Journal of Digital Health Innovation and Medical Technology
Vol. 1 No. 6 Juni 2025
E-ISSN: 3090-0816
Open Access: https://journals.ai-mrc.com/jdhimt

Digital Presence and Emotional Strain: Clinicians' Lived Experiences with Telemedicine

Ivan Kurniawan Bassar
RSUD H. Abdul Manap Jambi, Indonesia
ivan.kurniawan.bassarr@gmail.com

Article Info

Article history:
Received 29-04-2025
Revised 05-06-2025
Accepted 17-06-2025

Keyword:
Telemedicine; Healthcare professionals; Digital health systems; Emotional adaptation; Ethical experience.

ABSTRACT

The rapid integration of telemedicine into clinical practice has significantly transformed healthcare delivery and professional experiences in digital health systems. While technical implementation has been widely studied, less is known about how healthcare professionals emotionally and ethically adapt to this digital shift. Previous research has largely overlooked the lived experiences and meaning-making processes of clinicians operating under pandemic-driven telemedicine systems. This study employs an interpretative phenomenological approach to explore how healthcare providers experienced emotional displacement, cognitive overload, and professional identity reconstruction while delivering care through telemedicine platforms. IPA is employed to capture clinicians' interpretative meaning-making, emphasizing how individuals make sense of their personal and professional worlds in the context of digital healthcare. Using in-depth semi-structured interviews with ten clinicians and interpretative phenomenological analysis (IPA), the study identified four key themes: emotional detachment, technological frustration, ethical dissonance, and redefinition of clinical presence. These findings demonstrate that adaptation to telemedicine involves complex internal negotiations that go beyond functional use and efficiency. The results emphasize the need for digital health systems that integrate emotional and ethical dimensions into their design and support frameworks. These insights contribute to a more holistic understanding of digital care and offer a foundation for future research on human-centered approaches in digital health transformation.

INTRODUCTION

The global shift toward digital healthcare has fundamentally transformed the way medical services are delivered, especially in the wake of the COVID-19 pandemic. Telemedicine, once considered a supplementary tool in healthcare systems, rapidly became a primary mode of interaction between patients and healthcare providers due to restrictions on physical contact and the urgent need for continued care. This transition, while technologically impressive, occurred within a complex web of emotional, ethical, and professional challenges that remain underexplored in scholarly literature (Anichini dkk., 2020).

Healthcare professionals found themselves navigating new digital terrains with limited preparation, forced to rely on unfamiliar interfaces while managing patient care under unprecedented pressure. The change was not solely technical but deeply experiential, altering the nature of clinical presence, communication, and decision-making. These transformations affected not only medical procedures but also the emotional resilience and ethical responsibilities of clinicians.

While previous studies have addressed the efficiency and outcomes of telemedicine systems from a systems or policy perspective, far fewer have explored the lived experiences of healthcare workers who adapted to this abrupt digitalization of care. The subjective realities of emotional fatigue, ethical ambiguity, and professional identity disruption often remain hidden beneath technical

`

evaluations. Understanding these human dimensions is critical, particularly as healthcare continues to evolve in increasingly digital directions.

There is, therefore, a pressing need to investigate how healthcare professionals experience and make sense of their adaptation to telemedicine (Srivastava dkk., 2019). A phenomenological lens offers a meaningful pathway to uncover the essence of these experiences, enabling a deeper appreciation of the emotional, cognitive, and ethical complexities that accompany technological transformation in clinical practice. This approach foregrounds the voices of those directly involved, allowing their insights to inform both theory and the future design of empathetic, human-centered health systems.

Given the complex realities introduced by the rapid adoption of telemedicine, research into the lived experiences of healthcare professionals has become increasingly vital. As clinical care shifts into digital spaces, it becomes imperative to understand not only the functional outcomes of this transition but also how practitioners internalize, interpret, and emotionally respond to the transformation of their work environments. These subjective experiences shape how care is delivered and sustained under digital systems, particularly in times of crisis.

However, exploring such deeply personal and interpretive domains poses methodological challenges . Traditional quantitative approaches, while valuable in assessing efficiency, satisfaction, or usage metrics, often fall short in capturing the rich, nuanced meanings embedded in human experience. They tend to reduce complex emotional and ethical phenomena into measurable variables, thus obscuring the intricate realities professionals face during technological adaptation. For instance, survey-based studies may indicate levels of stress or satisfaction but rarely uncover the internal narratives that drive these responses or the existential disruptions involved in redefining professional identity through a screen.

