Volume 11, Issue 3, March – 2026 International Journal of Innovative Science and Research Technology
ISSN No:-2456-2165 https://doi.org/10.38124/ijisrt/26mar1540

Evidence-Based Management of Acute Abdominal Emergencies: Clinical Pathways, Diagnostic Precision, and Outcome-Oriented Decision-Making

Dr. Sudhir Kumar Tyagi; Neha; Anjali Tomer

[1]Professor, Department of Surgery, Saraswathi Institute of Medical Sciences, Hapur
[2]Assistant Professor, Department of Pharmacology, Saraswathi College of Pharmacy, Hapur
[3]Tutor, Mental Health Nursing (MHN), Saraswathi College of Nursing, Hapur

Publication Date: 2026/03/30

Abstract: Acute abdominal crises constitute a significant percentage of surgical hospitalization and are a major cause of morbidity and mortality in all of the world. These conditions are diverse (and thus etiologically heterogeneous), have overlapping clinical presentations, and demand the use of evidence-based, systematic methods of diagnosis and management due to their time-sensitive nature. The management of the acute abdomen has in the last twenty years undergone changes due to the introduction of imaging and minimally invasive surgery, antimicrobial therapy, and multidisciplinary care. The article is a synthesis paper summarizing up-to-date evidence on the assessment and management of acute abdominal crises, incorporating international and specialty-specific recommendations as well as the view of the public health. Besides that, it also provides outcome-based analyses of an institutional cohort of 183 patients in order to demonstrate the main determinants of management approach and clinical outcomes. These results highlight the significance of risk stratification at early stages, accuracy of diagnosis and context-specific intervention to enhance survival and functional recovery among patients in cases of acute abdominal conditions.

Keywords: *Acute Abdomen; Emergency Surgery; Evidence-Based Management; Diagnostic Laparoscopy; Intra-Abdominal Infection; Surgical Outcomes.*

How to Cite: Dr. Sudhir Kumar Tyagi; Neha; Anjali Tomer (2026) Evidence-Based Management of Acute Abdominal Emergencies: Clinical Pathways, Diagnostic Precision, and Outcome-Oriented Decision-Making. *International Journal of Innovative Science and Research Technology*, 11(3), 2619-2624. https://doi.org/10.38124/ijisrt/26mar1540

I. INTRODUCTION

Acute abdomen is a term which is used to refer to a range of conditions that are characterized by the sudden onset of abdominal pains necessitating immediate examination and, in most cases, surgeries. Such crises contribute to the significant load on emergency rooms and surgery throughout the world (Natesan et al., 2016; Alattar and Keric, 2023). Although there has been an improvement in the diagnostic modalities, delayed or inaccurate diagnosis is a significant cause of poor outcomes. Traditionally, management decisions were done through clinical examination and exploratory laparotomy to a large extent. Nevertheless, the development of evidence-based medicine has resulted in algorithmic diagnostic methods, risk assessment instruments, and guidelines-based management processes (Sauerland et al., 2006; Gans et al., 2015). The modern strategies focus on early imaging, selective non-operative treatment, and minimally invasive surgery where necessary. In addition to the biomedical factors, the determinants at the population level, including age, comorbidities, psychosocial stress, and healthcare access, will have a pronounced impact on the presentation and outcome, especially in the vulnerable elderly population (Ashifa, 2022; Zahoor et al., 2025).

II. DIAGNOSTIC ASSESSMENT OF EMERGING ABDOMINAL CRISES

- *First Step in Managing the Suicide Case is the Initial Assessment and Triage*

Premature screening and systematized evaluation is essential when there is an acute abdomen. Evidence-based triage guidelines enhance prioritization, decrease the time to diagnosis, and help to ensure promptness (GUO et al., 2022;

ISSN No:-2456-2165 https://doi.org/10.38124/ijisrt/26mar1540

Mayumi et al., 2016). Primary assessment ought to include hemodynamic stability, pain nature, systemic indications of infection, and risk factors including age and burden of comorbidity. Clinical physical examination cannot be used in most cases, especially in the elderly, pediatric, and immunocompromised patients, where the typical signs might be missing or misleading (Falch et al., 2014; Van Heurn et al., 2014).

