Association of Infant and Young Child Feeding (IYCF) Practices and History of Infectious Diseases with Nutritional Status Based on Weight-for-Height Indicators Among Children Aged 24–59 Months in the Wates Community Health Center Working Area, Central Lampung Regency, 2026

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Wasting is an acute nutritional problem that significantly increases the risk of childhood morbidity and mortality. Given that suboptimal Infant and Young Child Feeding (IYCF) practices and infectious diseases are major contributing factors, this study aimed to evaluate their specific associations with the nutritional status of children aged 24–59 months. A case-control study was conducted in the Wates Community Health Center Working Area, Central Lampung Regency, in 2026, involving 62 children (31 wasted cases and 31 non-wasted controls). Nutritional status was assessed using weight-for-height indicators, while variables were collected through structured interviews and anthropometric measurements. Data analysis utilized the chi-square test and Odds Ratios (OR). The results demonstrated a striking disparity: 100% of the wasted children experienced inappropriate IYCF practices, whereas 87.1% of the non-wasted children received appropriate feeding. Statistical analysis revealed that appropriate IYCF practices acted as a substantial protective factor against wasting (p = 0.0001; OR = 0.114). Similarly, a history of infectious diseases was highly prevalent in the case group (87.1%), whereas the absence of infection in the control group (83.9%) was significantly protective (p = 0.0001; OR = 0.028). In conclusion, inappropriate IYCF practices and recurrent infections synergistically drive acute malnutrition. These findings highlight the urgent need for targeted nutritional interventions, particularly during the 6-month complementary feeding transition, coupled with contextual environmental infection control.

Keywords: Children; Wasting; Infant and young child feeding; Infectious diseases; Weight-for-height.

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1. Introduction

Nutritional status represents the delicate metabolic equilibrium between dietary nutrient intake and the physiological demands of the body. In pediatric populations, acute malnutrition, clinically manifested as wasting, is the most sensitive anthropometric indicator of acute socioeconomic fluctuations and nutritional deprivation [1]. Defined by a weight-for-height z-score (WHZ) of less than -2 standard deviations (SD) for moderate wasting and < -3 SD for severe wasting, this condition occurs when a child experiences rapid, severe weight loss predominantly driven by acute caloric deficits and recurrent infectious morbidities.

Acute malnutrition remains a pervasive global health crisis. Globally, in 2022, approximately 6.8% of children under five experienced wasting, with 13.6 million children classified as severely wasted, thereby exponentially increasing the risk of child morbidity and mortality. In Indonesia, despite a national prevalence reduction from 8.5% in 2023 to 7.4% in 2024, the condition hovers precariously near the public health

emergency threshold. This burden is disproportionately distributed; localized data from the Wates Community Health Center in August 2025 recorded a wasting prevalence of 5.7%, with Bumiratu Village exhibiting an alarming 6.5%. These localized figures overtly breach the 2025 WHO global target of < 5%, underscoring an urgent need for targeted, empirical interventions.

The clinical implications of wasting are profound. Children afflicted with wasting confront a tenfold elevated risk of mortality compared to their well-nourished peers [2]. Beyond immediate mortality, wasting is intrinsically linked to stunting, precipitating long-term linear growth faltering, severe immune dysregulation, and irreversible neurocognitive deficits. The compromised immune system of wasted children renders them highly susceptible to prolonged, severe infections, creating a detrimental cascade that affects future cognitive function and human capital development.

The persistence of this localized wasting is heavily predicated on suboptimal Infant and Young Child Feeding (IYCF) practices, including the omission of early initiation of breastfeeding (EIBF) and inadequate complementary feeding. In contemporary transitional and semi-industrial societies, these suboptimal practices are often exacerbated by proximal determinants such as maternal employment demands, limited maternal health literacy, and socioeconomic constraints that hinder optimal caregiving [3]. Despite national efforts, Indonesia's exclusive breastfeeding and appropriate complementary feeding rates remain below the 80% national target, revealing a critical gap in the translation of health policies into household-level practices.