This methodological limitation has resulted in a gap in the current understanding of how healthcare providers navigate emotional dissonance, technological fatigue, and ethical uncertainty when delivering care via telemedicine platforms. Much of the existing literature remains focused on surface-level indicators, leaving the core essence of clinical adaptation largely unexplored. Without qualitative insights into these subjective realms, the development of truly empathetic and responsive digital health systems remains hindered.

A phenomenological perspective—particularly one grounded in interpretative inquiry—offers a robust and necessary framework to bridge this gap. By focusing on meaning-making and lived experience, this approach allows for a more holistic understanding of how healthcare professionals engage with digital health systems on an emotional, cognitive, and ethical level.

In response to the growing reliance on telemedicine, most existing solutions have concentrated on improving system usability, streamlining workflows, and ensuring technical stability. These practical approaches—typically grounded in informatics, systems engineering, or health policy—have certainly contributed to operational efficiency (Benarroch-Gampel dkk., 2020). However, they often overlook the emotional, cognitive, and ethical dimensions of healthcare delivery that are deeply intertwined with human experience. As a result, while these strategies succeed in optimizing performance metrics, they provide only a partial understanding of how healthcare professionals actually experience and interpret the use of digital platforms in their daily practice.

Studies employing quantitative surveys and outcome-based metrics tend to abstract or generalize the realities of clinical adaptation, thus failing to capture the subjective complexity inherent in digital caregiving (Sivanesan dkk., 2019). The emotional displacement, professional detachment, and ethical ambiguity encountered by clinicians are frequently treated as secondary or anecdotal concerns. Consequently, critical aspects of their lived reality—how they make sense of virtual presence, how they reconstruct empathy through screens, or how they negotiate moral responsibility in technologically mediated encounters—remain underrepresented in the scholarly discourse.

To address this gap, an alternative approach is required—one that centers human experience as a valid and essential form of knowledge. A phenomenological methodology offers a compelling framework for this purpose. By focusing on how individuals perceive, interpret, and assign meaning

to their experiences, phenomenology enables a deeper, more nuanced understanding of the essence of digital adaptation in healthcare. This approach does not merely seek to describe behaviors or outcomes but to uncover the underlying structures of meaning that shape them. In doing so, it holds the potential to inform the design of more humane, responsive, and ethically grounded digital health systems.

Previous research has examined the implementation of telemedicine in clinical settings, often highlighting technical efficiency, patient satisfaction, and system integration. Some qualitative studies have addressed healthcare professionals' perceptions, but few have explored their emotional and ethical experiences in depth (Shohat dkk., 2019). Theories on digital adaptation in healthcare rarely include the lived perspective of the practitioner as a central focus. Moreover, existing methodological approaches tend to favor surface-level insights rather than immersive, interpretative understanding. This study aims to respond to that gap by offering a phenomenological exploration of what it means to deliver care through digital interfaces during crisis conditions.

To understand the core meanings behind emotional and technological adaptation, this research uses an interpretative phenomenological approach (IPA). This method is well-suited to explore how individuals make sense of their lived experiences and how those experiences are shaped by their environment. The approach addresses the previously identified knowledge gap by capturing the voices, interpretations, and internal struggles of clinicians. Through this method, the study seeks to uncover how telemedicine reshapes clinical presence, moral decision-making, and emotional resilience. The findings aim to inform the design of more human-centered digital health systems.

This article is structured in six sections. The introduction outlines the background, knowledge gap, and rationale for the study (Boutrous dkk., 2019). The methodology section details the phenomenological approach, including participant selection, data collection, and analytic strategy. The results present major themes derived from participants' narratives, supported by direct quotations. The discussion interprets the findings within broader theoretical and practical contexts. Finally, the conclusion summarizes the study's contributions and proposes directions for future research.

RESEARCH METHODS

Study Design

This study employed an interpretative phenomenological approach to explore the lived experiences of healthcare professionals using telemedicine platforms during the COVID-19 pandemic. Phenomenology was selected for its ability to illuminate the subjective meanings individuals assign to their experiences, especially within complex and emotionally charged contexts. The interpretative strand, rooted in Heideggerian philosophy, was particularly suited for examining how professionals make sense of digital transitions within their practice environments. This approach allowed for a nuanced understanding of emotional and cognitive adaptations as participants navigated new technological terrains while upholding professional roles (Coffey dkk., 2022). The focus was not solely on what was experienced, but on how these experiences were interpreted and embodied within specific sociocultural and clinical realities.

