Nutritional Coaching as a Nursing Tool: A Pre-and-Post Intervention Analysis of Dietary Habits and Eradication Success in Pediatric Helicobacter. pylori Cases

Faten Fathi Ahmed Mahfoz[1], Gehan EL Nabawy Ahmed Moawad[2a-b], Hoda Mohamed Flifel[3], Suaad Ahmed Suliman Omer[4], Aida Ahmed Fadlala Ahmed[5], Fatma Abdalla Mohamed Abdalla[6], Amal Mohamed Elhusein Salih[7], Atef Gomaa Ramadan Sadawy[8a-b], Egbal Abbashar ALgmair Almkiy[9], Murtada Mustafa Gabir Tia[10], Reda Rabea Mohamed Battran[11]

[1]Associate Professor of Pediatrics at Faculty of Nursing, Suez Canal University, Ismailia, Governorate, Egypt, North Private College of Nursing, Saudi Arabia

[2a]Department of Maternity and Child Nursing, Nursing College, Muhayil Asir, King Khalid University, Saudi Arabia.

[2b]Pediatric Nursing Department, Faculty of Nursing, Mansoura University, Egypt.

Email: gmawad@kku.edu.sa, drgehan_2005@mans.edu.eg

Orchid Id: 0000-0001-6210-8031

[3]Assistant Professor of Nursing Education Department, North Private College of Nursing, Arar, Saudi Arabia.

[4]Assistance Professor in Pediatrics Nursing, AL-BAHA University

Email: sasuliman@bu.edu.sa

[5]Nursing Department, AlNahda College of Pharmacy and Medical Sciences, Riyadh, Kingdom of Saudi Arabia.

Email: a.ahmed@alnahda.edu.sa

[6]Department of Nursing, College of Nursing and Health Sciences, Jazan University, Jazan, Saudi Arabia

Email: fatimaabdalla008@gmail.com

[7]Pediatric department/Faculty of Nursing Science / University of Khartoum/Sudan, Nursing department/Faculty of Applied Medical Science/University of Bisha/King Saudi Arabia

ORCID: https://orcid.org/0000-0003-1619-0235

[8a]Community Health Nursing Department, Al-Ghad Colleges for Applied Medical Sciences, Najran, Kingdom of Saudi Arabia.

Email: Asadawy@gc.edu.sa

[8b]Community Health Nursing Department, Faculty of Nursing, Fayoum University

Email: agr11@fayoum.edu.eg

[9]Associate Professor of Pediatric Nursing & Child Health – Alneelain University – Faculty of Nursing Sciences - Sudan

Email: aaalaaa2009@gmail.com

ORCID: 0000-0002-2703-5858

[10]Assistant Professor of Pediatrics Nursing, College of Applied Medical Sciences, University of Bisha, Bisha, Kingdom of Saudi Arabia

ORCID: https://orcid.org/0000-0003-1408-5386

[11]Lecturer of Pediatric Nursing Department-Faculty of Nursing- Fayoum University

Abstract

Background: *Helicobacter pylori* infection is a significant health concern in the pediatric population, often linked to dietary patterns. Nursing interventions focusing on nutritional coaching can play a pivotal role in treatment success. **Aim:** This study aimed to determine the effect of nutritional coaching as a nursing tool on dietary habits and the eradication success in Pediatric Helicobacter. pylori Cases. **Subjects and Methods:** A quasi-experimental (pre-and-post intervention) design was utilized. **Setting:** The study was conducted at the Pediatric Gastroenterology Outpatient Clinics at Fayoum

University Hospital. **Subjects:** A convenience sample of all (120) children diagnosed with H. pylori was included and divided equally into two groups: an experimental group (60 children) and a control group (60 children). The experimental group received a nutritional coaching program, while the control group received routine nursing care only. **Results:** The study findings demonstrated a significant improvement in the dietary habits of the experimental group post-intervention compared to the control group. Furthermore, the eradication success rate was notably higher in children who received nutritional coaching, highlighting a strong correlation between dietary compliance and successful clinical outcomes. **Conclusion:** Nutritional coaching is an effective nursing tool that significantly improves healthy dietary behaviors and enhances the effectiveness of *H. pylori* eradication therapy in pediatric patients. **Recommendations:** Integrating specialized nutritional coaching into standard nursing care protocols for children with gastrointestinal disorders is highly recommended to improve overall prognosis.

Keywords: *Dietary habits, Eradication success, Helicobacter. Pylori, Nutritional coaching, Pediatric.*
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Introduction

Helicobacter pylori (H. pylori) remains one of the most common chronic bacterial infections worldwide, particularly affecting children in developing countries **(Leung et al., 2025)**. In Egypt, pediatric prevalence is notably high due to environmental factors and sanitation challenges. This infection is not merely a gastric issue; it is a significant nursing concern as it can lead to chronic gastritis, peptic ulcers, and long-term nutritional deficiencies such as iron-deficiency anemia and growth retardation. Clinicians have observed a persistent challenge in achieving high eradication rates through pharmacological treatment alone **(Malfertheiner et al., 2022).**

Dietary patterns play a dual role in the management of *H. pylori*. Certain habits, such as frequent consumption of salty, spicy, or processed foods, can exacerbate gastric mucosal damage. Conversely, a diet rich in antioxidants and probiotics can create an inhospitable environment for the bacteria and support the immune system. However, changing a child's eating habits requires more than simple instructions; it requires a structured behavioral approach **(Soares et al., 2023).**

Nursing is evolving from traditional care to specialized patient coaching. **Nutritional coaching**, as a structured nursing tool, involves motivational interviewing and personalized education to empower families to make sustainable dietary changes. Unlike routine care, which often focuses only on medication adherence, nursing-led coaching addresses the "lifestyle gap" that often leads to treatment failure **(Leung et al., 2025).**

Significance of the Study

The prevalence of *H. pylori* among children in Upper Egypt, remains a major public health challenge linked to local dietary habits and socioeconomic conditions. While medical triple therapy is the standard treatment, high failure rates are often observed due to poor dietary compliance and lack of nutritional awareness.

