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Synergizing Digital and Print: Leveraging Spine Surgeons' Social Media to Transform Publishing and Society Interaction

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ABSTRACT

Background: Social media has fundamentally altered how information is created, disseminated, and consumed, with growing impact on spine surgeons and professional societies. Traditional academic publishing remains the standard for research validation, but digital platforms now shape much of the real-time dialogue in spine care.

Objective: To explore strategies for integrating spine surgeons' social media presence with traditional publishing channels to enhance knowledge dissemination, support clinical innovation, and improve member engagement within spine societies.

Methods: This perspective reviews current patterns of social media use among spine surgeons, focusing on platforms such as X (formerly Twitter), Instagram, and LinkedIn. It analyzes benefits (reach, speed, interactivity) and challenges (variable quality, lack of peer review, potential bias), and proposes a conceptual hybrid model in which social media and peer-reviewed journals function in a complementary rather than competitive manner.

Results: Social media enables rapid sharing of clinical insights, techniques, and innovations, and facilitates engagement with both peers and patients. However, it often privileges observational data, lower-level evidence, and real-world experiences that do not easily fit into traditional high-level evidence frameworks. A hybrid approach is proposed in which professional societies (1) formally recognize curated social media content as a feeder for peer-reviewed work; (2) create more inclusive forums for lower-level evidence and case-based discussions; and (3) intentionally link digital dialogues to structured academic outputs.

Conclusions: By aligning the dynamic, interactive nature of social media with the rigor and credibility of traditional publishing, spine societies can foster greater member engagement, accelerate innovation, and reinforce their role as thought leaders. A deliberate, hybrid communication strategy can bridge the gap between digital and print, creating a more collaborative and inclusive platform for advancing spine surgery.

Clinical Significance: Integrating social media with traditional publishing can accelerate the dissemination of practical, real-world clinical insights, ultimately enhancing surgeon education and improving patient care in spine surgery.

Level of Evidence: 5.

Perspectives

Keywords: social media integration, digital platforms, traditional publishing, member engagement, spine societies, clinical innovation, medical education, knowledge dissemination, evidence-based practice

INTRODUCTION

The digital age has revolutionized communication and information dissemination, and the medical field is no exception. Social media platforms have emerged as powerful tools for sharing knowledge and fostering collaboration among health care professionals. With approximately 5.41 billion users globally—representing

65.5% of the world's population—social media is a dominant force in how information is consumed and shared today.[1] Platforms such as Facebook, YouTube, WhatsApp, Instagram, and X (formerly Twitter) serve as primary sources of information for many, including medical professionals who increasingly turn to these networks to access the latest updates in clinical practices and surgical innovations. The pervasive influence of social media is not limited to the United States. There are 5.41 billion social media users worldwide, which represents about 65.5% of the global population.[1]

Younger generations of spine surgeons have particularly embraced social media, either as active users or as observers, to keep up with trends in medical advancements.[2] Residency and fellowship programs have adapted to these trends, creating robust social media presences to engage trainees and professionals. Data indicate that 72% of orthopedic residency programs in the United States have Instagram accounts, highlighting their culture, skills, and clinical experiences to attract new applicants and foster a sense of community.[3] Similarly, fellowship programs utilize platforms like Instagram to share cases, techniques, and faculty insights, reflecting a shift in how training programs connect with their audiences.[4] The third author of this perspective article, Choll W. Kim, has several social media accounts associated with their professional presence with more than 250,000 followers. He engages with patients and colleagues through platforms like Instagram, YouTube, Facebook, LinkedIn, and TikTok that are linked to his work in minimally invasive spine surgery, specifically promoting their expertise in endoscopic spine surgery and other advanced techniques. For example, Dr. Kim's video "My Viral Glove Technique" (https://www.youtube.com/watch?v=Ih5SzgCnqhc) has garnered more than 30 million views on TikTok and more than 35 million views on YouTube. Ten other spine surgeons are highlighted in *Becker's Spine Review* for their presence on Instagram.[5]

Despite the clear benefits of this digital engagement, the rise of social media poses significant challenges to traditional publishing and professional societies (Figure 1). Academic journals, the longstanding gatekeepers of peer-reviewed clinical knowledge, now find themselves competing with the immediacy, accessibility, and visual appeal of social media posts. Surgeons increasingly bypass the rigorous standards of academic publishing, choosing instead to share innovative techniques and clinical observations directly with a global audience through platforms like X, Instagram, TikTok, and LinkedIn.[6] While this direct engagement can democratize knowledge sharing and accelerate the dissemination of new ideas, it also raises concerns about the quality, credibility, and permanence of the information shared.

Notably, the absence of a peer review process on social media allows content to be circulated without the scrutiny required in traditional academic publishing. Interesting but rare cases are often highlighted because of their visual appeal or novelty, creating a skewed perception of clinical reality. These cases, which represent only a small percentage of actual patient populations, often overshadow the "bread and butter" cases that form the foundation of routine clinical practice, leaving their treatment approaches underrepresented. Furthermore, there are concerns regarding the industry's influence on surgeons who use social media that cannot be overlooked. The allure of visibility and instant feedback may incentivize some practitioners to promote certain techniques or devices without the rigorous vetting that peer-reviewed journals demand. This shift raises ethical questions about bias and commercial influence, as well as the potential for misinformation to spread without the checks and balances traditionally provided by academic institutions.

The role of spine societies and professional organizations like the International Society for the Advancement of Spine Surgery (ISASS) is crucial in this rapidly changing space. These entities have traditionally provided the intellectual and clinical context for new surgical techniques and innovations, ensuring that the transition from idea to accepted practice is supported by rigorous evidence and peer-reviewed validation. However, the shift toward more rapid and informal knowledge dissemination through social media highlights the need for these societies to adapt and find ways to integrate digital platforms into their traditional publishing strategies.[7] This perspective article aims to stimulate discussion, present a conceptual framework, and encourage innovation in how spine societies and surgeons leverage both social media and traditional publishing. It is not intended to be a step-by-step guide or formal proposal for implementing peer review systems for social media. Instead, it is meant to explore such strategies to enhance member engagement while harnessing the strengths of both platforms. By blending the dynamic, interactive nature of social media with the credibility and rigor of traditional publishing, spine societies have the opportunity and challenge to foster a more inclusive and engaged community of surgeons, ultimately driving forward the field of spine surgery.