➢ *Imaging and Diagnostic Laparoscopy*

Computed tomography has become the anchor of diagnostic assessment of non-traumatic acute abdomen that has led to a significant increase in diagnostic accuracy and reduced negative laparotomy rates (Gans et al., 2015; Alattar and Keric, 2023). Ultrasound continues to be useful with the biliary, gynecologic and pediatric crises. Diagnostic laparoscopy is gaining more and more significance in cases when the imaging is inconclusive or therapeutic intervention is expected. It has been proven to be safe and diagnostic in a broad spectrum of abdominal emergencies (Stefanidis et al., 2009; Sauerland et al., 2006).

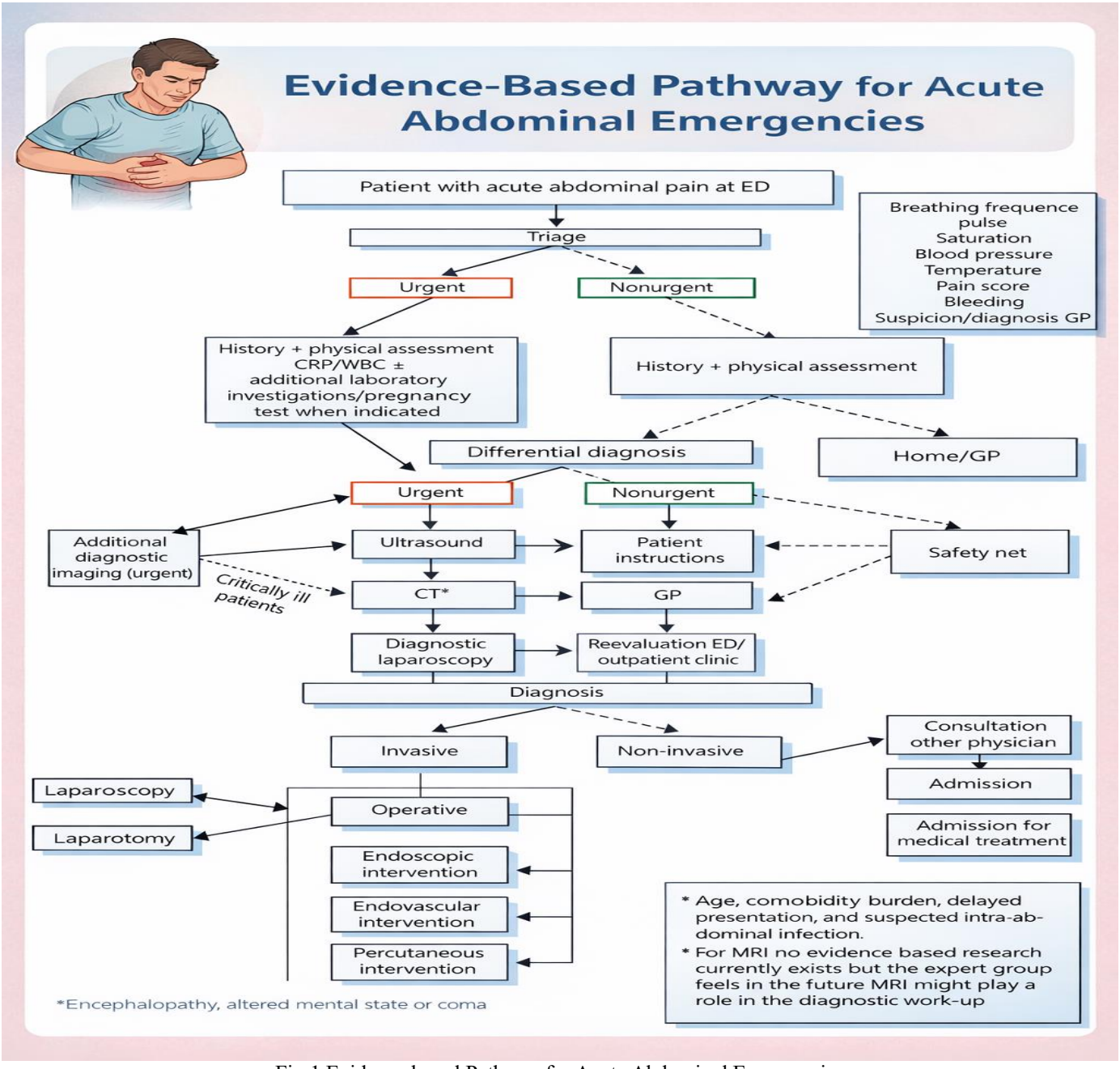

Fig 1 Evidence based Pathway for Acute Abdominal Emergencies

ISSN No:-2456-2165 https://doi.org/10.38124/ijisrt/26mar1540

The acute abdominal emergencies management falls under the structured and time-sensitive clinical pathway that incorporates the early triage, diagnostic accuracy, and risk-adjusted intervention. Primary diagnosis depends on the stability of the hemodynamics, the presence of peritonitis or sepsis, and timely laboratory tests. Imaging is done early when the patient is stable, and mostly computed tomography is used to increase the diagnostic accuracy and decrease the exploratory surgery. The therapeutic selection is determined by stratification of risks in terms of age, burden of comorbidity, delayed presentation, and suspected intra abdominal infection. Patients that are hemodynamically stable, with selected conditions are eligible to conservative management with close follow-up, whereas those patients with ischemia, perforation, strangulation obstruction, and uncontrolled sepsis necessitate urgent operative therapy. Where possible, minimally invasive surgery is desirable because it minimises morbidity in the postoperative period and also hastens the recovery process. This line of evidence shows that the results of acute abdomen are not only dependent on the performance of surgical tasks, but on the timing of diagnoses, interprofessional interaction, and decision-making based on contexts at the emergency end.

