Occupationally adapted treatment and 12-month outcomes of peptic ulcer disease in military personnel: an open-label comparative study

Akmal Zaripov, F. Sh. Primov

Department of Military Field Therapy, Academy of the Armed Forces of the Republic of Uzbekistan, Tashkent, Uzbekistan
Corresponding author: Akmal Zaripov, e-mail: __

Published 20 September 2026 | DOI: 10.14419/j.jtumed.2026.09.20

Abstract

Objective. To compare short-term healing and 12-month outcomes under standard and occupationally adapted treatment in military personnel with peptic ulcer disease and high occupational risk.

Materials and methods. The treatment analysis included 68 patients, 33 receiving standard care and 35 receiving an adapted programme. The source describes stratified allocation with sealed opaque envelopes. The adapted bundle combined medical treatment, regular meals, hydration, mucosal protection and temporary duty modifications. Aggregate results were retained with their original denominators.

Results. Eight-week healing occurred in 20/33 patients (60.6%) under standard care and 31/35 (88.6%) under adapted care ($p = 0.010$). At 12 weeks, healing was 84.8% and 97.1%, respectively ($p = 0.096$). Twelve-month recurrence affected 18/33 (54.5%) versus 7/35 (20.0%; $p = 0.004$), with a reported risk ratio of 0.37 (95% CI 0.18–0.77). Median duty days lost were 11 [5–19] and 3 [0–7]. H. pylori eradication was 17/24 versus 23/25 ($p = 0.074$).

Conclusion. The adapted programme was associated with earlier healing and fewer recorded recurrences. The 12-week healing and eradication comparisons were not statistically significant. The bundled intervention and incomplete trial-reporting details limit attribution to individual components.

Keywords: peptic ulcer; military personnel; occupational exposure; Helicobacter pylori; ulcer healing; recurrence

Introduction

Peptic ulcer management in military personnel involves more than the selection of an antisecretory drug. Meal timing, access to treatment during field deployment and continuity of follow-up can affect whether a planned course is completed. These factors need to be described explicitly when an occupationally adapted programme is evaluated.

Prospective evidence has linked psychological stress with peptic ulcer risk after accounting for Helicobacter pylori infection and non-steroidal anti-inflammatory drug exposure [1]. This does not establish a single occupational mechanism, but it supports examination of service-related circumstances alongside established clinical factors. The treatment of H. pylori is a separate therapeutic component governed by antimicrobial resistance and regimen-specific evidence [2].

The present analysis focuses on the treatment chapter of a larger investigation rather than combining its screening, risk-model and intervention cohorts. Its objective was to compare healing, symptoms and 12-month recurrence in the high-risk subgroup assigned to standard or adapted management.

Materials and methods

Design and analytical population

The wider study was conducted during 2023–2026 and included patients with endoscopically confirmed gastric or duodenal ulcer. The treatment comparison comprised 68 high-risk patients aged 18–45 years: 33 in group IA, receiving standard care, and 35 in group IB, receiving the occupationally adapted programme. Other clinical and healthy comparison groups from the wider study are not included in the present outcome denominators.

The source describes stratification by ulcer location, H. pylori status and previous complications, followed by assignment using sealed opaque envelopes. Details of sequence generation and trial registration were not available. The analysis is presented as an open-label comparison of the reported treatment groups rather than as a fully documented intention-to-treat trial.

Interventions and follow-up

Standard care consisted of omeprazole 20 mg twice daily for four weeks, extended to eight weeks for gastric ulcer. H. pylori-positive patients received 14 days of amoxicillin 1 g, clarithromycin 500 mg and omeprazole 20 mg, each twice daily. Symptomatic medication and a fractionated diet were also prescribed.

The adapted programme added regular meals and hydration, rebamipide 100 mg three times daily for eight weeks, and temporary restrictions on night and field duties. In H. pylori-positive patients, the source regimen also included bismuth 240 mg twice daily. Subsequent treatment was adjusted according to healing and nocturnal acidity, with selected courses extended to 12 weeks. Maintenance measures during months 4–12 were linked to clinical recurrence and anticipated field exposure.

