Journal of Medical Surgical and Allied Sciences
Research Article

Diagnostic value of MLR, MHR and Alvarado score in patients with acute appendicitis at Hasahiesa Emergency hospital, Gezira State, Sudan

Khalid Abdelsamea Mohamedahmed[1,2,3*], Tanzeel Alamin Almahdi Gorashi[1], Selma O. M. Abdalla[1]

[1]Department of Hematology and Immunohematology, Faculty of Medical Laboratory Sciences, University of Gezira, Wad Medani, Sudan.
[2]Department of Immunology, Faculty of Medical Laboratory Sciences, University of Gezira, Wad Medani, Sudan. khalid.gu89@gmail.com.
[3]Department of Medical Laboratory Sciences, Faculty of Applied Medical Sciences, Jerash University, Jerash, Jordan.

[*]**Correspondence**
Khalid Abdelsamea Mohamedahmed
khalid.gu89@gmail.com

Volume:3, Issue: 1, Pages: 1-7
DOI: https://doi.org/10.37446/jmedsurg/rsa/3.1.2025.1-7
Received: 2 February 2025 / Accepted: 20 May 2025 / Published: 30 June 2025

Background: Acute appendicitis continues to be a primary reason for emergency abdominal surgery worldwide. Its diagnosis is often challenging due to variable clinical presentations and limited access to advanced imaging, especially in resource-constrained settings. Recent research has focused on identifying accessible laboratory markers such as monocyte-to-lymphocyte ratio (MLR) and monocyte-to-high-density lipoprotein ratio (MHR) to improve the overall diagnostic precision for acute appendicitis, extending beyond merely differentiating between uncomplicated and complicated instances.This research focused on assessing the diagnostic significance of the monocyte-to-lymphocyte ratio (MLR), the monocyte-to-high-density lipoprotein cholesterol ratio (MHR), and the Alvarado score for diagnosing acute appendicitis, as well as their effectiveness in distinguishing disease severity among patients at Hasahiesa Emergency Hospital, Gezira State, Sudan.

Methods: A cross-sectional hospital-based study was carried out, enrolling 100 patients diagnosed with acute appendicitis from October 2022 to March 2023. MLR, MHR, and Alvarado scores were assessed for each patient. Their diagnostic performance for acute appendicitis was assessed, and values were compared between uncomplicated and complicated cases. Statistical analysis was performed using SPSS v22.0.

Results: MLR, MHR, and Alvarado scores were significantly elevated in patients with acute appendicitis and showed strong associations with disease severity and ultrasound findings (*P value* <0.05). These markers demonstrated robust diagnostic value for detecting acute appendicitis in general, as well as for distinguishing between uncomplicated and complicated cases.

Conclusion: MLR, MHR, and Alvarado score are valuable, available aids for diagnosing acute appendicitis and assessing its severity. Their integration into clinical protocols can improve early detection, risk stratification, and clinical decision-making, particularly in settings where advanced imaging is limited.

Keywords: *MLR, MHR, Alvarado scores, Acute appendicitis, Sudan*

Introduction

Acute appendicitis (AA) continues to be a primary reason for emergency abdominal surgery worldwide, yet its diagnosis remains challenging, especially in resource-limited settings where advanced imaging is often unavailable (Bhangu et al., 2015; Gorashi et al., 2025). The appendix, once considered vestigial, is now recognized for its immunological and