III. EVIDENCE-BASED MANAGEMENT OF COMMON ACUTE ABDOMEN CONDITIONS

- *Acute Appendicitis and Bowel Obstruction*

Appendicitis has been one of the most common emergency abdomen surgery causes. Evidence-based procedures that include clinical scoring systems and imaging have minimized unneeded surgery with minimal perforation rates (Maldonado, 2011; Natesan et al., 2016). The management of small bowel obstruction has changed to the direction of non-operative approaches selected according to the stable patients, with the help of imaging-based risk assessment and close monitoring (Long et al., 2019). Of paramount importance in strangulation, ischemia, or conservative treatment failure is early surgery.

- *Gallstone-Acquired and Upper Gastrointestinal Crises*

Acute cholecystitis, cholangitis, and gallstone pancreatitis are to be diagnosed and managed immediately and stratified. There is a positive correlation between early laparoscopic cholecystectomy and timely biliary decompression (Demehri & Alam, 2016). General gastrointestinal bleeding can be seen as a different emergency condition, in which a timely resuscitation, endoscopic procedure, and pharmacologic treatment can greatly decrease mortality (Chen & Freeman, 2011).

- *Intra-Abdominal Infection and Sepsis*

The management of intra-abdominal infections management is based on source control. It has been proven that timely surgical or percutaneous treatment, along with the use of the proper antimicrobial therapy, can decrease the development of severe sepsis and septic shock (Marshall et al., 2004; Sartelli et al., 2017). International guidelines focus on adjusting management approaches to the resources to be used without sacrificing the main principles of early diagnosis and intervention (Sartelli et al., 2017).

IV. SPECIAL POPULATIONS AND EMERGENCIES OF A CONTEXTUAL NATURE

- *Post Bariatric and Postoperative Acute Abdomen*

Bariatric surgery is associated with acute abdomen that poses special diagnostic challenges because of the distorted anatomy. Specific recommendations suggest that the low threshold of imaging and early operative investigation is recommended in case clinical suspicion remains (De Simone et al., 2022).