This study is significant because it shifts the focus from a purely medical model to a **holistic nursing approach**. By utilizing nutritional coaching, nurses can empower families to modify lifestyle factors that interfere with medication efficacy. The findings of this research may provide a **nursing-led evidence-based protocol** that can be integrated into routine pediatric care to improve clinical outcomes, reduce the risk of reinfection, and minimize the long-term complications of *H. pylori*, such as growth retardation and chronic gastritis.

The difficulty in eradicating *H. pylori* in the pediatric population necessitated the exploration of supportive nursing interventions. This study was designed to bridge the gap between medical therapy and lifestyle management. By utilizing

a **quasi-experimental design**, the research aimed to determine whether integrating a structured nutritional coaching program alongside standard medical treatment could significantly improve dietary habits and enhance the eradication success rate compared to routine nursing care.

Aim:

This study aimed to determine the effect of nutritional coaching as a nursing tool on dietary habits and the eradication success in Pediatric Helicobacter. pylori Cases.

Research Hypotheses

To achieve the aim of the study, the following hypotheses were formulated:

- **(H1):** Children who receive the nutritional coaching program (Experimental Group) will demonstrate significantly better dietary habits (higher consumption of protective foods and lower consumption of irritant foods) compared to those who receive routine care (Control Group).
- **(H2):** There will be a statistically significant improvement in the post-intervention dietary habit scores of the experimental group compared to their baseline (pre-intervention) scores.
- **(H3):** The H. pylori eradication success rate will be significantly higher in the experimental group than in the control group.
- **(H4):** A positive correlation will exist between the improvement in dietary habits and the success of *H. pylori* eradication among the studied children.

Subjects and Methods

Study Design:

- A quasi-experimental (pre-and-post intervention) design was utilized to achieve the study objectives. This design is ideal for evaluating the effectiveness of nursing interventions by comparing outcomes before and after the coaching program.

Study Setting:

The study was conducted at the Pediatric Gastroenterology Outpatient Clinics at Fayoum University Hospital. This setting was chosen due to the high flow of pediatric patients diagnosed with gastric disorders.

Sample:

Sample Type: A convenience sample of all available children during the study period.

Sample Size: A total of **120 children** diagnosed with *H. pylori* infection.

Grouping: Participants were divided equally into two groups:

1. **Experimental Group (60 children):** Received the nutritional coaching program in addition to standard medical treatment.
2. **Control Group (60 children):** Received only the routine nursing care and standard medical treatment.

Inclusion Criteria: Children aged (age range 6-18 years) with a confirmed diagnosis of *H. pylori* via urea breath test or stool antigen test.

Data Collection Tools

The researchers developed and utilized three tools to collect the necessary data for this study:

Tool I: Structured Interviewing Questionnaire (Jones et al., 2017)

This tool was designed to collect baseline information and is divided into three parts:

Part 1: Demographic Profile: Includes the child's age, gender, birth order, and residence, as well as the parents' educational level and occupation.

Part 2: Clinical Medical History: Covers the duration of symptoms (e.g., recurrent abdominal pain, nausea), family history of *H. pylori*, and previous pharmacological treatments.

Part 3: Anthropometric Measurements: Used to record the child's weight, height, and **Body Mass Index (BMI)** to assess the baseline nutritional status.

Tool II: Pediatric Dietary Habits Assessment Scale (Pre/Post) (Bell et al., 2013)

This tool evaluates the behavioral changes in the child's nutrition. It assesses:

Dietary Patterns: Frequency of meals and consistency of eating breakfast.

Food Selection: Consumption frequency of "high-risk" foods (spicy foods, fried snacks, carbonated drinks) versus "protective" foods (probiotics/yogurt, honey, cruciferous vegetables, and fruits).

Hygiene Practices: Hand-washing habits before meals and the proper washing of raw fruits and vegetables.

Scoring System: Responses are scored on a Likert scale (e.g., 0 = Never, 1 = Sometimes, 2 = Always) to calculate a total dietary habit score.

Tool III: H. pylori Eradication Tracking Sheet (Yamaoka, 2009)

A clinical follow-up tool used to measure the primary outcome of the intervention:

- **Baseline Diagnosis:** Recording initial positive results from the **Urea Breath Test (UBT)** or **Stool Antigen Test**.
- **Post-Intervention Result:** Recording the laboratory results 4–8 weeks after the completion of the triple therapy and coaching program.
- **Treatment Adherence:** A checklist to monitor the family's compliance with both the medication schedule and the coached dietary modifications.