These prescriptions describe the historical study protocol. They are not presented as a universal current treatment recommendation. In particular, empirical antibiotic selection should not be transferred to another setting without attention to contemporary susceptibility-based guidance [2]. The intervention changed both drug treatment and occupational conditions, so its effect cannot be assigned to duty modification alone.

Outcomes and statistical reporting

Healing was assessed at four, eight and 12 weeks. H. pylori eradication used only initially positive patients as its denominator. Symptoms were assessed with the Gastrointestinal Symptom Rating Scale (GSRS). Recurrence, hospitalisation, post-field symptoms and duty days lost were recorded over 12 months. The source describes blinded endoscopic and pathological assessment, but treatment delivery was open label.

Means are reproduced with their standard errors, not standard deviations. Duty days lost are presented as median [interquartile range]. Tests and confidence intervals are retained as reported. No patient-level reanalysis was performed. The source exclusion of patients missing the 12-week visit prevents a secure intention-to-treat interpretation and requires confirmation against a participant-flow record.

Results

Baseline treatment-group characteristics

Table 1. Baseline characteristics of the 68-patient treatment cohort

Characteristic	Standard (n = 33)	Adapted (n = 35)
Age, years	33.1 ± 1.3	32.5 ± 1.2
Male sex, n	31	33
Duodenal ulcer, n	22	23
H. pylori positive, n	24	25
Previous complication, n	9	10
Ulcer diameter, cm	0.82 ± 0.05	0.85 ± 0.05
Occupational risk score	7.4 ± 0.2	7.5 ± 0.2
GSRS total	3.19 ± 0.11	3.23 ± 0.10

Continuous values are mean ± SEM. The locally derived occupational-risk score was used for study selection, not as an externally validated clinical prediction tool.

The treatment groups had similar reported mean age, ulcer diameter and GSRS total. H. pylori-positive disease occurred in 24 standard-care patients and 25 adapted-care patients. Consequently, eradication estimates refer to 49 infected patients, not to all 68 participants.

Most patients in both groups had duodenal ulcers. A previous complication was reported in approximately one quarter of each group. These characteristics define a selected high-risk treatment cohort. They should not be interpreted as the prevalence of ulcer features among all serving personnel.

The broader dissertation contains additional population comparisons and risk estimates. Those results are not merged here because their analytical populations differ from the patients contributing to the treatment comparison.

Timing of endoscopic healing

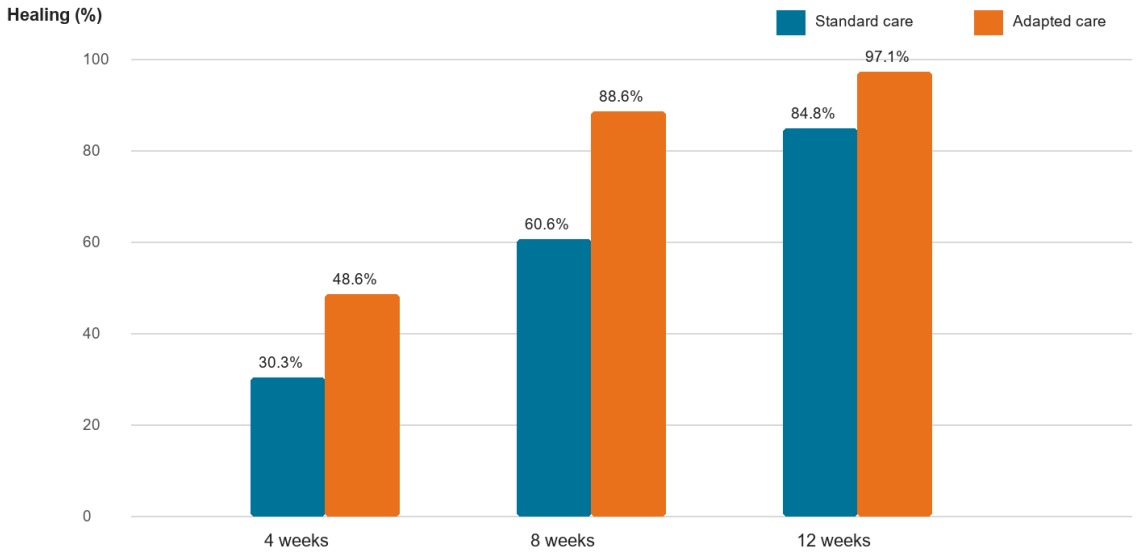


Figure 1. Endoscopically documented healing at the scheduled assessments.