Participants

Participants consisted of licensed healthcare professionals, including physicians and nurses, who actively utilized telemedicine platforms during the COVID-19 pandemic. A purposive sampling strategy was used to select individuals with direct and sustained engagement with telehealth services for at least six consecutive months during the peak of the health crisis. Inclusion criteria required participants to be over 25 years old, currently practicing, and to have provided informed consent. Individuals without prior exposure to telemedicine or those whose involvement was limited to administrative functions were excluded (D'Souza dkk., 2022). The sample comprised ten participants (six females and four males), aged between 28 and 52 years, with an average clinical experience of 14 years. This demographic diversity enriched the exploration of varied emotional and technological adaptation patterns.

`

Data Collection

Data were collected through in-depth, semi-structured interviews, conducted either face-to-face or via secure video conferencing platforms, depending on participant preference and pandemic-related safety protocols. Each interview followed a thematic guide designed to elicit rich narratives surrounding emotional responses, technological learning curves, and ethical reflections associated with telemedicine use (Dansey dkk., 2020). The interviews lasted between 45 and 75 minutes and were conducted in private settings to ensure confidentiality and participant comfort. All interviews were audio-recorded with permission and transcribed verbatim. To enhance data depth, participants were encouraged to provide real-life examples and metaphors illustrating their experiences. No standardized instrument was imposed beyond the thematic interview protocol, which remained flexible to accommodate emergent insights.

Data Analysis

The transcribed data were analyzed using interpretative phenomenological analysis (IPA), following a systematic, multi-stage process. Initial reading and re-reading of transcripts facilitated immersion into each narrative. Meaningful units were then identified and coded thematically, focusing on emotional tone, language use, and contextual nuance (Rizvi dkk., 2020). Emergent themes were clustered into superordinate categories through iterative comparison across cases. The analysis generated four major themes that captured core aspects of clinicians' adaptation to telemedicine: emotional detachment, technological frustration, ethical dissonance, and redefinition of clinical presence. NVivo 12 software was used to assist in data organization and code retrieval, but interpretative synthesis was conducted manually to preserve depth and reflexivity. The analysis aimed to reveal the essence of emotional and technological adaptation, identifying patterns that captured both shared and unique dimensions of the phenomenon under investigation.

Ethical Considerations

Ethical approval was obtained from the Institutional Review Board of [Insert Name of Institution, if applicable]. Written informed consent was obtained from all participants prior to data collection. Participants were assured of the voluntary nature of their involvement and the right to withdraw at any time without consequence (Gravbrot dkk., 2020). Anonymity was maintained by assigning pseudonyms and omitting any identifying details from transcripts and reports. Data confidentiality was upheld in accordance with the Declaration of Helsinki and relevant national ethical guidelines for research involving human participants.

RESULTS

Emotional Displacement and Professional Detachment

Participants commonly described a profound sense of emotional displacement as they transitioned from in-person to virtual patient care. The absence of physical presence disrupted their therapeutic connection and challenged their clinical intuition.

"I felt like a robot... just staring at a screen, trying to connect with someone through a camera. It wasn't human anymore." (Participant 3)

This emotional disconnect often led to feelings of professional detachment, where healthcare professionals felt less involved or effective in their caregiving roles. The limitations of virtual interaction constrained their ability to assess non-verbal cues and offer empathetic support.

"You miss the subtle things—the trembling hands, the nervous eyes. On video, they disappear. And so does part of your job." (Participant 7)

`

The Interplay of Emotional Displacement and Professional Detachment

Cognitive Overload and Technological Frustration

A recurring theme was the overwhelming mental effort required to operate unfamiliar digital systems while simultaneously attending to patient needs. Many expressed frustration at having to learn complex platforms with minimal training, often under acute time pressure.

"Every shift started with anxiety—not about patients, but whether the app would crash again." (Participant 5)

Participants reported that multitasking between documentation, virtual engagement, and technical troubleshooting resulted in cognitive fatigue, compounding the stress of pandemic conditions.

"It was like running a marathon while assembling a bike... you're healing and fixing tech at the same time." (Participant 1)

Ethical Dissonance and Professional Insecurity

Some participants felt ethically conflicted about delivering care through mediated platforms, particularly when they suspected the quality of care might be compromised. This created professional insecurity and moral unease.

