



# Two Views, or Not Two Views: That is the Question



Michael Orcutt OMS-III<sup>1</sup>, Dr. Thomas Fischer M.D.<sup>2</sup>, Dr. Todd Foster PhD<sup>3</sup>

<sup>1</sup>MUCOM, <sup>2</sup>Indiana Hand to Shoulder Clinic, <sup>3</sup>Ascension St. Vincent

**Introduction:** Traditionally, the acute wrist radiograph series is comprised of posteroanterior (PA), oblique, and lateral projections. There is controversy within the field of Orthopedics, however, over the value of the oblique view in determining a plan of care for a given fracture. An external survey of practicing Orthopedic Surgeons was conducted as a tool to quantify the clinical value of the oblique view radiograph in the setting of acute closed distal radius fractures, the most common fracture pattern in Americans<sup>2</sup>.

**Methods:** Participants, licensed and practicing Orthopedic surgeons in the United States, reviewed thirty sets of wrist radiograph studies twice (once as a complete three-view series and again with the oblique omitted) in randomized order. Cases were randomly selected with criteria to include ten pediatric, ten geriatric, and ten intermediate/ adult cases. After reviewing the films and demographic information, participants selected their preferred initial intervention from a list of 1) treatment in cast or splint without reduction, 2) closed reduction under or without fluoroscopy with treatment in cast or splint, 3) closed reduction and percutaneous fixation with treatment in cast or splint, and 4) open reduction with internal fixation and subsequent treatment in cast or splint.

