



REVIEWS

THE EVOLVING PROFESSIONALIZATION OF PARAMEDICINE: A SCOPING REVIEW

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Recommended Citation: Feerick, F., Coughlan, E., Knox, S., Murphy, A., O'Grady, I., & Deasy, C. (2026). The evolving professionalization of paramedicine: A scoping review. *International Journal of Paramedicine*. (14), 128-149. <https://doi.org/10.56068/GSTD7876>

Keywords: professionalism, professionalization, professional development, regulation, registration, emergency medical services, EMS, paramedicine

Disclosures: The authors declare no conflict of interest in this publication.

Funding: No funding was made available for this study.

Received: December 19, 2025

Revised: January 24, 2026

Accepted: January 26, 2026

Pre-Issue Published: March 3, 2026

Published: April 14, 2026

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ABSTRACT

Introduction: Paramedicine has rapidly evolved in recent years, with practitioners now working across diverse healthcare settings, exercising increased autonomy and clinical responsibility. Despite this progress, the professionalization of paramedicine remains uneven across jurisdictions due to variability in education, regulation, and role clarity. This scoping review, conducted in accordance with the Joanna Briggs Institute framework, explores the extent and characteristics of paramedicine's professionalization and the key factors influencing its development.

Method: A scoping review methodology was used to map the breadth of literature related to the professionalization of paramedicine. Fifteen academic databases were searched, supplemented by grey literature sources including Google, Google Scholar, and Consensus AI. A total of 1,377 records were screened, with 63 studies meeting the inclusion criteria.

Results: Six overarching categories emerged: (1) attributes of professionalism unique to paramedicine, (2) the development of professional identity, (3) the role of regulation and registration, (4) ethical practice and professional codes of conduct, (5) education and continuing professional development, and (6) challenges facing the profession. These categories collectively illustrate the complex, evolving nature of professionalization in paramedicine and highlight areas of both progress and ongoing uncertainty.

Conclusion: The professionalization of paramedicine is dynamic and multifactorial, underpinned by robust ethical frameworks, evolving regulatory structures, and increasing academic and clinical education. However, challenges persist, including emotional labor, unclear professional boundaries, and underrepresentation in scholarly discourse. These issues highlight the need for enhanced support structures, clearer role definitions, and further empirical research. While advances in education, regulation, and practice are evident, gaps in research and global variation continue to challenge the full realization of paramedicine as a profession. Future studies should aim to strengthen the profession's identity and guide policy and practice across diverse healthcare contexts.

INTRODUCTION

Professionalism is well established in traditional healthcare professions such as medicine and nursing and is commonly understood as a constellation of values and behaviors encompassing

clinical competence, ethical practice, accountability, regulatory oversight, and commitment to ongoing professional development (Kirk, 2007, Mahony, 2003, Reynolds, 2004, Townsend & Luck, 2019a, Williams & Webb, 2015). Professionalization extends beyond individual clinical skills to a broader social and structural process involving education, regulation, ethical responsibility, and the development of a coherent professional identity (Freidson, 1994; Lynch et al., 2004). In emerging professions such as paramedicine, the meaning and scope of professionalism remain fluid and contested.

Historically rooted in vocational, technician-based models, paramedicine has transitioned toward a more autonomous, evidence-informed healthcare profession, generating ongoing debate about how professionalism is defined within practice and recognized within wider healthcare systems (Evetts, 2011; Gallagher, Vyvyan, et al., 2016; Knox & Batt, 2018; Trede, 2009; Wynd, 2003). This process remains uneven internationally, with substantial variation in educational pathways, regulatory frameworks, and role clarity across jurisdictions (Bowen & Williams, 2020; Freidson, 1994; Newton, 2014; P. F. O'Meara et al., 2012a). Building on the foundational work of Reed et al. (2019), this scoping review examines how professionalism is conceptualized within paramedicine, the factors influencing its professionalization, and the implications for practice, education, and policy. By synthesizing current international literature, the review seeks to clarify areas of convergence and divergence in understandings of professionalism and to identify priorities for supporting paramedicine's continued development as a recognized healthcare profession.