- *Pediatric and Geriatric Acute Abdomen*

Children and patients with old age have different manifestations and increased rates of complications. Pediatric practices focus on reducing radiation and getting diagnosis on time (Van Heurn et al., 2014). Comorbidity has a significant impact on the mortality of older groups due to delay in presentation (Ashifa, 2022; Falch et al., 2014).

- *Interprofessional and Systems-Level Interventions*

A high-quality management of the acute abdominal emergencies involves interprofessional teamwork involving emergency physicians, surgeons, anesthesiologists, radiologists, and nursing staff (Karunarathna et al.). Facilitated tracks and standardization of communication decreases variability in care and enhances outcomes. The capacity of health systems, their workforce, and organizational culture affect emergency surgical outcomes, which means that acute care performance is connected to the overall population health and human resource dynamics (Gayathri et al., 2025a; Gayathri et al., 2025b).

- *Clinical Profile and Management Strategies*

In order to put evidence-based suggestions into perspective, the results of 183 patients who arrived with non-traumatic acute abdominal emergencies were examined.

ISSN No:-2456-2165 https://doi.org/10.38124/ijisrt/26mar1540

Table 1. Clinical Profile and Management Strategies (n = 183)

Variable	Category	n (%)
Age	<60 years	98 (53.6)
	≥60 years	85 (46.4)
Primary diagnosis	Appendicitis	54 (29.5)
	Bowel obstruction	39 (21.3)
	Gallstone-related	33 (18.0)
	Intra-abdominal infection	28 (15.3)
	Others	29 (15.9)
Management approach	Conservative	62 (33.9)
	Laparoscopic surgery	71 (38.8)
	Open surgery	50 (27.3)

Table 2. Determinants of Adverse Outcomes

Determinant	Complications (%)	Mortality (%)
Age ≥60 years	41.2	12.9
Delayed presentation (>24 h)	48.6	16.2
Emergency laparotomy	44.0	14.0
Intra-abdominal sepsis	57.1	21.4
≥2 comorbidities	46.8	15.9
Adverse social factors*	38.5	11.5

*Includes delayed access to care, poor social support, and financial constraints.

V. DISCUSSION

The combination of the management informed by the guidelines and the institutional data reveals the multidimensionality of acute abdominal emergencies. Although imaging and minimal invasive surgery have been developed to enhance diagnostic precision and decrease avoidable laparotomy, patient-specific and systems-level variables will still influence the outcomes (Sauerland et al., 2006; Hu et al., 2020). The reported correlation between late presentation, social vulnerability, and unfavorable outcomes is consistent with the general literature on the psychosocial stress as well as health literacy and care access in emergency surgical situations (Ashifa, 2022; Ranganathan et al., 2024).

VI. CONCLUSION

The clinical wisdom, compliance with guidelines, diagnostic accuracy and situational sensitivity are all evidence-based components of acute abdominal emergency management. Timely source control, selection of operative intervention, early triage, and effective imaging are of importance in enhancing outcomes. Nevertheless, long-term gains will be specifically tied to combating systemic and social determinants of health, enhancing interprofessional collaboration, and incorporating data-driven decision-making into the emergency surgical care pathways.

REFERENCES

[1]. Alattar, Z., & Keric, N. (2023). Evaluation of abdominal emergencies. Surgical Clinics, 103(6), 1043-1059.
[2]. Ashifa, K. M. (2019). Developmental initiatives for persons with disabilities: Appraisal on village-based rehabilitation of Amar Seva Sangam. *Indian Journal of Public Health Research & Development, 10*(12), 1257–1261.
[3]. Ashifa, K. M. (2020). Effect of substance abuse on physical health of adolescents. *European Journal of Molecular & Clinical Medicine*, *7*(2), 3155–3160.
[4]. Ashifa, K. M. (2020). Effect of sustenance abuse on physical health of adolescents. *European Journal of Molecular & Clinical Medicine*, *7*(2).
[5]. Ashifa, K. M. (2020). Physical health hazards of schizophrenia patients. *Systematic Reviews in Pharmacy, 11*(12), 1848–1850.
[6]. Ashifa, K. M. (2021). Analysis on the determinants of health status among tribal communities. *Journal of Cardiovascular Disease Research, 12*(3), 531–534.
[7]. Ashifa, K. M. (2021). Health status of primitive tribal women in India. *Journal of Cardiovascular Disease Research, 12*(5), 772.
[8]. Ashifa, K. M. (2022). A situation analysis of the social well-being of elderly during the COVID-19 pandemic. *International Journal of Health Sciences, 6*(3), 10156–10163.
[9]. Ashifa, K. M., & Ramya, P. (2019). Health afflictions and quality of work life among women working in fireworks industry. *International Journal of Engineering and Advanced Technology, 8*(6S3), 1723–1725.

