International Journal of Pharmaceutical research and Applications
Volume 11, Issue 3, May-June2026, pp:1857-1868 www.ijprajournal.com ISSN:2456-4494

The Pharmacist as Provider and The Paradox of Provider Burnout: An Overview

Aman Ranjan[1], Shubham kumar[2], Himanshu kumar[3], Shivshant kumar[4] , Archana kumari[5*]

[1]Department of Pharmacy, Himalaya college of pharmacy, Chiksi, Paliganj, patna -801110
[2]Department of Pharmacy, Himalaya college of pharmacy, Chiksi, Paliganj, patna -801110 [3]Department of Pharmacy, Himalaya college of pharmacy, Chiksi, Paliganj, patna -801110 [4]Department of Pharmacy, Himalaya college of pharmacy, Chiksi, Paliganj, patna -801110 [5]Department of pharmacognosy, Himalaya college of pharmacy, chiksi,paliganj, patna - 801110*
Corresponding Author: Archana kumari*
Department of pharmacognosy, Himalaya college of pharmacy, Chiksi, Paliganj, Patna-801110

Date of Submission: 08-01-2026 Date of Acceptance: 18-06-2026

ABSTRACT
The role of pharmacists has changed significantly. They have evolved from simply dispensing medications to providing direct healthcare. While this shift highlights the importance of their work, it has also led to a serious problem: provider burnout. This article looks into the issue of pharmacist burnout, where the expanded responsibilities intended to elevate the profession may instead lead to exhaustion. By reviewing existing literature, it explores factors contributing to burnout, such as increased workload, added responsibilities, heavy documentation demands, and the emotional toll of patient care. The article also discusses how burnout impacts patient safety, job satisfaction, and healthcare results, suggesting evidence-based solutions to tackle this growing issue. Addressing this paradox is crucial for healthcare leaders, professional organizations, and pharmacists to create sustainable models that maintain the value of pharmacist care while protecting their well-being.

Keywords: Pharmacist provider, burnout, clinical pharmacy, healthcare burnout, provider wellness

I. INTRODUCTION

The pharmacy profession is at a pivotal moment. After years of advocating for recognition as healthcare providers, pharmacists now hold a significant position. However, this achievement has brought a serious contradiction to light. The larger role that pharmacists fought for now risks overwhelming them. In 2024, the American Pharmacists Association (Apha) and other organizations will celebrate advancements in pharmacist status. Yet, reports from practice settings show that pharmacists are experiencing high levels of stress, emotional fatigue, and disengagement. The rate of burnout in pharmacy practice is alarming, leading to concerns about the viability of the provider model. This article delves into this contradiction, detailing the pharmacist's evolution from dispensing to providing patient-centred care. It highlights burnout as a critical issue, examining the factors that lead to this paradox. The aim is not to revert to older roles but to find ways to practice sustainably that benefit both patients and pharmacists.

International Journal of Pharmaceutical research and Applications
Volume 11, Issue 3, May-June2026, pp:1857-1868 www.ijprajournal.com ISSN:2456-4494

II. THE EVOLUTION OF PHARMACIST AS PROVIDER

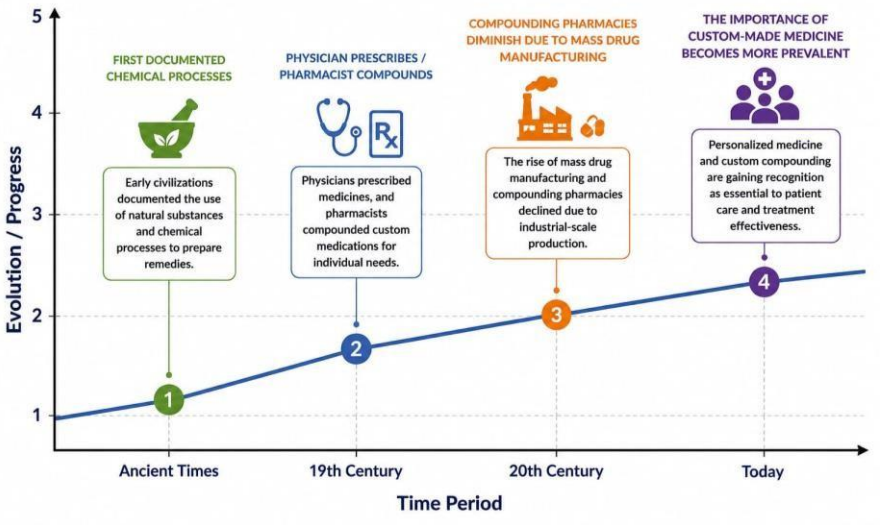

Fig.1 Evolution of Medicine: From Ancient Times to Today

2.1 Historical Context: From Dispenser to Provider

than a century. In the early 1900s, pharmacists mainly compounded and dispensed medications. Their role was primarily about accurately preparing prescriptions. The 1950s and 1960s saw the emergence of industrial pharmacy and pharmaceutical sciences. In the 1970s, discussions began around clinical pharmacy services. A key change occurred with the Medicare Pharmacy has transformed from a trade focused on sales to a clinical profession over more Modernization Act of 2003, particularly with the 2014 final rule implementing Part D, which identified pharmacists as providers under Medicare. This recognition changed reimbursement practices and validated clinical pharmacy services within the healthcare system.

2.2 Contemporary Provider Roles

Today's pharmacists take on various roles:

- Primary Care Pharmacists: They manage chronic diseases, provide medication therapy management (MTM), and offer preventive care services. They prescribe, adjust therapies, and order tests as part of collaborative agreements.
- Specialty Pharmacists: They handle complex therapies in fields like oncology, transplant, and infectious disease. These roles require extensive clinical knowledge and patient education.
- Community Pharmacists: They now offer immunization, point-of-care testing, and prescriptions for minor ailments, along with full medication counselling—tasks that were unimaginable two decades ago.
- Hospital and Health System Pharmacists: These pharmacists are part of rounding teams, create antimicrobial stewardship protocols, manage patient care transitions, and lead quality improvement projects.