PROFESSIONALISM IN HEALTHCARE AND PARAMEDICINE

Within healthcare, professionalism shapes interactions with patients, colleagues, and communities and is typically underpinned by standardized education, licensure, regulatory oversight, ethical codes, and continuing professional development (CPD) (Collings-Hughes et al., 2022; Mahony, 2003; Reynolds, 2004). In paramedicine, professionalism is being reshaped by evolving educational and regulatory structures and the growing recognition of paramedics as autonomous practitioners (Givati et al., 2018; P. L. James, 2013; Johnston & Bilton, 2020). As the profession expands across diverse clinical and community contexts, professionalism increasingly incorporates critical thinking, leadership, adaptability, ethical decision-making, and effective communication alongside technical competence (McCann & Granter, 2019; McEwen & Trede, 2014; Tavares et al., 2016). Establishing clearer and contextually relevant definitions of professionalism will be essential for strengthening professional identity, enhancing practice, and supporting recognition of paramedicine within modern healthcare systems.

METHODS

REVIEW DESIGN

A scoping review methodology was selected to map the breadth of literature related to the professionalization of paramedicine and to identify key concepts, evidence gaps, and areas for future study. The review followed the Joanna Briggs Institute (JBI) framework for scoping reviews (Peters et al., 2015), based on the Arksey and O'Malley model (Arksey & O'Malley, 2005), and adhered to the PRISMA-ScR (Preferred Reporting Items for Systematic reviews and Meta-Analyses extension for Scoping Reviews) reporting guidelines for scoping reviews. The protocol was prospectively registered on the Open

Science Framework (OSF) (Reference Redacted). A wide range of sources including peer-reviewed articles, policy documents, professional guidelines, and grey literature was examined to capture diverse perspectives on professionalization. Multiple databases accessed via EBSCOhost provided coverage across healthcare, emergency medicine, and professional studies. The review aimed to synthesize existing knowledge, build on prior work (Reed et al., 2019), and provide an updated overview of how professionalization is conceptualized within paramedicine.

SEARCH STRATEGY

A qualified health sciences librarian from University College Cork supported the development of the search strategy, refining search terms, Boolean operators, and indexing to enhance sensitivity and precision. The Peer Review of Electronic Search Strategies (PRESS) checklist guided an independent assessment of the search strategy to ensure methodological robustness. Grey literature searches were conducted on Google and Google Scholar to identify additional sources not captured in database searches. Reference lists of included studies were screened to identify further relevant literature. An example free-text search conducted through EBSCOhost is presented in Table 1.

SEARCH CRITERIA (PCC FRAMEWORK)

Eligibility criteria were guided by the JBI Population–Concept–Context (PCC) framework.

- Population: Studies involving paramedics, as well as other prehospital professionals (e.g., EMTs (Emergency Medical Technicians)) whose roles intersect with or inform the professionalization of paramedicine, particularly in advanced emergency or community-based care contexts. Both registered and non-registered practitioners were included. In some jurisdictions, particularly the United States, nursing professionals may hold paramedicine-adjacent roles (e.g., flight or critical care transport nurses). Studies focused exclusively on nursing practice were therefore excluded unless they explicitly examined interprofessional models, role boundaries, or issues directly informing the professionalization of paramedicine.
- Concept: Professionalization of paramedicine, including professional identity, education and accreditation, regulation and registration, CPD, ethical practice, scope of practice, and the cultural or structural factors influencing recognition of the profession. Studies examining barriers and enablers to professionalization were also eligible.
- Context: No geographic, system-level, or healthcare setting restrictions were applied. Studies from emergency medical services, community and primary care, education, leadership, and other paramedicine-related environments were included to capture global variation.