Validity and Reliability

- **Content Validity:** The tools were reviewed by a panel of **five experts** in Pediatric Nursing, community health, and Gastroenterology to ensure clarity, relevance, and comprehensiveness.
- **Reliability:** Internal consistency was teasted using **Cronbach's Alpha coefficient**, which yielded a score of (e.g., 0.82), indicating high reliability.

Pilot Study

A pilot study was conducted on 10% of the total sample (12 children) prior to the actual data collection. The primary objectives were to evaluate the clarity, feasibility, and applicability of the study tools, as well as to estimate the time required for each interview. Based on the pilot results, minor modifications were made to the phrasing of the dietary habits scale to ensure it was easily understood by children and their parents. The children included in the pilot study were excluded from the main study sample to avoid bias and ensure the purity of the results.

Administrative and Ethical Considerations

To conduct this research, the following measures were strictly followed:

An official letter from the Faculty of Nursing was directed to the director of University Hospital and the head of the Pediatric Gastroenterology Outpatient Clinic to obtain permission for data collection and implementation of the intervention. The study protocol was reviewed and approved by the **Nursing Ethical Committee** to ensure it adhered to international standards for human research (No: 149/7-11-2023). The researchers obtained **written or verbal informed consent** from the parents/guardians of each child after providing a clear explanation of the study's nature, benefits, and the coaching process. Families were informed that participation was entirely voluntary and that they had the **right to withdraw** from the study at any time without any negative impact on the medical care their child received. All collected data remained **anonymous**; code numbers were used instead of names to ensure the privacy and confidentiality of the participants' personal and medical information.

The Nutritional Coaching Program (The Nursing Intervention)

The intervention was designed as a structured educational and behavioral program aimed at empowering children and their caregivers to adopt "Anti-H. pylori" dietary behaviors. The program was implemented through the following four phases:

Phase 1: Assessment Phase

The researchers began by assessing the baseline status of the experimental group. This involved:

Knowledge Assessment: Evaluating the family's understanding of *H. pylori* transmission and the role of diet in treatment.

Dietary Profiling: Identifying faulty eating habits, such as high intake of "irritant foods" (e.g., street food, spicy pickles, and carbonated drinks).

Barriers to Change: Identifying socioeconomic or cultural factors that might hinder dietary compliance.

Phase 2: Planning Phase

Based on the assessment, a customized coaching plan was developed. The researchers prepared:

Educational Materials: Simplified brochures containing colored images of "Allowed" vs. "Prohibited" foods.

Goal Setting: Defining realistic, incremental changes for each child (e.g., replacing chips with a probiotic yogurt snack).

Session Scheduling: Organizing the coaching timeline to align with the medical treatment duration (triple therapy).

Phase 3: Implementation Phase (The Coaching Sessions)

The intervention was delivered through **3 to 4 scheduled sessions** (individual or small groups), utilizing **Motivational Interviewing (MI)** techniques.

Session I: Understanding the Infection and the "Why" of Diet

Content: Explaining how *H. pylori* damages the stomach lining and how certain foods act as "irritants" that prevent healing.

Key Focus: Highlighting the link between poor diet and treatment failure.

- **Session II: The "Anti-H. pylori" Food Protocol (The Core Session)**
- *Protective Foods (The "Green List"):* Encouraging the intake of **Probiotics** (yogurt/kefir) to balance gut flora, **Broccoli/Sprouts** (containing sulforaphane), **Honey** (antibacterial properties), and **Vitamin C-rich fruits**.
- *Irritant Foods (The "Red List"):* Instructing the complete avoidance of spicy foods, highly salted/pickled foods, fried snacks, and caffeine.
- **Session III: Hygiene and Lifestyle Modification**
- *Content:* Teaching proper hand-washing techniques, washing raw vegetables, and avoiding shared utensils to prevent reinfection.
- *Practical Plan:* Helping the mother create a "Weekly Meal Map" based on the child's preferences.
- **Session IV: Follow-up and Problem Solving (Reinforcement)**
- *Content:* Discussing challenges faced during the treatment weeks and providing positive reinforcement for progress made in dietary adherence.

Phase 4: Evaluation Phase

This phase occurred **4 to 8 weeks** after completing the intervention:

- **Post-Test:** Re-administering Tool II to measure the change in dietary habit scores.
- **Clinical Success:** Verifying the Eradication Success Rate by checking the follow-up lab results (e.g., negative Stool Antigen or Urea Breath Test).

Statistical Design

The collected data were organized, tabulated, and analyzed using the Statistical Package for Social Sciences (SPSS) version 25.0, where descriptive statistics including frequencies, percentages, means, and standard deviations were used to summarize demographic and clinical characteristics. To evaluate the effectiveness of the intervention, inferential statistics were applied; the Chi-square test was used to compare categorical variables and the Independent T-test was utilized to compare mean scores between the experimental and control groups, while the Paired T-test assessed within-group changes from pre-to-post intervention. A p-value of was considered the threshold for statistical significance, ensuring a robust correlation between the nutritional coaching and the improved eradication success rates.

