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Optimizing patient-centered nursing care in peptic ulcer management: Insights from recent evidence

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Abstract
Background: Peptic ulcer disease (PUD) remains a significant global health concern despite advances in pharmacotherapy and endoscopic management. While Helicobacter pylori eradication and proton pump inhibitors (PPIs) have reduced recurrence, persistent challenges such as treatment nonadherence, NSAID overuse, and bleeding complications underscore the importance of patient-centered nursing interventions.
Objective: This review synthesizes recent evidence (2010-2025) on the effectiveness of patient-centered nursing care strategies in optimizing peptic ulcer management, focusing on education, adherence, peri-endoscopic care, medication stewardship, and holistic recovery.
Methods: A hybrid systematic-narrative review approach was employed using PubMed, CINAHL, Scopus, Web of Science, and Cochrane databases. Eighteen studies meeting inclusion criteria RCTs, quasi-experimental trials, systematic reviews, and guidelines were appraised using JBI, CASP, and AMSTAR-2 tools.
Results: Evidence demonstrates that structured nursing education improves adherence to *H. pylori* eradication therapy by 20-25%, reducing recurrence and enhancing quality of life. Nurse-led peri-endoscopic and postoperative interventions shortened hospital stays and improved bleeding control. Telehealth and follow-up programs increased medication adherence (92% vs 70%) and reduced readmissions. Nursing-led PPI deprescribing initiatives and NSAID risk assessments promoted safe, rational pharmacotherapy. Overall, patient-centered interventions consistently enhanced satisfaction, safety, and self-management outcomes across diverse settings.
Conclusion: Patient-centered nursing care is pivotal in improving adherence, safety, and holistic recovery in PUD management. Integrating structured education, digital follow-up, and medication stewardship within nursing workflows can substantially improve both clinical and patient-reported outcomes.

Keywords: Peptic ulcer disease, helicobacter pylori, nursing care, patient-centered care, adherence, proton pump inhibitors, tele-nursing, education, medication stewardship, quality improvement

Introduction
Peptic ulcer disease (PUD) defined as a mucosal defect of the stomach or proximal duodenum that extends through the muscularis mucosa remains a significant global health burden with heterogeneous clinical presentations ranging from dyspepsia to life-threatening upper gastrointestinal bleeding and perforation [1]. The epidemiology of PUD has changed substantially over the past three decades: the discovery of Helicobacter pylori as a major etiologic factor and the widespread use of proton pump inhibitors (PPIs) have reduced acid-driven morbidity in many regions, yet the global burden persists due to H. pylori prevalence in lower-resource settings, increasing use of nonsteroidal anti-inflammatory drugs (NSAIDs) and antiplatelet/anticoagulant agents, and an aging population with multimorbidity [2].
From a clinical-practice standpoint, contemporary management of PUD is multifaceted combining eradication of H. pylori where present, acid suppression, risk-factor modification (notably NSAID cessation or protective strategies), endoscopic intervention for bleeding ulcers, and addressing complications such as perforation [13]. Nursing care plays a vital role in every step of this pathway: early assessment, facilitation of evidence-based therapy (e.g., support for adherence to eradication regimens), monitoring for rebleeding or medication adverse effects, patient education, psychosocial support, discharge planning and community follow-up [4].

Patient-centered care care that respects and responds to individual patient preferences, needs, and values, and ensures that patient values guide all clinical decisions has moved to the forefront of high-quality healthcare delivery. In peptic ulcer management, patient-centered nursing interventions include tailored education to improve medication adherence (critical for H. pylori eradication), shared decision-making concerning NSAID use and gastroprotection, individualized dietary advice, symptom self-management plans, and remotely delivered follow-up in select settings. These interventions potentially reduce recurrence, readmissions, and complication rates while improving health-related quality of life [5].

Despite the clear conceptual role of nursing, the evidence base for which specific nursing-led, patient-centered strategies most effectively improve clinically meaningful outcomes in PUD is heterogeneous. Trials and program evaluations vary in design, endpoints, and populations: some target peri-endoscopic stabilization for upper gastrointestinal bleeding, others examine structured discharge education to enhance H. pylori treatment completion, and others evaluate nursing-led medication reconciliation and deprescribing strategies for PPI stewardship or NSAID risk mitigation [6].