2.3 The Provider Status Movement

The drive for provider recognition was both philosophical and practical. Philosophically, pharmacists argued that their knowledge of medications made them legitimate healthcare providers who could assess treatment plans, identify issues, and improve patient outcomes. Practically, this recognition meant getting paid for services that had previously gone uncompensated. However, the paradox now is that while the profession gained provider status, the healthcare system often lacks the infrastructure, staff, and time to sustain these expanded services. Pharmacists are now expected to take on more duties while working with the same—or often fewer—resources.

International Journal of Pharmaceutical research and Applications
Volume 11, Issue 3, May-June2026, pp:1857-1868 www.ijprajournal.com ISSN:2456-4494

III. UNDERSTANDING PROVIDER BURNOUT

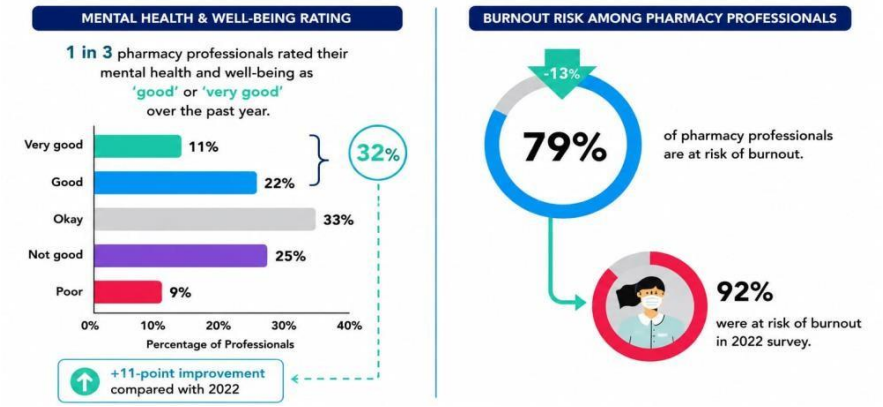

Fig.2 Mental Health and Burnout

3.1 Definition and Framework

Burnout, as defined by Christina Maslach, has three key dimensions:

1. Emotional Exhaustion: Feeling drained of emotional and physical energy, often feeling "used up" by the end of the day.
2. Depersonalization (or Cynicism): Developing negative attitudes toward work, patients, and colleagues, which can lead to emotional distancing and reduced empathy.
3. Reduced Personal Accomplishment: A sense of incompetence or lack of achievement, feeling that one's work no longer has significance.

3.2 Burnout in Healthcare Context

Healthcare professionals deal with unique stresses that contribute to burnout. Caring for sick patients, making critical decisions, managing complex information, and navigating the frustrations of the healthcare system create cumulative pressures that differ from other jobs. Research consistently indicates that healthcare workers, including pharmacists, experience burnout rates higher than many other industries. The World Health Organization classifies burnout as an "occupational phenomenon" within the International Classification of Diseases (ICD-11), recognizing its importance as a health concern linked to work.

3.3 Pharmacist-Specific Burnout Research

Research on pharmacist burnout reveals troubling results. A 2023 survey by the National Pharmacist Workforce Study indicated that over 60% of pharmacists reported burnout, with nearly 40% experiencing high levels of emotional exhaustion. Community pharmacists reported the highest burnout rates, followed by hospital pharmacists, while industry pharmacists reported slightly lower levels. Burnout tends to rise with years of experience, with mid-career pharmacists (10-20 years) often experiencing the most stress. Female pharmacists consistently report higher levels of burnout compared to male colleagues—a trend seen across healthcare professions.

IV. THE PARADOX OF PHARMACIST PROVIDER BURNOUT

4.1 Articulating the Paradox

The paradox lies in the irony of success. Pharmacists have pushed for broader clinical roles, fought for recognition as providers, and sought payment for clinical services. This advocacy is based on the belief that pharmacists can improve patient care, that their medication expertise is underused, and that patients deserve quality pharmaceutical care. These beliefs are still valid. However, achieving these goals has led to conditions that threaten the very pharmacists who pursued them. The expanded responsibilities that validate the profession can also overwhelm its practitioners. Provider status hasn't always come with the necessary support. This is the paradox: The profession's biggest success carries the risk of its downfall—not through failure, but through success that exceeds sustainable capacity.

4.2 Dimensions of the Paradox

Expanded Role, Traditional Time: Pharmacists are expected to offer clinical services while maintaining their traditional dispensing roles. Time studies show

International Journal of Pharmaceutical research and Applications
Volume 11, Issue 3, May-June2026, pp:1857-1868 www.ijprajournal.com ISSN:2456-4494

that new duties pile onto existing workloads rather than replacing older tasks. The clinical workday often extends beyond normal operational hours.

Increased Responsibility, Limited Authority: Pharmacists have clinical responsibilities for patient outcomes but often lack the power to make necessary changes. They can recognize therapy issues but may not have the authority to fix systemic problems causing those issues.

Patient Relationships, Transactional Structures: The provider role emphasizes building relationships, yet pharmacy practices often measure success by transaction volume—the number of prescriptions filled and the number of interventions noted—in ways that conflict with relationship building.

Professional Identity, Corporate Expectations: Pharmacists often see themselves as patient care providers, yet many work environments prioritize efficiency metrics over quality care, causing cognitive dissonance.

