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Rehabilitation Research Must Catch Up: A Call to Integrate Sex and Gender in Distal Radius Fracture Trials

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Introduction

Distal radius fractures (DRFs) are among the most common types of fractures, accounting for approximately 75% of all forearm fractures[1]. Incidence is higher in postmenopausal women compared to older men, likely due to the accelerated decline in bone quality and increased risk of osteoporosis in women. In contrast, DRFs are least common in young adults, where they typically result from sports injuries or motor vehicle accidents[1,2]. A systematic review of rehabilitation following DRF found that the majority of study participants were female (ranging from 65% to 100% across trials), despite epidemiological data indicating that approximately 70% of DRFs occur in males[3,4]. However, beyond reporting participant sex, the review and included studies did not conduct further sex or gender-based analyses. There is a clear need to incorporate both sex and gender considerations into rehabilitation research and interventions for DRF to better reflect fracture epidemiology and deliver more targeted, individualized care.

The motivation to evaluate this topic stems from newer guidelines advising that sex and gender should be considered as early as the grant proposal. With 77 randomized controlled trials (RCTs) spanning over three decades, the systematic review found that only six studies adequately addressed sex and gender, despite clear differences in fracture patterns, recovery, and rehabilitation outcomes between men and women. This finding underscores a critical gap in research methodology that could compromise the generalizability and equity of rehabilitation practices.

The topic of reporting on sex and gender is not new. Several studies have already been published[5-7], including several editorials[8-10] commenting on how research needs to do better on reporting of sex and gender. The current political environment makes the future of reporting on sex and gender precarious. This systematic review, however, highlights that reporting of sex and gender was also a historical problem that has persisted over the last several decades. One of the challenges is the response rate of individuals identifying outside of the heteronormative gender identities which makes reporting and analysis of sex and gender difficult. One solution is to use gendered variables that can provide insight into gender roles and thereby infer the effects of gender on rehabilitation after a DRF.

The Missed Opportunity of Sex and Gender Reporting

Distal radius fractures present differently between sexes—not only in epidemiology but also in biomechanics, pain trajectories,

and functional recovery. Yet, as we comment in our recent systematic review, most RCTs continue to treat sex and gender as demographic footnotes rather than as analytic variables. The implications of this are significant: failing to disaggregate or interpret results by sex or gender risks producing rehabilitation protocols that are less effective, or even inappropriate, for underrepresented groups.

No Change Post-Guideline: A Systemic Concern

The publication of the Sex and Gender Equity in Research (SAGER) guidelines in 2016[11] was a milestone in promoting equitable research practices. It is particularly concerning, then, that this review found no measurable improvement in sex and gender reporting after 2016. The lack of change highlights the limitations of passive guideline dissemination and raises the question of enforcement. In contrast, funding agencies like Canadian Institutes of Health Research (CIHR) now mandate sex and gender analysis in grant applications—an approach that journals and editorial boards should consider emulating during manuscript submission and peer review. However, a further call to action is required. Although mandating consideration of sex and gender is a large step forward, the quality of the reporting needs to be monitored. A more concrete checklist of reporting on sex and gender, comparable to checklists used for reporting guidelines of study designs, could provide a more actionable strategy to ensure adequate consideration of sex and gender in research.

Why This Matters Clinically

The consequences of inadequate sex and gender consideration are not abstract. For example, research has shown that male patients are less likely to receive osteoporosis screening and treatment post-fracture despite high associated costs. Additionally, female radius anatomy differs significantly from male anatomy, potentially influencing the fit and efficacy of orthopedic implants. Neglecting such factors can lead to suboptimal care, misinterpretation of results, and ultimately, poorer outcomes.

A Path Forward

The findings of this systematic review should prompt immediate action from multiple stakeholders:

1. **Researchers** must adopt sex- and gender-based analysis (SGBA) as standard practice, beginning with their study design and continuing through to data analysis and reporting.
2. **Journal editors and reviewers** should enforce SAGER compliance and consider mandating a checklist as part of the submission process.
3. **Educators and mentors** in clinical research training programs should include SGBA principles as core curriculum content.

Moreover, future systematic reviews should evaluate not only sex and gender reporting but also intersectionality—how overlapping factors like race, age, and socioeconomic status further shape rehabilitation outcomes.

Conclusion

This review delivers a sobering message: even in high-level clinical trials, sex and gender are routinely overlooked. As the field of orthopaedic rehabilitation moves toward personalized care, integrating sex and gender into RCT design is not just an academic imperative—it is a clinical necessity. This systematic review serves as a timely call to action and a benchmark against which future progress must be measured.

References

1. Nellans KW, Kowalski E, Chung KC. The epidemiology of distal radius fractures. Hand clinics. 2012; 28(2): 113-25.
2. MacDermid JC, Richards RS, Roth JH. Distal radius fracture: a prospective outcome study of 275 patients. Journal of Hand Therapy. 2001; 14(2): 154-69.
3. Handoll HH, Elliott J. Rehabilitation for distal radial fractures in adults. Cochrane Database Syst Rev. 2015; 2015(9): Cd003324.
4. Candela V, Di Lucia P, Carnevali C, et al. Epidemiology of distal radius fractures: a detailed survey on a large sample of patients in a suburban area. J Orthop Traumatol. 2022; 23(1): 43.
5. Wiley E, Moncion K, Rodrigues L, et al. Exploring differences between gender expressions in exercise self-efficacy and outcome expectations for exercise in individuals with stroke. Plos one. 2024; 19(3): e0299288.
6. Nazari G, Bobos P, Walton DM, et al. Reporting of sex and gender in clinical trials of opioids and rehabilitation in military and Veterans with chronic pain. Journal of Military, Veteran and Family Health. 2023; 9(3): 86-96.
7. Sivagurunathan M, MacDermid J, Chuang JCY, et al. Exploring the role of gender and gendered pain expectation in physiotherapy students. Canadian Journal of Pain. 2019; 3(1): 128-36.
8. MacDermid JC. We can do better: Considering sex and gender with an intersectional lens in health research. Journal of Hand Therapy. 2024; 37(3): 297-300.
9. Leopold SS, Hensinger RN, Schoenfeld AJ, et al. Improving how orthopaedic journals report research outcomes based on sex and gender. J Arthroplasty. 2024; 39(7): 1633-1634.
10. MacDermid JC. Sex and gender in hand therapy research. Journal of Hand Therapy. 2016; 29(1): 1-2.
11. Heidari S, Babor TF, De Castro P, et al. Sex and gender equity in research: rationale for the SAGER guidelines and recommended use. Research integrity and peer review. 2016; 1(1): 1-9.