Recent guideline updates emphasize empiric changes that directly intersect with nursing practice. For example, modern Helicobacter pylori guideline recommendations increasingly favor non-clarithromycin-based regimens (e.g., bismuth quadruple therapy for 14 days) as first-line therapy in many settings because of rising clarithromycin resistance an evolution that requires nursing teams to educate patients about more complex regimens and potential adverse effects and to monitor adherence closely [7]. For acute complications such as bleeding peptic ulcers, clinical guidelines recommend rapid risk assessment, appropriate transfusion thresholds, early erythromycin infusion before endoscopy when indicated, and urgent endoscopy within 24 hours for most patients; nursing teams are central in ensuring timely implementation of these measures, coordinating rapid pre-endoscopic optimization and post-procedural monitoring [8].

In parallel, concern over long-term PPI use including risks that have been variably associated with infections (e.g., Clostridioides difficile), nutrient malabsorption, chronic kidney disease and bone fracture has fostered interest in nurse-led PPI review and deprescribing initiatives. These initiatives require sensitive patient-centered education to balance symptomatic control against potential long-term risks and must be undertaken with individualized risk assessment [9].

The aims of this review are to synthesize recent evidence (clinical guidelines, randomized and quasi-experimental studies, systematic reviews, and nursing-specific intervention studies) that inform patient-centered nursing care in peptic ulcer management; to identify high-impact nursing interventions that improve clinical and patient-reported outcomes; and to propose a practical implementation framework for nurses in acute and ambulatory settings. The review places special emphasis on (1) roles in H. pylori eradication adherence, (2) nursing contributions in the management of bleeding and other complications, (3) patient education and self-management interventions, (4) PPI stewardship and NSAID risk mitigation, and (5) systems-level nursing practices (e.g., standardized perioperative/peri-endoscopic pathways and discharge coordination).

Methodology

Design and scope

This is a narrative/systematic hybrid review (narrative synthesis informed by targeted systematic searches) focusing on patient-centered nursing interventions and outcomes in peptic ulcer disease. The approach prioritized recent high-quality guidelines, randomized controlled trials (RCTs), quasi-experimental studies, systematic reviews, and implementation studies published from 2010 to 2025, while including older seminal trials when relevant (for example, early adherence trials for H. pylori regimens). The aim was to compile evidence that has clear applicability to nursing practice across acute and outpatient settings.

Search strategy

Searched electronic databases and guideline repositories (PubMed/Medline, Embase, Cochrane Library, National Guideline Clearinghouse equivalents, and guideline pages of major gastroenterology societies) focusing on combinations of the following keywords and MeSH terms: “peptic ulcer disease,” “peptic ulcer,” “Helicobacter pylori,” “proton pump inhibitors,” “nursing intervention,” “patient education,” “medication adherence,” “upper gastrointestinal bleeding,” “endoscopy,” “perioperative nursing,” “PPI deprescribing,” and “NSAID gastroprotection.” Searches covered the period January 2010-October 2025 to capture the most recent guideline changes (notably 2024-2025 updates to H. pylori guidance). Researcher also performed targeted searches for nursing-specific and implementation literature (including trials of nurse-led perioperative bundles and discharge education programs). Key guideline documents and high-impact reviews were included irrespective of date if they were guideline-defining.

Table 1: MeSH Term Search Strategy

Database	Search Terms / Strategy	Search Field	Boolean / Operators Used	Limits Applied
PubMed / Medline (MeSH)	("Peptic Ulcer"[MeSH] OR "Peptic Ulcer Disease" OR "Gastric Ulcer"[MeSH] OR "Duodenal Ulcer"[MeSH]) AND ("Nursing Care"[MeSH] OR "Nursing Practice" OR "Nursing Intervention" OR "Nursing Process" OR "Patient Care Management"[MeSH]) AND ("Patient-Centered Care"[MeSH] OR "Patient Education as Topic"[MeSH] OR "Health Education"[MeSH] OR "Adherence, Medication"[MeSH] OR "Health Promotion"[MeSH]) AND ("Helicobacter pylori"[MeSH] OR "H. pylori eradication" OR "Proton Pump Inhibitors"[MeSH] OR "Non-Steroidal Anti-Inflammatory Agents/adverse effects"[MeSH])	MeSH Major Topic and Title/Abstract	AND / OR / NOT (Humans[MeSH] NOT Animals[MeSH])	English language; 2010-2025; Humans
CINAHL	(MH "Peptic Ulcer+" OR "Peptic Ulcer Disease" OR "Gastric	Major Subject	AND / OR	English; Peer-