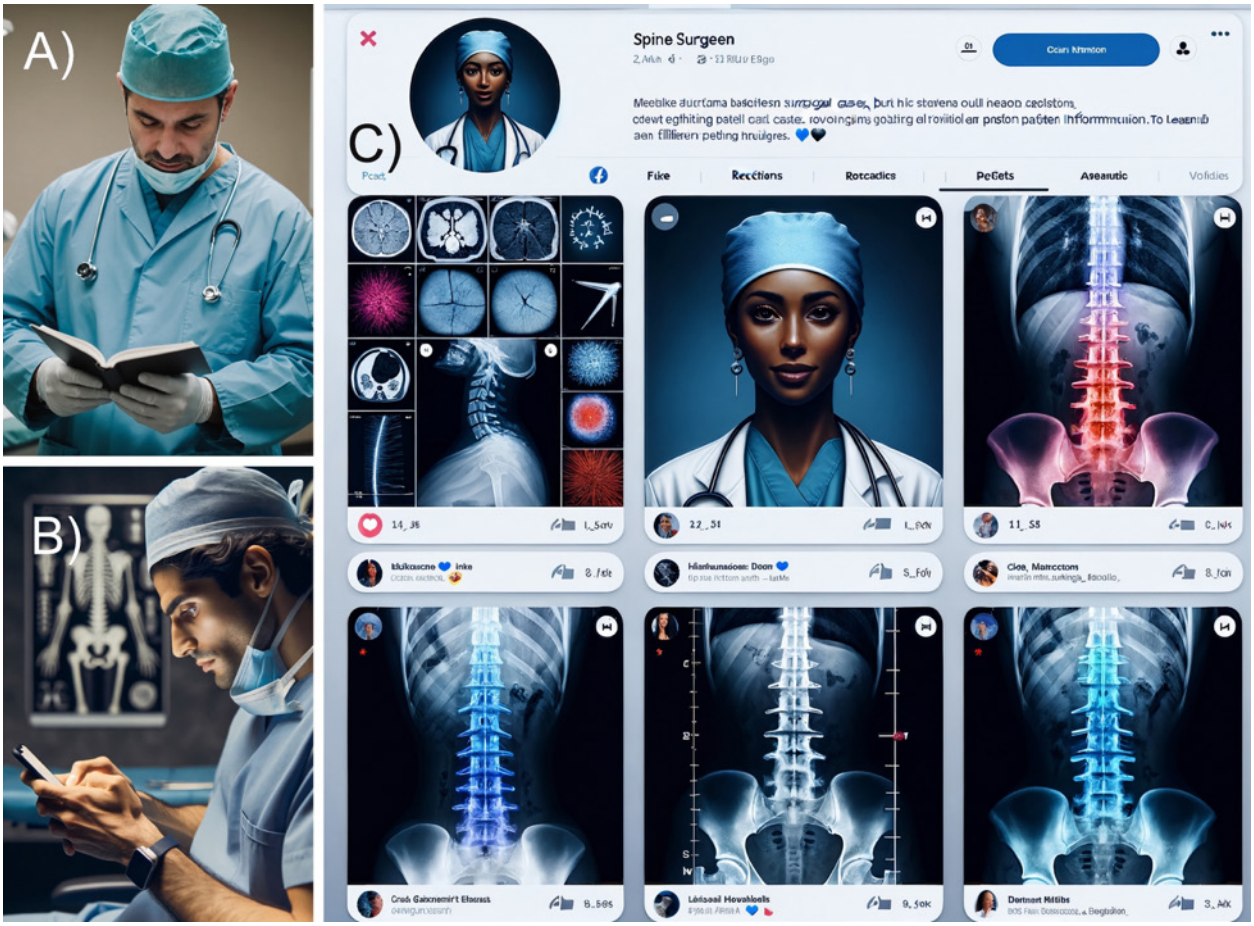

Figure 1. These images, generated using artificial intelligence (Izea), illustrate comparisons between traditional vs digital knowledge dissemination in spine surgery. (A) A spine surgeon is depicted reading a traditional printed spine journal, representing the established method of staying informed through peer-reviewed publications vs digital knowledge distribution. (B) The surgeon is also shown reading from a cell phone, engaging with social media content, highlighting the growing reliance on digital platforms for quick updates and real-time insights. The final scene simulates a social media screen displaying multiple posts by various surgeons actively discussing a particular spine-related pathology, emphasizing the collaborative exchange of ideas, diverse perspectives, and the rapid dissemination of knowledge that social media platforms enable in the surgical community (C).

CURRENT STATE OF SOCIAL MEDIA AND TRADITIONAL PUBLISHING

The shift from traditional in-print publishing to digital open-access platforms has fundamentally transformed the economics of medical literature. Historically, the financial burden of accessing scientific and medical information fell on readers or institutions through subscription fees. Libraries, hospitals, and individual practitioners often shouldered the cost of subscribing to journals to stay current with the latest research and clinical advancements. This model inherently prioritized the dissemination of knowledge to those who could afford it, restricting access for many who lacked institutional support. However, one could argue that most surgeons have been able to afford journal subscriptions, particularly over the past decade, as subscription models became more accessible. Additionally, about 7 years ago, an influx of academic articles—previously behind paywalls—became available illegally through websites like Sci-Hub.[8] This development, albeit controversial, allowed for widespread access to peer-reviewed and PubMed-indexed clinical information, effectively bypassing traditional subscription barriers. As a result, the clinical knowledge that was once financially out of reach became freely available, challenging the conventional economics of medical publishing. While these articles were still peer-reviewed and thus maintained a level of credibility and rigor, the rise of alternative access methods, such as Sci-Hub, has blurred the lines between paid and open-access publishing. Such tools further underscore the need for balance between accessibility and maintaining the integrity of the peer-review process, which continues to be a critical issue.