microbial roles, particularly in younger populations, contributing to variable clinical presentations and disease progression (Bollinger et al., 2007). Epidemiological studies consistently show that AA incidence peaks in adolescence and young adulthood but can occur at any age, with recent data highlighting a narrowing gender gap (Bollinger et al., 2007; Ferris et al., 2017). Clinically, AA frequently shows classic signs—pain in the lower right abdomen, nausea, vomiting, and loss of appetite—though up to one-third of patients have atypical presentations, complicating prompt diagnosis and increasing the risk of complications like perforation and peritonitis (Di Saverio et al., 2020). Diagnosis is primarily clinical, supported by scoring systems like the Alvarado which combine symptoms, signs, and laboratory findings for risk stratification (Ohle et al., 2011). Imaging such as ultrasound or CT improves accuracy but may not be accessible everywhere (Alvarado, 1986). Laboratory investigations are essential adjuncts. Leukocyte count is commonly elevated but lacks specificity, as it can rise in many inflammatory or infectious conditions (Mohamedahmed et al., 2019; Mohamedahmed & Abakar., 2021). Newer markers, including the monocyte-to-lymphocyte ratio (MLR) and monocyte-to-high-density lipoprotein cholesterol ratio (MHR), show promise for differentiating uncomplicated from complicated cases and for risk stratification (Albiston, 2002). MLR and MHR reflect the balance of immune response and systemic inflammation, with higher values indicating more severe disease (Sammalkorpi et al., 2015; Moosazadeh et al., 2019). Combining these laboratory markers with clinical scores may enhance diagnostic precision, especially in settings with limited imaging resources (Kuvvetli et al., 2020). Recent meta-analyses and systematic reviews validate the diagnostic value of MLR and MHR in AA, emphasizing their role in early detection and risk stratification, though additional investigation is necessary to create standardized cutoff values and validate findings in larger, multi-center studies (Echevarria et al., 2023; Kucukakcali & Akbulut, 2025).

Materials and Methods

Study design and duration

This cross-sectional study was carried out at Hasahiesa Emergency Hospital, Gezira State, Sudan from October 2022 to March 2023.

Study population

The study included 100 consecutive patients who were identified as having acute appendicitis according to clinical assessment, ultrasonographic findings (presence pf non-compressible blind-ended tubular structure in the right lower quadrant, peri-appendiceal inflammatory changes, appendicolith and hyperemia), and the Alvarado scoring system (more than 5). Patients were excluded if they had received antibiotics or corticosteroids within the preceding two weeks or had evidence of concurrent infections.

Sampling and sample size

The samples were collected using a simple randomized method from patients with AA. The sample size was 100 samples (convenience sampling).

Data collection

Demographic and clinical information were systematically collected using a structured validated questionnaire (tested previously by pre-tested questionnaire) administered at the time of admission.

Laboratory analysis

Venous blood samples were collected from every participant for laboratory evaluation, which included a complete blood count (CBC) (was done by a full automated hematological analyzer Sysmex XP-300 (Sysmex Corporation, Kobe, Japan)), and serum high-density lipoprotein (HDL) cholesterol measurement (was measured using a fully automated Cobas 311 analyzer (Roche Diagnostics, Germany) based on an enzymatic colorimetric method). The samples were analyzed within 3 hours.

The ratio of monocytes to lymphocytes (MLR) was determined by dividing the absolute count of monocytes by the absolute count of lymphocytes normal range (< 0.4) (Yang et al., 2025). The ratio of monocytes to HDL cholesterol (MHR) was calculated by dividing the total monocyte count by the serum HDL cholesterol concentration, normal range 10 – 12 (Zhang et al., 2024).

Classification

Patients were categorized as having uncomplicated or complicated appendicitis determined through clinical, laboratory, and imaging results. Criteria of uncomplicated refers to inflammation confined to the appendix, non-compressible appendix, wall thickening, and mild peri-appendiceal fat stranding without evidence of perforation, abscess, or diffuse peritonitis. In contrast, criteria of complicated appendicitis include cases with perforation, gangrene, peri-appendiceal abscess, phlegmon, or diffuse peritoneal contamination.

Statistical analysis

Data were analyzed using SPSS v21.0. T-test, correlation test, One Way ANOVA, and ROC curve were used to compare the results, at a 95% confidence interval, P value < 0.05 was considered as significant.

Results

The study included a total of 100 patients diagnosed with acute appendicitis. Among these, 44% were male and 56% were female, with an average age of 22.3 years. Most patients (45%) fell within the 11–20-year age range. Complicated appendicitis was identified in 53% of cases, and leukocytosis was observed in 55% of patients (Table 1). Analysis of the Alvarado score revealed that 43% of patients had intermediate scores (4–6), while 57% had high scores (7–9). Regarding laboratory markers, MLR and MHR were both significantly higher in patients suffering from complicated appendicitis compared to those with uncomplicated cases ($p < 0.05$) (Table 2) and between Alvarado score ($p < 0.05$) (Table 5). MLR and MHR statistically insignificant variation regarding ultrasound (Table 3) and types of complicated appenciditis (Table 4).

