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Bridging Gaps in Urologic Health Literacy: Evaluating ChatGPT's Usefulness in Addressing Healthcare Disparities and Improving Readability of Online Patient Education Materials.

American Urological Association | Annual Urology Advocacy Summit

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INTRODUCTION

- Health literacy is vital in enabling patients to make informed decisions about their diagnoses.
- Given the wide range of educational levels, the NIH and AMA recommend that online patient education materials (OPEMs) be written at or below the 6th-grade reading level.
- We evaluated the readability of OPEMs for the 14 most common urologic conditions listed by the AUA and assessed whether ChatGPT4.0 could enhance their readability.
- This work proposes feasible interventions and policies that reduce care disparities and align with the AUA's federal advocacy priorities.

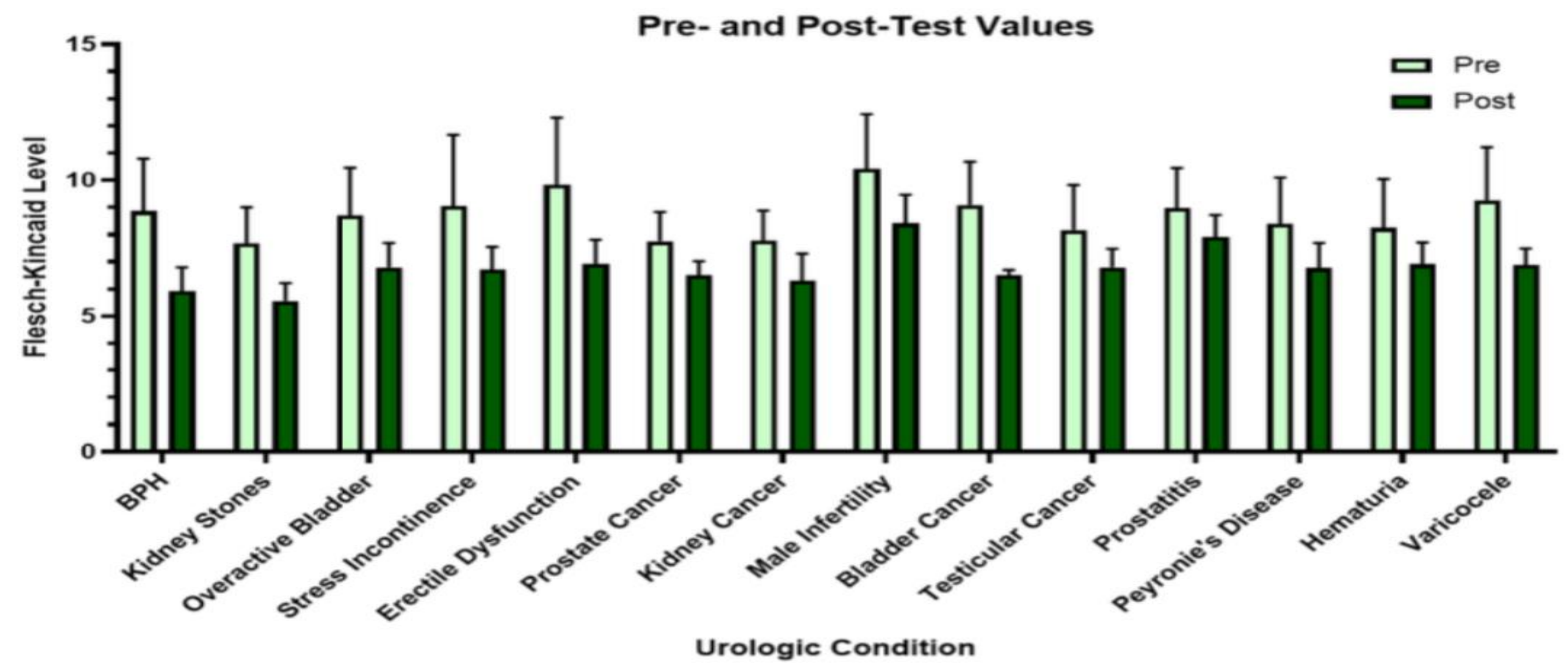
METHODS

1. **Conditions:** Top 14 AUA-listed urologic conditions selected.
2. **Website Sampling**: Google searches with prompt "What is [condition]" identified the first 10 non-sponsored academic, private, or government OPEM websites.
3. **Data Processing:** OPEMs collected and simplified with ChatGPT-4.0 ("Translate to 6th-grade level"), preserving word count and structure.
4. **Readability Testing:** Original and AI-edited materials were assessed with Readable.com (Flesch-Kincaid Level [FKL], Flesch Reading Ease [FRE]).
5. **Statistical Analysis:** GraphPad Prism (unpaired t-tests) and Fisher's combined probability test for aggregate p-values.

POLICY IMPLICATIONS FOR UROLOGY ADVOCACY

- **Patient Education:** Standardize NIH/AMA 6th-grade guidelines for patient-facing resources to support comprehension and shared decision-making.
- **Equitable Access:** Expand funding for digital infrastructure to ensure underserved communities benefit from AI-driven tools.
- **Quality Guidelines:** Establish national standards to evaluate AI-generated materials for accuracy, neutrality, and cultural sensitivity.
- **Reduced Administrative Burden:** Simplify resources with AI-enhanced readability to decrease delays from prior authorization, step therapy, and malpractice disputes.
- **Equitable Treatment:** Ensure all patients, regardless of geography, demographics, or literacy, can access the full spectrum of urologic care.