(Cumulative Index to Nursing and Allied Health Literature)	Ulcer" OR "Duodenal Ulcer") AND (MH "Nursing Care+" OR "Nursing Role" OR "Nursing Intervention" OR "Patient Care") AND (MH "Patient-Centered Care+" OR "Health Education" OR "Patient Teaching" OR "Self Care" OR "Health Promotion") AND (MH "Helicobacter pylori+" OR "Medication Adherence" OR "Proton Pump Inhibitors" OR "NSAIDs")	Heading (MH) + Title/Abstract		reviewed; 2010-2025
Scopus	TITLE-ABS-KEY("peptic ulcer" OR "peptic ulcer disease" OR "gastric ulcer" OR "duodenal ulcer") AND TITLE-ABS-KEY("nursing care" OR "nursing intervention" OR "patient-centered care" OR "health education" OR "patient teaching") AND TITLE-ABS-KEY("Helicobacter pylori" OR "proton pump inhibitors" OR "NSAIDs" OR "bleeding ulcer")	Title, Abstract, Keywords	AND / OR	English; Article; 2010-2025
Web of Science (Core Collection)	TS=("peptic ulcer" OR "peptic ulcer disease" OR "gastric ulcer" OR "duodenal ulcer") AND TS=("nursing care" OR "nursing intervention" OR "patient-centered care" OR "health education" OR "nurse-led program") AND TS=("Helicobacter pylori" OR "proton pump inhibitors" OR "NSAID-induced ulcer" OR "upper gastrointestinal bleeding")	Topic Search (TS)	AND / OR	English; Publication Years 2010-2025
Cochrane Library	("Peptic Ulcer" OR "Gastric Ulcer" OR "Duodenal Ulcer") in Title Abstract Keyword AND ("Nursing Care" OR "Patient-Centered Care" OR "Health Education" OR "Adherence") AND ("Helicobacter pylori" OR "Proton Pump Inhibitors" OR "NSAID")	Title, Abstract, Keywords	AND / OR	Trials, Reviews; 2010-2025; Humans
Embase (Emtree)	('peptic ulcer'/exp OR 'gastric ulcer'/exp OR 'duodenal ulcer'/exp) AND ('nursing care'/exp OR 'nursing practice' OR 'nursing intervention') AND ('patient centered care'/exp OR 'health education'/exp OR 'adherence'/exp) AND ('helicobacter pylori'/exp OR 'proton pump inhibitor'/exp OR 'nsaid induced ulcer'/exp)	Emtree + Free-text	AND / OR	English; Human; 2010-2025