Table 1. Socio-demographic and clinical profile of participants

Variable	Category	Frequency n (%)
Age Categories	**Less than 10 years**	7 (7%)
	11–20 years	45 (45%)
	21–30 years	24 (24%)
	More than 30 years	24 (24%)
Sex	**Male**	44 (44%)
	Female	56 (56%)
Employment Status	**Student**	60 (60%)
	Self-employed	10 (10%)
	Homemaker	13 (13%)
	Other	17 (17%)
Family History of Appendicitis	**Present**	53 (53%)
	Absent	47 (47%)
Appendicitis Severity	**Uncomplicated**	54 (54%)
	Complicated	46 (46%)
Type of Appendicitis	**Suppurative**	9 (9%)
	Abscess Formation	6 (6%)
	Perforated	22 (22%)
	Appendicular Mass	7 (7%)
	Peritonitis	2 (2%)
White Blood Cell Count	**Normal**	42 (42%)
	Leukopenia	3 (3%)
	Leukocytosis	55 (55%)

Table 2. Comparison of study parameters according to appendicitis severity

Parameters	Severity		P. value
	Uncomplicated (N=47)	Complicated (N=53)	
TWBCs	9.7 ± 3.7	12.0 ± 7.0	**0.035***
Lymphocyte	1.9 ± 0.8	2.0 ±1.2	0.843
Monocyte	0.6 ± 0.07	1.7 ± 0.2	**0.000***
HDL	38.5 ± 13.5	30.1 ± 10.4	**0.001***
MLR	0.32 ± 0.1	1.4 ± 0.3	**0.001***
MHR	17.1 ± 1.7	58.1 ± 5.4	**0.000***
Alvarado score	6.5 ± 1.2	6.5 ± 1.6	0.938

Table 3.Comparison of study parameters between ultrasound results

Parameters	Ultrasound results		P. value
	Normal (N=70)	Abnormal (N=30)	
TWBCs	10.4 ± 6.2	12.2 ± 4.6	0157
Lymphocyte	2.0 ± 0.8	1.9 ± 1.4	0.938
Monocyte	1.2 ± 0.2	1.2 ± 0.2	0.861
HDL	32.7 ± 14.2	37.1 ± 7.2	**0.044***
MLR	0.93 ± 0.2	0.76 ± 0.1	0.630
MHR	38.5 ± 4.5	39.5 ± 5.9	0.895
Alvarado score	6.3 ± 1.4	7.0 ± 1.4	**0.018***

Table 4. Comparison of between types of complicated appendicitis

Parameters	Type of severity					P. value
	Suppurative (N=9)	Abscess (N=6)	Perforation (N=22)	Mass (N=7)	Peritonitis (N=2)	
TWBCs	8.3 ± 3.4	12.9 ± 5.7	13.8 ± 9.1	16.6 ± 5.7	13.1 ± 0.0	0.236
Lymphocyte	1.3 ± 0.8	1.8 ± 0.4	1.87 ± 0.5	2.7 ± 1.7	5.2 ± 0.0	**0.000***
Monocyte	1.4 ± 0.6	1.8 ± 0.8	2.0 ± 0.5	1.4 ± 0.4	0.8 ± 0.0	0.703
HDL	24.4 ± 12.1	33.7 ± 2.9	26.3 ± 9.5	38.1 ± 6.8	32.0 ± 0.0	**0.021***
MLR	1.2 ± 0.3	1.1 ± 0.3	1.1 ± 0.2	0.5 ± 0.06	0.1 ± 0.0	0.240
MHR	62.8 ± 15.9	55.2 ± 11.8	61.8 ± 10.3	41.0 ± 10.3	25.0 ± 0.0	0.647
Alvarado score	6.3 ± 1.3	7.3 ± 1.9	6.7 ± 1.9	7.1 ± 1.5	6.0 ± 0.0	0.752

Table 5. Comparison of study parameters between Alvarado score

Parameters	Alvarado score		P. value
	4-6 (N=43)	7-9 (N=57)	
TWBCs	7.0 ± 2.5	13.8 ± 5.8	**0.000***
Lymphocyte	1.9 ± 1.2	2.0 ± 0.9	0.886
Monocyte	0.7 ± 0.07	1.5 ± 0.2	**0.001***
HDL	37.3 ± 13.0	31.6 ± 11.9	**0.026***
MLR	0.4 ± 0.04	1.2 ± 0.3	**0.004***
MHR	23.4 ± 3.0	50.4 ± 5.5	**0.000***