With the advent of digital open-access publishing, the model has reversed, transferring the financial responsibility from the consumer to the content

creator. In this system, authors are now required to pay article processing charges to have their work published and made freely accessible to the public. While this approach democratizes access to scientific knowledge by removing paywalls for readers, it imposes a significant financial burden on researchers and clinicians, particularly those without institutional funding or support. This shift has led to new challenges for physicians and researchers in fields such as spine surgery, where publishing high-quality, peer-reviewed work is essential for advancing clinical practice and gaining professional recognition. For many surgeons, the high cost of article processing charges can be a barrier, preventing them from disseminating their findings in reputable open-access journals. As a result, the move toward digital open-access publishing, while broadening the reach of medical information, has also created inequities in who can afford to contribute to the scientific dialogue, potentially stifling innovation and slowing the pace of progress in fields that rely on the active participation of a diverse community of thought leaders.[9,10] Meanwhile, surgeons seeking to innovate must navigate not only steep learning curves and technical challenges but also the economic and institutional hurdles that come with adopting new technologies in clinical practice.[11,12]

Social media provides a dynamic platform for open discussion, enabling the inexpensive dissemination of information and fostering opportunities for collaboration and the exchange of ideas. For experienced surgeons and specialists, this environment offers a unique space to maneuver, share insights, and engage with peers across the globe. However, for novice surgeons or those still in training, the lack of critical experience may pose challenges in discerning the credibility and quality of the content they encounter. Without the depth of knowledge to properly evaluate what is published, these surgeons risk being misled by information that may not be fully vetted or representative of best practices.[6] Moreover, the influence of industry on the content shared through social media is a growing concern. Companies often leverage these platforms to market their products, subtly or overtly influencing the information surgeons see. This can lead to an unbalanced representation of clinical options, with posts promoting devices or techniques that align more with commercial interests than with peer-reviewed evidence. While social media has become an invaluable tool for experienced practitioners to share advancements and innovations, it is essential to recognize the potential risks for less experienced surgeons who may not yet have the critical skills to navigate this unregulated flow of information effectively.

In this environment, traditional scholarly journals and academic societies—long viewed as the authoritative sources for clinical knowledge—now face increasing competition from the speed and accessibility of social media. Many surgeons, particularly those at the cutting edge of innovation, are using these platforms to share groundbreaking techniques, discuss procedural advancements, or market themselves and their practices—often bypassing the rigorous, yet time-consuming, peer-review process.

THE DUAL DYNAMIC

The shift to publicizing spine care-related issues in social media posts and chat rooms has led to a dual dynamic: while social media democratizes access to information and accelerates the sharing of innovative ideas, it also raises concerns about the credibility and permanence of the data presented. Unlike peer-reviewed journal articles, social media posts may lack the rigorous validation process that ensures the accuracy and reliability of the content. This dichotomy creates a challenge for spine societies and medical organizations, which must now find ways to leverage the benefits of social media while maintaining the standards of scientific integrity (Figure 2).

In response to these trends, spine societies have a unique opportunity to bridge the gap between the immediacy of social media and the rigor of traditional academic publishing. By integrating these platforms into their educational strategies, they can create a more engaged and interactive community of members, fostering innovation while ensuring that new developments in spine surgery undergo proper scrutiny. The challenge lies in balancing the rapid pace of information exchange on social media with the need to uphold the credibility and thoroughness that has long been the hallmark of scientific inquiry.

LIMITATIONS OF TRADITIONAL PUBLISHING IN SPINE SURGERY

Traditional publishing in spine surgery faces significant challenges that can hinder the adoption of innovative techniques and slow the progression of knowledge within the field. One of the primary obstacles is the rigorous evidence requirements inherent in traditional academic publishing. These include strict methodologies, such as randomization and double blinding, which are often difficult to implement in surgical research due to the complexity of procedures and the variability in surgeon skill. Spine surgery is a field where