Denominators remain 33 and 35. Between-group p values were 0.145, 0.010 and 0.096 at four, eight and 12 weeks, respectively.

The clearest separation was present at eight weeks, when 31 of 35 adapted-care patients and 20 of 33 standard-care patients had healed ulcers. By 12 weeks, both groups had high healing proportions and the between-group comparison no longer reached the stated significance threshold.

The reported mean time to healing was 7.5 ± 0.4 weeks under standard care and 5.8 ± 0.3 weeks under adapted care ($p = 0.001$). The finding concerns earlier healing within the recorded follow-up schedule. It does not justify replacing the non-significant 12-week proportion comparison with a claim of a proven final healing advantage.

Symptoms, healing and infection-specific outcomes

Table 2. Selected 12-week and infection-specific outcomes

Outcome	Standard	Adapted	p
GSRS total, mean ± SEM	2.30 ± 0.08	1.78 ± 0.07	<0.001
Abdominal pain, n/N	12/33	4/35	0.022
Postprandial heaviness, n/N	15/33	6/35	0.015
Nausea, n/N	11/33	4/35	0.039
12-week healing, n/N	28/33	34/35	0.096
H. pylori eradication, n/N	17/24	23/25	0.074

H. pylori eradication was assessed at the source infection-control visit and is not a 68-patient outcome. SEM denotes standard error of the mean. p values are between-group values reproduced from the source.

The overall GSRS score was lower in the adapted group at 12 weeks. Differences were also reported for abdominal pain, heaviness and nausea. Not every symptom comparison was significant: heartburn and nocturnal pain, for example, did not reach the same threshold in the source tables.

Eradication was numerically more frequent with adapted care, 92.0% versus 70.8%, but $p = 0.074$. This distinction matters because a favourable percentage alone does not establish comparative eradication efficacy in a small infected subgroup. The study cannot isolate antibiotic optimisation from the other components of the treatment bundle.

The symptomatic and endoscopic endpoints answer different questions. Lower GSRS scores describe the patient's burden of symptoms, whereas healing requires endoscopic confirmation. Both should be retained in evaluating clinical recovery.