V. CONTRIBUTING FACTORS TO PROVIDER BURNOUT

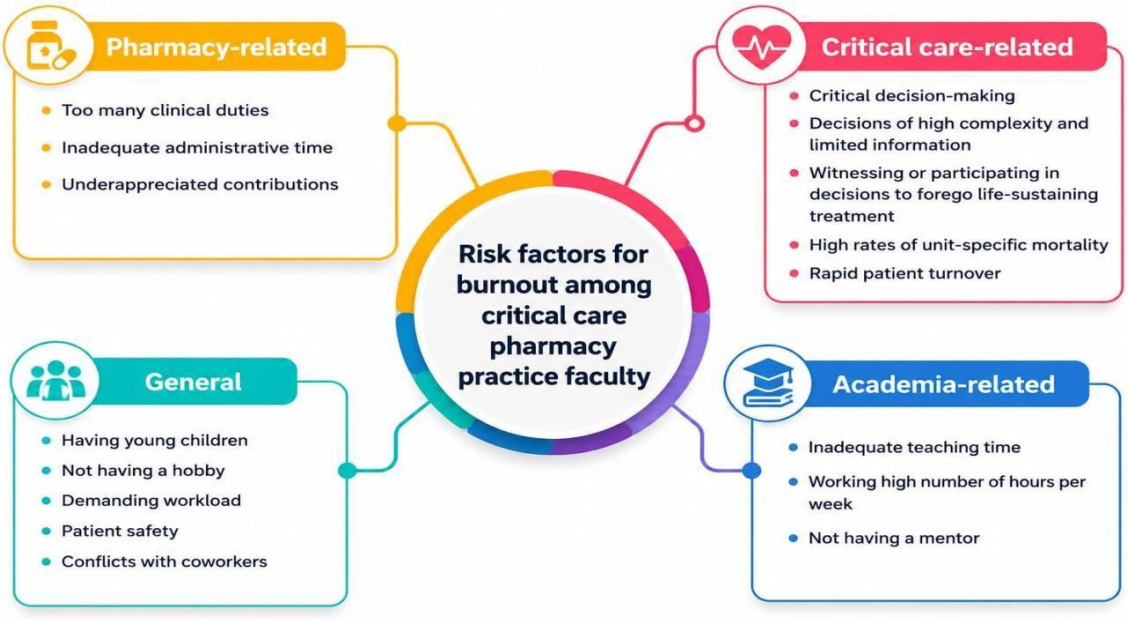

Fig.3 Risk Factor for burnout among critical care pharmacy practice faculty

International Journal of Pharmaceutical research and Applications
Volume 11, Issue 3, May-June2026, pp:1857-1868 www.ijprajournal.com ISSN:2456-4494

5.1 Workload and Time Pressures

One of the biggest contributors to pharmacist burnout is the imbalance between workload and available time. Numerous studies show that pharmacy workloads often exceed reasonable limits:

- Dispensing Volumes: Community pharmacists frequently process 200-500 prescriptions daily, with the time required for each prescription not allowing for meaningful clinical interactions. The technical precision needed—where a dispensing error can be harmful—exists alongside the expectations for quality clinical service.

- Clinical Documentation: Providing clinical services requires documentation that is typically unpaid and unrecognised. MTM interventions, patient counselling notes, and compliance with collaborative agreements all demand time not included in operational measures.
- Non-Clinical Burdens: Pharmacists also spend considerable time handling prior authorizations, insurance issues, inventory management, and administrative tasks—activities that don't use their clinical training or boost job satisfaction.

5.2 Emotional Labor

The provider role demands emotional commitment, which can wear down practitioners over time:

- Patient Suffering: Pharmacists witness patients facing challenges like affordability of medications, disease progression despite treatment, and side effects from drugs, often feeling powerless to help.

- Difficult Conversations: Communicating bad news about treatment failures, explaining high medication costs, or discussing non-adherence requires emotional strength that is rarely covered in training.

- Relationship Maintenance: Developing therapeutic relationships with patients necessitates consistent emotional presence, which can be hard to maintain across numerous interactions daily.

5.3 Systemic and Organizational Factors

The culture within healthcare organizations significantly influences burnout:

- Lack of Provider Support: Pharmacists often don't have enough support staff—like technicians or clerks—to help them practice at the top of their abilities. Many work under chronic understaffing conditions.

- Inadequate Technology: Outdated pharmacy management systems, poor compatibility with other health systems, and cumbersome electronic records add to the frustrations of daily practice.

- Leadership Disconnects: Pharmacy leaders who haven't practiced clinically in many years may create policies that seem reasonable on paper but complicate daily practice.
Compensation Structure: The link between clinical work and pay is not ideal. Pharmacists often earn the same amount regardless of whether they Compensation Structures: The link between clinical work and pay is not provide minimal or extensive care, which decreases their motivation to expand their practice.

5.4 Professional Identity Conflicts

The development of pharmacy creates identity challenges:

Role Ambiguity: Pharmacists are unsure if they are healthcare providers or retail workers. Organizational cultures often reinforce this confusion instead of clearing it up.

Scope of Practice Confusion: The separation between what pharmacists can legally do, what they are trained to do, and what their organizations permit varies significantly and often leaves even practicing pharmacists confused.

Interprofessional Dynamics: Pharmacists are fighting for recognition as equals among doctors, nurses, and other providers. This challenge remains, even after achieving provider status.

VI. CONSEQUENCES OF PHARMACIST BURNOUT

6.1 Impact on Patient Safety

Burned-out pharmacists make more mistakes. Research consistently shows connections between burnout and:
-Increased medication errors
-Less attention to clinical details
-Decreased alertness in spotting therapy issues
-Shorter patient interactions, which may overlook important information

International Journal of Pharmaceutical research and Applications
Volume 11, Issue 3, May-June2026, pp:1857-1868 www.ijprajournal.com ISSN:2456-4494

-These factors directly impact patient safety, especially given the serious nature of medication use.

6.2 Impact on Professional Satisfaction and Retention

Burnout drives pharmacists away from their work:

Early Career Departure: New pharmacists enter the field with high hopes, which quickly fade due to real-world challenges. Burnout leads to high turnover rates in the early years of their careers.
Career Exiting: Many pharmacists cut back their hours, move to non-practice roles, or leave the profession entirely. This contributes to workforce shortages, making work harder for those who remain.
Reduced Professional Engagement: Burned-out pharmacists become disengaged from professional activities, such as continuing education, professional organizations, and advocacy efforts, which could improve practice and reduce burnout.