ISSN No:-2456-2165 https://doi.org/10.38124/ijisrt/26mar1540

[10]. Catherine, S., Gupta, N., Gopi, E., & Swadhi, R. (2025). Enhancing Patient Engagement and Outcomes Through Digital Transformation: Machine Learning in Medical Marketing. In *Impact of Digital Transformation on Business Growth and Performance* (pp. 285-312). IGI Global.

[11]. Chen, Z. J., & Freeman, M. L. (2011). Management of upper gastrointestinal bleeding emergencies: evidence-based medicine and practical considerations. World journal of emergency medicine, 2(1), 5.

[12]. Como, J. J., Bokhari, F., Chiu, W. C., Duane, T. M., Holevar, M. R., Tandoh, M. A., ... & Scalea, T. M. (2010). Practice management guidelines for selective nonoperative management of penetrating abdominal trauma. Journal of Trauma and Acute Care Surgery, 68(3), 721-733.

[13]. De Simone, B., Chouillard, E., Ramos, A. C., Donatelli, G., Pintar, T., Gupta, R., ... & Catena, F. (2022). Operative management of acute abdomen after bariatric surgery in the emergency setting: the OBA guidelines. World Journal of Emergency Surgery, 17(1), 51.

[14]. Demehri, F. R., & Alam, H. B. (2016). Evidence-based management of common gallstone-related emergencies. Journal of intensive care medicine, 31(1), 3-13.

[15]. Devi, M., Manokaran, D., Sehgal, R. K., Shariff, S. A., & Vettriselvan, R. (2025). Precision Medicine, Personalized Treatment, and Network-Driven Innovations: Transforming Healthcare With AI. In AI for Large Scale Communication Networks (pp. 303-322). IGI Global.

[16]. Elkin, N., Mohammed, A. K., Kılınçel, Ş., Soydan, A. M., Tanrıver, S. Ç., Çelik, Ş., & Ranganathan, M. (2025). Mental health literacy and happiness among university students: A social work perspective to promoting well-being. *Frontiers in Psychiatry, 16*, 1541316.

[17]. Falch, C., Vicente, D., Häberle, H., Kirschniak, A., Müller, S., Nissan, A., & Brücher, B. L. D. M. (2014). Treatment of acute abdominal pain in the emergency room: a systematic review of the literature. European Journal of Pain, 18(7), 902-913.

[18]. Gans, S. L., Pols, M. A., Stoker, J., Boermeester, M. A., & Expert Steering Group. (2015). Guideline for the diagnostic pathway in patients with acute abdominal pain. Digestive surgery, 32(1), 23-31.

[19]. Gayathri, R. K., Vettriselvan, R., Rajesh, D., Balakrishnan, R., Kumar, R., & Kavitha, J. (2025). Striking a Balance: Mental Health Challenges and Work-Life Integration among Women Faculty in Indian B-Schools. Texila International Journal of Public Health, 13(2).

[20]. Gayathri, R. K., Vettriselvan, R., Rajesh, D., Balakrishnan, R., Kumar, R., & Kavitha, J. (2025). Strategic Role of Human Resource Management in Enhancing Occupational Health and Safety Practices in Business Schools in India. Texila International Journal of Public Health, 13(2).