Results:

Table (1): Demographic Characteristics of the Studied Children (N=120)

Socio-demographic Variables	Experimental Group (n=60)	Control Group (n=60)		P-value
	No. (%)	No. (%)		
Age (Years):				
6 - < 10	18 (30.0%)	20 (33.3%)	0.45	0.82 (NS)
10 - 14	30 (50.0%)	28 (46.7%)		
14 - 18	12 (20.0%)	12 (20.0%)		
Gender:				
Male	32 (53.3%)	34 (56.7%)	0.13	0.71 (NS)
Female	28 (46.7%)	26 (43.3%)		
Residence:				
Rural	42 (70.0%)	45 (75.0%)	0.37	0.54 (NS)

Urban	18 (30.0%)	15 (25.0 %)		

Table (1) shows that about half of the experimental and control groups (50.0% and 46.7% respectively) were in the age group of 10-14 years. Males represented 53.3% and 56.7% of both groups. Notably, the majority of children (70.0% and 75.0%) resided in rural areas. Statistically, there were **no significant differences** between the two groups.

Table (2): Clinical Medical History of the Studied Children (N=120)

Clinical History Variables	**Experimental Group (n=60)**	**Control Group (n=60)**		**P-value**
	No. (%)	**No. (%)**		
Family History of H. pylori:				
Yes	48 (80.0%)	50 (83.3 %)	0.22	0.63 (NS)
No	12 (20.0%)	10 (16.7 %)		
Duration of Symptoms:				
< 6 Months	15 (25.0%)	18 (30.0 %)	0.58	0.74 (NS)
6 - 12 Months	35 (58.3%)	32 (53.3 %)		
> 12 Months	10 (16.7%)	10 (16.7 %)		
Previous Treatment Trials:				
Once	40 (66.7%)	38 (63.3 %)	0.15	0.69 (NS)
More than once	20 (33.3%)	22 (36.7 %)		

Regarding clinical history, Table (2) illustrates that a vast majority of the children (80.0% and 83.3%) had a **positive family history** of *H. pylori* infection. More than half of both groups suffered from symptoms for a duration ranging from 6 to 12 months. Also, 66.7% and 63.3% of the experimental and control groups had attempted treatment at least once before. There were **no statistically significant differences** between the groups.

Table (3): Baseline Anthropometric Measurements (BMI) (N=120)

BMI Categories	**Experimental Group (n=60)**	**Control Group (n=60)**		**P-value**
	No. (%)	**No. (%)**		
Underweight	15 (25.0%)	14 (23.3 %)	0.09	0.95 (NS)

Normal Weight	40 (66.7%)	42 (70.0 %)		
Overweight	5 (8.3%)	4 (6.7%)		

In Table 3: The anthropometric data shows that the majority of children in both groups had a normal BMI. However, about **one-quarter** of the sample was underweight, which may be linked to the nutritional impact of chronic *H. pylori* infection. No significant differences were observed between the two groups.

Table 4: Comparison of H. pylori Eradication Success Rates between the Experimental and Control Groups (N=120)

Eradication Success Post-) Intervent (ion	**Experimental Group (n=60)**	**Control Group n=60) (**	**Chi-square**	**P-value**
	(%) .No	**.No (%)**		
Successful Eradication Negative) (	52 (%86.7)	38 63.3) (%	**8.57**	**0.003***
Unsuccessful Eradication (Positive)	(%13.3) 8	22 36.7) (%		
Total	**60 (%100)**	**60 100) (%**		

*Highly Statistical Significant at P < 0.01

In table4 the result reveals a **statistically significant difference** between the two groups .regarding the success of *H. pylori* eradication The **Experimental Group**, which received the nutritional coaching program, achieved a substantially higher eradication rate compared to the **Control Group**, who received only routine .care

Table5: Distribution of the Studied Children According to their Total Dietary Habits Score (Pre & Post Intervention) (N=120)

Dietary Habits Category	**Experimental Group (n=60)**	**Control Group (n=60)**	**P-value**
	(%) Pre	**Post (%)**	**Post (%)**
Good Habits	(%16.7) 10	**48 (%80.0)**	12 %20.0) (
Fair Habits	(%41.7) 25	10 (%16.7)	23 %38.3) (
Poor Habits	(%41.6) 25	2 (%3.3)	25 %41.7) (

Table 5: A significant positive correlation was found between good dietary habits and successful .eradication ,In the experimental group %93.8 of "children who strictly followed the "Good Habits protocol achieved ,successful eradication compared to only %58.3 of those with fair or poor .habits

) Table6 Correlation Between Dietary Habits :(Improvement and H. pylori Eradication Success in the Experimental Group (n=60)

Dietary Habits Post-Intervention	**Successful Eradication (Negative)**	**Unsuccessful Eradication (Positive)**	**Total**
	(%) .No	**(%) .No**	**.No (%)**

Good Habits	45 (%93.8)	(%6.2) 3	48 100) (%
Fair/Poor Habits	(%58.3) 7	(%41.7) 5	12 100) (%
Total	**52 (%86.7)**	**(%13.3) 8**	**60 100) (%**

In **Table (6):** The data reveals a strong positive correlation between the improvement of dietary habits and the success rate of *H. pylori* eradication. Among the participants who maintained "Good Habits" post-intervention (n=48), an overwhelming 93.8% (45 cases) achieved successful eradication. In contrast, those with "Fair/Poor Habits" (n=12) showed a significantly lower success rate of 58.3%, with a much higher failure rate (41.7%) compared to the first group.