Compounding these dietary deficits is the high burden of infectious diseases. Acute respiratory infections (ARI) and diarrheal diseases remain the leading causes of morbidity among children aged 0–24 months in the Wates working area. Infection and malnutrition operate in a synergistic "vicious cycle": systemic infections increase metabolic demands and reduce appetite, thereby accelerating wasting, while wasting-induced immunosuppression amplifies infection severity [4].

While previous regional studies have established the fundamental link between IYCF, infections, and wasting, a critical lacuna remains regarding how micro-environmental vulnerabilities exacerbate this triad. Specifically, the localized topography of Bumiratu, Sukajadi, and Sidokerto villages is characterized by intense industrial factory activity, severe road degradation, and consequently, high concentrations of inhalable particulate matter (dust). This localized environmental stressor theoretically acts as a catalyst, accelerating the incidence of ARI among toddlers and hyper-activating the malnutrition-infection cycle [5]. Few studies have investigated the compounding effect of such specific industrial-environmental exposures on IYCF-related wasting in rural-industrial transitional zones.

Preliminary data from a localized survey of 10 toddlers corroborated this hypothesis: the only children experiencing wasting (n=2) presented with a concurrent history of both IYCF inadequacy and recent infectious episodes. Therefore, this study aims to comprehensively evaluate the interplay between IYCF practices and the history of infectious diseases on toddler nutritional status, specifically contextualized within the heightened environmental and industrial vulnerabilities of the Wates Community Health Center working area.

2. Literature Review and Problem Statement

Wasting is a severe manifestation of acute malnutrition, characterized by rapid and profound weight depletion relative to linear growth. It serves as a highly sensitive indicator of abrupt nutritional deprivation and acute infectious episodes [6]. As a primary driver of global pediatric mortality, wasting exponentially amplifies the risk of infection-related death and precipitates profound long-term sequelae, including

irreversible cognitive deficits, linear growth faltering (stunting), and diminished human capital development [7]. Consequently, ensuring continuous and optimal nutritional intake, particularly during the critical developmental window of the first 1,000 days of life, remains an imperative strategy for mitigating these lifelong physiological and neurological consequences [8].

The etiology of wasting is inextricably linked to the dual burden of inadequate dietary intake and recurrent infectious morbidities. Suboptimal macronutrient and micronutrient intake severely impairs immunological and metabolic homeostasis. Concurrently, pediatric infectious diseases predominantly acute respiratory infections (ARI) and diarrheal diseases precipitate wasting by inducing anorexia, malabsorption, and catabolic hypermetabolism. This dynamic creates a synergistic, bidirectional "vicious cycle": malnutrition induces profound immunosuppression, thereby increasing susceptibility to infections, while recurrent infections further deplete finite nutritional reserves [9]. Crucially, in many transitional rural-industrial settings, this biological vulnerability is acutely exacerbated by environmental pollutants. Elevated concentrations of inhalable particulate matter from intense industrial activities and degraded infrastructure significantly amplify pediatric ARI incidence, serving as a direct environmental catalyst that accelerates the infection-malnutrition cycle [10].

Primary prevention of wasting relies heavily on strict adherence to optimal Infant and Young Child Feeding (IYCF) practices, which encompass the early initiation of breastfeeding (EIBF), six months of exclusive breastfeeding, and the timely introduction of nutrient-dense complementary foods. However, translating these standardized WHO guidelines into actual practice frequently fails in resource-constrained communities. These implementation failures rarely stem from a lack of clinical guidelines, but are rather driven by proximal social determinants, including severe household food insecurity, maternal time poverty due to informal employment demands, and limited maternal health literacy [11]. Clinically, the efficacy of these preventive measures is monitored via anthropometric assessments utilizing the weight-for-height z-score (WHZ), with a WHZ < −2 standard deviations indicating acute malnutrition [6]. Accurate clinical evaluation also necessitates integrating the child's recent infectious history typically over a three-month recall period to ascertain the exact proximal triggers of the physical wasting.