Discussion

The identification of acute appendicitis continues to pose a clinical challenge because of its non-specific presentation and symptom overlap with other abdominal pathologies. This complexity underscores the need for reliable diagnostic markers to between uncomplicated and complicated appendicitis, which is crucial for timely intervention and improved patient outcomes. Our study demonstrates that the MLR), MHR, and the Alvarado score are significant markers for this differentiation, supporting their integration into clinical protocols. Demographically, our findings of a slight female predominance and a majority of young adult patients are consistent with recent epidemiological data from various regions, although some studies report a slight male predominance in acute appendicitis cases (Ferris et al., 2027). These discrepancies may reflect differences in local health-seeking behaviors, access to healthcare, and population demographics (Bhangu et al., 2015). The noted highest occurrence during the second decade of life corresponds with recognized epidemiological patterns (Anderson et al., 2012) and may be attributed to immunological, anatomical, and

lifestyle factors (Ferris et al., 2017). Recent studies and meta-analyses have demonstrated that MLR and MHR can enhance diagnostic accuracy in differentiating types of appendicitis (Xu et al., 2015; Kaminskas et al., 2021; Kuvvetl et al., 2020). These markers reflect a more pronounced systemic inflammatory response in complicated cases, which is typically characterized by elevated monocyte counts, reduced lymphocyte counts, and lower HDL cholesterol levels (Lin et al., 2015; Du et al., 2023). These hematological ratios are accessible, cost-effective, and particularly valuable in resource-limited settings where advanced imaging may not be readily available (Bhangu et al., 2015; 24). The Alvarado score remains a validated and widely utilized clinical tool for risk stratification in suspected appendicitis (Alvarado, 1986; Ohle et al., 2011). Our research validates its efficacy and its significant correlation with the severity of the disease. However, its diagnostic performance may vary depending on population characteristics, local disease prevalence, and healthcare access (Kollar et al., 2015). This variability underscores the importance of incorporating adjunctive laboratory markers—such MLR and MHR—to enhance diagnostic precision and facilitate early identification of complicated cases (Kuvvetl et al., 2020; Lin et al., 2015). A newly systematic reviews and meta-analyses have validated the diagnostic value of combining these hematological ratios with clinical scores, emphasizing their role in early detection and risk stratification, especially where imaging resources are scarce (Kuvvetl et al., 2020; Lin et al., 2015, Duke et al., 2016). Despite these promising findings, further research is required to establish standardized cutoff values for MLR and MHR and to validate these results in larger, multi-center studies to ensure applicability across diverse populations (Bhangu et al., 2015; Bessoff & Forrester, 2020; Zhou et al., 2022; Dahiya et al., 2024; Alper et al., 2025; Salö et al., 2025). Such efforts will be essential for the widespread adoption of these markers in routine clinical practice.

Conclusion

In conclusion, the integration of MLR, MHR, and the Alvarado score into diagnostic algorithms offers a robust, evidence-based approach for differentiating uncomplicated from complicated appendicitis. This strategy enhances diagnostic accuracy, optimizes patient management, and aligns with the growing body of evidence supporting the use of combined clinical and laboratory assessments in acute appendicitis.

Author contributions

Each author made a significant intellectual contribution, reviewed and approved the final manuscript version, and consented to take responsibility for all elements of the work.

Funding

No funding.

AI usage declaration

We did not use artificial intelligence in writing this research in any way.

Conflict of interest

The author declares no conflict of interest. The manuscript has not been submitted for publication in other journal.

Ethics approval

All research methods received approval from the Research and Ethics Committees (REC) of the Ministry of Health (No: 5-8-2023), Gezira State, Sudan.

Consent to publish

All procedures conducted in research involving human subjects adhered to the ethical guidelines set by the institutional and/or national research committees, along with the Helsinki Declaration. Written informed consent was obtained from every participant.