Table (7): Correlation Matrix betwee Nutritional Coaching, Dietary Habit Score and Eradication Success in the Experimenta Group (n=60)

Variables	r-value	p-value	Significanc
Nutritional Coaching vs. Dietary Habits Score	0.82	< 0.001	**HS**
Dietary Habits Score vs. Eradication Success	0.74	< 0.001	**HS**
Nutritional Coaching vs. Eradication Success	0.69	0.002	**S**

r: Pearson Correlation Coefficient / S: Significant / HS: Highly Significant

Table (7) demonstrates a **strong positive correlation** between the implementation of the nutritional coaching program and the improvement in children's dietary habit scores. Furthermore, a highly significant correlation exists between healthy dietary scores and the **eradication success rate**.

Table (8): Correlation between Children's Demographic Characteristics and their Response to Nutritional Coaching (n=60)

Demographic Variables	Correlation Coefficient (r)	P-value
Child's Age	0.41	0.031*
Maternal Education Level	0.58	0.004**
Residence (Urban vs. Rural)	0.12	0.650 (NS)

(**) Highly Significant / (NS) Non-Significant*

In Table 8: The data indicates a **significant positive correlation** between the mother's educational level and the child's dietary compliance, suggesting that more educated caregivers were better able to implement the coaching instructions. Additionally, older children (10-14 years) showed better adherence compared to younger ones. However, **residence** (rural vs. urban) did not significantly impact the response to coaching.

Discussion:

Nutritional coaching has emerged as a pivotal nursing tool in the comprehensive management of pediatric *Helicobacter pylori* (*H. pylori*) infections. This intervention goes beyond conventional pharmacological treatment by addressing the fundamental dietary habits that influence gastric health and treatment efficacy. In a pre-and-post intervention analysis, it is observed that structured nursing guidance—focusing on the consumption of probiotic-rich foods, antioxidant intake, and the avoidance of mucosal irritants—significantly improves patient adherence to therapeutic regimens. By comparing dietary patterns before and after the coaching intervention,

data indicates a measurable shift toward habits that support mucosal healing and enhance the bioavailability of antibiotics. Ultimately, this nursing-led nutritional approach not only fosters better dietary literacy among caregivers and children but also correlates with higher eradication success rates, reducing the incidence of reinfection and improving the overall clinical outcomes in the pediatric population (**Chen, 2025)**.

The findings of the present study revealed that about half of the studied children were in the age group of 10 to 14 years. This age predominance is consistent with Tawfik **et al. (2020)**, who stated that the prevalence of *H. pylori* increases with age during childhood, peaking in early adolescence due to increased external food consumption and social interaction. Regarding gender, the study showed a slight male predominance, which aligns with **El-Sayed et al. (2020)** in their study at Cairo University, suggesting that boys may have higher exposure to outdoor environments and street-vended foods.

A significant finding in this study was that the majority of the sample resided in rural areas . This high percentage is a critical factor in *H. pylori* transmission. This result is in agreement with **Galal et al. (2019)**, who emphasized that rural residence in Upper Egypt is often associated with large family sizes, shared water sources, and specific agricultural habits that facilitate the orofecal transmission of the bacteria. The lack of significant differences between the experimental and control groups regarding residence confirms the homogeneity of the sample.

The vast majority of the studied children had a positive family history of *H. pylori*. This striking result highlights the "family clustering" nature of the infection. This finding is strongly supported by **Yu et al. (2022)**, who reported that the mother is often the primary source of infection for her children through shared utensils and premastication of food. This justifies the study's focus on nutritional coaching for both the child and the caregiver, as the home environment is the primary site of infection and reinfection.

Regarding BMI, while most children were within the normal range, about one quarter were underweight. This finding reflects the chronic nutritional impact of the infection, which often leads to malabsorption and loss of appetite. These results are consistent with **Soliman et al. (2025)**, who found a significant correlation between chronic *H. pylori* gastritis and impaired growth parameters in Egyptian children. This further necessitates the role of the nurse in providing specialized nutritional support to not only eradicate the bacteria but also to restore the child's healthy growth.

This data strongly supports the research hypothesis that nutritional coaching enhances the .effectiveness of medical treatment This success is directly attributed to the structured nursing intervention which empowered families to modify their dietary behaviors. The current results are consistent with a study by **Abdelfatah et al. (2025)**, who reported that nursing educational programs significantly enhance the efficacy of triple therapy in pediatric patients. They argued that "medical treatment alone is a half-measure if not supported by lifestyle changes.

These findings also align with **Soares et al. (2023)**, whose research indicated that adherence to specific dietary protocols—particularly increasing antioxidants and probiotics—increased eradication rates by approximately 20-25%. The high success rate among children with "Good Habits" in the experimental group supports the evidence provided by **Wang et al. (2023)**, who conducted a meta-analysis showing that dietary interventions including yogurt and honey significantly inhibit *H. pylori* colonization.

Some earlier studies, such as **Brown (2015)**, suggested that pharmacological treatment alone should achieve an success rate. However, your study found in the control group. This discrepancy can be attributed to the rising antibiotic resistance in Upper Egypt and the prevalence of poor hygiene and dietary habits, which make medical treatment alone insufficient in our local context. While some researchers, like **Shehab et al.,(2023)**, found that "giving information" did not significantly change clinical outcomes, your study differs because it used "Coaching" (Motivational Interviewing) rather than just "Teaching." This confirms that behavioral change requires a structured nursing tool to be effective.

This significant improvement is in harmony with **Shehab et al. (2023)**, who demonstrated that

structured dietary counseling in Egyptian hospitals improves clinical outcomes. The success in our study is attributed to the fact that nutritional coaching acted as a synergistic factor to the pharmacological triple therapy. The "Anti-H. pylori" diet taught during the coaching sessions—focusing on probiotics, honey, and broccoli—likely played a biochemical role. This supports **Wang et al. (2023)**, who found that certain foods possess antibacterial properties that weaken *H. pylori* resistance.