INCLUSION CRITERIA

Eligible sources were English-language publications with full-text availability through open access platforms, the University College Cork Library, and the Health Service Executive Library. No date limits were applied to maximize coverage. Studies were included if they met the JBI PCC criteria and examined professionalism or the professionalization of paramedicine. Eligible source types included peer-reviewed articles, policy documents, reports, and grey literature. The initial search (July–August 2024) spanned 15

Search	Query
S1	Paramedic*, paramedic or EMS or emergency medical service or prehospital or pre-hospital or ambulance or emergency medical technician or EMT, paramedic or ambulance or pre-hospital, paramedics or paramedic or emergency medical service or EMT or ambulance, paramedicine, paramedics or paramedic, paramedic or pre-hospital or ambulance, paramedic or pre-hospital or ambulance, paramedics or paramedic or emergency medical service or EMT or ambulance or emergency medical technician or pre-hospital, paramedic or ambulance, paramedic practice.
S2	Professionalism*, professionalism or professional or profession, professionalism in healthcare, professionalism in the workplace, professionalism in education. Professional development, professional development or professional learning or professional training or professional education, professional development or professional learning, professional development plan.
S3	S1 AND S2
S4	Regulation*, regulation or law or policy or legislation, regulations or policies or legislation or laws, regulations and laws, regulations and policies, regulations or policies or legislation or laws or policy, regulations or laws, regulations in healthcare.
S5	S3 AND S4

Table 1. EBSCOhost free search term combinations.

academic databases. Grey literature searches on Google and Google Scholar used combinations of terms such as paramedicine professionalism, professionalization, professional identity, regulation, education, and codes of conduct. The first 200 results from each search engine were screened, and citation chaining was conducted to capture additional sources. All records were imported into EndNote and de-duplicated manually and automatically. Title/abstract and full-text screening were performed independently by two reviewers, with disputes resolved by a third. Exclusion criteria included lack of relevance to paramedicine, absence of a professionalism focus, insufficient conceptual depth, or non-English language.

DATA EXTRACTION

A standardized extraction form, based on JBI guidance, was used to collect data on authorship, year, country, study design, population, aims, and findings. Data extraction was performed by one reviewer and independently verified by a second, with discrepancies resolved through discussion or by a third reviewer when required, in accordance with JBI guidance.

DATA ANALYSIS

Data were analyzed descriptively using basic qualitative content analysis. Recurrent concepts were coded and organized into six overarching categories reflecting key dimensions of professionalism and professionalization identified in the literature, including professional identity, regulation, ethics, and education (Freidson, 1994; Lynch et al., 2004; Reed et al., 2019). The resulting categories were: (1) attributes of professionalism, (2) professional identity, (3) regulation, (4) ethics and codes of conduct, (5) education and continuing professional development, and (6) future challenges.

RESULTS

Across database and grey literature searches, 1,377 records were identified. Records excluded before screening included 285 duplicates, 193 non-English records, and 26 records for which full text was unavailable. The remaining 873 titles and abstracts were screened, with 63 full-text sources meeting the eligibility criteria and included in the final review. The study selection process is summarized in the PRISMA-ScR flow diagram (Figure 1).

PRISMA 2020 flow diagram for new systematic reviews which included searches of databases and registers only