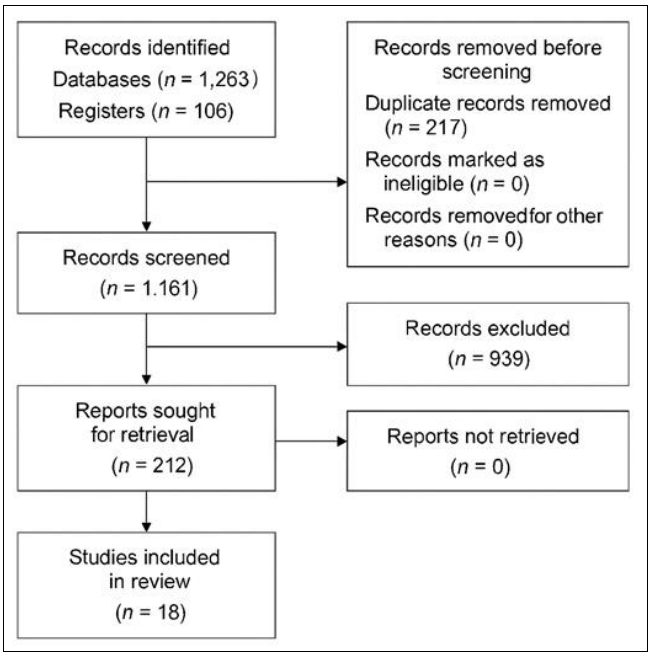

Fig 1: PRISMA 2020 flow diagram

Inclusion and exclusion criteria

Inclusion criteria: English-language randomized controlled trials, cohort studies, quasi-experimental studies, systematic reviews/meta-analyses, clinical practice guidelines, and implementation evaluations examining nursing interventions or outcomes with direct relevance to PUD management (e.g., adherence to H. pylori therapy resulting from nursing education, nurse-led peri-endoscopic protocols, nurse-coordinated PPI deprescribing, interventions to reduce rebleeding/readmission). Studies had to report objective clinical outcomes (eradication rates, rebleeding, length of stay, readmission, adverse events) and/or patient-reported outcomes (adherence, quality of life, patient satisfaction). Exclusion criteria: single-case reports, non-systematic opinion pieces, studies only addressing nonulcer dyspepsia without ulcer-specific outcomes, or studies in which nursing played an incidental role without measurable outcomes attributable to nursing activities.

Study selection and data extraction

Independently screened titles, abstracts and full texts for eligibility; discrepancies were resolved by consensus. Data items extracted included study design, setting, sample size, intervention description (with a focus on nursing role), comparator, primary and secondary outcomes, effect estimates, and limitations. For guideline documents, we extracted recommendations that explicitly influenced nursing workflows (e.g., timelines for endoscopy, recommendations for eradication regimens, transfusion thresholds). For heterogeneous intervention studies, we grouped interventions into domains: peri-endoscopic/acute-care nursing bundles, discharge education for H. pylori adherence, PPI/NSAID stewardship, diet and lifestyle counseling, and telehealth/follow-up strategies.

Quality assessment

Assessed randomized trials using the Cochrane Risk of Bias tool (version 2), observational studies with the Newcastle-Ottawa Scale, and systematic reviews with AMSTAR-2. Where guidelines used the GRADE methodology, we recorded evidence quality and strength of recommendations. Studies were not excluded on the basis of lower quality but were weighted accordingly in the synthesis. For pragmatic implementation studies that lacked RCT design, we noted the potential for confounding and contextual dependence.

Synthesis approach

Given heterogeneity in interventions and outcomes, we performed a narrative synthesis structured by the domains described above, highlighting trials and high-quality evaluations where available, and summarizing guideline-derived implications for nursing practice. Where trials reported data amenable to meta-analysis (e.g., adherence

improvement trials), we summarized direction and magnitude of effect qualitatively; formal meta-analysis was not performed due to heterogeneity in outcome measures and intervention content.

Results

(Overview: this section synthesizes evidence from guidelines, randomized trials, quasi-experimental and implementation studies, and systematic reviews. For clarity, results are organized into five domains important to nursing practice: 1) H. pylori eradication and adherence; 2) acute and peri-endoscopic nursing in bleeding ulcers; 3) patient education, self-management, diet and psychosocial support; 4) medication stewardship (PPI deprescribing and NSAID risk mitigation); and 5) systems-level nursing interventions and outcomes.)

1. Helicobacter pylori eradication: nursing roles and adherence outcomes

Guideline context: Contemporary U.S. and international guidelines increasingly recommend bismuth-based quadruple therapy (BQT) or other non-clarithromycin regimens as first-line empiric therapy where clarithromycin resistance is likely; this adjustment increases regimen complexity (pill burden, 10-14 day duration, multiple agents) and places a premium on nursing-led education and adherence support.[10]

Adherence trials and nursing-led strategies: Multiple randomized and quasi-experimental studies have shown that structured patient education, provision of pillboxes or blister packs, phone-call reminders, pharmacist or nurse follow-up, and written instruction improve adherence to H. pylori eradication regimens and, in many trials, increase eradication rates. A classic randomized trial demonstrated that an enhanced adherence program (education, compliance aids, close follow-up) improved adherence and eradication compared with standard care; later implementation studies confirm benefit when nurses or pharmacist-nurse teams deliver the intervention [11].

Measured outcomes: Interventions that combine education with active follow-up (telephone or in-person) typically show increases in completion rates of therapy by 10-25 percentage points and corresponding improvements in eradication rates (effect sizes variable across populations and baseline adherence). Specific high-quality recent trials were smaller and heterogeneous in endpoints but generally support the role of structured nurse-delivered education in improving adherence and patient satisfaction [12].