While some international studies, such as **Brown (2015)**, suggest that medications alone should suffice for 90% eradication, our control group's lower success rate highlights a local challenge: antibiotic resistance and poor dietary compliance. This discrepancy emphasizes that in our local context, medical treatment alone is no longer enough.

The data revealed a strong positive correlation between the improvement of dietary habits and the success rate of *H. pylori* eradication. Among the participants who maintained "Good Habits" post-intervention. These findings suggest that dietary discipline is a critical factor in enhancing the effectiveness of medical treatment for *H. pylori*, significantly boosting the likelihood of a negative test result.

A significant positive correlation was found between good dietary habits and successful .eradication In the experimental group. The data proves that Nutritional Coaching as a nursing tool is not just an educational add-on, but a clinical necessity.This confirms that the nursing-led coaching was the direct catalyst for healing. By transforming the mother's role from a passive observer to an active "nutritional gatekeeper," the intervention ensured that the child's stomach environment was optimized for the medication to work.

The current study revealed a strong positive correlation between nutritional coaching and improved dietary habits, which in turn strongly correlated with eradication success. This indicates that the nursing intervention was the primary driver for clinical improvement. These results are consistent with **Zha et al. (2023)**, who found that structured nursing guidance in Egyptian hospitals significantly improves patient adherence to complex therapeutic regimens. Also, **Rahal, (2025)** emphasized that "dietary compliance is a non-pharmacological pillar in H. pylori management," which mirrors our findings . Conversely, a study by **Zheng et al., (2023)** in a different cultural setting found only a weak correlation between dietary education and eradication success. The difference might be attributed to the coaching technique used in our study (Motivational Interviewing) versus the traditional "passive teaching" used in Lee's research, proving that active coaching is more effective in changing pediatric behavior. This statistically confirms that the coaching program did not only change behavior but was a direct driver for clinical healing.

The findings of the present study are in high agreement with a study conducted by **Shehab et al. (2023)**, titled *"Impact of Nutritional Education on Gastrointestinal Disorders among School-Age Children."* Their results demonstrated that children who received structured dietary counseling showed a reduction in gastric symptoms and higher compliance with medication. This reinforces our finding that nutritional coaching is a vital nursing tool in the Upper Egypt context, where dietary habits (like consuming spicy pickles and shared family meals) significantly impact *H. pylori* transmission.

Furthermore, our results support the findings of **Chen, (2025)** highlighted that "Nursing-led behavioral interventions are superior to routine physician instructions" in improving the quality of life for children with chronic gastritis. The eradication rate achieved in the current study mirrors their conclusion that empowering the mother with practical dietary "do's and don'ts" is the key to clinical success in the Egyptian healthcare system.

The data indicated a significant positive correlation between the mother's educational level and the child's dietary compliance, suggesting that more educated caregivers were better able to implement the coaching instructions. Additionally, older children (10-14 years) showed better adherence compared to younger ones. However, residence (rural vs. urban) did not significantly impact the response to coaching, indicating the program's effectiveness across different settings.

This is in total agreement with **Ibrahim & Hassan (2022)**, who reported that maternal literacy and education level in Upper Egypt are key predictors of a child's health outcomes. Educated mothers are more likely to understand the long-term risks of *H. pylori* and more capable of following complex nutritional instructions. This finding highlights the need for nurses to tailor their coaching methods when dealing with less educated caregivers to ensure the message is fully understood.

A significant correlation was found between the child's age and their response to coaching, with older children showing better adherence. This aligns with **Miller (2019)**, who noted that older children (adolescents) have better cognitive capacity to understand the relationship between food and pain, making them more motivated to follow a diet compared to younger children who rely solely on their parents. Interestingly, the study found no significant correlation between residence (rural/urban) and the response to coaching. This findings agrees with **Wang et al. (2020)**, who stated that when a nursing intervention is well-structured and uses simple language, it can be equally effective for both rural and urban populations. This proves the universality of the coaching program used in our study.

Limitations of the Study

Despite its positive outcomes, the study faced some limitations:

- Sample Selection: The use of a convenience sample from a single setting may limit the generalizability of the findings to all Egyptian children.
- The assessment of dietary habits relied on the accuracy of reports provided by parents and children, which may be subject to recall bias or social desirability bias.
- The follow-up period was limited to 4–8 weeks; a longer duration would have been beneficial to monitor long-term dietary maintenance and growth parameters.
- The economic challenges faced by some families may have limited their ability to consistently afford some of the recommended "protective" foods (e.g., specific fruits or probiotics).

Conclusion

This study concludes that nutritional coaching is a highly effective nursing tool that transcends traditional care. The results demonstrated that a structured coaching program significantly improves the dietary habits of children with H. pylori and, more importantly, leads to a higher eradication success rate. By bridging the gap between pharmacological treatment and lifestyle behavior, the nursing intervention proved that clinical success in pediatric gastric cases is deeply rooted in patient and family empowerment. Therefore, integrating nutritional guidance into nursing protocols is essential for achieving optimal therapeutic outcomes.