Gastrointestinal symptom profile at 12 weeks

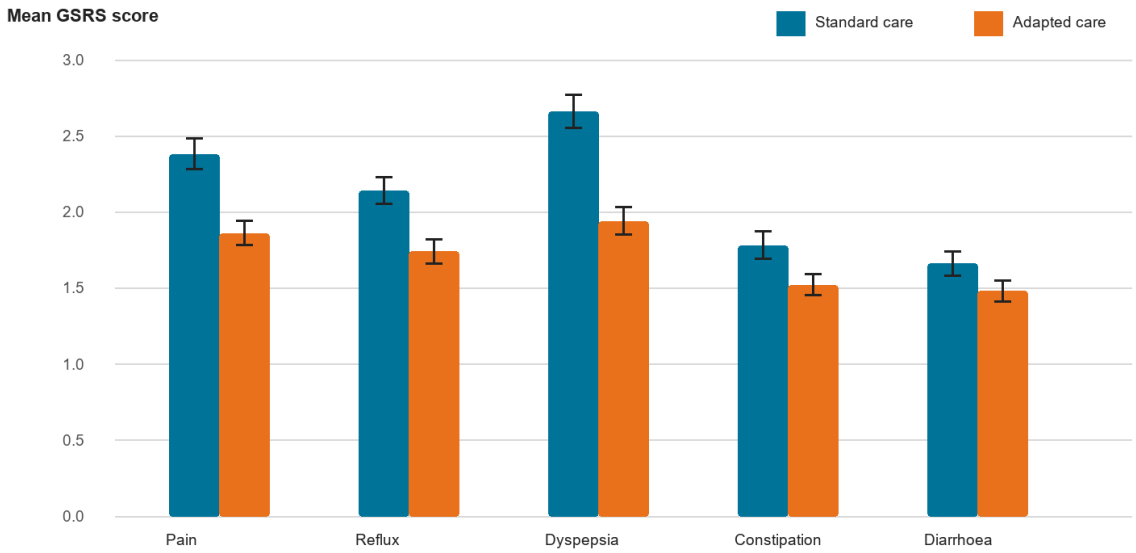


Figure 2. GSRS domain scores after 12 weeks of treatment.

Error bars represent reported SEM. Between-group p values: pain <0.001; reflux 0.002; dyspepsia <0.001; constipation 0.022; diarrhoea 0.097.

Pain, reflux and dyspepsia accounted for much of the residual symptom burden under standard care. The adapted group had lower mean values across the displayed domains, although the diarrhoea comparison was not statistically significant. A uniform claim of superiority across every gastrointestinal symptom would therefore exceed the reported analysis.

Both groups improved from baseline. The comparison of their final scores is not equivalent to a formal treatment-by-time interaction, and individual paired observations were unavailable for such a reanalysis. The graph preserves the endpoint means and their stated dispersion measure without reconstructing participant trajectories.

Twelve-month recurrence and service disruption

Table 3. Recorded outcomes during 12-month follow-up

Outcome	Standard (n = 33)	Adapted (n = 35)
Ulcer recurrence, n (%)	18 (54.5)	7 (20.0)
At least two recurrences, n	7	0
Hospitalisation, n	8	2
Duty days lost, median [IQR]	11 [5–19]	3 [0–7]
Any adverse event, n	8	9

Recurrence: p = 0.004; repeated recurrence: p = 0.004; hospitalisation: p = 0.041; duty days lost: p < 0.001. Adverse-event rates were similar (p = 1.000).

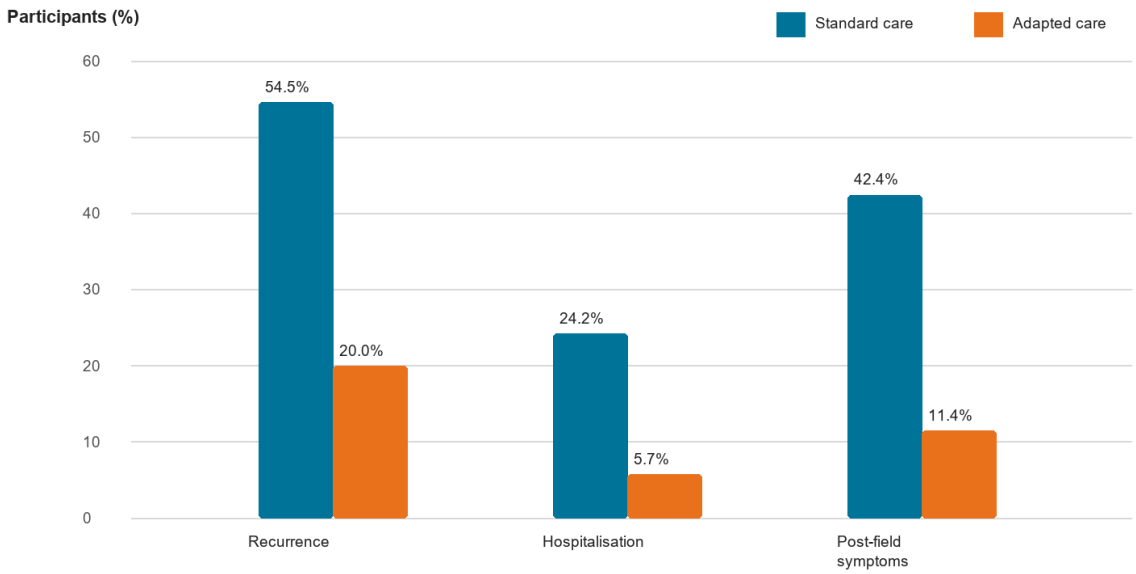


Figure 3. Selected 12-month events.