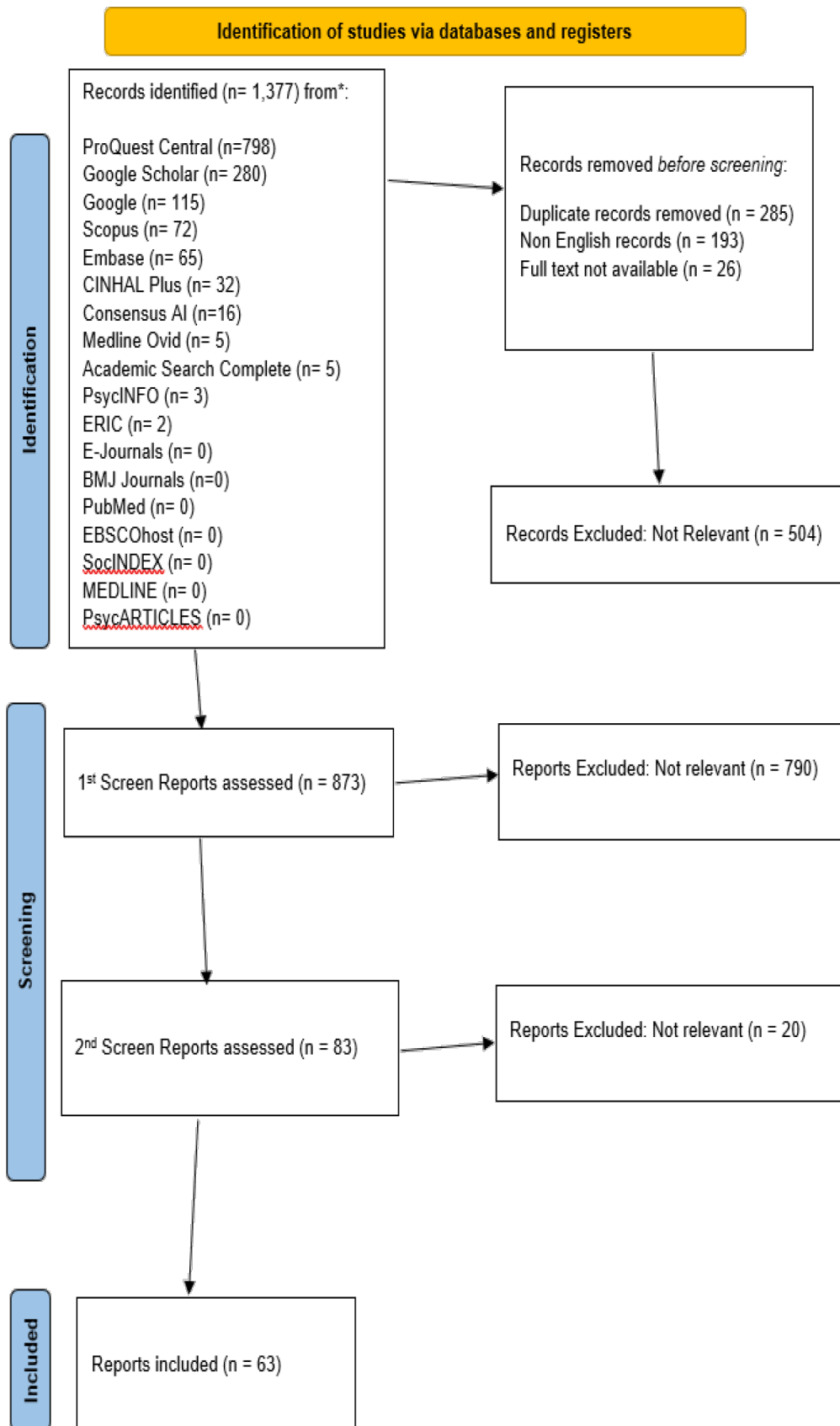


Figure 1. PRISMA flow chart.

The review of 63 studies identified six broad categories that describe the factors shaping professionalism and the professionalization process within paramedicine. These categories provide a descriptive overview of recurring concepts in the literature:

- The attributes of professionalism unique to paramedic practice;
- The formation and evolution of professional identity;
- The role of regulatory frameworks in establishing standards and accountability;
- The influence of ethics and professional codes of conduct in guiding practice;
- The significance of education and continuous professional development in fostering competency; and
- The various challenges that affect the growth and recognition of the profession.

ATTRIBUTES OF PROFESSIONALISM IN PARAMEDICINE

The literature reflects growing interest in professionalism within paramedicine, though much of it is produced by a small group of recurring authors and with limited representation from women or front-line licensed prehospital and EMS (Emergency Medical Service) practitioners. This likely reflects the emerging academic profile of the profession (Berkes et al., 2024; Gourevitch et al., 2019; Olausson et al., 2021). Studies span qualitative analyses (Reed et al., 2022a), quantitative and psychometric work (Bowen & Williams, 2020), cross-sectional and comparative designs (Brainard & Brislen, 2007; Williams, 2011, 2021; Williams & Webb, 2015), opinion pieces, and empirical studies (First et al., 2012). Across this literature, professionalism remains difficult to define or measure consistently (First et al., 2012; Williams & Webb, 2015). The absence of an agreed framework limits comparisons across jurisdictions, and several authors argue that professionalism is dynamic and context dependent rather than a static attribute (Brainard & Brislen, 2007; First et al., 2012; Reed et al., 2022). Historically, paramedicine has been framed as a technical or emergency response role rather than a healthcare profession, though recent work demonstrates a shift toward broader professional recognition (Eastwood et al., 2023; Joyce et al., 2009; McCann et al., 2015; Williams et al., 2012c).

