhance the understanding of combating childhood malnutrition. Furthermore, future studies should aim to expand the scope by including a more diverse range of rural settings to better capture the broader landscape of challenges and opportunities. Additionally, longitudinal studies tracking the long-term impact of improved child nutrition on overall community well-being could provide valuable insights. Lastly, examining the role of technology in delivering nutrition education and support to remote rural areas represents a promising avenue for future research and intervention.

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