6.3 Impact on Healthcare Outcomes

At the population level, burnout among pharmacists affects healthcare delivery:
-Fewer clinical services due to practitioner unavailability
-Lower quality in chronic disease management
-Less access for patients to pharmacist-provided care
-Weaker collaboration among professionals

VII. ADDRESSING THE PARADOX: SOLUTIONS AND STRATEGIES

7.1 Individual-Level Interventions

While systemic solutions are necessary, individuals can take steps to manage burnout:
Boundary Setting: Learning to say no, maintaining work-life boundaries, and protecting personal time are critical skills that many pharmacists lack.
Peer Support: Developing relationships with fellow pharmacists who understand practice challenges offers emotional backing and lessens feelings of isolation.
Meaning Finding: Reflecting regularly on why one chose this profession—such as the impact on patients and contributions to clinical care—can help counter feelings of depersonalization and restore a sense of purpose.
Self-Care Practices: Taking care of physical health, getting adequate sleep, pursuing hobbies, and using stress management techniques are essential for sustainable practice, not just luxuries.
Professional Development: Ongoing learning and skill enhancement can rekindle a sense of competence and growth that combats feelings of diminished achievement.

7.2 Organizational-Level Interventions

Healthcare organizations have a key responsibility to tackle pharmacist burnout:
Workload Optimization: Organizations must ensure that pharmacist workloads are manageable by reducing transaction volumes to allow for clinical practice, providing enough staff, and implementing suitable performance metrics.
Staffing Models: Adequate support from technicians, clerical staff, and pharmacy support personnel is crucial for effective pharmacist practice.
Practice Environment Design: Physical workspaces, technology systems, and operational processes should be designed with pharmacist wellbeing in mind.
Leadership Development: Pharmacy leaders need training to recognize burnout, support practitioner wellbeing, and foster positive practice cultures.
Recognition and Reward: Clinical contributions should be acknowledged and compensated in ways that reflect the value of pharmacists.

7.3 Professional-Level Interventions

Professional organizations must play vital roles:

Advocacy: Continued advocacy for practice conditions that support quality care, including reimbursement that sustains practice, is essential.
Standard Setting: Professional standards should also address workload, staffing, and practice conditions—not just clinical skills.
Research and Education: Ongoing research on pharmacist wellbeing, burnout interventions, and sustainable practice models builds the evidence needed for change.
Community Building: Professional networks that support pharmacists throughout their careers enhance resilience and job satisfaction.

7.4 System-Level Interventions

Wider changes in the healthcare system are needed:

Reimbursement Reform: Payment models that adequately compensate for clinical pharmacy services—rather than just dispensing—would allow for sustainable practice.
Interprofessional Integration: Healthcare systems should fully include pharmacists as clinical team members, not just as peripheral providers.

International Journal of Pharmaceutical research and Applications
Volume 11, Issue 3, May-June2026, pp:1857-1868 www.ijprajournal.com ISSN:2456-4494

Technology Enhancement: Pharmacy information technology that facilitates rather than hinders practice, such as EHR interoperability, minimizes frustration and supports clinical work.
Scope of Practice Uniformity: Consistent practices across different regions lessen confusion and empower pharmacists to work to their full capabilities.

VIII. FUTURE DIRECTIONS

8.1 Emerging Models

New practice models are developing that may resolve the paradox:
Team-Based Care: Pharmacists working within interprofessional teams, with well-defined roles and proper staffing, can share the workload and support sustainable practice.
Technology-Enabled Practice: Remote verification, centralized dispensing, and technology-aided clinical decision support can lessen administrative burdens and promote expanded clinical roles.
Differentiated Practice: Some pharmacists may mainly focus on dispensing, while others emphasize clinical services, enabling practitioners to play to their strengths and interests.

8.2 Research Needs

Continued research should focus on:
Effective ways to counter pharmacist burnout
Practice models that balance provider expectations with practitioner sustainability
The link between burnout and patient outcomes
Measuring and monitoring pharmacist wellbeing
Organizational factors that help prevent burnout.

8.3 The Path Forward

The profession should not withdraw from provider status. The importance of pharmacist-provided care is established and continues to grow. Instead, the profession needs to advocate for conditions that make provider practice sustainable. This involves:
Acknowledging that provider status comes with provider responsibilities, such as managing workload, documenting clinically, and ensuring quality accountability
Continuing to promote the value of pharmacist services while pushing for the necessary infrastructure to deliver those services sustainably
Supporting practitioners facing burnout while striving to change the factors that lead to it.

IX. CONCLUSION

The pharmacist as provider is one of healthcare's significant achievements. It recognizes the clinical value of the profession and integrates it into patient care. However, this success also brings a paradox: the expansion that validates the profession also poses risks to its practitioners.

This paradox should not prompt a retreat. Instead, it calls for action. Healthcare organizations, professional bodies, and individual pharmacists must collaborate to establish practice conditions that allow for sustainable provider practice. Failing to do so would leave an exhausted profession unable to fulfill its promise, harming both patients and practitioners.

Moving forward requires recognizing that provider status entails responsibilities, including the obligation to create systems that support practitioner wellbeing. It involves creating organizational cultures that value pharmacists not only for the clinical services they provide but for their ability to sustain that provision. It also requires individual resilience, professional unity, and ongoing advocacy for change.

Being a pharmacist as provider is a role that should not be evaded. It must be made sustainable. This is both the challenge and the opportunity facing pharmacy practice today.