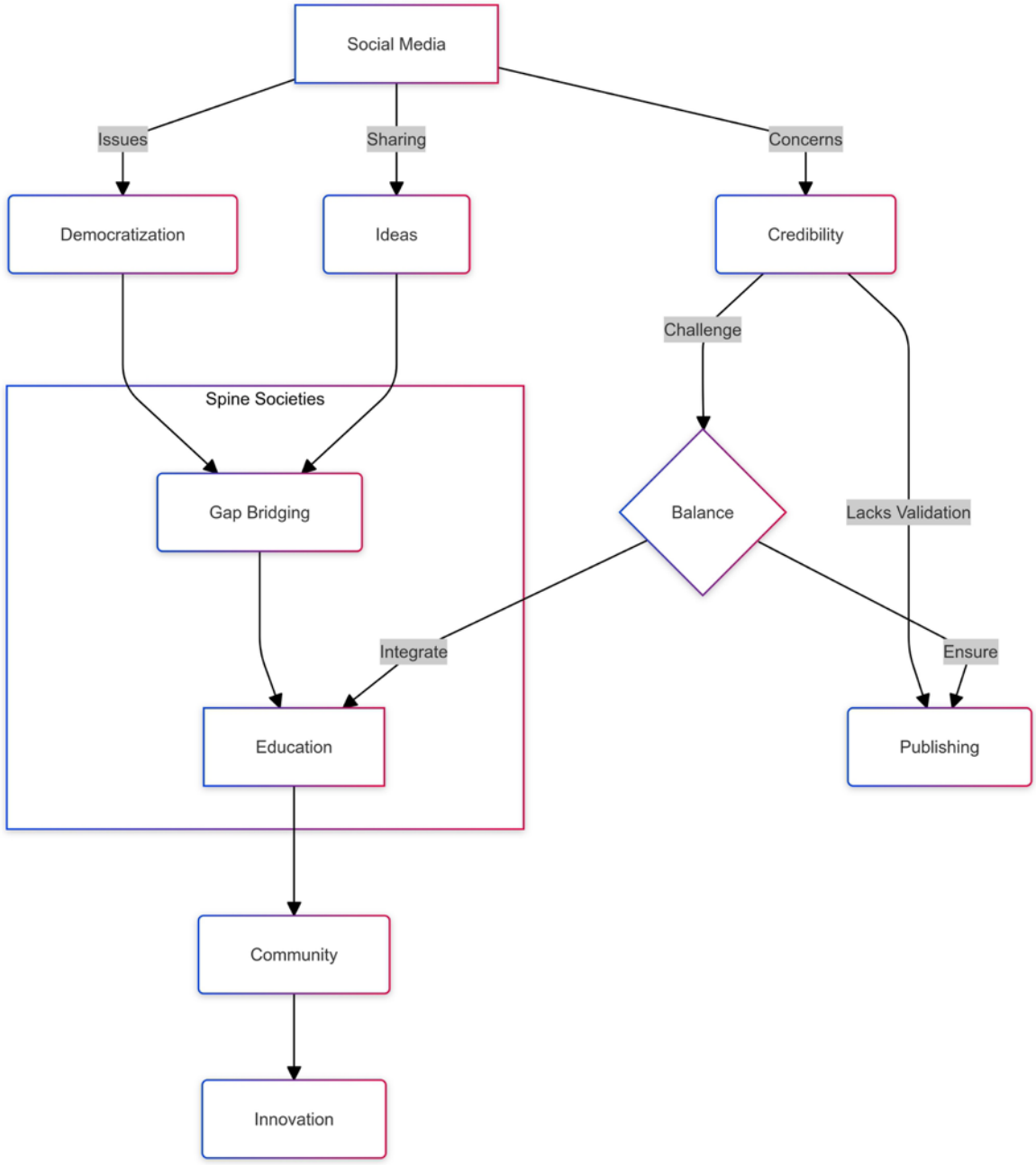

Figure 2. This architecture diagram illustrates the strategic integration of social media in spine care communication, emphasizing the balance between rapid information sharing and maintaining scientific rigor. Social media platforms serve as modern tools for publicizing spine care topics, enhancing access to information, and accelerating the spread of innovative ideas. However, they also raise concerns about data credibility and permanence. Traditional academic publishing remains the benchmark for content validation, ensuring accuracy and reliability in disseminating medical knowledge. Spine societies play a critical role in bridging the gap between these 2 approaches by facilitating the transition of spine care discussions across platforms and implementing educational strategies that engage both traditional and digital audiences. The diagram highlights the importance of maintaining a balance as spine societies navigate the challenges of ensuring credible, rapid information exchange without compromising the rigorous standards of traditional publishing. By fostering a well-structured integration, spine societies can create a more engaged community, driving innovation while upholding the scrutiny and credibility that define academic excellence.

individualized treatment and adaptability are crucial, making it challenging to meet the stringent criteria for high-level evidence typically demanded by peer-reviewed journals. It virtually excludes a culture of theorizing surgical hypotheses that are easily discussed on social media.

Additionally, the slow adoption of innovations within traditional academic publishing is exacerbated by bureaucratic processes. The lengthy peer-review cycle, coupled with multiple rounds of revisions, can delay the dissemination of new findings for months, if not years. This lag can be detrimental in a fast-evolving

field like spine surgery, where timely sharing of information is essential for patient care and the broader adoption of new techniques. Although preprint servers help shorten this delay, even high-impact innovations may still struggle to gain broad visibility through conventional channels alone.

The *International Journal of Spine Surgery* strives to play a crucial role in maintaining the scientific integrity of research by providing a platform for validated studies, while attempting to overcome limitations in accommodating real-time innovations. The focus on high-grade evidence often means that early-stage findings, case reports, and observational studies are underrepresented, even though these types of studies can offer valuable insights into emerging techniques and real-world clinical outcomes. As a result, there is a gap between the pace of innovation in the operating room and the ability of traditional publishing to capture and validate those advancements, highlighting the need for a more dynamic and flexible approach to disseminating new knowledge in spine surgery.

ROLE OF SOCIAL MEDIA IN DRIVING INNOVATION

Social media has emerged as a powerful and dynamic platform for discussing innovations, techniques, and real-world experiences in spine surgery. Social media allows for an immediate and interactive exchange of ideas among surgeons, researchers, and medical professionals worldwide. Platforms like X, LinkedIn, TikTok, and Instagram have become virtual meeting grounds where spine surgeons can share innovative procedures, discuss clinical outcomes, and engage in constructive debates on the latest advancements—all in real time. For instance, residency and fellowship programs now use Instagram accounts to highlight their culture and expertise, while individual surgeons share complex surgical techniques with a global audience. These platforms allow for the rapid dissemination of clinical insights, fostering a culture of collaboration and mentorship that traditional publishing cannot match. Furthermore, one of the most significant advantages of using social media is its ability to bypass the lengthy and restrictive traditional publishing process. The immediacy of social media enables surgeons to share lower-level evidence and observational studies, which, while not meeting the rigorous standards of peer review, provide valuable real-world insights. High-impact journals often require extensive review and revision cycles, which can delay the dissemination of new surgical techniques and research findings. In contrast, social media provides an avenue for instant feedback from a global community, facilitating a rapid cycle of idea generation, critique, and improvement. This speed and flexibility are particularly beneficial in a field as rapidly evolving as spine surgery, where timely sharing of information can directly impact patient care and clinical outcomes.