[21]. Graham, A., & Carlberg, D. J. (Eds.). (2019). Gastrointestinal emergencies: evidence-based answers to key clinical questions. Springer.

[22]. Guo, S., Hou, Y., Fan, j., Yang, X., Wu, C., & Wang, J. (2022). Evidence-based practice of pre-examination and triage management for patients with non-traumatic acute abdomen. Chinese Journal of Practical Nursing, 492-500.

[23]. Hu, L. Q., Grant, M. C., Hornor, M. A., Merchant, N. N., Liu, J. Y., Fischer, C. P., ... & Wick, E. C. (2020). Technical evidence review for emergency major abdominal operation conducted for the AHRQ safety program for improving surgical care and recovery. Journal of the American College of Surgeons, 231(6), 743-764e5.

[24]. Jenifer, R. D., Vettriselvan, R., Saxena, D., Velmurugan, P. R., & Balakrishnan, A. (2025). Green Marketing in Healthcare Advertising: A Global Perspective. In AI Impacts on Branded Entertainment and Advertising (pp. 303-326). IGI Global.

[25]. Karunarathna, I., Jayawardana, A., & Bandara, S. Management and Outcomes of Acute Abdomen: An Interprofessional Approach.

[26]. Long, B., Robertson, J., & Koyfman, A. (2019). Emergency medicine evaluation and management of small bowel obstruction: evidence-based recommendations. The Journal of emergency medicine, 56(2), 166-176.

[27]. Maldonado, N. (2011). Evidence-based management of suspected appendicitis in the emergency department. Emergency Medicine Practice, 2.

[28]. Marshall, J. C., Maier, R. V., Jimenez, M., & Dellinger, E. P. (2004). Source control in the management of severe sepsis and septic shock: an evidence-based review. Critical care medicine, 32(11), S513-S526.

[29]. Mayumi, T., Yoshida, M., Tazuma, S., Furukawa, A., Nishii, O., Shigematsu, K., ... & Hirata, K. (2016). The practice guidelines for primary care of acute abdomen 2015. Journal of General and Family Medicine, 17(1), 5-52.

[30]. Natesan, S., Lee, J., Volkamer, H., & Thoureen, T. (2016). Evidence-based medicine approach to abdominal pain. Emergency Medicine Clinics, 34(2), 165-190.

[31]. Ranganathan, M., Jacob, A., Ashifa, K. M., Kumar, G. J., Anthony, M., Vijay, M., Kumari, R. B. (2024). An investigation of the effects of chronic stress on attention in parents of children with neurodevelopmental disorders. *Universal Journal of Public Health, 12*(1), 37–50.

[32]. Rasi, R. A., & Ashifa, K. M. (2019). Role of community-based programmes for active ageing: Elders self-help group in Kerala. *Indian Journal of Public Health Research & Development, 10*(12).

ISSN No:-2456-2165 https://doi.org/10.38124/ijisrt/26mar1540

[33]. Sartelli, M., Chichom-Mefire, A., Labricciosa, F. M., Hardcastle, T., Abu-Zidan, F. M., Adesunkanmi, A. K., ... & Catena, F. (2017). The management of intra-abdominal infections from a global perspective: 2017 WSES guidelines for management of intra-abdominal infections. World Journal of Emergency Surgery, 12(1), 29.

[34]. Sauerland, S., Agresta, F., Bergamaschi, R., Borzellino, G., Budzynski, A., Champault, G., ... & Neugebauer, E. A. M. (2006). Laparoscopy for abdominal emergencies: evidence-based guidelines of the European Association for Endoscopic Surgery. Surgical Endoscopy and Other Interventional Techniques, 20(1), 14-29.

[35]. Shanthi, H. J., Gokulakrishnan, A., Sharma, S., Deepika, R., & Swadhi, R. (2025). Leveraging Artificial Intelligence for Enhancing Urban Health: Applications, Challenges, and Innovations. In *Nexus of AI, Climatology, and Urbanism for Smart Cities* (pp. 275-306). IGI Global.