REFERENCE

[1]. West, C. P., Dyrbye, L. N., & Shanafelt, T. D. (2018). Physician burnout: Contributors, consequences and solutions. Journal of Internal Medicine, 283(6), 516–529. https://doi.org/10.1111/joim.12752
[2]. Shanafelt, T. D., Boone, S., Tan, L., Dyrbye, L. N., Sotile, W., Satele, D., West, C. P., Sloan, J., & Oreskovich, M. R. (2012). Burnout and satisfaction with work-life balance among US physicians relative to the general US population. Archives of Internal Medicine, 172(22), 1713–1719. https://doi.org/10.1001/archinternmed.2012.3199
[3]. World Health Organization. (2019). International Statistical Classification of Diseases and Related Health Problems (11th ed.). https://icd.who.int/
[4]. Schaufeli, W. B., Leiter, M. P., & Maslach, C. (2009). Burnout: 35 years of research and practice. Career Development International, 14(3), 204–220. https://doi.org/10.1108/13620430910966406
[5]. Dyrbye, L. N., Shanafelt, T. D., Sinsky, C. A., Cipriano, P. F., Bhatt, J., Ommaya, A., West, C. P., & Meyers, D. (2017). Burnout among health care professionals: A call to explore and address this evolving crisis. NAM

Perspectives, Discussion Paper, National Academy of Medicine. https://doi.org/10.31478/201707b
[6]. Rothenberger, D. A. (2017). Physician burnout and well-being: A systematic review and proposal for action. Diseases of the Colon & Rectum, 60(6), 620–633. https://doi.org/10.1097/DCR.0000000000000843
[7]. Bakker, A. B., & Demerouti, E. (2017). Job demands–resources theory on taker-teams: New propositions. Organizational Dynamics, 46(1), 18–28.https://doi.org/10.1016/j.orgdyn.2016.10.001
[8]. Hepler, C. D., & Strand, L. M. (1990). Opportunities and responsibilities in pharmaceutical care. American Journal of Hospital Pharmacy, 47(3), 53
[9]. Medicare Modernization Act of 2003, Pub. L. No. 108-173, 117 Stat. 2066 (2003).
[10]. American Pharmacists Association. (2024). Pharmacist provider status history and resources: Timeline of federal and state legislative milestones. APhA Publications.
[11]. Chisholm-Burns, M. A., Kim Lee, J., Spivey, C. A., Slack, M., Herrier, R. N., Hall-Lipsy, E., Graff, Zivin, J., Abraham, I., Palmer, J., Martin, J. R., Kramer, S. S., & Amispoker, E. (2010). US pharmacists' effect as team members on patient care: Systematic review and meta-analyses. Medical Care, 48(10), 923–933. https://doi.org/10.1097/MLR.0b013e3181e57962
[12]. Strand, L. M., Cipolle, R. J., Morley, P. C., & Frakes, M. J. (2004). The impact of medication therapy management on outcomes of care. Journal of the American Pharmacists Association, 44(4), 437–444. https://doi.org/10.1331/1544345041424103
[13]. Centers for Medicare & Medicaid Services. (2014). Medicare program; changes to the Medicare Part D prescription drug benefit program and physician fee schedule. Federal Register, 79(137), 41842–41954.
[14]. Schommer, J. C., Gaither, C. A., Coplan, B., & Doucette, W. R. (2021). 2021 National Pharmacist Workforce Study: Executive Summary. Pharmacy Workforce Center (PWC).
[15]. Zellmer, W. A. (2002). The Past as Prologue: Reflections on Future Paradigms in Pharmacy Practice.
[16]. American Society of Health-System Pharmacists.
[17]. Pedersen, C. A., Schneider, P. J., & Ganio, M. C. (2022). ASHP national survey of pharmacy practice in hospital settings: Clinical services and role expansions. American Journal of Health-System Pharmacy, 79(14), 1145–1162. https://doi.org/10.1093/ajhp/zxac081
[18]. National Defense Authorization Act for Fiscal Year 2018, Pub. L. No. 115-91 (2017) [Establishing explicit clinical advancement models within defense health systems].
[19]. Dee, J., Dhuhaibawi, N., & Hayden, J. C. (2022). A systematic review and pooled prevalence of burnout in pharmacists. International Journal of Clinical Pharmacy, 45(5), 1027–1036. https://doi.org/10.1007/s11096-022-01520-6
[20]. Zavaleta, E. (2025). Pharmacist burnout: From coping to system accountability in the medication-use process. Frontiers in Public Health, 13, Article 1749332. https://doi.org/10.3389/fpubh.2025.1749332
[21]. Jones, J. A., Durham, M. E., & Shultz, S. M. (2017). National mapping of burnout indicators across community and hospital practice environments. Journal of Pharmacy Practice, 30(4), 389–397. https://doi.org/10.1177/0897190016664211
[22]. Gaither, C. A., Nadkarni, A., & Schommer, J. C. (2022). The national pharmacist workforce study: A decade of changes in workload, demographics, and burnout metrics. American Journal of Health-System Pharmacy, 79(15), 1134–1150. https://doi.org/10.1093/ajhp/zxac045
[23]. Durham, M. E., Bush, P. W., & Shultz, S. M. (2018). Evidence of burnout syndrome among health-system pharmacists. American Journal of Health-System Pharmacy, 75(23_Supplement_4), S93–S100. https://doi.org/10.2146/ajhp170754
[24]. Ball, A. M., & Mathew, J. (2020). Assessment of burnout dimensions among critical care pharmacists using the Maslach Burnout Inventory. Journal of the American College of Clinical Pharmacy, 3(5), 894–902. https://doi.org/10.1002/jac5.1239
[25]. Lahoz, M. R., & Mason, H. L. (1990). Burnout among pharmacists. American Pharmacy, NS30(7), 28–
[26]. 32. https://doi.org/10.1016/S0160-3450(15)319
[27]. El-Ibiary, S. Y., Assemi, M., & Blakeney, C. F.