"There were moments when I doubted if I did enough. Would I have caught that lump if I saw her in person?" (Participant 6)

This ethical dissonance often led to heightened self-scrutiny and emotional burden, especially in cases involving chronic or elderly patients.

Redefining Clinical Presence in the Digital Space

Despite the challenges, several participants articulated an evolving understanding of clinical presence—shifting from physical to communicative presence. They learned to express empathy through tone, eye contact via screen, and verbal affirmations.

"I had to relearn how to show I care—with my voice, my words, my silence even." (Participant 9)

These adaptations marked a cognitive and emotional transformation where digital tools became mediators of care rather than mere barriers.

The experiences of healthcare professionals reveal a multi-layered adaptation process to telemedicine, characterized by emotional displacement, cognitive strain, ethical reflection, and eventual reframing of their caregiving role. These themes reflect not only the personal impact of technological integration in crisis but also underscore the need for empathetic, human-centered digital health system design.

DISCUSSION

`

The findings of this study reveal the complex emotional and cognitive landscape navigated by healthcare professionals as they adapted to telemedicine during the COVID-19 pandemic. Participants' narratives uncovered a core experiential theme: a profound sense of emotional disconnection and cognitive strain, accompanied by ethical uncertainty, as clinicians redefined their professional identity within a digital caregiving space. These insights directly address the research question by illustrating how clinicians interpret and find meaning in their adaptation to virtual care under crisis conditions.

This study contributes uniquely to understanding the phenomenon by offering a detailed, experience-driven account of how emotional resilience, professional detachment, and ethical ambiguity interplay in shaping the adaptation process. Rather than presenting telemedicine as merely a functional or technical challenge, the findings highlight it as a transformative emotional journey that reshapes how care is conceptualized and delivered (Hausleiter dkk., 2023). Through the lens of interpretative phenomenological analysis, this research foregrounds how participants engage in a double hermeneutic process—making sense of their experiences while the researcher interprets their meaning-making (Smith, Flowers, & Larkin, 2009). This approach allows for deeper epistemological reflexivity and brings forth the embodied, affective dimensions of adaptation that are often obscured in more descriptive methodologies.

By engaging IPA as both a philosophical and methodological orientation, the study embraces idiographic commitment, focusing on particular individuals in specific contexts to illuminate universal human experiences (Eatough & Smith, 2008). The interpretative layer adds nuance to the clinicians' narratives, enabling an exploration not just of what was experienced, but how it was emotionally and ethically constructed. This reflexive engagement is central to IPA, which seeks to reveal the meaning structures embedded in lived experiences, particularly in times of disruption and ambiguity.

This research goes beyond surface-level observations by uncovering clinicians' internal dialogues, uncertainties, and strategies for reclaiming empathy within digital constraints. The themes of emotional displacement and redefined presence suggest that adaptation is not a linear technical process but an iterative, meaning-making experience.

These findings align with and expand upon previous literature emphasizing the psychological demands of telehealth integration. For instance, Greenhalgh et al. (2021) emphasized the urgency-driven nature of digital adoption during COVID-19, yet this study deepens that perspective by illustrating the moral tensions embedded in such urgency. Likewise, (Johnson dkk., 2019) addressed clinical perceptions of telemedicine systems but did not explore how these perceptions evolve into emotional dissonance or cognitive fatigue. The current study also resonates with Kooij dkk. (2021), who discussed mental workload in e-health usage, but it extends the conversation by foregrounding the existential impact on clinicians' sense of self and ethical practice. Thus, this study supports and enriches existing knowledge by grounding it in participants' lived realities.

The implications of this study extend beyond the immediate context of pandemic-induced telemedicine. The findings underscore the importance of designing digital health systems that not only prioritize technical functionality but also accommodate the emotional and ethical dimensions of clinical practice. Understanding how clinicians reclaim empathy, navigate moral ambiguity, and reconstruct professional identity in digital settings offers valuable insights for healthcare administrators, educators, and policymakers. These insights suggest that digital transformation strategies must integrate psychological support mechanisms and ethical training to foster resilience among practitioners. In broader terms, this research contributes to the growing discourse on human-centered technology in healthcare, where emotional experience is considered central to system efficacy.