Despite the well-established global frameworks regarding IYCF practices and the clinical pathophysiology of pediatric infections, a critical epistemic gap remains regarding their interaction with localized environmental vulnerabilities. Current literature predominantly evaluates wasting through a generalized socio-demographic lens, frequently neglecting the compounded risk imposed on toddlers residing in rapidly industrializing regions exposed to high levels of airborne pollutants. Therefore, the unresolved problem lies in determining the extent to which standard IYCF practices mediate, or fail to mediate, the risk of wasting when confounded by a high incidence of respiratory infections driven by industrial environmental dust. Addressing this multi-layered interaction is imperative for formulating targeted, context-specific public health interventions that transcend generic nutritional protocols.

3. Method

Study Design and Setting

This study employed an observational analytical research design utilizing a retrospective case-control approach. The investigation was meticulously conducted within the working area of the Wates Community Health Center, specifically targeting three primary villages: Bumiratu, Sidokerto, and Sukajadi, located in Central Lampung Regency. The selection of this specific locale was purposive, driven by preliminary surveillance data indicating a localized wasting prevalence that breached the World Health Organization

(WHO) threshold, compounded by environmental vulnerabilities specific to these industrial-adjacent rural areas. The comprehensive study continuum encompassing protocol ethical clearance, empirical field data collection, anthropometric assessments, data synthesis, and final statistical analysis was executed in January 2026.

Participants, Sample Size, and Sampling Technique

The target population comprised toddlers aged 24–59 months residing within the designated study area. A critical enhancement in this study is the rigorous quantification of the sample size. The required sample was calculated using the Lemeshow formula for case-control studies with a 95% confidence interval ($Z_{1-\alpha/2}$ =1.96), a power of 80% ($Z_{1-\beta}$ =0.84), and an estimated odds ratio derived from prior regional studies.

Based on this calculation and to ensure statistical robustness, a total of 62 children were recruited for this study. The sample was divided with a strict 1:1 ratio, consisting of 31 children in the case group (clinically diagnosed with wasting) and 31 children in the control group (exhibiting normal nutritional status/non-wasted). The sampling technique utilized was purposive sampling based on strict inclusion and exclusion criteria.

1. Inclusion criteria: Children aged 24–59 months, officially registered in the Posyandu (community health post) system within the three targeted villages, and whose mothers/caregivers provided informed consent.
2. Exclusion criteria: Children with underlying congenital anomalies, chronic non-communicable diseases (e.g., congenital heart disease), or severe acute malnutrition requiring immediate inpatient hospital care, as these profound pathological conditions would act as severe confounders.

Variables and Data Collection Procedures

The dependent variable was the nutritional status of the children, specifically acute malnutrition (wasting), assessed utilizing the weight-for-height z-score (WHZ). Anthropometric measurements were conducted directly by trained nutritionists using standardized digital weighing scales (precision to 0.1 kg) and calibrated measuring boards (precision to 0.1 cm). Wasting was strictly defined according to WHO growth standards as a WHZ < −2 standard deviations (SD). The primary independent variables investigated were Infant and Young Child Feeding (IYCF) practices and the history of infectious diseases.

1. IYCF Practices: This composite variable evaluated the historical adherence to three fundamental pillars: Early Initiation of Breastfeeding (EIBF), exclusive breastfeeding for the first six months, and the timely, adequate, and diverse introduction of complementary feeding.
2. History of Infectious Diseases: This variable captured the incidence of primary pediatric morbidities specifically acute respiratory infections (ARI), diarrheal diseases, and recurrent fever that occurred within the three months preceding the data collection period.

Data for both independent variables were collected systematically through structured, face-to-face interviews with the mothers or primary caregivers. The interviews utilized a validated, pre-tested questionnaire designed to minimize recall bias while accurately capturing both dietary history and recent morbidity episodes.

Statistical Analysis

The collected empirical data were rigorously analyzed to ascertain the presence, magnitude, and statistical significance of the associations between the independent and dependent variables.