Events overlap and are not a composite endpoint. The reported recurrence risk ratio was 0.37 (95% CI 0.18–0.77).

Discussion

The treatment chapter supports two related observations: earlier endoscopic healing and fewer recorded recurrences during subsequent follow-up. The eight-week difference was statistically significant, while the final 12-week healing comparison was not. Keeping both results avoids an exaggerated interpretation based only on the most favourable assessment.

The adapted programme included medication changes, regular meals, hydration and temporary occupational restrictions. The association between stress and ulcer in prospective civilian research provides a rationale for studying occupational circumstances [1], but it does not identify which component of the present programme produced the observed difference. A component-specific conclusion would require a different design.

The eradication comparison also needs restraint. The infected subset was small, treatment regimens differed and the between-group test did not reach significance. Contemporary H. pylori management requires attention to antibiotic susceptibility and previous treatment [2]. These historical regimens should therefore be interpreted as study exposures, not automatically reproduced as present-day empirical prescriptions. A randomised eradication trial established that infection clearance and later ulcer recurrence should be examined together [3]. Here, however, no recurrence-by-eradication cross-tabulation was available.

Fewer duty days lost and fewer recurrences are practically relevant outcomes, but they remain sensitive to follow-up intensity and how a recurrence is recorded. The programme itself may have altered access to review or the threshold for temporarily modifying duties. Occupational benefit should be evaluated alongside healing and symptoms, not inferred from any one outcome alone.

Limitations

The sample comprised only 68 selected high-risk patients. Allocation concealment was described, but the random sequence, registration, participant flow and handling of missed visits were incompletely documented. Open-label delivery could influence symptom reporting and decisions about service restriction. The multiple comparisons were not accompanied by a documented multiplicity strategy.

Only aggregate results were available. Adjusted recurrence modelling, verification of individual follow-up duration and a sensitivity analysis for attrition could not be performed. Rare complications were too uncommon for reliable safety inference. The study supports evaluation of the complete programme, not causal attribution to rebamipide, bismuth, duty restriction or any other isolated element.

Conclusion

Among the reported high-risk treatment groups, occupationally adapted care was associated with faster healing, lower 12-week symptom scores and fewer 12-month recurrences. The final healing and H. pylori eradication comparisons were not statistically significant. The findings justify further evaluation of an integrated programme with complete allocation, follow-up and susceptibility documentation, rather than claims for any single component.

Declarations

Data provenance. The manuscript is based on the treatment results of the supplied dissertation. Unrelated screening and risk-model denominators were not combined with the 68-patient cohort.

Ethics and consent. The ethics committee name, the approval number and the approval date, the consent documentation, the trial registration and the participant-flow record require author confirmation before submission.

Author information, funding and competing interests. The authors' names follow the supplied manuscript and the departmental description follows the source title page. The official English affiliation, the corresponding e-mail, author contributions, funding sources and competing interests require confirmation.

References

1. Levenstein S, Rosenstock S, Jacobsen RK, Jørgensen T. Psychological stress increases risk for peptic ulcer, regardless of Helicobacter pylori infection or use of nonsteroidal anti-inflammatory drugs. Clin Gastroenterol Hepatol. 2015;13(3):498–506.e1.

2. Chey WD, Howden CW, Moss SF, et al. ACG clinical guideline: treatment of Helicobacter pylori infection. Am J Gastroenterol. 2024;119(9):1730–1753.

3. Hentschel E, Brandstätter G, Dragosics B, et al. Effect of ranitidine and amoxicillin plus metronidazole on the eradication of Helicobacter pylori and the recurrence of duodenal ulcer. N Engl J Med. 1993;328:308–312.