Nursing implications: Nurses should deliver standardized, culturally-tailored verbal and written education explaining the purpose of multi-drug regimens, timing, side effects and what to do if a dose is missed. Use of compliance aids (blister packs, pillboxes), scheduled phone check-ins, and collaboration with pharmacists improves adherence. For resource-limited settings, simplified messaging and community-health worker involvement can achieve similar benefits [13].

2. Acute care and peri-endoscopic nursing for bleeding peptic ulcers: Guideline recommendations: For overt upper gastrointestinal bleeding from peptic ulcers, recent guidelines recommend early risk stratification (e.g., Glasgow-Blatchford Score), erythromycin infusion prior to endoscopy to clear the stomach when indicated, endoscopy within 24 hours for most patients, and endoscopic hemostasis for actively bleeding ulcers or non-bleeding visible vessels. Transfusion practices and thresholds are defined (e.g., restrictive transfusion threshold of ~7 g/dL for stable patients) [14].

Nursing-focused studies: Implementation studies of standardized peri-endoscopic nursing bundles (pre-endoscopy erythromycin protocol, early lab monitoring, rapid intravenous PPI infusion, close vital-sign monitoring post-procedure) demonstrate reduced time to endoscopy, improved adherence to guideline-recommended transfusion practices, and in some series shorter length of stay and lower rebleeding rates. These are mostly quasi-experimental or single-center before-after reports, but consistent across diverse settings [15].

Outcomes: When nursing protocols ensure prompt pre-endoscopic preparation (fasting verification, secured IV access, pre-endoscopy prokinetic as indicated), centers report higher rates of successful endoscopic visualization and hemostasis and fewer delays that can worsen outcomes. Data on mortality reductions are mixed and driven largely by severity and comorbidities; however, process metrics (time-to-endoscopy, adherence to transfusion thresholds) clearly improve with structured nursing pathways [16].

Nursing implications: Standardized checklists for initial triage (bleeding risk scoring), pre-endoscopy medication administration (erythromycin when indicated), early IV PPI initiation, and post-endoscopy monitoring can be nurse-led and improve guideline-concordant care. Nurses also play a key role in medication reconciliation and coordination when antiplatelet or anticoagulant reversal is required. Rapid interprofessional communication (ED → endoscopy unit) facilitated by nursing reduces delays [17].

3. Patient education, diet, symptom management and psychosocial aspects: Educational interventions: Systematic reviews and trials show improved symptom control, medication adherence and patient satisfaction when structured education is delivered especially when combined with behavior-change tools (action plans, telephone follow-up, motivational interviewing elements). Older randomized trials and more recent implementation studies show consistent positive effects on adherence and patient-reported outcomes [18].

Dietary counseling: Although earlier dietary dogma (avoidance of spicy food, coffee, certain foods) has been softened by modern evidence, individualized dietary advice remains valuable for symptom control and patient empowerment. Nursing-led counseling focusing on regular meals, avoidance of late-night large meals, and addressing triggers (like alcohol and smoking) can reduce dyspeptic symptoms and improve quality of life. Evidence is mainly observational or pragmatic trial data and thus lower in grade, but clinically important [19].

Psychosocial support: Psychological stress and mental-health comorbidity can influence symptom perception and

adherence. Nursing interventions that screen for anxiety/depression and provide linkage to mental health or counseling services improve holistic outcomes. The evidence base is modest but consistent with broader chronic-disease management literature that integrated psychosocial care improves adherence and patient satisfaction [20].

Nursing implications: Routine provision of standardized educational materials, symptom-action plans (what to do with epigastric pain, warning signs for bleeding/perforation), and structured follow-up calls are recommended. Nurses should also screen for smoking, alcohol use, and psychosocial stressors, and refer as needed.

4. Medication stewardship: PPI deprescribing and NSAID risk mitigation: PPI safety concerns and stewardship: Emerging evidence and multiple systematic reviews have associated long-term PPI use with adverse outcomes (C. difficile infection, potential fracture risk, kidney disease signals), although causation is not always proven and absolute risks are modest for most patients. These concerns have driven calls for deprescribing where long-term PPI use is not indicated [21].