References

Albiston, E. (2002). The role of radiological imaging in the diagnosis of acute appendicitis. *Canadian Journal of Gastroenterology*, *16*(7), 451–463. https://doi.org/10.1155/2002/623213

Alper, A., Aronov, Y., Shlomov, L., & Zmora, O. (2025). Novel biomarkers for improving the diagnosis of appendicitis in pediatric patients. *Journal of Clinical Laboratory Analysis*, *39*(12), e70048. https://doi.org/10.1002/jcla.70048

Alvarado, A. (1986). A practical score for the early diagnosis of acute appendicitis. *Annals of Emergency Medicine*, *15*(5), 557–564. https://doi.org/10.1016/s0196-0644(86)80993-3

Anderson, J. E., Bickler, S. W., Chang, D. C., & Talamini, M. A. (2012). Examining a common disease with unknown etiology: Trends in epidemiology and surgical management of appendicitis in California, 1995–2009. *World Journal of Surgery*, *36*(12), 2787–2794. https://doi.org/10.1007/s00268-012-1749-z

Bessoff, K. E., & Forrester, J. D. (2020). Appendicitis in low-resource settings. *Surgical Infections*, *21*(6), 523–532. https://doi.org/10.1089/sur.2019.365

Bhangu, A., Søreide, K., Di Saverio, S., Assarsson, J. H., & Drake, F. T. (2015). Acute appendicitis: Modern understanding of pathogenesis, diagnosis, and management. *The Lancet*, *386*(9999), 1278–1287. https://doi.org/10.1016/S0140-6736(15)00275-5

Bollinger, R. R., Barbas, A. S., Bush, E. L., Lin, S. S., & Parker, W. (2007). Biofilms in the large bowel suggest an apparent function of the human vermiform appendix. *Journal of Theoretical Biology*, *249*(4), 826–831. https://doi.org/10.1016/j.jtbi.2007.08.032

Dahiya, D. S., Akram, H., Goyal, A., Khan, A. M., Shahnoor, S., Hassan, K. M., et al. (2024). Controversies and future directions in management of acute appendicitis: An updated comprehensive review. *Journal of Clinical Medicine*, *13*(11), 3034. https://doi.org/10.3390/jcm13113034

Di Saverio, S., Podda, M., De Simone, B., Ceresoli, M., Augustin, G., Gori, A., et al. (2020). Diagnosis and treatment of acute appendicitis: 2020 update of the WSES Jerusalem guidelines. *World Journal of Emergency Surgery*, *15*(1), 27. https://doi.org/10.1186/s13017-020-00306-3

Du, G. L., Liu, F., Liu, H., Meng, Q., Tang, R., Li, X. M., et al. (2023). Monocyte-to-high density lipoprotein cholesterol ratio positively predicts coronary artery disease and multi-vessel lesions in acute coronary syndrome. *International Journal of General Medicine*, *16*, 3857–3868. https://doi.org/10.2147/IJGM.S419579

Duke, E., Kalb, B., Arif-Tiwari, H., Daye, Z. J., Gilbertson-Dahdal, D., Keim, S. M., et al. (2016). A systematic review and meta-analysis of diagnostic performance of MRI for evaluation of acute appendicitis. *American Journal of Roentgenology*, *206*(3), 508–517. https://doi.org/10.2214/AJR.15.14544

Echevarria, S., Rauf, F., Hussain, N., Zaka, H., Farwa, U. E., Ahsan, N., et al. (2023). Typical and atypical presentations of appendicitis and their implications for diagnosis and treatment: A literature review. *Cureus*, *15*(4), e37024. https://doi.org/10.7759/cureus.37024

Ferris, M., Quan, S., Kaplan, B. S., Molodecky, N., Ball, C. G., Chernoff, G. W., et al. (2017). The global incidence of appendicitis: A systematic review of population-based studies. *Annals of Surgery*, *266*(2), 237–241. https://doi.org/10.1097/SLA.0000000000002188

Gorashi, T. A. A., Mohamedahmed, K. A., & Abdalla, S. A. M. (2025). Diagnostic value of leukocyte count and neutrophil-to-lymphocyte ratio in patients with acute appendicitis at Hasahiesa Emergency Hospital, Gezira State, Sudan (2023). *International Journal of Advanced Health and Medical Research*, *9*(7), 46–50.