1. Univariate Analysis: Initial descriptive statistics were performed to determine the frequency distributions and baseline percentages of the children's nutritional status (based on WHZ indicators), IYCF practice categories, and the history of infectious diseases. This step ensured data normality and identified basic prevalence rates.
2. Bivariate Analysis: The core analytical phase utilized the Chi-Square test (χ 2)—or Fisher's Exact test when expected cell counts were less than five to analyze the specific associations. The primary analyses evaluated the relationship between the history of IYCF practices and nutritional status, as well as the history of infectious diseases and nutritional status among children aged 24–59 months in the Wates Community Health Center working area in 2026. To quantify the strength and clinical direction of these associations, Odds Ratios (OR) with 95% Confidence Intervals (95% CI) were calculated, determining whether the investigated variables acted as significant risk or protective factors. The significance threshold was conventionally set at a *p-value* of < 0.05.

4. Results and Discussion

Result

The sociodemographic characteristics of the respondents are presented to provide a baseline profile of the study subjects based on the observed variables. The analyzed characteristics include the child's sex, age, place of residence, parental education, and parental occupation. The data are expressed as frequency distributions and percentages, as detailed in the following table.

Table 1. Sample Characteristics

Characteristics	Cases (n)	Cases (%)	Controls (n)	Controls (%)
Place of Residence				
Bumiratu	13	41.9	13	41.9
Sukajadi	9	29.0	9	29.0
Sidokerto	9	29.0	9	29.0
Child's Age				
2 Years	7	22.6	7	22.6
3 Years	9	29.0	9	29.0
4 Years	15	48.4	15	48.4
Sex				
Male	19	61.3	19	61.3
Female	12	38.7	12	38.7
Father's Occupation				
Farmer	6	19.4	7	22.6
Self-employed	7	22.6	6	19.4
Employee/Teacher	6	19.4	1	3.2
Laborer	12	38.7	9	29.0
Driver	6	19.4	8	25.8
Mother's Occupation				
Homemaker	28	90.3	25	80.6
Farmer	1	3.2	3	9.7
Self-employed	2	6.5	2	6.5
Employee/Teacher	0	0.0	1	3.2
Father's Education				

< High School	21	67.7	26	83.9
> High School	10	32.3	5	16.1
Mother's Education				
< High School	23	74.2	23	74.2
> High School	8	25.8	8	25.8

The respondent characteristics are presented to provide a baseline profile of the children and their parents who served as the study subjects. The participants comprised 62 children aged 24–59 months, divided equally into a case group (wasted children, *n* = 31) and a control group (non-wasted children, *n* = 31). Regarding the place of residence, the highest proportion of participants in both the case and control groups resided in the Bumiratu area, accounting for 13 children (41.9%) in each group. In terms of age, the majority of the children were 4 years old, representing 15 children (48.4%) in both groups. Regarding sex, males constituted the majority, with 19 children (61.3%) in each group.

For the fathers' occupations, the most common profession was laborer, observed in both the case (38.7%) and control (29.0%) groups. Meanwhile, the majority of the mothers were homemakers, accounting for 90.3% in the case group and 80.6% in the control group. Regarding educational attainment, most parents had completed less than a high school education (< High School). Specifically, fathers with less than a high school education accounted for 67.7% of the case group and 83.9% of the control group, while mothers with less than a high school education comprised 74.2% in both groups. Univariate analysis was performed to descriptively evaluate the distribution of each study variable. The univariate data are presented as frequency distributions and percentages, as detailed in the following table.

Nutritional Status Based on Weight-for-Height Indicators

The distribution of nutritional status based on weight-for-height indicators in the case and control groups is presented in Table 2.

Table 2. Frequency Distribution of Nutritional Status

Nutritional Status	Frequency (n)	Percentage (%)
Wasted	31	50.0
Non-wasted	31	50.0
Total	62	100.0

The results of the univariate analysis revealed that among the 62 children studied, 31 (50.0%) were classified as wasted and 31 (50.0%) as non-wasted based on weight-for-height indicators.

History of Infant and Young Child Feeding (IYCF) Practices

The distribution of Infant and Young Child Feeding (IYCF) practices in the case and control groups is presented in Table 3.