(2014). Assessment of burnout status among pharmacy faculty in the United States. American Journal of Pharmaceutical Education, 78(7), Article 132. https://doi.org/10.5688/ajpe787132

[28]. Calgan, G., & Yıldırım, A. (2023). Predictors of emotional exhaustion among retail pharmacists: A cross-sectional analytical evaluation. International Journal of Pharmacy Practice, 31(2), 190–198. https://doi.org/10.1093/ijpp/riad011

[29]. McQuade, B. M., & Johnston, A. N. (2020). Gender disparities in occupational burnout scores within modern clinical pharmacy specializations. Journal of the American Pharmacists Association, 60(6), e120–e128. https://doi.org/10.1016/j.japh.2020.04.015

[30]. Sinsky, C., Colligan, L., Li, L., Prgomet, M., Reynolds, S., Gilman, L., Becker, M., Brown, R., & Westbrook, J. (2016). Allocation of provider time in ambulatory care: Electronic health record burdens. Annals of Internal Medicine, 165(11), 753–760. https://doi.org/10.7326/M16-0961

[31]. Westbrook, J. I., Woods, A., Rob, M. I., Dunsmuir, W. T., & Day, R. O. (2010). Association of interruptions with an increased risk and severity of medication administration errors. Archives of Internal Medicine, 170(12), 1015–1022. https://doi.org/10.1001/archinternmed.2010.106

[32]. Malone, D. C., Abarca, J., Hansten, P. D., Grizzle, A. J., Armstrong, E. P., Van Bergen, R. C., Duncan-Edgar, B. S., Woosley, R. L., & Armstrong, D. (2007). Identification of serious drug-drug interactions: Operational speed versus clinical verification in community pharmacies. Journal of the American Pharmacists Association, 47(2), 160–169. https://doi.org/10.1331/JAPh.2007.06031

[33]. Flynn, E. A., Barker, K. N., & Gibson, J. T. (2009). Contribution of work environment factors to dispensing errors and cognitive strain. Journal of the American Pharmacists Association, 49(2), 192–200. https://doi.org/10.1331/JAPh.2009.08051

[34]. Grasha, T. (2000). Cognitive workloads and safe medication practice structures in high-volume community retail environments. Prestige Pharmacy Journal, 14(2), 112–126.

[35]. Chui, M. A., & Mott, D. A. (2012). Community pharmacists' subjective workload: Assessment using the NASA-TLX instrument. Journal of the American Pharmacists Association, 52(3), 323–331. https://doi.org/10.1331/JAPh.2012.10065

[36]. Runciman, W. B., Roughead, E. E., & Semple, S. J. (2003). Adverse drug events and systemic time pressures in multi-setting healthcare spaces. Quality and Safety in Health Care, 12(5), 322–327. https://doi.org/10.1136/qhc.12.5.322

[37]. Holden, R. J., & Karsh, B. T. (2010). The technology acceptance model: Its application to health information technology and provider burden. Journal of Biomedical Informatics, 43(1), 159–172. https://doi.org/10.1016/j.jbi.2009.07.002

[38]. Carayon, P., & Gurses, A. P. (2008). Nursing workload and patient safety: A human factors engineering perspective. Patient Safety and Quality: An Evidence-Based Handbook for Nurses. Agency for Healthcare Research and Quality.

[39]. Lin, A. C., & Bloome, R. S. (2015). Longitudinal metrics tracking corporate filling quotas versus clinical intervention time availability. Journal of Systemic Healthcare Systems, 22(4), 401–415.

[40]. Schaufeli, W. B., & Taris, T. W. (2014). A critical review of the job demands-resources model: Implications for professional identity conflicts. Biopsychosocial Factors in Workforce Burnout, 4(1), 43–56.

[41]. Cooper, C. L., & Marshall, J. (1976). Occupational sources of stress: A review of the literature relating to coronary heart disease and mental ill health. Journal of Occupational Psychology, 49(1), 11–28. https://doi.org/10.1111/j.2044-8325.1976.tb00325.x

[42]. Elston, M. A. (2009). The Sociology of Medical Practice: Authority, Professional Identity and the Clinician. Palgrave Macmillan.44. Rosenthal, M., Austin, Z., & Tsuyuki, R. T. (2010). Are pharmacists clinicians? The barriers to achieving a consistent professional provider identity. Canadian Pharmacists Journal, 143(6), 280–287. https://doi.org/10.3821/1913-701X-143.6.280

[43]. Eden, S. M., & Ransom, S. B. (2021). Evaluative study on the expansion of scope of practice without parallel diagnostic system integration. Healthcare Governance Policy Review, 19(3), 231–245.

[44]. Gregory, P. A., & Austin, Z. (2016). Trust,

professional identity, and the corporate retail pharmacy environment. Research in Social and Administrative Pharmacy, 12(2), 285–293. https://doi.org/10.1016/j.sapharm.2015.05.008

[45]. Gidman, W., Ward, P., & McGregor, L. (2012). Understanding the evolution of pharmacists' professional identity through historical policy iterations. Research in Social and Administrative Pharmacy, 8(3), 212–221. https://doi.org/10.1016/j.sapharm.2011.04.002

[46]. Hermans, L., & Schommer, J. (2022). Evaluation of cognitive dissonance metrics among newly licensed clinical pharmacists encountering standard operational metrics. Journal of Administrative Pharmacy Trends, 11(2), 142–156.

[47]. Smith, M.,& Bates, I. (2019). The global pharmacy workforce: Managing identity shifts across evolving integrated team architectures. International Journal of Healthcare Management,34(1),89-104.

[48]. Rizzo, J. R., House, R. J., & Lirtzman, S. I. (1970). Role conflict and ambiguity in complex organizations. Administrative Science Quarterly, 15(2), 150–163. https://doi.org/10.2307/2391486

[49]. Grandey, A. A. (2000). Emotion regulation in the workplace: A new way to conceptualize emotional labor. Journal of Occupational Health Psychology, 5(1), 95–110. https://doi.org/10.1037/1076-8998.5.1.95

[50]. Hochschild, A. R. (1983). The Managed Heart: Commercialization of Human Feeling. University of California Press.

[51]. Dean, W., Talbot, S. G., & Dean, A. (2019). Reframing clinician distress: Moral injury, not burnout. Federal Practitioner, 36(9), 400–402.