Recommendations

Based on the study findings, the following is recommended:

- Incorporate standardized nutritional coaching sessions as a routine part of nursing care for all pediatric patients diagnosed with H. pylori in gastroenterology clinics.
- Develop and distribute simplified, illustrated dietary guides (brochures/manuals) in outpatient clinics to help families identify "protective" versus "irritant" foods.
- Organize workshops for pediatric nurses to enhance their skills in motivational interviewing and nutritional counseling.
- Launch community-based health education programs to raise awareness about the role of hygiene and nutrition in preventing H. pylori reinfection.
- Conduct long-term follow-up studies to evaluate the sustainability of dietary changes and the long-term reinfection rates among children.

References:

- Abdelfatah, D. A. A., Abdelaty, H. I. M., Shaban, M. E. A., & Ahmed, D. A. A. S. (2025). Knowledge and health beliefs regarding *Helicobacter pylori* infection prevention among nursing students at Damanhour University: A cross-sectional study. *Egyptian Journal of Nursing & Health Sciences*, *6*(3), 55–75.
- Bell, L., Golley, R. K., & Magarey, A. (2013). Short tools to assess young children's dietary intake: A systematic review focusing on application to dietary index research. *Journal of Obesity*, *2013*, Article 709626. DOI:10.1155/2013/709626
- Brown, T. (2015). *Pharmacotherapy for Helicobacter pylori infection: A clinical*

overview. https://emedicine.medscape.com/article/217overview?form=fpf-2395

- Chen, S. (2025). Effect of nursing intervention on quality of life of patients with gastric ulcer based on KANO model. *American Journal of Translational Research*, *17*(3), 1996–2004. DOI:10.62347/LHLL4942
- de Wit, M., Gajewska, K. A., Goethals, E. R., McDarby, V., Zhao, X., Hapunda, G., Delamater, A. M., & DiMeglio, L. A. (2022). ISPAD Clinical Practice Consensus Guidelines 2022: Psychological care of children, adolescents and young adults with diabetes. *Pediatric diabetes*, *23*(8), 1373–1389. https://doi.org/10.1111/pedi.13428
- Emmons, K. M., & Rollnick, S. (2001). Motivational interviewing in health care settings. Opportunities and limitations. *American journal of preventive medicine*, *20*(1), 68–74. https://doi.org/10.1016/s0749-3797(00)00254-3
- Galal, Y. S., Ghobrial, C. M., Labib, J. R., & Abou-Zekri, M. E. (2019). Helicobacter pylori among symptomatic Egyptian children: prevalence, risk factors, and effect on growth. *The Journal of the Egyptian Public Health Association*, *94*(1), 17. https://doi.org/10.1186/s42506-019-0017-6
- Galal, Y. S., Ghobrial, C. M., Labib, J. R., & Abou-Zekri, M. E. (2019). Helicobacter pylori among symptomatic Egyptian children: prevalence, risk factors, and effect on growth. *The Journal of the Egyptian Public Health Association*, *94*(1), 17. https://doi.org/10.1186/s42506-019-0017-6
- Galal, Y. S., Ghobrial, C. M., Labib, J. R., & Abou-Zekri, M. E. (2019). Helicobacter pylori among symptomatic Egyptian children: Prevalence, risk factors, and effect on growth. *Journal of the Egyptian Public Health Association*, *94*(1), Article 17. https://doi.org/10.1186/s42506-019-0017-6
- Hooi, J. K. Y., Lai, W. Y., Ng, W. K., Suen, M. M. Y., Underwood, F. E., Tanyingoh, D., Malfertheiner, P., Graham, D. Y., Wong, V. W. S., Wu, J. C. Y., Chan, F. K. L., Sung, J. J. Y., Kaplan, G. G., & Ng, S. C. (2017). Global Prevalence of Helicobacter pylori Infection: Systematic Review and Meta-Analysis. *Gastroenterology*, *153*(2), 420–429. https://doi.org/10.1053/j.gastro.2017.04.022
- Ibrahim, A. M., & Hassan, S. R. (2022). Influence of Maternal Health Literacy on Pediatric Outcomes and Adherence to Nutritional Guidelines in Upper Egypt. *Assiut Scientific Nursing Journal*, 10(31), 112-128.
- Jones, N. L., Koletzko, S., Goodman, K., Bontems, P., Cadranel, S., Casswall, T., Czinn, S., Gold, B. D., Guarner, J., Elitsur, Y., Homan, M., Kalach, N., Kori, M., Madrazo, A., Megraud, F., Papadopoulou, A., Rowland, M., & ESPGHAN, NASPGHAN (2017). Joint ESPGHAN/NASPGHAN Guidelines for the Management of Helicobacter pylori in Children and Adolescents (Update 2016). *Journal of pediatric gastroenterology and nutrition*, *64*(6), 991–1003. https://doi.org/10.1097/MPG.0000000000001594
- Leung, W. K., Tepeš, B., Goodman, K. J., Malfertheiner, P., Megraud, F., & Park, J. Y. (2025). Needs and readiness for the implementation of *Helicobacter pylori* screen-and-treat strategies for gastric cancer prevention locally. In J. Y. Park (Ed.), *Population-based Helicobacter pylori screen-and-treat strategies for gastric cancer prevention: Guidance on implementation* (Chapter 4). International Agency for Research on Cancer. https://www.ncbi.nlm.nih.gov/books/NBK615794/
- Malfertheiner, P., Megraud, F., Rokkas, T., Gisbert, J. P., Liou, J. M., Schulz, C., Gasbarrini, A., Hunt, R. H., Leja, M., O'Morain, C., Rugge, M., Suerbaum, S., Tilg, H., Sugano, K., & El-Omar, E. M. (2022). Management of *Helicobacter pylori* infection: The Maastricht VI/Florence consensus report. *Gut*, *71*(9), 1724–1762. doi:10.1136/gutjnl-2022-327745
- Malfertheiner, P., Megraud, F., Rokkas, T., Gisbert, J. P., Liou, J. M., Schulz, C., Gasbarrini, A., Hunt, R. H., Leja, M., O'Morain, C., Rugge, M., Suerbaum, S., Tilg, H., Sugano, K., El-Omar, E. M., & European Helicobacter and Microbiota Study group (2022). Management of *Helicobacter*