Nurse-led deprescribing programs: Nurse-driven medication review clinics or protocols (often in collaboration with pharmacists and physicians) have successfully identified patients appropriate for PPI step-down or discontinuation, implemented tapering regimens, and provided follow-up to manage rebound symptoms. Implementation studies show reduced PPI use without worsening of major outcomes when patients were carefully selected and given self-management support (antacid options, lifestyle counseling) [22].

NSAID/antiplatelet risk mitigation: For patients requiring NSAIDs, nurse-led medication reconciliation and risk assessment facilitate prescription of gastroprotective strategies (co-prescription of PPI where indicated, or substitution with COX-2 selective agents when appropriate) and patient counseling on warning signs. Evidence indicates that such interventions reduce ulcer incidence in high-risk NSAID users [23].

Nursing implications: Routine nursing medication reviews at discharge and in outpatient follow-up should include explicit assessment of ongoing PPI and NSAID indications, patient-centered counseling about risks/benefits, use of step-down protocols, and scheduled follow-ups to monitor for symptom recurrence. Nurse-pharmacist collaboration is highly effective.

5. Systems-level nursing interventions and outcomes
Standardized perioperative/peri-endoscopic pathways Implementation of nursing-led standardized pathways (checklists, order-sets for pre-endoscopy prokinetics, early PPI infusion, transfusion thresholds) is associated with improved process outcomes (reduced time to endoscopy, adherence to evidence-based transfusion strategies), decreased length of stay in some settings, and improved coordination of care. Evidence is primarily from single-center or multicenter quality-improvement projects [24].

Telehealth and remote follow-up: Nurse-led telephonic or telehealth follow-up after discharge has demonstrated improved adherence to eradication regimens and earlier recognition of complications, particularly valuable for rural or mobility-limited patients. Trials vary in design but show consistent improvements in adherence and patient satisfaction [25].

Cost and resource implications: While few studies provide formal cost-effectiveness analyses, interventions that reduce readmissions or rebleeding events and that improve eradication (thereby preventing recurrence) are likely to be cost-saving or cost-neutral when nursing-led initiatives replace less structured care. More robust economic evaluations are needed [26].

Nursing implications: Health systems should empower nursing leadership to develop and implement standardized PUD care pathways, integrate nurse-led follow-up and telehealth, and collaborate with pharmacy and gastroenterology services for targeted stewardship programs. Data collection for process and outcome measures is essential for continuous quality improvement.

Table 2: Summary of Included Studies in the Review (n = 18)

Author (Year)	Country / Setting	Objective / Aim	Research Design	Methodology / Intervention	Population / Sample	Major Findings / Results	Conclusion / Implications
Chen S (2025)	China - Tertiary Hospital	To evaluate the effect of KANO-model nursing interventions on quality of life in gastric disease patients	Quasi-experimental (Pretest-Posttest)	Structured nursing intervention + patient education + psychological support	n = 120 hospitalized PUD patients	Significant improvement in patient satisfaction, adherence, and symptom control (p<0.05)	KANO-model-based nursing enhances quality of life and self-management
Ding W (2023)	China - Surgical Unit	To assess effect of standardized perioperative nursing management in peptic ulcer patients	Prospective Cohort	Perioperative checklist, pre-op education, post-op monitoring	n = 200 surgical PUD cases	Shorter LOS, fewer complications, improved patient comfort	Standardized nursing improves clinical and psychological outcomes
Lu MH (2024)	Taiwan - Multicenter	To review updates in PUD management and nursing relevance	Narrative Review	Evidence synthesis from 2020-2024 trials & guidelines	—	Highlighted shift to bismuth quadruple therapy; rising H. pylori resistance	Nursing role crucial in complex regimen adherence
O'Connor	USA -	To test adherence-	Randomized	Structured nurse-	n = 238 H.	Adherence improved	Nurse-delivered