RESULTS



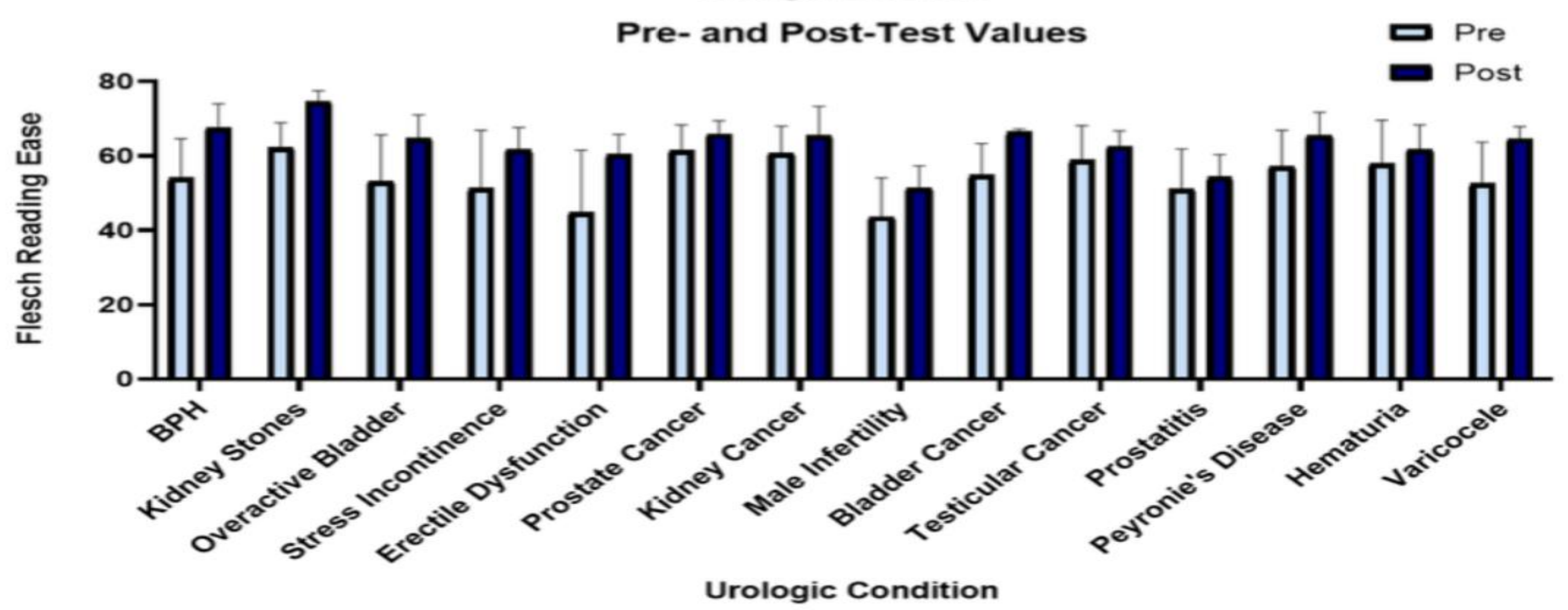


Figure 1: FKL and FRE Scoring for OPEMs vs Post ChatGPT 4.0 Intervention, by Condition

- **A total of 140 OPEMs were analyzed. All but two (98.5%) had FKL scores above the 6th-grade level.**
- **Mean FKL was 8.73 (95% CI: 8.44–9.02), and mean FRE was 54.54 (95% CI: 52.72–56.28).**
- **Results highlight significant readability challenges, condition-specific scores ranging from 7.67 to 62.22 for Kidney Stones to 10.43 to 43.62 for Male Infertility.**
- **ChatGPT significantly reduced FKL scores ($p = 5.45 \times 10^{-19}$) by 1.95 (95% CI: 1.63–2.27) and increased FRE scores ($p = 2.35 \times 10^{-11}$) by 8.80 (95% CI: 6.99–10.61), calculated using Fisher's combined probability test.**

CONCLUSIONS

- OPEMs in urology often exceed the recommended reading barriers, aligning with AUA advocacy priorities. level, making adequate patient comprehension uncertain.
- ChatGPT 4.0 significantly improves the readability of educational materials in line with current recommendations.
- These improvements may help patients better understand common urologic conditions and guide decision-making.
- AI-enhanced readability supports health equity by reducing literacy-related

DISCUSSION

Opportunities in Urology Advocacy:

- **Promote Readability Standards:** Advocate for patient education materials written at or below the 6th-grade level.
- **Leverage AI Tools:** Support responsible integration of AI to simplify complex information while preserving accuracy.
- **Advance Health Equity:** Ensure accessible, patient-friendly resources for diverse populations regardless of background or health literacy.
- **Build Partnerships:** Encourage collaboration between professional societies, clinicians, and technology developers to improve communication.
- **Empower Patients:** Use technology-driven resources to strengthen patient engagement, improve decision-making, and foster trust in urologic care.

Challenges for Advocacy:

- Readability standards are not universally enforced across health systems, leaving gaps in patient communication.
- Concerns about accuracy, bias, and overreliance on AI contribute to hesitancy among clinicians and policymakers.
- Need for additional clinician review and validation of accuracy and safety of AI-optimized materials.
- Limited funding and institutional support slow the adoption of patient-centered initiatives.
- Digital divides and persistent health literacy barriers restrict access to understandable, equitable resources.

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