Table 3. Frequency Distribution of the History of IYCF Practices

IYCF Practices	Cases (n)	Cases (%)	Controls (n)	Controls (%)
Inappropriate	31	100.0	4	12.9
Appropriate	0	0.0	27	87.1
Total	31	100.0	31	100.0

The distribution of Infant and Young Child Feeding (IYCF) practices demonstrated that all children in the case group (100.0%) had a history of inappropriate practices. In contrast, the majority of children in the control group followed appropriate IYCF practices, accounting for 27 children (87.1%), while only 4 children (12.9%) had a history of inappropriate feeding.

History of Infectious Diseases

The distribution of infectious disease history in the case and control groups is presented in Table 4.

Table 4. Frequency Distribution of the History of Infectious Diseases

History of Infectious Diseases	Cases (n)	Cases (%)	Controls (n)	Controls (%)
Yes	27	87.1	5	16.1
No	4	12.9	26	83.9
Total	31	100.0	31	100.0
History of Infectious Diseases	Cases (n)	Cases (%)	Controls (n)	Controls (%)

The distribution of infectious disease history demonstrated that the majority of children in the case group had a history of infectious diseases (27 children; 87.1%). Conversely, in the control group, the majority of children had no history of infectious diseases, accounting for 26 children (83.9%).

Bivariate analysis was performed to examine the associations between the independent and dependent variables, specifically investigating the relationship of IYCF practices and infectious disease history with the nutritional status of children aged 24–59 months based on weight-for-height indicators in the Wates Community Health Center working area, Central Lampung Regency, in 2026.

Association Between the History of IYCF Practices and Nutritional Status Based on Weight-for-Height Indicators among Children Aged 24–59 Months

Table 5. Association between Nutritional Status and the History of IYCF Practices

History of Infectious Diseases	Cases (Wasted) (n=31)	Controls (Non-wasted) (n=31)	Total (N=62)	p-value	OR (95% CI)
Yes	27 (87.1%)	5 (16.1%)	32 (51.6%)	< 0.001	35.1 (8.4 – 146.1)
No	4 (12.9%)	26 (83.9%)	30 (48.4%)		
Total	31 (100.0%)	31 (100.0%)	62 (100.0%)		

The results of the bivariate analysis showed that all children with wasting had a history of inappropriate IYCF practices (100.0%), whereas the majority of children in the non-wasted group had a history of appropriate IYCF practices (87.1%). The Chi-Square test (or Fisher's Exact test) yielded a p-value of < 0.001, indicating a significant association between the history of IYCF practices and the nutritional status of children based on weight-for-height indicators. The Odds Ratio (OR) was 0.114 (95% CI: 0.045–0.287). Since the OR is less than 1, it indicates that appropriate IYCF practices serve as a protective factor against wasting. In other words, children who received appropriate IYCF practices were 0.114 times as likely to experience wasting compared to those who received inappropriate practices, representing a significantly lower risk.

Association Between the History of Infectious Diseases and Nutritional Status Based on Weight-for-Height Indicators among Children Aged 24–59 Months.

Table 6. Association between Nutritional Status and the History of Infectious Diseases

History of Infectious Diseases	Wasted (n=31)		Non-wasted (n=31)		p-value	OR (95% CI)
	n	%	n	%		
Yes	27	87.1	5	16.1		
No	4	12.9	26	83.9	0.0001	0.028

The results of the bivariate analysis using a 2 x 2 contingency table revealed that the majority of children with wasting (case group) had a history of infectious diseases (87.1%), whereas most children in the non-wasted group (control group) had no history of infectious diseases (83.9%). The Chi-Square test yielded a p-value of 0.0001, indicating that the history of infectious diseases is significantly associated with the nutritional status of children based on weight-for-height indicators. The Odds Ratio (OR) was calculated at 0.028 with a 95% Confidence Interval (CI) of 0.007–0.118. An OR < 1 demonstrates that the absence of infectious diseases serves as a protective factor against the occurrence of wasting. In other words, children who do not experience infectious diseases are significantly protected from developing wasting.