However, it is important to acknowledge that not all information shared on these platforms meets the same standards of scientific rigor. For example, spine-related content on TikTok has garnered over 100 million views, but much of it has been rated as low quality by DISCERN scores, emphasizing the need for both health care providers and patients to verify medical information.[13] Spine surgeons must be mindful of their ethical responsibility to maintain professional standards when sharing content, ensuring it is accurate and supported by credible sources. This is particularly critical as social media's reach extends beyond peers to include patients, who may rely on these platforms for medical guidance. By maintaining the same level of rigor online as in traditional academic publishing, surgeons can ensure that the rapid dissemination of knowledge is both impactful and trustworthy.[14] This broader reach enhances the visibility of innovative techniques and allows for a more inclusive dialogue that can help shape public perception and patient awareness of the latest advancements in spine surgery. Through social media, spine surgeons can amplify their contributions to the field, raise awareness of their research, and engage in collaborative discussions that drive the future of surgical innovation beyond the confines of traditional academic publishing (Figure 3).

INTEGRATING SOCIAL MEDIA WITH TRADITIONAL PUBLISHING

Integrating social media with traditional publishing in spine surgery presents a valuable opportunity to combine the immediacy and broad reach of online platforms with the credibility and rigor of peer-reviewed journals. However, to fully capitalize on the strengths of both mediums, it is essential to establish certain standards and ensure that detailed descriptions accompany any clinical information shared. Without clear, well-defined protocols for content, there is a risk that the information disseminated through social media will lack the depth and precision needed for meaningful scientific and clinical application.

One strategy for blending social media with traditional publishing involves leveraging social media's

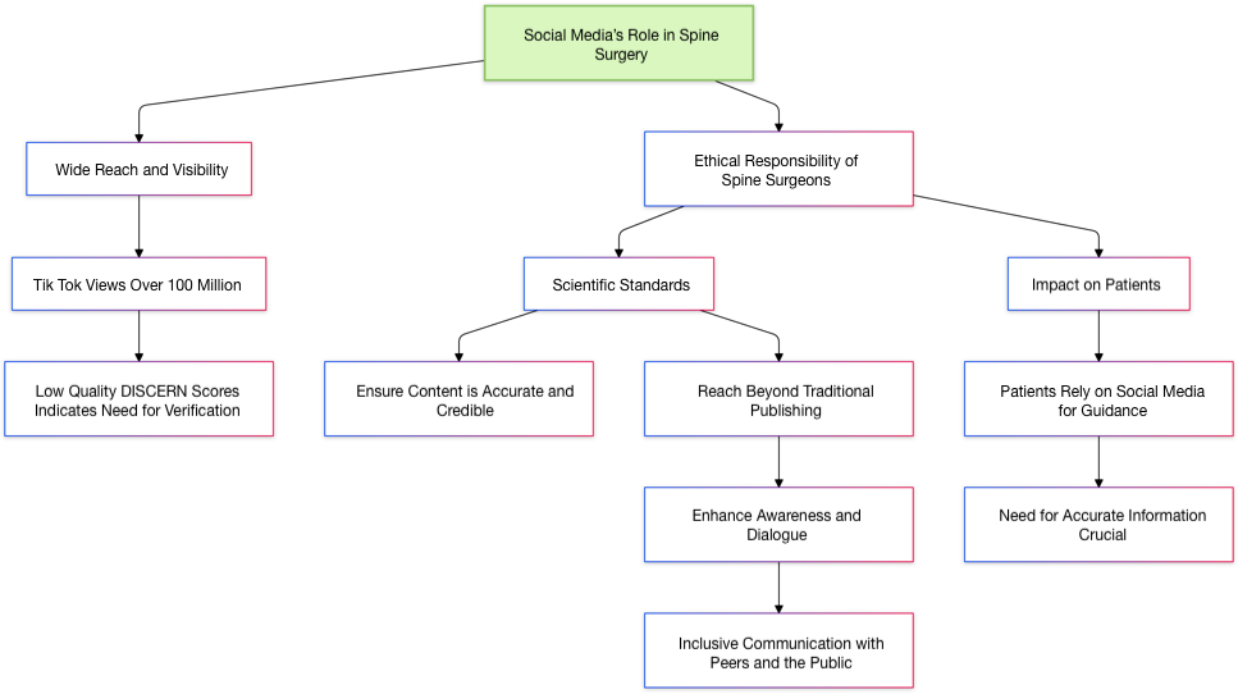

Figure 3. This diagram highlights the transformative role of social media in spine surgery, emphasizing its function as a dynamic platform for innovation, engagement, and discussion among professionals and the public. Social media enables the rapid exchange of ideas, innovations, and techniques, bypassing traditional publishing delays to disseminate new findings more quickly. It also fosters real-time feedback, improving surgical techniques and expanding visibility to a global audience. By engaging a broader community, including peers and patients, social media enhances the dialog around spine surgery advancements. This tool amplifies the impact of surgeons' contributions and promotes collaboration, ultimately driving innovation and shaping the field's future.

real-time engagement capabilities to initiate conversations around emerging research and clinical innovations, leveraging the credibility of academic societies. Researchers and spine surgeons can use platforms like X, LinkedIn, or specialized forums to share preliminary findings, innovative surgical techniques, or real-world case studies with their professional networks. However, such posts should include thorough descriptions of procedures and outcomes to prevent oversimplification or misunderstanding. By establishing guidelines for the level of detail required, these platforms can better serve as a precursor to the formal peer-review process rather than a replacement for it.

Moreover, standards should be developed to ensure that social media content adheres to established scientific rigor. Discussions generated via these platforms, such as those gathered through surgeon surveys or real-time feedback, can provide valuable insights and help refine hypotheses and methodologies. These refined concepts can then move through the formal peer-review process required by academic journals. By setting clear standards for the level of detail and accountability in social media posts, spine societies and researchers can create a cohesive approach to disseminating knowledge, blending the immediacy of social platforms with the depth and reliability of traditional publishing.