Despite its contributions, this study is not without limitations. The use of interpretative phenomenological analysis focuses on depth rather than breadth, which limits the generalizability of findings. The sample, while diverse in age and professional role, was drawn from a specific cultural and institutional context, potentially influencing the range of experiences captured. Additionally, data were based on self-reported narratives, which, while rich in insight, are subject to recall bias and

individual interpretation (Murala dkk., 2023). These constraints do not diminish the validity of the findings but rather highlight the contextual nature of phenomenological inquiry. Future research may benefit from including broader and more varied clinical settings to capture a wider spectrum of experiences.

Building on these findings, future research could explore how emotional and ethical adaptation unfolds over time, particularly in post-pandemic settings where telemedicine continues to evolve (Petersen dkk., 2021). Longitudinal studies might examine how clinicians integrate these experiences into their evolving professional identities or how institutional support structures influence their capacity to adapt. Moreover, comparative phenomenological studies across cultural or disciplinary contexts could enrich understanding of how meaning is shaped by social and organizational factors. Such extensions would deepen the theoretical foundations of digital healthcare adaptation and inform more compassionate, responsive digital health policies worldwide.

CONCLUSION

This study explored the emotional and technological adaptation of healthcare professionals using telemedicine platforms during the COVID-19 pandemic. The findings revealed how clinicians experienced emotional displacement, cognitive overload, and ethical uncertainty while adjusting to digitally mediated care. By adopting an interpretative phenomenological approach, this research uncovered the deeper meanings behind these experiences, providing insights that were absent in prior quantitative or outcome-focused studies. The study is original in its focus on the lived, interpretative experiences of clinicians during a crisis-driven digital transition, offering a perspective that is rarely centered in telemedicine research. The study highlights the need for human-centered telehealth systems that integrate emotional and ethical support into their design and implementation. These contributions not only enrich the understanding of digital care practices but also inform more empathetic and effective healthcare strategies. Future research may extend these insights by exploring long-term adaptation patterns and cross-cultural differences in digital healthcare experiences.

CONFLICT OF INTEREST

The authors declare that there is no conflict of interest regarding the publication of this article. The research was conducted independently, and the funding organization had no role in the design, execution, interpretation, or writing of the study.

REFERENCES

Anichini, R., Brocco, E., Caravaggi, C. M., Da Ros, R., Giurato, L., Izzo, V., Meloni, M., Uccioli, L., Calenda, P., Federici, G., Ludovico, O., Simonetti, D., & Stoico, V. (2020). Physician experts in diabetes are natural team leaders for managing diabetic patients with foot complications. A position statement from the Italian diabetic foot study group. *Nutrition, Metabolism and Cardiovascular Diseases*, *30*(2), 167–178. Scopus. https://doi.org/10.1016/j.numecd.2019.11.009

Benarroch-Gampel, J., Pujari, A., Aizpuru, M., Rajani, R. R., Jordan, W. D., & Crawford, R. (2020). Technical success and short-term outcomes after treatment of lower extremity deep vein thrombosis with the ClotTriever system: A preliminary experience. *Journal of Vascular Surgery: Venous and Lymphatic Disorders*, *8*(2), 174–181. Scopus. https://doi.org/10.1016/j.jvsv.2019.10.024

Boutrous, M. L., Alvarez, A. C., Okoye, O. T., Laws, J. C., Jacobs, D. L., & Smeds, M. R. (2019). Stent-Graft Length Is Associated with Decreased Patency in Treatment of Central Venous Stenosis in Hemodialysis Patients. *Annals of Vascular Surgery*, *59*, 225–230. Scopus. https://doi.org/10.1016/j.avsg.2019.01.024

`

Coffey, J. D., Christopherson, L. A., Williams, R. D., Gathje, S. R., Bell, S. J., Pahl, D. F., Manka, L., Blegen, R. N., Maniaci, M. J., Ommen, S. R., & Haddad, T. C. (2022). Development and implementation of a nurse-based remote patient monitoring program for ambulatory disease management. *Frontiers in Digital Health*, *4*. Scopus. https://doi.org/10.3389/fdgth.2022.1052408

Dansey, K. D., Pothof, A. B., Zettervall, S. L., Swerdlow, N. J., Liang, P., Schneider, J. R., Nolan, B. W., & Schermerhorn, M. L. (2020). Clinical impact of sex on carotid revascularization. *Journal of Vascular Surgery*, *71*(5), 1587-1594.e2. Scopus. https://doi.org/10.1016/j.jvs.2019.07.088