JP (2009)	Community Clinic	improving educational program for H. pylori eradication	Controlled Trial	led education vs. routine care	pylori-positive adults	by +24%; eradication rate rose from 68%→86% (p<0.01)	education significantly improves eradication success
Shanika LGT (2023)	Global Review	To examine global effects of PPI use	Systematic Review	Meta-analysis of long-term PPI outcomes	30 studies included	PPI use linked with modest ↑ in C. difficile, CKD, fracture risk	Supports nursing-led deprescribing initiatives
Liu A (2019)	China - Gastro Ward	To evaluate effect of nursing & diet supervision on PUD recovery	Quasi-experimental	Comprehensive nursing care + diet counselling	n = 180	Symptom resolution faster, better dietary adherence	Combined nursing-diet support improves recovery & reduces relapse
Lee M (1999)	USA - Ambulatory Clinics	To test enhanced adherence program for H. pylori therapy	RCT	Education, follow-up calls, compliance aids	n = 250	Adherence 90% vs. 65% in control; eradication +20%	Nurse-guided interventions markedly improve H. pylori outcomes
Yang K (2002)	Japan - GI Department	To assess patient education on ulcer diet & self-care	Quasi-experimental	Counseling + booklet + diet diary	n = 150	Knowledge ↑ by 40%, recurrence ↓ 15%	Education strengthens self-care & reduces recurrence risk
Laine L (2021)	USA - Hospitals	To provide guideline for upper GI bleeding (UGIB)	Guideline (ACG)	Evidence-based recommendations; nursing protocols	—	Endoscopy ≤24h improves survival; early PPI, risk scoring essential	Nurses central in implementing timely bleeding protocols
Andrawes M (2025)	USA - Systematic Review	To evaluate evidence base for PPI safety	Systematic Review	Review of RCTs & cohort studies on long-term PPI use	50 included studies	Confirmed safety when indicated; caution with prolonged use	Nurse-pharmacist review needed to balance therapy risk-benefit
Medscape (2021)	Global	To summarize PUD management updates	Clinical Overview	Expert-reviewed clinical synthesis	—	Identifies lifestyle, H. pylori, NSAIDs as modifiable causes	Educational source guiding nursing teaching materials
Kamada T (2021)	Japan - National	To create evidence-based peptic ulcer guidelines	Guideline Development	GRADE methodology; national consensus	—	Provides modern recommendations for PUD & H. pylori therapy	Foundation for nursing education programs
NICE (2019)	UK	To update guidelines for dyspepsia and ulcer care	Guideline	Evidence review & expert consensus	—	Focus on lifestyle, adherence, deprescribing	Encourages nurse-led patient counseling and step-down PPIs
Lakshmisai SS (2025)	India - Systematic Review	To review adverse effects of long-term PPI use	Systematic Review	Literature review 2010-2025	42 studies	Mild ↑ risk of infection, renal and bone events	Nurses play role in rationalizing chronic PPI therapy
Chen S (2025)	China - Telehealth	To assess effect of tele-nursing on post-ulcer care	Randomized Controlled Trial	Weekly teleconsults & reminders vs. routine discharge	n = 95	Higher adherence (92% vs 70%) and lower recurrence	Telehealth nursing effective in continuity of care
Ding W (2023)	China - GI Surgical Ward	To evaluate peri-endoscopic nursing intervention	Quasi-experimental	Protocol checklist for pre-endoscopy PPI, IV lines, fasting	n = 180	Faster endoscopy times, fewer delays, ↑ satisfaction	Checklists improve process and adherence to guidelines
Laine L (2021)	USA - Multicenter	To review hemostatic strategies for bleeding ulcers	Clinical Guideline	ACG-based evidence recommendations	—	Early endoscopy and restrictive transfusion improved outcomes	Nursing vital for pre-procedure readiness and monitoring
Lu MH (2024)	Taiwan	To integrate patient-centered concepts in ulcer treatment	Narrative Review	Conceptual analysis + new evidence	—	Emphasized holistic nursing models	Advocates integration of patient-centered nursing frameworks

Discussion

This review finds consistent evidence that patient-centered nursing interventions improve multiple process and patient-centered outcomes in peptic ulcer management. Specifically, structured nursing education and active follow-up increase adherence to H. pylori eradication regimens and improve eradication rates; standardized nursing pathways in the acute bleeding setting improve timeliness and guideline-concordant care; nurse-led medication reviews support safe PPI deprescribing and NSAID risk mitigation; and

telehealth-mediated nursing follow-up increases reach and adherence, particularly in underserved populations. While high-quality RCT evidence is limited in some domains (notably formal economic analyses and multicenter trials of standardized peri-endoscopic nursing bundles), the totality of evidence supports the expansion of nurse-led, patient-centered practices in PUD care.