Spine societies have a critical role in this integration process. They can utilize their social media presence to act as a preliminary vetting ground for innovative research. By creating dedicated hashtags, discussion threads, or live webinar sessions, these societies can facilitate a peer-to-peer review process that encourages constructive critique and collaborative input. This approach not only amplifies the visibility of new ideas but also ensures that when the research eventually reaches traditional publication channels, it has already undergone a level of scrutiny and validation from the surgical community. Creating a digital bridge between quick-turn social media posts, YouTube channels, and comprehensive articles in traditional journals is essential for this blended approach to succeed. This can be achieved by encouraging authors to develop full-length articles that expand upon the concepts initially shared on social media platforms. These articles can then be submitted to peer-reviewed journals like the *International Journal of Spine Surgery* for formal publication. By fostering this transition from the informal to the formal, spine societies can ensure that innovations benefit from both the speed of social media and the credibility of traditional academic scrutiny.

LEVERAGING SOCIAL MEDIA FOR MEMBER ENGAGEMENT IN SPINE SOCIETIES

Effectively leveraging social media for member engagement can transform how spine societies connect with their community and promote active involvement among their members. Social media platforms offer dynamic tools to boost engagement, promote events, and create a vibrant sense of community that enhances the professional growth of spine surgeons. To maximize member engagement, spine societies should implement targeted social media campaigns. By utilizing platforms like Instagram, X, LinkedIn, YouTube, and Facebook, these campaigns can highlight the value of society membership, showcase members' achievements, and provide sneak peeks into upcoming educational opportunities. Regular, interactive posts that include polls, Q&A sessions, and live discussions can spark member interest and increase participation in society activities. Statistical partial agreement analysis using the Rasch methodology may allow early insights into high- vs low-value innovations and procedural advancements with rapid data acquisition to gain rapid insights into new trends and post-marketing surveillance of new implants and devices. Hashtag campaigns or challenges specifically designed for spine surgeons can further increase visibility and create a buzz around the society's initiatives, encouraging members to share their own content and experiences.

Platforms like Instagram and X can play a crucial role in promoting society events, webinars, and conferences. Posting engaging visuals, behind-the-scenes clips, speaker highlights, and countdowns to events can generate anticipation and increase member attendance. Live-tweeting during webinars or conferences and sharing event recaps help keep the conversation going long after the events have concluded, allowing members who could not attend to still engage with the content. Promoting these activities through social media can also attract new members to the society by showcasing the wealth of knowledge and resources available to its community. Creating a sense of community among spine surgeons is essential for maintaining long-term engagement and relevancy of a professional spine society. Social media provides an ideal platform to foster peer interaction and support by encouraging open discussions on case studies, surgical techniques, and shared challenges in clinical practice. Spine societies can facilitate these discussions by creating dedicated groups or hashtags that members can use to exchange ideas and seek advice from colleagues. By highlighting member achievements, welcoming new members, and celebrating milestones through social media, societies can cultivate a supportive, interactive community that strengthens the professional bonds among spine surgeons. Leveraging social media for member engagement is not just about disseminating information; it is about creating a 2-way dialog that empowers spine surgeons to share their voices, learn from one another, and grow together as a community. By embracing these tactics, spine societies can ensure that their members remain connected, engaged, and actively contributing to the evolution of the field (Figure 4).

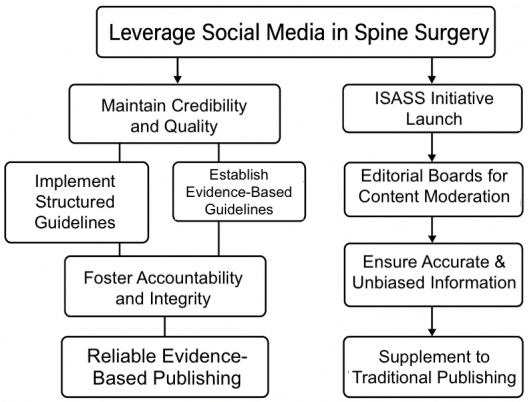

Figure 4. Diagram outlining the International Society for the Advancement of Spine Surgery's (ISASS's) strategy to effectively integrate social media into traditional publishing practices, enhancing knowledge dissemination in spine surgery while maintaining high academic standards. The primary goal is to leverage social media for professional communication, ensuring that all shared information is reliable, evidence-based, and upholds the integrity of medical discussions. To achieve this, ISASS plans to implement structured guidelines for digital content, emphasizing accuracy and minimizing misinformation. By launching initiatives to encourage evidence-based posts and establishing editorial boards to oversee content quality, ISASS aims to foster a culture of accountability and professional integrity. The peer review process will be crucial in moderating social media content, ensuring that it aligns with the rigorous standards of traditional academic publishing. The expected outcomes include building a trustworthy environment for medical communication, where spine surgeons share scientifically sound and unbiased information. This integration bridges the gap between social media and traditional publishing, positioning social media as a credible supplement to peer-reviewed journals. By fostering a structured and reliable approach, ISASS is committed to driving innovation in spine surgery while maintaining the highest standards of academic rigor.

THE NEED FOR A BALANCED APPROACH

A balanced approach that allows social media to complement, rather than compete with, traditional publishing methods is needed. While social media platforms offer immediacy and broad accessibility, traditional peer-reviewed journals provide the rigorous validation and credibility necessary for high-quality research. By integrating these two channels effectively, the goal is to

harness the best of both worlds—social media's rapid dissemination and real-time discussions, along with the thorough vetting processes of academic publishing. To maintain the integrity and credibility of research published through both channels, spine societies and medical professionals must establish guidelines that ensure consistency in the quality of the content shared. While social media can serve as a valuable forum for generating initial interest and discussion, it should not undermine the standards of evidence required by traditional publishing. Encouraging surgeons to present preliminary data, clinical observations, and innovative ideas on social media can create a dynamic exchange of knowledge that drives interest toward more detailed research articles in peer-reviewed journals. Addressing the "glass ceiling effect"—where innovative ideas struggle to gain acceptance due to the rigid demands of randomized controlled trials—requires a strategic use of both platforms. Social media can be used to highlight emerging techniques and innovative surgical approaches, encouraging peer feedback and iterative improvement. These innovations can then transition into the peer-reviewed realm, where they undergo more rigorous evaluation and validation. This combined strategy will help validate new ideas and clinical advances more rapidly, ensuring they receive the recognition and legitimacy they deserve within the broader medical community.