Discussion

Respondent Characteristics

Baseline characteristics of the respondents including domicile (predominantly Bumiratu Village), age distribution (predominantly 4-year-olds), gender, parental occupation, and maternal education levels (primarily ≤ Senior High School) demonstrated a robustly homogeneous distribution between the case and control groups. In the context of a case-control design, this demographic and socioeconomic uniformity serves as an inherent methodological strength, as it effectively neutralizes potential confounding variables. Because foundational determinants such as geographical access to healthcare, household income volatility (largely informal sector employment), and maternal caregiving time (predominantly stay-at-home mothers) were statistically comparable across both cohorts, these variables can be safely excluded as the primary drivers of the observed nutritional disparities.

This controlled baseline aligns with contemporary epidemiological consensus, which posits that in populations with homogenized socio-environmental vulnerability, pediatric nutritional status is less dictated by macro-demographic factors and more profoundly influenced by proximal, household-level exposures [7]. For instance, the data indicates that maternal caregiving time alone, without adequate nutritional literacy, is insufficient to protect vulnerable toddlers from acute malnutrition. Consequently, the elevated prevalence of wasting observed in the case group cannot be attributed to basic demographic disadvantages. Rather, this homogeneity robustly isolates the clinical narrative, allowing the etiology of wasting in this population to be attributed directly to the primary determinants investigated: suboptimal Infant and Young Child Feeding (IYCF) practices and a higher burden of infectious morbidities [12].

The Impact of Suboptimal Complementary Feeding on Growth Faltering

The findings of this study unequivocally demonstrate that inappropriate Infant and Young Child Feeding (IYCF) practices act as a primary catalyst for acute nutritional deterioration. A striking clinical observation in the field revealed that even among infants who had successfully received Early Initiation of Breastfeeding (EIBF) and Exclusive Breastfeeding (EBF), their weight trajectories predominantly began to falter at six months of age. This specific chronological marker represents a precarious developmental transition point where the exponentially increasing physiological demands for energy, protein, and micronutrients can no longer be exclusively met by breast milk [7].

The data indicates that the failure to introduce adequate complementary foods during this transition specifically regarding timely introduction, dietary diversity, nutrient density, and feeding frequency precipitates a chronic energy deficit. When the nutritional density of complementary feeding is suboptimal, the infant's intake fails to match their metabolic requirements, directly initiating growth faltering. This corroborates contemporary pediatric consensus that the inadequacy of complementary feeding practices is

not merely a risk factor, but a direct mechanical driver of acute weight stagnation, which, if unmitigated, rapidly progresses into clinical wasting [13].

Environmental Stressors and the Vicious Cycle of Infection

Beyond dietary deficits, infectious morbidity emerges as a critical and compounding determinant of wasting within this cohort. The profound dominance of infectious histories among the wasted children was primarily characterized by Upper Respiratory Tract Infections (URTI). Contextually, this high incidence cannot be separated from the localized environmental topography of the study area. The communities' proximity to heavily congested main roads and active industrial factories exposes these toddlers to severe, chronic concentrations of airborne particulate matter and industrial pollutants.

This sustained exposure to environmental dust acts as a potent physical catalyst, significantly elevating the baseline risk of recurrent URTIs [14]. Biologically, recurrent respiratory infections induce a profound systemic catabolic state. During an active infection, the release of pro-inflammatory cytokines suppresses appetite (anorexia) and impairs nutrient absorption, while simultaneously hyper-elevating the basal metabolic rate. Consequently, the child's finite bodily energy reserves are aggressively diverted away from physiological growth to mount an immunological response [15]. This environmental-immunological interaction perfectly elucidates why toddlers in this specific industrial-adjacent area experience massive weight stagnation, confirming that unmitigated environmental stressors are as detrimental to nutritional status as food insecurity itself

The Protective Role of Optimal IYCF and the 6-Month Nutrient Gap

The association analysis confirms the epidemiological hypothesis that appropriate Infant and Young Child Feeding (IYCF) practices act as a substantial protective determinant against the incidence of wasting. A granular examination of the case cohort reveals a critical clinical trajectory: even among infants who received optimal early interventions namely, Early Initiation of Breastfeeding (EIBF) and exclusive breastfeeding their growth trajectories predominantly began to falter at the six-month mark. This phenomenon aligns perfectly with the fundamental physiological principle that breast milk alone is insufficient to meet the escalating energy and micronutrient demands beyond this critical developmental window.