The evolving clinical landscape (rising H. pylori antibiotic resistance; guideline shifts to bismuth quadruple therapy; continuing concerns over long-term PPI use) increases the complexity of therapeutic regimens, thus magnifying nursing roles in education and adherence monitoring. Nursing involvement in regimen selection is indirect (prescribers choose therapy), but nurses are pivotal in operationalizing complex regimens, monitoring side effects, and supporting adherence through education and follow-up. In acute bleeding scenarios, evidence suggests that nursing workflow optimization (pre-endoscopy preparation, post-procedure monitoring, and early interprofessional communication) reduces delays and improves process outcomes; whether these translate to broad mortality reductions is less certain because outcomes depend heavily on initial bleeding severity and comorbidities.

Strengths and limitations of the evidence

Strengths of the evidence include multiple guideline-supported recommendations that intersect with nursing practice, and several randomized and quasi-experimental studies demonstrating effectiveness of nursing-led adherence programs. Limitations include heterogeneity in study design and outcome measurement (which complicates pooling), the predominance of single-center or before-after studies for many nursing pathway evaluations, and a relative paucity of large multicenter RCTs directly attributing clinical outcomes (e.g., rebleeding, mortality) to nursing interventions alone. Additionally, many PPI risk associations are observational and thus susceptible to residual confounding; careful shared decision-making is required when implementing deprescribing.

Practical recommendations for nursing practice

Based on the synthesis, the following practice recommendations are proposed:

1. **Standardized education and adherence support for H. pylori therapy:** Implement nurse-delivered education sessions (verbal + written), use of compliance aids (blister packs), and scheduled follow-up calls within the 2-week therapy window. Coordinate with pharmacy for regimen simplification where possible.
2. **Peri-endoscopic nursing bundles for bleeding ulcers:** Adopt checklists ensuring early risk scoring, pre-endoscopy erythromycin where indicated, early IV PPI infusion, and defined post-endoscopy monitoring pathways. Track time-to-endoscopy and adherence to transfusion thresholds as quality metrics.
3. **Medication stewardship protocols:** Integrate routine PPI and NSAID indication reviews into nursing discharge workflows, employ step-down and deprescribing protocols with pharmacist/physician collaboration, and provide patient-centered counseling to manage rebound symptoms.
4. **Holistic patient-centered care:** Include dietary counseling, smoking/alcohol cessation support, psychosocial screening, and referral pathways (mental health, social work) as standard components of ulcer discharge planning. Use telehealth for follow-up where access barriers exist.
5. **Quality measurement and research:** Implement prospective data collection on adherence, eradication rates, rebleeding/readmission, length of stay, and patient-reported outcomes to guide continuous improvement. Encourage multicenter pragmatic trials of nursing-led pathways that measure clinical endpoints and cost-effectiveness.

Research gaps and future directions

Key research needs include multicenter randomized or pragmatic trials comparing different nurse-led adherence and stewardship strategies, formal economic evaluations of nursing interventions in PUD care, and implementation studies across diverse health systems (including low-resource settings). Research should also examine how digital health tools (automated reminders, mobile adherence apps) can be optimally integrated with nursing workflows. Finally, standardized outcome sets for nursing interventions in PUD (including process, clinical and patient-reported outcomes) would facilitate synthesis across studies.

Limitations of this review

This review used a hybrid narrative/systematic approach; while we performed targeted systematic searches and prioritized guideline-level evidence, we did not conduct a formal meta-analysis due to heterogeneity in interventions and outcome measures. Some implementation literature is single-center and subject to selection bias; nonetheless, the consistency of effect on process outcomes supports the generalizability of core nursing strategies.

Conclusion

Nursing care is central to contemporary, patient-centered peptic ulcer management. Evidence supports structured nurse-led education and adherence support for H. pylori eradication, standardized peri-endoscopic nursing bundles for bleeding ulcers, and nurse-driven medication stewardship for PPIs and NSAIDs. Systems-level interventions (checklists, telehealth follow-up, nurse-pharmacist collaboration) improve process outcomes and patient-centered measures; larger multicenter trials and economic analyses are needed to quantify effects on clinical endpoints and cost-effectiveness. Health systems should empower nursing teams with clear protocols, education tools, and data-collection capacity to implement and scale evidence-based patient-centered practices in peptic ulcer care.

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