[36]. Stefanidis, D., Richardson, W. S., Chang, L., Earle, D. B., & Fanelli, R. D. (2009). The role of diagnostic laparoscopy for acute abdominal conditions: an evidence-based review. Surgical endoscopy, 23(1), 16-23.

[37]. Swadhi, R. (2025). Innovative strategies for widespread adoption in a climate-smart future: Scaling up agroforestry. In *Agroforestry for a Climate-Smart Future* (pp. 473-496). IGI Global.

[38]. Swadhi, R., Gayathri, K., Suresh, N. V., Catherine, S., & Velmurugan, P. R. (2025). Leveraging Machine Learning for Enhanced Patient Engagement and Outcomes: Revolutionizing Healthcare Marketing. In *Impact of Digital Transformation on Business Growth and Performance* (pp. 313-340). IGI Global.

[39]. Swadhi, R., Velmurugan, P. R., Gayathri, K., & Catherine, S. (2026). Evolving critical themes in advanced human resource management: Navigating change in the modern workplace. In *Critical aspects in advanced human resource management* (pp. 75-102). IGI Global.

[40]. Van Heurn, L. W. E., Pakarinen, M. P., & Wester, T. (2014). Contemporary management of abdominal surgical emergencies in infants and children. Journal of British Surgery, 101(1), e24-e33.

[41]. Venice, A., Swadhi, R., Gayathri, K., Chandra, P., & Sajana, K. P. (2026). Rehabilitation Robotics and Adaptive Motion Planning for Patient-Centric Care. In *Intelligent Motion Control for Human-Centered Systems* (pp. 51-76). IGI Global.

[42]. Vettriselvan, R. (2025). Harnessing innovation and digital marketing in the era of industry 5.0: resilient healthcare SMEs. In The Future of Small Business in Industry 5.0 (pp. 163-186). IGI Global.

[43]. Vettriselvan, R., & Anto, M. R. (2018). Pathetic health status and working condition of Zambian women. Indian Journal of Public Health Research & Development, 9(9), 259-264.

[44]. Vettriselvan, R., & Rajan FSA, A. J. (2019). Occupational Health Issues Faced by Women in Spinners. Indian Journal of Public Health Research & Development, 10(1).

[45]. Vettriselvan, R., Deepan, A., Jaiswani, G., Balakrishnan, A., & Sakthivel, R. (2025). Health Consequences of Early Marriage: Examining Morbidity and Long-Term Wellbeing. In Social, Political, and Health Implications of Early Marriage (pp. 189-212). IGI Global.

[46]. Vettriselvan, R., Ramya, R., Selvalakshmi, V., Jyothi, P., & Velmurugan, P. R. (2026). Empowering Patients through Knowledge: Educational Strategies in Rehabilitation. In Holistic Approaches to Health Recovery (pp. 263-290). IGI Global.

[47]. Vettriselvan, R., Velmurugan, P. R., Varshney, K. R., EP, J., & Deepika, R. (2025). Health Impacts of Smartphone and Internet Addictions Across Age Groups: Physical and Mental Health Across Generations. In Impacts of Digital Technologies Across Generations (pp. 187-210). IGI Global.

[48]. Vijayalakshmi, M., Subramani, A. K., Vettriselvan, R., Catherin, T. C., & Deepika, R. (2025). Sustainability and Responsibility in the Digital Era: Leveraging Green Marketing in Healthcare. In Digital Citizenship and Building a Responsible Online Presence (pp. 285-306). IGI Global.

[49]. Vijayalakshmi, M., Subramani, A. K., Vettriselvan, R., Velmurugan, P. R., & Hasine, J. (2025). Strategic Collaborations in Medical Innovation and AI-Driven Globalization: Advancing Healthcare Startups. In Navigating Strategic Partnerships for Sustainable Startup Growth (pp. 85-110). IGI Global.

[50]. Zahoor, H., Mustafa, N., Ashifa, K. M., Safaei, M., & El Gamil, R. (2025). Unlocking resilience: Emotional intelligence and self-leadership shape stress perception among health students. *International Journal of Innovation and Learning, 38*(4), 395–419.