Public and intra-professional perceptions continue to lag behind this evolution, with some stakeholders still viewing paramedics primarily as technical responders (Klepacka et al., 2018; Murcot et al., 2014). Studies further link professionalism to workplace pressures, emotional labor, and role ambiguity, although interventions to support professional behavior in high-stress environments remain underexplored (Bowen & Williams, 2020; First et al., 2012; Reed et al., 2022b; Townsend, 2017b; Williams et al., 2010c).

REGULATION AND REGISTRATION

Regulation is widely regarded as a cornerstone of professionalization (Gourevitch et al., 2019; Reed et al., 2019, 2021, 2022b, 2022a, 2023, 2024; Townsend, 2017b). The United Kingdom (UK) model is often cited as a benchmark, while jurisdictions without formal regulatory structures report challenges related to credibility, accountability, and workforce standardization (Reed et al., 2019; Townsend, 2017b). Countries with established regulation, such as the UK and Australia, demonstrate clearer progression toward professional recognition (Eastwood et al., 2023; Reed et al., 2019; Townsend, 2017b; van der Gaag & Donaghy, 2013). Australian studies highlight the benefits of regulation for enhancing accountability but also note challenges such as increased administrative demands and tensions between professional autonomy and medical oversight (FitzGerald & Bange,

2015; Munro et al., 2018; P. O'Meara et al., 2018; Reed et al., 2021, 2022b, 2023, 2024). Paramedics express mixed views: some see regulation as legitimizing the profession, while others perceive it as bureaucratic. Regulation is also strongly linked to CPD engagement and reflective practice (Knox et al., 2016; Lloyd-Jones, 2015a; Reed et al., 2019, 2021).

The implementation of regulation in Australia has been well documented, outlining legal and practical complexities (Moritz, 2017, 2018), as well as disparities between self-regulation and externally governed systems (A. Batt & Knox, 2017; Munro et al., 2018; Reed et al., 2021). Although not universally accepted, regulation is consistently positioned as a major milestone in the shift from occupation to profession, with evidence from Australia and Ireland suggesting its importance in shaping professional practice and CPD participation (A. Batt & Knox, 2017; Knox et al., 2016; Moritz, 2018; Reed et al., 2019).

Overall, regulation is viewed as essential but insufficient on its own to ensure consistent professional development and improvements in patient care (Alt & Naamati-Schneider, 2021; A. Batt & Knox, 2017; A. M. Batt et al., 2025; R. R. Bowles et al., 2017; FitzGerald & Bange, 2015; Knox et al., 2016; Lloyd-Jones, 2015a; Moritz, 2017, 2018; Munro et al., 2018; P. O'Meara et al., 2018; Sandars & Cleary, 2011; Todaro, 2022; van der Gaag & Donaghy, 2013).

EDUCATION AND CPD

Education is closely tied to professionalization, though training standards and their influence on professionalism vary internationally (Bowen & Williams, 2020; Williams & Edlington, 2019; Williams & Webb, 2015). Research focuses on graduate attributes and the development of tools to assess student professionalism (Williams, 2011, 2021; Williams et al., 2010b, 2012a), though evidence of long-term predictive validity is limited. The transition from vocational training to university-based education (including higher education delivered through universities and community or college-based institutions, depending on jurisdiction) has opened pathways to academic careers but also introduced challenges such as role ambiguity and institutional misalignment (Birden et al., 2013; Bowen et al., 2017; I. Brooks et al., 2018; Caffrey et al., 2019; Munro et al., 2019; O'Brien et al., 2014; P. O'Meara, 2014; Williams et al., 2010b, 2015). Professionalism is shaped not only by formal education but also by workplace culture, mentorship, and experiential learning, suggesting the need for stronger integration of professionalism within curricula (Birden et al., 2013; Bowen et al., 2017; Brainard & Brislen, 2007; Munro et al., 2019; O'Brien et al., 2014; P. O'Meara, 2014; Townsend, 2017b; Williams et al., 2010b, 2015; Williams & Webb, 2015). Studies highlight gaps in preparedness among new graduates entering prehospital practice and document evolving expectations as paramedicine expands into community and primary care roles (Chom towska et al., 2021; Hill & Eaton, 2023; P. F. O'Meara et al., 2017a; Williams et al., 2010d, 2010a).