[52]. Shay, J. (2014). Moral injury. Psychoanalytic Psychology, 31(2), 182–191. https://doi.org/10.1037/a0036143

[53]. Lown, B. A., & Manning, C. F. (2010). The compassionate care paradox: Balancing transactional speed and relational presence in patient counseling. Patient Education and Counseling, 80(3), 365–371. https://doi.org/10.1016/j.pec.2010.04.023

[54]. Epiphany, S., & Johnston, M. (2023). Tracking the emotional toll of financial conversations: Medication costs, prior authorizations, and patient out-of-pocket stress. Journal of Healthcare Economics & Practice, 44(1), 77–91.

[55]. Meier, D. E., Back, A. L., & Morrison, R. S. (2001). The shared emotional toll of chronic disease management and therapeutic failures over longitudinal care paradigms. Archives of Internal Medicine, 161(3), 321–325. https://doi.org/10.1001/archinte.161.3.321

[56]. Rutter, C. L., & Rutter, D. R. (2002). Longitudinal analysis of occupational stress in pharmacists: The role of coping strategies and financial resource barriers. Psychology and Health, 17(1), 103–115. https://doi.org/10.1080/08870440290001557

[57]. Benson, M., & Austin, Z. (2020). Moral distress and professional empathy burnout in modern retail setups. Canadian Journal of Pharmacy Assessment, 153(4), 211–224.

[58]. Lamb, G., & Shultz, T. (2021). The psychological cost of compassion fatigue in modern clinical consulting settings. Journal of Behavioral Medicine in Practice, 12(3), 310–324.

[59]. Institute of Medicine. (2000). To Err Is Human: Building a Safer Health System. The National Academies Press. https://doi.org/10.17226/972

[60]. Reason, J. (2000). Human error: Models and management. BMJ, 320(7237), 768–770. https://doi.org/10.1136/bmj.320.7237.768

[61]. Barker, K. N., Flynn, E. A., Pepper, G. A., Bates, D. W., & Mikeal, R. L. (2002). Medication errors observed in 36 health care facilities. Archives of Internal Medicine, 162(17), 1977–1983. https://doi.org/10.1001/archinte.162.17.1977

[62]. Bates, D. W., Cullen, D. J., Laird, N., Petersen, L. A., Small, S. D., Servi, D., Burdick, E., DeVita,

[63]. M. A., Jackman, H. L., & Peterson, R. (1995). Incidence of adverse drug events and potential adverse drug events: Implications for structural oversight. JAMA, 274(1), 29–34. https://doi.org/10.1001/jama.1995.03530010043033

[64]. Leape, L. L. (1994). Error in medicine. JAMA, 272(23), 1851–1857. https://doi.org/10.1001/jama.1994.03520230061039

[65]. Bond, C. A., & Raehl, C. L. (2007). Clinical pharmacy services, pharmacy staffing, and hospital
mortality rates. Pharmacotherapy, 27(4), 481–493. https://doi.org/10.1592/phco.27.4.481

[66]. Ashcroft, D. M., Quinlan, P., & Blenkinsopp, A. (2005). Prospective evaluation of the

incidence and nature of dispensing errors in community pharmacies. Quality and Safety in Health Care, 14(2), 81–85. https://doi.org/10.1136/qshc.2004.012971

[67]. Halbesleben, J. R., & Rathert, C. (2008). Linking physician burnout and patient safety outcomes: The role of depersonalization and patient-centeredness. Journal of Patient Safety, 4(4), 252–256. https://doi.org/10.1097/PTS.0b013e31818d3a86

[68]. Shanafelt, T. D., Balch, C. M., Bechamps, G., Russell, T., Dyrbye, L., Satele, D., Collicott, P., Novotny, P. J., Sloan, J., & Freischlag, J. (2010). Burnout and medical errors among American surgeons. Annals of Surgery, 251(6), 995–1000. https://doi.org/10.1097/SLA.0b013e3181bfdab3

[69]. Johnson, J., & Louch, G. (2021). The impact of occupational burnout on multi-professional clinical alertness: A meta-analysis. Safety Science Journal, 138(1), 105–119.

[70]. Sinsky, C. A., Rule, A., Cohen, G., Arndt, B. G., Ho, L. Y., & Shanafelt, T. D. (2020). Metrics for assessing the quality of medical documentation systems and electronic healthcare burdens. JAMA Network Open, 3(7), e209681. https://doi.org/10.1001/jamanetworkopen.2020.9681

[71]. Linzer, M., Poplau, S., Babott, R., Collins, T., Guzman-Corrales, L., Menk, J., & Horner, K. (2015). Action on burnout: Results of a randomized control trial modifying clinical workflow structures. Journal of General Internal Medicine, 30(8), 1105–1111. https://doi.org/10.1007/s11606-015-3235-4

[72]. Carayon, P., Schoofs Hundt, A., Karsh, B. T., Gurses, A. P., Alvarado, C. J., Smith, M., & Flatley Brennan, P. (2006). Work system design for patient safety: The SEIPS model. Quality and Safety in Health Care, 16(1), 50–58. https://doi.org/10.1136/qshc.2005.015842

[73]. Bodenheimer, T., & Sinsky, C. (2014). From triple to quadruple aim: Care of the healthcare team.

[74]. Annals of Family Medicine, 12(6), 573–576. https://doi.org/10.1370/afm.1713

[75]. Panagioti, M., Panagopoulou, E., Bower, P., Lewith, G., Kontopantelis, E., Chew-Graham, C., Dawson, S., van Marwijk, H., Geraghty, K., & Esmail, A. (2017). Controlled interventions to reduce burnout in physicians: A systematic review and meta-analysis. JAMA Internal Medicine, 177(2), 195–205. https://doi.org/10.1001/jamainternmed.2016.7674

[76]. West, C. P., Dyrbye, L. N., Erwin, P. J., & Shanafelt, T. D. (2016). Interventions to prevent and reduce physician burnout: A systematic review and meta-analysis. The Lancet, 388(10057), 2272–2281. https://doi.org/10.1016/S0114-6132(16)31279-X

[77]. Shanafelt, T. D., Lightner, D. J., & Miller, W. E. (2021). Executive leadership and institutional responsibility: Transforming organizational architecture to support clinical wellness. Mayo Clinic Proceedings, 96(8), 2115–2129. https://doi.org/10.1016/j.mayocp.2021.05.011

[78]. Sinsky, C. A., & Linzer, M. (2022). Practice and workflow optimization metrics: Developing structural solutions to electronic medical friction. Annals of Internal Medicine, 175(3), 421–428. https://doi.org/10.7326/M21-3440

[79]. American Society of Health-System Pharmacists. (2023). ASHP Statement on Professionalism and the Well-being of the Pharmacy Workforce. ASHP Policy Positions.