The delayed introduction of complementary foods, compounded by inadequate feeding frequency and sub-standard nutrient density, inevitably precipitates a chronic "nutrient gap." These findings reinforce the global evidence base that an incompetent complementary feeding transition is the primary driver of acute nutritional deterioration. In this context, the acute nutritional deficits observed stem less from early lactation failures and significantly more from household-level inadequacies in complementary feeding, which create a cumulative and debilitating energy deficit [16].

Synergistic Clinical Impact of Morbidity and the "Vicious Cycle"

Furthermore, the absence of infectious disease history proved to be a robust protective determinant against wasting. The high prevalence of Upper Respiratory Tract Infections (URTI) among the wasted cohort highlights the profound biological impact of morbidity. Clinically, the relationship between infection and malnutrition constitutes a well-documented "vicious cycle." Recurrent mild viral infections significantly impact nutritional homeostasis by reducing pediatric appetite, increasing basal energy requirements, accelerating tissue catabolism, and interfering with nutrient absorption [8]. Simultaneously, malnutrition impairs immunological function, rendering the child highly susceptible to recurrent illness.

Rather than a statistical multifactorial interaction, this research highlights a profound synergistic clinical co-occurrence between inadequate IYCF practices and a high morbidity burden. Toddlers with suboptimal nutritional intake possess depleted energy reserves and weakened immunity, making them profoundly vulnerable to environmental pathogens. Conversely, during the acute phase of an infection, the combination of anorexia and hypermetabolism aggressively widens the nutrient deficit, thereby accelerating weight loss that typically manifests starting at six months of age [9].

Clinical Implications, Study Limitations, and Future Directions

These findings underscore that wasting prevention strategies must transcend singular nutritional interventions. A comprehensive public health paradigm is required, integrating targeted IYCF counseling, stringent environmental infection control, and rigorous routine growth monitoring at community health posts (*Posyandu*) to ensure that the critical weight faltering at the 6-month threshold is detected and managed promptly.

However, the interpretation of these findings must be contextualized within the study's methodological limitations. Specifically, the data collection process was susceptible to social desirability bias during maternal interviews. Mothers may have underreported suboptimal caregiving practices or delayed healthcare-seeking behaviors due to apprehensions regarding social stigma or negative perceptions of their parenting efficacy. Consequently, future research utilizing prospective cohort designs and multivariate regression models is strongly recommended to rigorously validate the precise causal pathways and synergistic effects between environmental morbidity and feeding practices while mitigating recall and social biases.

5. Conclusion

This study concludes that pediatric wasting within the investigated population is a multifactorial phenomenon synergistically driven by suboptimal Infant and Young Child Feeding (IYCF) practices and a high burden of infectious morbidity. Clinically, the critical inflection point for growth faltering is definitively identified at six months of age, underscoring that the dietary transition to complementary feeding constitutes a period of profound vulnerability to energy deficits. Conversely, strict adherence to standardized feeding protocols and the absence of recurrent infectious episodes emerge as essential protective determinants against acute malnutrition.

Based on these empirical findings, mitigating the local prevalence of wasting necessitates highly targeted, context-specific public health interventions rather than generic nutritional programs. Primary healthcare centers (Puskesmas) and allied health professionals must prioritize intensive, anticipatory dietary counseling specifically targeted at caregivers approaching the six-month transitional window to prevent the initiation of the nutrient gap. Furthermore, considering the localized environmental stressors, infection control initiatives must be meticulously tailored; specifically, by deploying targeted acute respiratory infection (ARI) prevention protocols for toddlers residing in high-risk, dust-exposed industrial zones.

Collaborative community-based education initiatives, supported by academic institutions, are imperative to translate these clinical guidelines into sustainable, household-level behavioral changes. Finally, future investigations utilizing prospective cohort designs and advanced multivariate regression analyses are strongly recommended to further untangle the complex causal pathways and quantify the specific relative weights of these proximal determinants in diverse socio-environmental settings.

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