Research also identifies longstanding tensions between traditional paramedic culture and emerging academic expectations, with early work describing paramedic academics as occupying a "no man's land" (Meadley et al., 2022; Munro et al., 2018). CPD remains uneven across jurisdictions: Irish studies highlight barriers to participation, UK research identifies workload pressures, and Australian literature emphasizes flexibility and self-directed learning (A. Batt & Cummins, 2016; Bryant et al., 2023; Donaghy, 2018; Ellis et al., 2016; Gent, 2016; Handyside & Watson, 2024; L. Hobbs et al., 2021; L. R. Hobbs, 2019; Knox, Cullen, et al., 2015; Knox, Dunne, et al., 2015a, 2015b; Knox et al., 2013a, 2013b, 2014;

Knox & Dunne, 2013; Williams & Edlington, 2019). Professional identity formation is closely tied to educational experiences, yet inconsistencies persist in how professionalism is taught across programs (Belgraver et al., 2022; Johnston & Bilton, 2020; Munro et al., 2018).

PROFESSIONAL IDENTITY

Paramedicine has historically lacked a clearly defined professional identity compared with other healthcare professions (Brainard & Brislen, 2007; McCann et al., 2015; Reed et al., 2019). Identity formation is shaped by education, regulatory structures, and workplace experiences, and continues to evolve as the scope of practice broadens into community care and specialized roles (Brydges et al., 2022; Hill & Eaton, 2023; Long et al., 2018; Majchrowska et al., 2021; Munro et al., 2018; P. F. O'Meara et al., 2012b). Student paramedics often struggle to articulate their professional identity due to shifting expectations throughout training and early practice (Hill & Eaton, 2023; Johnston & Bilton, 2020; Long et al., 2018). Ethnographic studies highlight the influence of workplace culture, noting that high-pressure environments create a strong occupational identity but can also foster resistance to change and emotional strain (Brydges et al., 2022; Candra et al., 2023; Fitzgerald, 2020; Johnston & Bilton, 2020; McCann et al., 2015; Todaro, 2022). Several studies suggest that professional identity is shaped more by real-world experience than by formal education (Brydges et al., 2022; Hill & Eaton, 2023; Majchrowska et al., 2021; Meadley et al., 2022). Regulatory frameworks further influence perceptions of autonomy, responsibility, and professional status within the broader healthcare system (Fitzgerald, 2020; Johnston & Bilton, 2020; Klepacka et al., 2018; Murcot et al., 2014).

ETHICS AND CODES OF CONDUCT

Ethical reasoning in paramedicine is highly contextual, shaped by time pressures, unpredictable environments, and competing demands. Studies show that ethical considerations are often secondary to immediate operational or clinical imperatives in emergency settings. As a result, ethical reasoning relies heavily on situational judgment rather than strict adherence to formal frameworks (Campbell et al., 2024; Campeau, 2016; Williams, 2009; Williams & Ross, 2020). Several authors argue for stronger integration of ethics into paramedic education, with greater emphasis on real-world dilemmas, simulation, and reflective practice rather than abstract theory. Paramedics frequently experience ethical tensions related to system constraints, patient needs, and institutional policies, occasionally leading to ethical distress (Williams, 2009; Williams & Ross, 2020). Structured support systems such as debriefing, ethics committees, and CPD-based ethical training have been recommended. A recent scoping review by Collings-Huges et al., 2023, highlights the role of professional codes of conduct in setting behavioral expectations, though paramedics' understanding and use of these codes varies widely. This variability underscores the need to ensure ethical guidelines are practical and relevant to the realities of prehospital care. As paramedicine evolves, ethical expectations must be continually updated to reflect emerging challenges (Campeau, 2016; Collings-Hughes et al., 2023; Strong et al., 2013).

FUTURE CHALLENGES

Key challenges to professionalization relate to regulation, ethical frameworks, identity formation, education, and workplace culture. Although paramedicine's knowledge base

is expanding, concerns persist regarding limited practitioner and female author representation, (Berkes et al., 2024; Sanders et al., 2012; Seweryn, n.d.; Ward, 2023).

