

BEYOND THE X-RAY: REDEFINING SUCCESS IN ORTHOPAEDIC SURGERY

Orthopaedic surgery while being both an art and a science, has long been grounded in objectivity. While clinical measures like range of motion and complication rates are regularly evaluated, radiographic images revealing alignment parameters and implant have traditionally been important to define success of orthopaedic procedures. These metrics are reproducible, quantifiable, and essential for surgical audit and scientific comparison. Yet, what is easily measured in the clinical setting may not always be what matters most to the patient. Increasingly, evidence demonstrates a discordance between clinician-centered outcomes and the patient's lived experience, particularly in domains of pain, function, and quality of life (1–3).

This divergence challenges clinicians to consider that radiographic success does not equate to clinical success. While imaging remains indispensable, it offers only a partial narrative. A perfectly aligned fracture or a well-positioned prosthesis does not guarantee pain relief, restored function, or patient satisfaction. Studies have consistently demonstrated poor or modest correlation between radiographic parameters and patient-reported pain and function, reinforcing the limitations of relying solely on clinician-derived endpoints (2,3). In the current issue we read several papers that have incorporated patient reported parameters to evaluate various orthopaedic conditions (4–7). The paper by Wilson *et al.* (4) evaluated the outcomes after management of clavicular fractures. While the non-operative group had higher rates of non-union, the patient satisfaction and objectives scores were similar to the operated group. The study shows that patients may report differences in pain and satisfaction despite similar clinical and radiographic outcomes. This underscores the limitations of relying solely on structural measures and reinforces the need to incorporate Patient-Reported Outcome Measures (PROMs) in assessing treatment success (4).

The emergence of PROMs represents a paradigm shift toward a more patient-centered model of care. PROMs capture dimensions of health that are otherwise inaccessible to imaging or physical examination, pain severity, functional capacity, psychological well-being, and social participation. These metrics align more closely with the outcomes that patients themselves

prioritize, offering a richer and more holistic assessment of treatment effectiveness (8–10). A practical demonstration of PROMs capturing recovery beyond the X-ray is presented in this issue through the assessment of outcomes following surgical treatment of metatarsal fractures. The findings suggest that patient-reported recovery, including pain and mobility, does not always match traditional clinical measures (5). This reinforces the importance of using structured outcome tools to better understand recovery.

The integration of PROMs is also central to the broader movement toward value-based healthcare. Value, as increasingly defined, is the health outcome achieved per unit cost. In this framework, outcomes must reflect what patients perceive as meaningful improvement (11). PROMs therefore serve not only as clinical tools but also as instruments for health system accountability, enabling comparisons across providers and informing resource allocation (11,12).

Despite their utility, the implementation of PROMs in orthopaedic practice remains inconsistent. Barriers include logistical challenges in data collection, concerns regarding measurement validity, and uncertainty about how best to integrate PROMs into clinical decision-making (13–15). Furthermore, variability in instruments and reporting standards complicates comparisons across studies and institutions (16). Nevertheless, these challenges are not insurmountable. Advances in digital health platforms, standardized outcome sets, and methodological rigor are steadily improving the feasibility and reliability of PROM integration (15).

Importantly, PROMs should not be viewed as a replacement but rather as complimentary to traditional metrics. Radiographic and clinician-reported outcomes remain critical for assessing technical success and guiding surgical practice. However, they must be interpreted alongside patient-reported data to provide a comprehensive evaluation of care. The future of orthopaedics lies in this equilibrium where objective measures of structural restoration are balanced with subjective experiences of recovery.

The implications extend beyond research into everyday clinical practice. Listening to the patient, truly listening, requires more than administering

questionnaires. It demands a cultural shift in which patient perspectives are actively sought, valued, and incorporated into shared decision-making. Surgeons must engage with patients not merely as recipients of technical interventions but as partners in defining therapeutic goals and evaluating outcomes.

In the African context, this shift carries additional significance. Resource constraints, diverse patient populations, and varying health literacy levels necessitate context-sensitive approaches to outcome measurement (17). Locally validated PROMs and culturally appropriate tools are essential to ensure patient voices are accurately captured and meaningfully interpreted (18,19). This is aptly demonstrated in this issue in the study by Njabilo *et al.* (6) where the authors had higher functional disability in low back pain patients with lower levels of formal education. As orthopaedic services expand across the continent, embedding patient-centered metrics from the outset offers an opportunity to build systems that prioritize value and equity. In this issue, the paper by Ntobela *et al.* (7) highlights necessity of context in the management of orthopaedic trauma. They explore patterns of injury seen in vulnerable populations, where high-energy trauma often arises within broader social and structural conditions. Defining success in such settings must therefore account for the patient's context, not just the injury, the intervention or the imaging studies.

Looking forward, future efforts must focus on standardization, implementation science, and longitudinal data integration (20). Large-scale registries incorporating PROMs, coupled with advances in data analytics, hold the potential to refine outcome prediction and personalize care (5,21,22). Moreover, continued research into the relationship between radiographic findings and patient-reported outcomes will further elucidate the complex interplay between structure and function. The orthopaedic community stands at a critical juncture. The tools to measure what matters to patients are available, and the evidence supporting their use is compelling. The challenge now is one of adoption and integration. Success in orthopaedics can no longer be defined solely by what is visible on an X-ray. It must also be measured by what is felt, experienced, and valued by the patient. Only by listening, beyond the radiograph, can we truly claim to restore function, alleviate suffering, and deliver meaningful care.

J.W.M. Kigera, MBChB, MMed (Ortho), PhD, Department of Human Anatomy, School of Medicine, University of Nairobi, P.O. Box 30197-001000, Nairobi, Kenya and **D.N. Omwoyo**, 6th year Medical Student, Egerton University, Njoro, Kenya

Correspondence to: Dr. James W.M. Kigera, Department of Human Anatomy, School of Medicine, University of Nairobi, P.O. Box 30197-001000, Nairobi, Kenya. Email: jameskigera@yahoo.co.uk

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