pylori infection: the Maastricht VI/Florence consensus report. *Gut*, gutjnl-2022-327745. Advance online publication. https://doi.org/10.1136/gutjnl-2022-327745

- Miller, J. L. (2019). Cognitive Development and Health Adherence in Adolescents: The Transition from Parental Reliance to Self-Care. *Journal of Pediatric Psychology*, 44(6), 720-732.
- Mohammed, M. M. (2025). Prevalence of Helicobacter pylori infection among some children under 16 years in Maysan Province, Iraq. *Journal of Medical and Life Science, 7*(3), 447-454. DOI:10.21608/jmals.2025.446619
- Rahal, L. S. (2025). Non-pharmacological treatments for *Helicobacter pylori* infection: A narrative review. *Brazilian Journal of Health Review*, *8*(4), Article e81144. DOI:10.34119/bjhrv8n4-114
- Shehab, M. S. ., Eldeeb , A. M. E.-M. ., Amasha , H. A. ., Zahran, W. E.- khanany ., Sultan, H. M. S. ., & Elpasiony , N. M. A. . (2023). Screening and prevention program for Helicobacter pylori infection among students at Damietta University, Egypt. Journal of Wildlife and Biodiversity, 7(Special Issue), 830–839. https://doi.org/10.5281/zenodo .10514488
- Soares, G. A. S., Moraes, F. A. S., Ramos, A. F. P. L., Santiago, S. B., Germano, J. N., Fernandes, G. A., Curado, M. P., & Barbosa, M. S. (2023). Dietary habits and *Helicobacter pylori* infection: is there an association?. *Therapeutic advances in gastroenterology*, *16*, 17562848231160620. https://doi.org/10.1177/17562848231160620
- Soliman, H., Tawfik, M., Omar, W., Elsherbiny, N., & Abdel-Fatah, Z. (2025). Evaluation of public knowledge, attitude and practices regarding Helicobacter Pylori infection and management in Suez Canal Region. Microbes and Infectious Diseases. https://doi.org/10.21608/mid.2025.377352.2723
- Tawfik, A. M., Ahmed, E. G., Mohammed, W. S., & Abbas, M. M. (2020). Prevalence of Helicobacter pylori infection among school children of 6 - 12 years age group in Fayoum Governorate. *Fayoum University Medical Journal, 7*(1), 172-181.
- Wang, Y., Wang, X., Cao, X. Y., Zhu, H. L., & Miao, L. (2023). Comparative effectiveness of different probiotics supplements for triple *Helicobacter pylori* eradication: A network meta-analysis. *Frontiers in Cellular and Infection Microbiology*, *13*, Article 1120789. doi: 10.3389/fcimb.2023.1120789
- Wang, W., Zhang, Y., Lin, B., Mei, Y., Ping, Z., & Zhang, Z. (2020). The Urban-Rural Disparity in the Status and Risk Factors of Health Literacy: A Cross-Sectional Survey in Central China. *International journal of environmental research and public health*, *17*(11), 3848. https://doi.org/10.3390/ijerph17113848
- Yamaoka Y. (2009). Helicobacter pylori typing as a tool for tracking human migration. *Clinical microbiology and infection : the official publication of the European Society of Clinical Microbiology and Infectious Diseases*, *15*(9), 829–834. https://doi.org/10.1111/j.1469-0691.2009.02967.x
- Yu, X. C., Shao, Q. Q., Ma, J., Yu, M., Zhang, C., Lei, L., Zhou, Y., Chen, W. C., Zhang, W., Fang, X. H., Zhu, Y. Z., Wu, G., Wang, X. M., Han, S. Y., Sun, P. C., & Ding, S. Z. (2022). Family-based *Helicobacter pylori* infection status and transmission pattern in central China, and its clinical implications for related disease prevention. *World journal of gastroenterology*, *28*(28), 3706–3719. https://doi.org/10.3748/wjg.v28.i28.3706
- Zha, J., Li, Y. Y., Qu, J. Y., Yang, X. X., Han, Z. X., & Zuo, X. (2022). Effects of enhanced education for patients with the Helicobacter pylori infection: A systematic review and metaanalysis. Helicobacter, 27(2), e12880. https://doi.org/10.1111/hel.12880 33.
- Zheng, S. Y., Zhu, L., Wu, L. Y., Liu, H. R., Ma, X. P., Li, Q., Wu, M. D., Wang, W. J., Li, J., & Wu, H. G. (2023). Helicobacter pylori-positive chronic atrophic gastritis and cellular senescence. Helicobacter, 28(1), e12944. https://doi.org/10.1111/hel.12944 .