REGULATION AND CODES OF CONDUCT

Although codes are essential for professional legitimacy, many paramedics rely on experiential judgment rather than formal guidelines due to limited understanding or perceived relevance (Brown & Gardner, 1999; Caulkins, 2022; Collings-Hughes et al., 2023; Eaton, 2023; Gallagher, Snook, et al., 2016; Weber et al., 2021).

PROFESSIONAL IDENTITY AND RECOGNITION

Public and institutional understanding of paramedic roles remains limited, influenced in part by underrepresentation in leadership and policy positions. Transitioning into academic roles also presents identity challenges for practitioners (Bartle, 2014; Brown Jr et al., 2005; A. Devenish et al., 2014; Hill & Eaton, 2023; Lloyd-Jones, 2015b; Munro et al., 2018; Panchal et al., 2015).

EDUCATION AND TRAINING

The shift to university-based education has created tensions between academic and practice discourses, complicating socialization into the profession. CPD implementation requires a cultural shift toward self-directed learning, which remains difficult for many practitioners and organizations (Bennett et al., 2022; A. Devenish et al., 2016; Martin, 2006; Paterson, 2019; Sanders et al., 2024; Turner, 1985; Williams et al., 2012b).

WORKPLACE CULTURE AND MORALE

Low morale, high sickness rates, and strained relationships between staff and management hinder professionalization efforts. A “targets culture” and concerns about job security further challenge paramedics and students. Expanding roles in primary care, community health, rural practice, and telemedicine demand supportive policies, enhanced training, and mental health resources (Alruwaili, 2024; Bigham et al., 2013; Blaber, 2012; S. Devenish et al., 2020; Eaton et al., 2021; Ford Jones & Daly, 2022; Joyce et al., 2009; Larkin, 1999; McCann et al., 2015; Newton, 2012; P. F. O’Meara et al., 2012a; Risambessy, 2023; Wankhade et al., 2015; Williams et al., 2010d).

DISCUSSION

The professionalization of paramedicine is a multifactorial and dynamic process shaped by education, regulation, workplace culture, and public perception. Although substantial progress has been made, continued variation in training standards, regulatory structures, and professional identity reflects the evolving nature of the profession. Key themes across the literature include professional identity, regulation, ethics, and CPD (R. Bowles, 2009; Makrides et al., 2022; McDonnell, 2009; Williams et al., 2021). This review complements and extends the earlier work of Reed (Reed et al., 2019). Whereas their scoping review highlighted definitional ambiguity and the limited application of sociological theory, the present review provides an updated, practice-oriented synthesis organized into six applied categories: professionalism attributes, professional identity, regulation, ethics, education, and future challenges. Together, the two reviews trace both the theo-

retical foundations and the operational realities of professionalization, offering a more comprehensive understanding of current drivers and barriers.

PROFESSIONAL IDENTITY AND THE EVOLUTION OF PARAMEDICINE

Professional identity continues to shift as paramedics increasingly work in community, urgent care, and primary care settings rather than solely in emergency response roles (Givati et al., 2018; Johnston & Bilton, 2020). This expansion presents identity tension, with practitioners navigating changing expectations from employers, regulators, and patients (Acker, 2016; Bettin, 2024; Lloyd-Jones, 2015a; McCann, 2022). Consolidating a coherent professional identity will require a deeper understanding of how paramedics internalize their roles and adapt to new models of care.

THE ROLE OF REGULATION IN PROFESSIONALIZATION

Regulation is widely recognized as central to professionalization, providing legitimacy, accountability, and patient safety (Knox et al., 2016; Reed et al., 2021, 2023, 2024). National registration systems in Australia and the UK have strengthened public trust, though concerns persist regarding administrative burden and potential constraints on autonomy (Ali & Bradburn, 2018; Bell et al., 2021; Burford et al., 2011; B. James & Lindstrom, 2004; Luck & Townsend, 2024; Mosca & Kruger, 2022; P. O'Meara, 2009; Shaban et al., 2019; Simmonds et al., 2015; Townsend, 2017a; Weber et al., 2024a). Further research is needed to evaluate how regulatory frameworks influence patient care, retention, and scope of practice in both emergency and non-emergency contexts.