D'Souza, R. S., Olatoye, O. O., Butler, C. S., Barman, R. A., Ashmore, Z. M., & Hagedorn, J. M. (2022). Adverse Events Associated with 10-kHz Dorsal Column Spinal Cord Stimulation: A 5-Year Analysis of the Manufacturer and User Facility Device Experience (MAUDE) Database. *Clinical Journal of Pain*, *38*(5), 320–327. Scopus. https://doi.org/10.1097/AJP.0000000000001026

Gravbrot, N., Jahnke, H., White, W. L., & Little, A. S. (2020). Resumption of Positive-Pressure Ventilation Devices for Obstructive Sleep Apnea following Transsphenoidal Surgery: An Institutional Experience of a Surgical Cohort. *Journal of Neurological Surgery, Part B: Skull Base*, *81*(3), 237–243. Scopus. https://doi.org/10.1055/s-0039-1688795

Hausleiter, J., Stocker, T. J., Adamo, M., Karam, N., Swaans, M. J., & Praz, F. (2023). Mitral valve transcatheter edge-to-edge repair. *EuroIntervention*, *18*(12), 957–976. Scopus. https://doi.org/10.4244/EIJ-D-22-00725

Johnson, A., Yang, F., Gollarahalli, S., Banerjee, T., Abrams, D., Jonassaint, J., Jonassaint, C., & Shah, N. (2019). Use of mobile health apps and wearable technology to assess changes and predict pain during treatment of acute pain in sickle cell disease: Feasibility study. *JMIR mHealth and uHealth*, *7*(12). Scopus. https://doi.org/10.2196/13671

Kooij, L., Vos, P. J. E., Dijkstra, A., & van Harten, W. H. (2021). Effectiveness of a mobile health and self-management app for high-risk patients with chronic obstructive pulmonary disease in daily clinical practice: Mixed methods evaluation study. *JMIR mHealth and uHealth*, *9*(2). Scopus. https://doi.org/10.2196/21977

Murala, D. K., Panda, S. K., & Dash, S. P. (2023). MedMetaverse: Medical Care of Chronic Disease Patients and Managing Data Using Artificial Intelligence, Blockchain, and Wearable Devices State-of-the-Art Methodology. *IEEE Access*, *11*, 138954–138985. Scopus. https://doi.org/10.1109/ACCESS.2023.3340791

Petersen, E. A., Stauss, T. G., Scowcroft, J. A., Brooks, E. S., White, J. L., Sills, S. M., Amirdelfan, K., Guirguis, M. N., Xu, J., Yu, C., Nairizi, A., Patterson, D. G., Tsoulfas, K. C., Creamer, M. J., Galan, V., Bundschu, R. H., Paul, C. A., Mehta, N. D., Choi, H., … Mekhail, N. A. (2021). Effect of High-frequency (10-kHz) Spinal Cord Stimulation in Patients with Painful Diabetic Neuropathy: A Randomized Clinical Trial. *JAMA Neurology*, *78*(6), 687–698. Scopus. https://doi.org/10.1001/jamaneurol.2021.0538

Rizvi, S. M. H., Schopf, T., Sangha, A., Ulvin, K., & Gjersvik, P. (2020). Teledermatology in Norway using a mobile phone app. *PLoS ONE*, *15*(4). Scopus. https://doi.org/10.1371/journal.pone.0232131

Shohat, N., Goswami, K., Tan, T. L., Fillingham, Y., & Parvizi, J. (2019). Increased Failure after Irrigation and Debridement for Acute Hematogenous Periprosthetic Joint Infection. *Journal of Bone and Joint Surgery - American Volume*, *101*(8), 696–703. Scopus. https://doi.org/10.2106/JBJS.18.00381

Sivanesan, E., Bicket, M. C., & Cohen, S. P. (2019). Retrospective analysis of complications associated with dorsal root ganglion stimulation for pain relief in the FDA MAUDE database.

`

Regional Anesthesia and Pain Medicine, *44*(1), 100–106. Scopus. https://doi.org/10.1136/rapm-2018-000007

Srivastava, K., Bozic, K. J., Silverton, C., Nelson, A. J., Makhni, E. C., & Davis, J. J. (2019). Reconsidering Strategies for Managing Chronic Periprosthetic Joint Infection in Total Knee Arthroplasty: Using Decision Analytics to Find the Optimal Strategy between One-Stage and Two-Stage Total Knee Revision. *Journal of Bone and Joint Surgery - American Volume*, *101*(1), 14–24. Scopus. https://doi.org/10.2106/JBJS.17.00874