ADDRESSING CONCERNS ABOUT CREDIBILITY AND QUALITY CONTROL

To fully leverage the benefits of social media in spine surgery while maintaining high standards of credibility and quality, it is essential to implement structured guidelines for information sharing. Ensuring the accuracy and reliability of content shared on digital platforms will help mitigate concerns about the potential for misinformation or bias. Establishing clear guidelines that encourage spine surgeons to base their posts on evidence-based practices will foster a culture of accountability and maintain the professional integrity of discussions. ISASS will launch an initiative to that extent and may establish editorial boards to maintain high standards on these digital platforms. By taking an active role in moderating content, editorial boards of spine societies and journals can ensure that the information shared is accurate, unbiased, and relevant to clinical practice. Establishing a system of peer review for social media content or creating a dedicated team to oversee the credibility of posts can help uphold quality control. This approach will bridge the gap between rapid information sharing on social media and the rigorous standards of traditional academic publishing, ensuring that spine surgeons benefit from reliable, evidence-based knowledge in all forms of professional communication. Encouraging such evidence-based discussions on social media can elevate the platform's value as a credible source of medical knowledge. By promoting the use of data-driven content and peer-reviewed evidence in these discussions, spine societies can help steer the conversation toward a more scientific and informative exchange. Engaging actively in these platforms with content backed by research and clinical findings will position social media as a valuable supplement to traditional publishing rather than a competitor.

LIMITATIONS OF PEER REVIEW FOR SOCIAL MEDIA

Implementing a formal peer-review system in the context of social media would inherently conflict with its defining characteristics—speed, accessibility, and user engagement. Such a system could significantly slow the flow of information and discourage participation, undermining the dynamic exchange of ideas that makes social media a valuable tool for professional dialogue. Instead, spine societies should position themselves as curators of content, offering periodic reviews, summaries, and critical evaluations of key trends emerging on these platforms. By doing so, they can ensure credibility, maintain professional standards, and build trust without compromising the immediacy and accessibility that social media offers. This hybrid approach seamlessly blends the strengths of both mediums—leveraging the immediacy and breadth of social media while preserving the rigor and validation of traditional peer-reviewed systems—ultimately fostering a more balanced and comprehensive avenue for professional engagement and knowledge sharing.

FUTURE DIRECTIONS AND RECOMMENDATIONS

To remain at the forefront of innovation in spine surgery, spine societies must proactively adapt to the rapidly changing environment of digital communication by investing in social media presence and digital literacy for their members. Providing educational resources and training opportunities focused on the effective use of social media can empower spine surgeons to engage meaningfully in online discussions, share their expertise, and disseminate valuable information in ways

Table. Proposed action plan to harness social media and maintain academic excellence.

Task	Initiative	Objective	Execution
Bridging social media and traditional publishing	Developing preliminary vetting processes	Use social media platforms to host discussions on research, case studies, and innovations, acting as incubators for ideas.	Facilitate early-stage discussions and transition to formal peer-reviewed publications.
	Encouraging dual-format contributions	Encourage surgeons and researchers to share initial findings on social media with follow-ups submitted to high-impact journals.	Enable rapid dissemination while maintaining scientific credibility.
Empowering surgeons	Best practices for evidence-based sharing	Provide training on presenting clinical insights and innovations accurately and responsibly.	Ensure the quality and integrity of shared content.
	Avoiding pitfalls of less-vetted material	Educate surgeons on identifying misinformation and commercial bias.	Enhance critical evaluation of online content.
Creating editorial oversight	Implement peer review for digital content	Introduce vetting processes for social media posts to align with traditional publishing standards.	Maintain the credibility and reliability of digital content.
	Develop guidelines for accuracy and rigor	Establish protocols for the depth and precision of shared online information.	Ensure scientific integrity of social media discussions.
Engaging younger surgeons	Interactive campaigns	Launch live Q&A sessions, hashtag campaigns, and challenges to increase participation and visibility.	Strengthen connections and foster active engagement among younger surgeons.
	Mentorship opportunities	Create platforms for experienced surgeons to mentor younger peers via digital discussions.	Encourage collaboration and knowledge sharing across generations.
Balancing innovation with credibility	Encouraging observational studies and case reports	Highlight these studies on social media and transition them to peer-reviewed formats.	Bridge informal discussions and formal academic publishing.
	Post-marketing surveillance integration	Use social media to gather real-time feedback and data on implants and devices while adhering to credentialing guidelines.	Ensure timely evaluation and monitoring of new innovations.
Advocacy for policy adaptation	Collaborating with regulatory bodies	Partner with ACCME to refine CME policies that reflect spine surgery innovation realities.	Ensure inclusivity and practicality in CME activities.
	Defining case scenarios	Develop guidelines to ensure ethical surgeon-industry collaborations.	Address inconsistencies and promote ethical practices.
Building a knowledge ecosystem	Dedicated digital platforms	Explore new platforms tailored for professional discussions blending interactivity and rigorous content curation.	Foster a balanced and accessible knowledge-sharing environment.
	Tracking impact metrics	Use tools to measure reach and engagement across digital and traditional channels.	Evaluate and optimize the effectiveness of knowledge dissemination strategies.