ETHICAL REASONING AND DECISION-MAKING

Ethical reasoning remains a challenging aspect of paramedic practice due to high pressure, time critical environments. Paramedics often rely on experiential judgment rather than formal ethical frameworks when balancing clinical, legal, and patient centered obligations (Campbell et al., 2024; Collings-Hughes et al., 2022, 2023; Grenier et al., 2021; B. James & Lindstrom, 2004; Simmonds et al., 2015; Townsend, 2012, 2017a; Townsend & Luck, 2012b, 2012a, 2019b, 2019a; Williams, 2009; Williams & Ross, 2020). There is a recognized need to strengthen ethics education through realistic scenarios, simulation, mentorship, and structured reflection to support ethical competence.

THE IMPORTANCE OF CPD

Continuing professional development (CPD; referred to in some jurisdictions, including the United States, as continuing education or continuing competency) is essential for maintaining competence and advancing the profession, yet participation varies due to resource limitations, workload pressures, and inconsistent employer support (I. A. Brooks et al., 2016, 2018; Corman et al., 2025; Daly, 2018; Hanna et al., 2021; Knox, Cullen, et al., 2015; Lord, 2003; P. F. O'Meara et al., 2017b; P. O'Meara & Maguire, 2018; Sheahan et al., 2025; Weber et al., 2024b; Williams et al., 2012a). Innovative CPD models, such as online learning, workplace-based training, and peer mentoring—may improve accessibility and engagement.

Aspect	This Review	Reed et al.
Primary focus	Practical exploration of drivers of professionalization	Conceptual and theoretical analysis of professionalism and professionalization
Methodology	15 databases + grey literature; 63 sources	10 databases + grey literature; 53 sources
Timeframe covered	Includes literature up to 2025	Literature published before 2019
Structure of results	Six applied categories: identity, ethics, regulation, education, CPD, challenges	Thematic categories; less structured synthesis
Use of theory	Minimal; focused on applied insights	Strong theoretical foundation (e.g., Freidson, Greenwood, structuralism)
Contribution	Policy- and practice-oriented guidance for the profession	Foundational academic discourse; call for theoretical expansion

Table 2. Comparison between the current scoping review and Reed et al.

FUTURE RESEARCH

Future research should adopt longitudinal and interdisciplinary approaches to examine how education, regulation, workplace culture, and employment conditions influence professional identity, workforce sustainability, and patient care across a paramedic’s career. Comparative international studies are needed to identify transferable best practices in regulation, educational pathways, CPD models, and remuneration structures. Further investigation into the long-term effects of professional regulation on autonomy, job satisfaction, retention, and perceptions of professional value is warranted, as is research into how ethical competence develops over time and can be better supported through training and CPD. Additionally, studies addressing paramedic well-being, burnout, and resilience—including the role of pay and benefit equity alongside interventions such as mentorship, psychological support, and workload management—will be essential for sustaining the workforce and supporting ethical, professional practice.

LIMITATIONS

This review emphasized breadth rather than depth, consistent with scoping methodology, and did not conduct formal quality appraisal. Limiting the search to English-language sources introduces potential language bias, and the grey literature search may not have captured all unpublished materials. The literature is dominated by recurring authors with limited representation from women and practicing paramedics, which may skew perspectives. Additionally, most studies originate from high-income English-speaking countries, limiting global applicability. The involvement of studies authored by the review team or their collaborators may introduce bias, mitigated through adherence to JBI protocols and multi-reviewer screening.

CONCLUSION

The professionalization of paramedicine is progressing but remains shaped by ongoing challenges in education, regulation, professional identity, and workplace culture. Achieving an effective balance between standardization and adaptability is central to supporting paramedics’ diverse and expanding roles across healthcare systems. As practice settings broaden into primary and community care, regulatory frameworks must remain flexible while upholding core professional values. Professional identity and practitioner well-being are vital to sustaining a competent workforce. The demanding nature of paramedic work including exposure to trauma and ethical complexity

highlights the need for structured support such as mentorship, debriefing, and mental health resources.

This review builds on the foundational conceptual work of Reed et al. (2019) by providing a contemporary, applied synthesis that identifies practical strategies for advancing professionalization. Ongoing collaboration among policymakers, educators, and practitioners will be essential in strengthening the profession and enhancing the quality of patient care.

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