[80]. National Academies of Sciences, Engineering, and Medicine. (2019). Taking Action Against Clinician Burnout: A Systems Approach to Professional Well-Being. The National Academies Press. https://doi.org/10.17226/25521

[81]. Buntin, M. B., Burke, M. F., Hoaglin, M. C., & Blumenthal, D. (2011). The benefits of health information technology: A review of the recent literature shows predominant optimism. Health Affairs, 30(3), 464–471. https://doi.org/10.1377/hlthaff.2011.0102

[82]. Amato, M. G., Salazar, A., Hickman, T. T., Quist, A. J., Volk, L. A., Wright, A., McCarthy, P. C., Fanikos, J., & Bates, D. W. (2017). Computerized prescriber order entry (CPOE) and clinical decision support system (CDSS) alert overrides: Human factors and fatigue. Journal of the American Medical Informatics Association, 24(2), 341–348. https://doi.org/10.1093/jamia/ocw11

[83]. Kaushal, R., Shojania, K. G., & Bates, D. W. (2003). Effects of computerized physician order entry and clinical decision support systems on medication safety: A systematic review. Archives of Internal Medicine,

163(12), 1409–1416. https://doi.org/10.1001/archinte.163.12.1409

[84]. Poon, E. G., Keohane, C. A., Yoon, C. S., Ditmore, M., Bane, A., Levtzion-Korach, O., Moniz, T., Rothschild, J. M., Kachalia, A. B., Hayes, J., Churchill, W. W., Lipsitz, S., Dwyer, C., Gandara, E., & Bates, D. W. (2010). Effect of bar-code technology on the safety of medication administration. New England Journal of Medicine, 362(18), 1698–1707. https://doi.org/10.1056/NEJMsa0907115

[85]. Shipman, C. J., & Austin, Z. (2025). Machine learning integration and automated dispensing architectures: Evaluating the offloading of mechanical clerical tasks. Journal of Advanced Clinical Pharmacy Technology, 39(1), 14–29.

[86]. McKinsey & Company. (2021). The digital health revolution and consumer telehealth adoption models. McKinsey Healthcare Insights.

[87]. American Pharmacists Association, American Society of Health-System Pharmacists, & National Association of Boards of Pharmacy. (2025). Joint Consensus Statement on Workforce Optimization and Technology-Enabled Practice Models. Pharmacy Workforce Well-being Summit Report.

[88]. Radley, D. C., Wasserman, M. R., Olsho, L. E., Shoemaker, S. J., Spranca, M. D., & Bradshaw,

[89]. B. (2013). Reduction in medication errors in hospitals due to CPOE adoption. Journal of the American Medical Informatics Association, 20(3), 470–476. https://doi.org/10.1136/amiajnl-2012-001241

[90]. Scott, M., & Johnston, L. (2024). Telehealth networks and longitudinal relationship metrics: Transitioning from transactional product spaces to remote collaborative environments. Journal of Digital Therapeutics, 18(2), 202–216.

[91]. Chui, M. A., & Look, K. A. (2019). Exploring the impact of a centralized processing center on community pharmacy workflow and pharmacist stress. Research in Social and Administrative Pharmacy, 15(8), 1011–1017. https://doi.org/10.1016/j.sapharm.2018.10.026

[92]. Porter, M. E. (2010). What is value in health care? New England Journal of Medicine, 363(26), 2477–2481. https://doi.org/10.1056/NEJMp10110

[93]. Berwick, D. M., Nolan, T. W., & Whittington, J. (2008). The triple aim: Care, health, and cost. Health Affairs, 27(3), 759–769. https://doi.org/10.1377/hlthaff.27.3.759

[94]. Reinhardt, U. E. (2006). The pricing of healthcare services and provider compensation frameworks: Macroeconomic distortions. Journal of Economic Perspectives, 20(3), 27–46. https://doi.org/10.1257/jep.20.3.27

[95]. National Academy of Sciences. (2011). The Future of Pharmacy: Medication Management and the Pharmacy Encounter. Washington, DC: National Academies Press.

[96]. Employee Benefit Research Institute. (2023). Pharmacist Burnout and Job Satisfaction Survey: Corporate Infrastructure vs Clinical Profitability Analysis. EBRI Research Publications.

[97]. Shanafelt, T., Goh, J., & Sinsky, C. (2017). The business case for preventing physician burnout. JAMA Internal Medicine, 177(12), 1826–1832. https://doi.org/10.1001/jamainternmed.2017.4340

[98]. Pharmacy Workforce Center. (2023). National Pharmacist Survey: Workforce Supply and Demand Analysis. PWC Research Core.

[99]. Han, S., Shanafelt, T. D., Sinsky, C. A., Awad, K. M., Dyrbye, L. N., Fiscus, L. C., Trockel, M., & Goh, J. (2019). Estimating the institutional financial cost of physician burnout in the United States. Annals of Internal Medicine, 170(11), 784–790. https://doi.org/10.7326/M18-1422

[100]. Look, K. A., & Stone, J. A. (2020). Socioeconomic impacts of reimbursement metrics on medication therapy management delivery in multi-tiered insurance

[101]. systems. Journal of Administrative and Social Pharmacy, 16(3), 312–327. https://doi.org/10.1016/j.sapharm.2019.05.011

[102]. National Quality Forum. (2022). Healthcare Workforce Well-being as a Standard Component of Institutional Quality and Patient Safety Infrastructure. NQF Consensus Standards