Abbreviations: ACCME, Accreditation Council for Continuing Medical Education; CME, continuing medical education; Q&A, question and answer.

that resonate with a broader audience. To address the challenges and opportunities outlined, spine societies, including ISASS, must take proactive steps to adapt to the rapidly evolving digital media while maintaining academic rigor. The potential initiatives to mitigate the issues highlighted in this article and harness the potential of social media for engaging the next generation of spine surgeons are summarized in the Table. By implementing these initiatives, ISASS can seamlessly integrate social media with traditional academic processes, fostering innovation, enhancing member engagement, and maintaining the highest standards of academic integrity. Ultimately, spine societies and their publications must develop robust platforms and secure the necessary resources to drive this transformational change forward effectively.

DISCUSSION

In medical communication, the integration of social media with traditional academic publishing is no longer a luxury but a necessity for spine societies aiming to remain at the forefront of innovation. By developing a structured approach that clearly outlines how to leverage social media for disseminating new research and clinical insights, spine societies can bridge the gap between immediate, informal discussions and the rigor of peer-reviewed publications. This hybrid model is not just about using social media as a marketing tool; it is about creating a symbiotic relationship in which digital platforms serve as incubators for new ideas that eventually undergo thorough academic scrutiny.

The real value lies in harnessing the speed and broad reach of social media to initiate conversations on emerging trends and innovations while ensuring that these discussions are eventually translated into high-quality, peer-reviewed evidence. Social media can act as a catalyst, engaging a wider audience and promoting knowledge exchange in real time. However, for this approach to succeed, spine societies must establish clear guidelines that maintain the credibility and integrity of both the content shared on digital platforms and the publications that follow in traditional journals.

Equally important is the exploration of new digital platforms tailored specifically to the needs of medical

professionals. These platforms can facilitate collaborative learning, case discussions, and interactive research sharing, making them ideal for continuous professional development. By embracing these technologies, spine societies can offer their members a space that is not only current but also conducive to meaningful clinical and academic interactions.

CONCLUSION

The integration of social media with traditional publishing represents a significant opportunity for spine societies to enhance engagement, foster innovation, and ensure that their communication strategies evolve with digital trends. This hybrid model can help bridge the gap between the immediacy of real-time discussions and the credibility of peer-reviewed research, ultimately strengthening the knowledge-sharing process in spine surgery. As digital platforms continue to grow in influence, spine societies must proactively adapt to these changes to stay relevant and maintain a strong connection with their members. By investing in social media strategies and aligning them with traditional academic processes, these organizations can foster a culture of continuous learning, collaboration, and innovation. The call to action is clear: spine surgeons and societies must embrace this blended model of communication, leveraging the best of both worlds to drive progress in spine surgery. By doing so, they will not only enhance the dissemination of knowledge but also ensure that they remain leaders in shaping the future of spine care.

REFERENCES

1. Walsh S. The top 10 social media sites & platforms. *Search Engine J*. 2025. https://www.searchenginejournal.com/social-media/social-media-platforms/.

2. Reddy N, Evans T, Jefferson R, Roebke AJ, Jain SA. Social media use among academic hand surgeons. *J Hand Surg Glob Online*. 2021;3(5):249–253. doi:10.1016/j.jhsg.2021.06.007

3. Bixby EC, Danford NC, Desai SS, Paskey TL, Levine WN. Instagram use among orthopaedic surgery residency programs. *J Am Acad Orthop Surg*. 2022;30(14):648–657. doi:10.5435/JAAOS-D-22-00089

4. Wilson CD, Scherry HA, Syed MA, Hammonds KAP. Social media use by hand surgery fellowship programs. *J Am Acad Orthop Surg*. 2022;30(15):728–734. doi:10.5435/JAAOS-D-21-00898

5. Condon A. Spine surgeons on Instagram: 10 physicians building a following. *Becker's Spine Review February*. 2022;15. https://www.beckersspine.com/spine/spine-surgeons-on-instagram-10-physicians-building-a-following/.

6. Vadhera AS, Lee JS, Veloso IL, et al. Technique articles are more effective at increasing social media attention in comparison with original research articles: an Altmetrics-based analysis. *Arthrosc Sports Med Rehabil*. 2022;4(3):e989–e995. doi:10.1016/j.asmr.2022.02.002

7. Lorio M, Kim C, Araghi A, Inzana J, Yue JJ. International Society for the Advancement of Spine Surgery policy 2019-surgical treatment of lumbar disc herniation with radiculopathy. *Int J Spine Surg*. 2020;14(1):1–17. doi:10.14444/7001

8. Himmelstein DS, Romero AR, Levernier JG, et al. Sci-hub provides access to nearly all scholarly literature. *ELife*. 2018;7:e32822. doi:10.7554/eLife.32822

9. Lynch CP, Cha EDK, Patel MR, et al. How does open access publication impact readership and citation rates of lumbar spine literature? *Clin Spine Surg*. 2022;35(6):E558–E565. doi:10.1097/BSD.0000000000001303

10. Abdul Baki MN, Alhaj Hussein M. The impact of article processing charge waiver on conducting research in low-income countries. *Confl Health*. 2021;15(1):75. doi:10.1186/s13031-021-00413-1

11. Ransom NA, Gollogly S, Lewandrowski KU, Yeung A. Navigating the learning curve of spinal endoscopy as an established traditionally trained spine surgeon. *J Spine Surg*. 2020;6(Suppl 1):S197–S207. doi:10.21037/jss.2019.10.03

12. Lewandrowski K-U, Soriano-Sánchez J-A, Zhang X, et al. Surgeon motivation, and obstacles to the implementation of minimally invasive spinal surgery techniques. *J Spine Surg*. 2020;6(S1):S249–S259. doi:10.21037/jss.2019.08.02

13. Subramanian T, Araghi K, Akosman I, et al. Quality of spine surgery information on social media: a DISCERN analysis of TikTok videos. *Neurospine*. 2023;20(4):1443–1449. doi:10.14245/ns.2346700.350

14. Alan N, Zhou JJ, Farber SH, Uribe JS. The status of spine surgery in social media platforms: a call to action. *J Neurosurg Spine*. 2024;40(4):539–542. doi:10.3171/2023.11.SPINE23625

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