Kaminskas, Ą. A., Lukšaitė-Lukštė, R., Jasiūnas, E., Samuilis, A., Augustinavičius, V., Kryžauskas, M., et al. (2021). The dynamics of inflammatory markers in patients with suspected acute appendicitis. *Medicina*, *57*(12), 1384. https://doi.org/10.3390/medicina57121384

Kollar, D., McCartan, D. P., Bourke, M., Cross, K. S., & Dowdall, J. (2015). Predicting acute appendicitis? A comparison of the Alvarado score, the Appendicitis Inflammatory Response Score and clinical assessment. *World Journal of Surgery*, *39*(1), 104–109. https://doi.org/10.1007/s00268-014-2794-6

Kucukakcali, Z., & Akbulut, S. (2015). Role of immature granulocyte and blood biomarkers in predicting perforated acute appendicitis using machine learning model. *World Journal of Clinical Cases*, *13*(22), 104379. https://doi.org/10.12998/wjcc.v13.i22.104379

Kuvvetli, A., Sumbul, E. H., & Koc, M. (2020). Assessment of monocyte/high density lipoprotein ratio in patients with acute appendicitis. *Turkish Journal of Colorectal Disease*, *30*, 117–122. https://doi.org/10.4274/tjcd.galenos.2020.2020-1-3

Lin, Z. X., Ruan, D. Y., Li, Y., Wu, D. H., Ma, X. K., Chen, J., et al. (2015). Lymphocyte-to-monocyte ratio predicts survival of patients with hepatocellular carcinoma after curative resection. *World Journal of Gastroenterology*, *21*(38), 10898–10906. https://doi.org/10.3748/wjg.v21.i38.10898

Mohamedahmed, K. A., Mustafa, R. E., Abakar, A. D., & Nour, B. Y. M. (2019). Evaluation of Neutrophil Lymphocyte Ratio (NLR) in Sudanese children with falciparum malaria. *International Journal of Advanced Health and Medical Research*, *3*(5), 1–6.

Mohamedahmed, K. A., & Abakar, A. D. (2021). Absolute Leukocytes Count and NLR as diagnostic and prognostic biomarkers for severity of COVID-19 infection. *Jurnal Teknologi Laboratorium*, *10*(1), 3–5. https://doi.org/10.29238/teknolabjournal.v10i1.263

Moosazadeh, M., Maleki, I., Navaei, A. R., Khermand, M., & Omran, A. H. (2019). Normal values of neutrophil to lymphocyte ratio, lymphocyte to monocyte ratio and platelet to lymphocyte ratio among Iranian population. *Caspian Journal of Internal Medicine*, *10*(3), 320–325. https://doi.org/10.22088/cjim.10.3.320

Ohle, R., O'Reilly, F., O'Brien, K. K., Fahey, T., & Dimitrov, B. D. (2011). The Alvarado score for predicting acute appendicitis: A systematic review. *BMC Medicine*, *9*, 139. https://doi.org/10.1186/1741-7015-9-139

Sammalkorpi, H. E., Mentula, P., & Leppäniemi, A. (2015). A new adult appendicitis score improves diagnostic accuracy of acute appendicitis—A prospective study. *BMC Gastroenterology*, *14*, 114. https://doi.org/10.1186/1471-230X-14-114

Salö, M., Tiselius, C., Rosemar, A., Öst, E., Sohlberg, S., & Andersson, R. E. (2025). Swedish national guidelines for diagnosis and management of acute appendicitis in adults and children. *BJS Open*, *9*(2), zrae165. https://doi.org/10.1093/bjsopen/zrae165

Xu, T., Fang, Y., Rong, A., & Wang, J. (2015). Flexible combination of multiple diagnostic biomarkers to improve diagnostic accuracy. *BMC Medical Research Methodology*, *15*, 94. https://doi.org/10.1186/s12874-015-0085-z

Yang, W., Zhong, Y., Zhou, P., & Lu, D. (2025). Monocyte to high-density lipoprotein cholesterol ratio as a marker of the presence and progression of diabetic kidney disease. *Renal Failure*, *47*(1), 2438846. https://doi.org/10.1080/0886022X.2024.2438846

Zhang, Q., Zhao, H., Wang, F., Li, W., & Zhang, P. (2024). Diagnostic value of laboratory parameters for complicated appendicitis: A two-center study. *Biomedical Reports*, *20*(5), 77. https://doi.org/10.3892/br.2024.1765

Zhou, J., Xu, W., Wang, J., & Fan, Z. (2022). Related markers for the precision diagnosis of complex appendicitis in children. *Frontiers in Pharmacology*, *13*, 865303. https://doi.org/10.3389/fphar.2022.865303