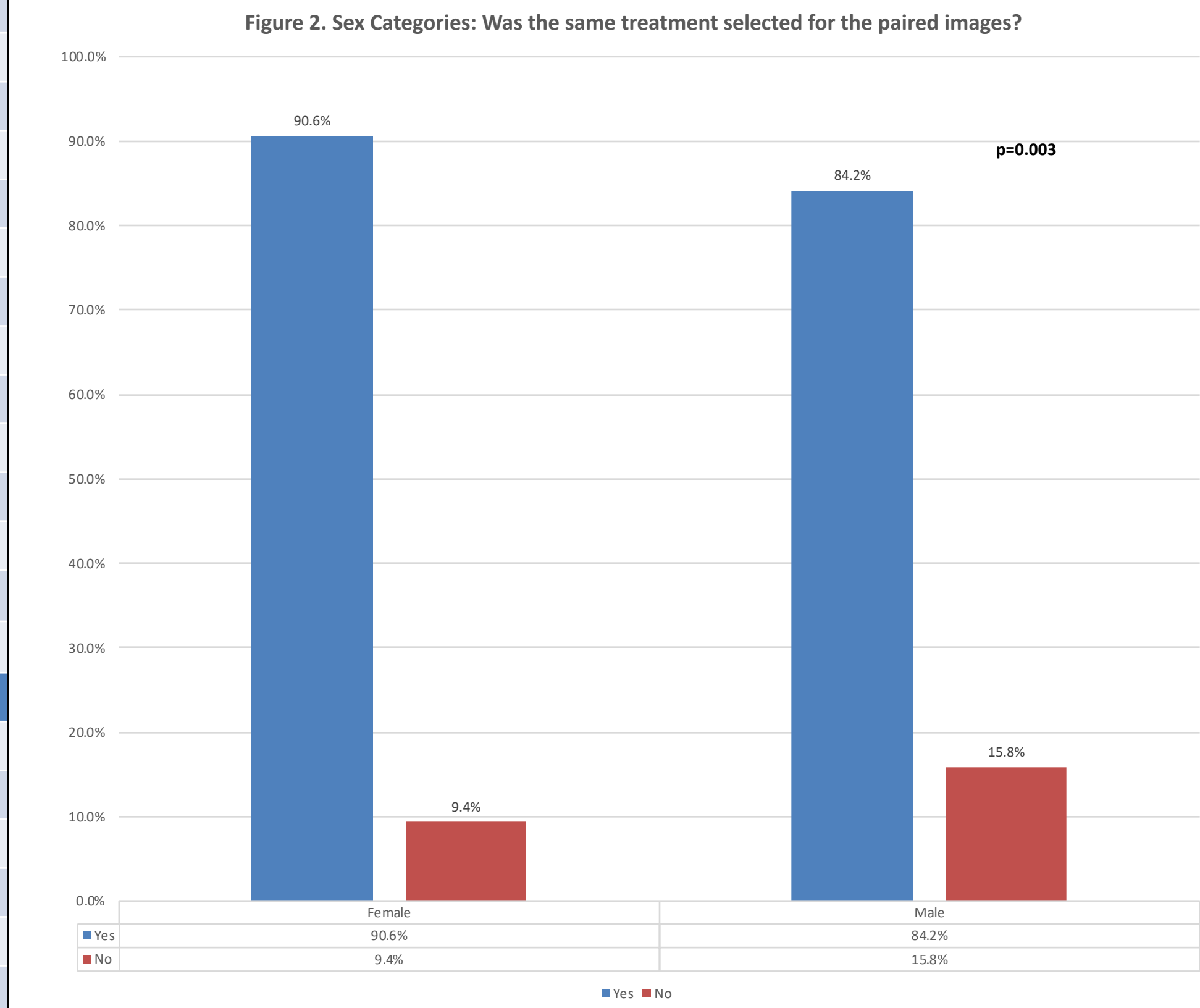
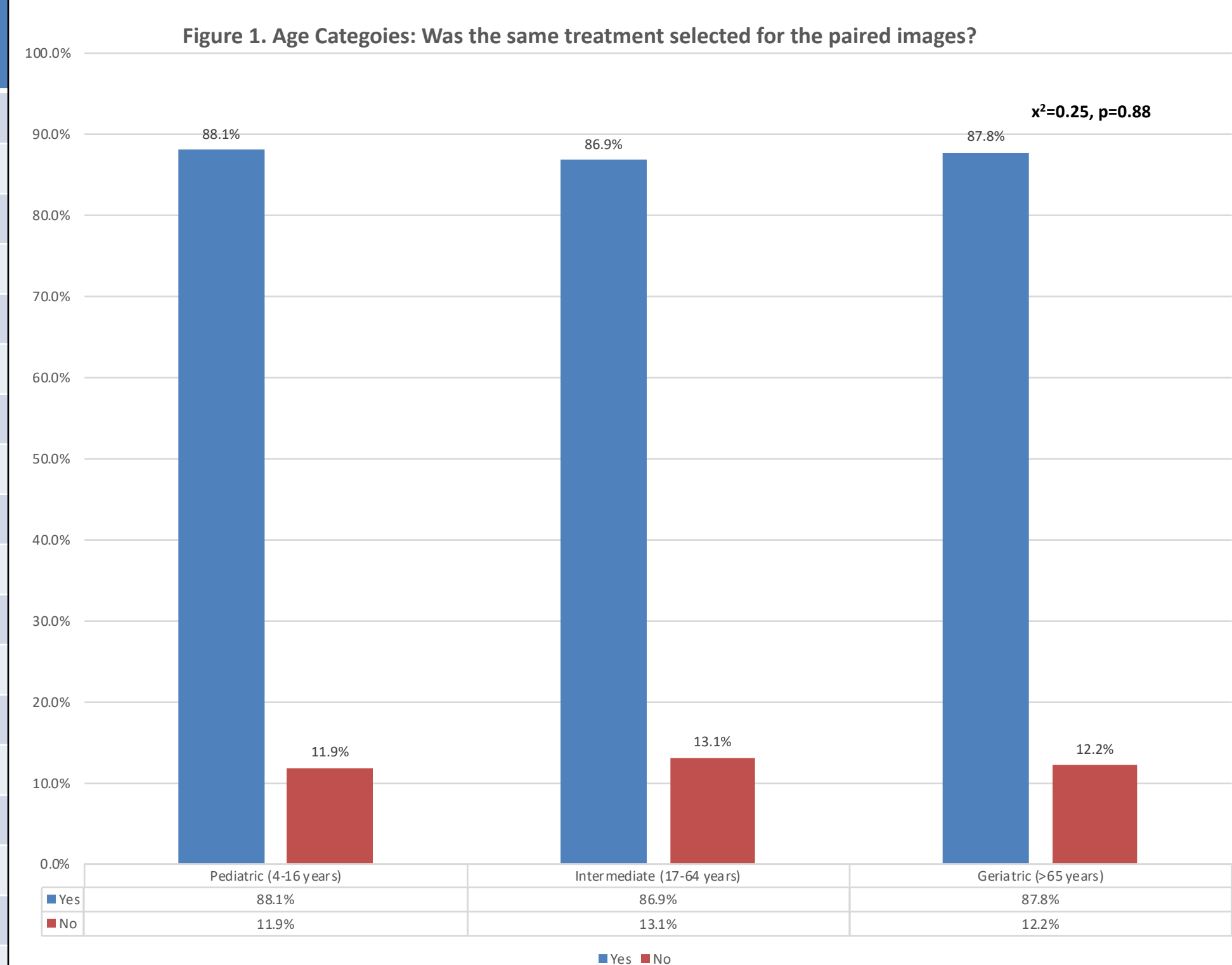



68 y/o female  
1) treatment in cast or splint without reduction, 2) closed reduction under or without fluoroscopy with treatment in cast or splint, 3) closed reduction and percutaneous fixation with treatment in cast or splint, and 4) open reduction with internal fixation and subsequent treatment in cast or splint.

Pairing	Cohen's Kappa	p
Pair 1	k=0.49	<0.001*
Pair 2	k=0.57	<0.001*
Pair 3	k=-0.03	0.86
Pair 4	k= N/A	N/A (Constant)
Pair 5	k=0.67	<0.001*
Pair 6	k=0.65	<0.001*
Pair 7	k=0.65	<0.001*
Pair 8	k=0.65	<0.001*
Pair 9	k=0.75	<0.001*
Pair 10	k=0.66	<0.001*
Pair 11	k=0.53	<0.001*
Pair 12	k=0.25	0.02*
Pair 13	k=0.31	0.05
Pair 14	k= N/A	N/A
Pair 15	k=0.63	p<0.001*
Pair 16	k=0.56	p<0.001*
Pair 17	k=0.73	p<0.001*
Pair 18	k= N/A	N/A (Constant)
Pair 19	k=N/A	N/A
Pair 20	k=0.69	p<0.001*
Pair 21	k=0.75	p<0.001*
Pair 22	k=0.89	p<0.001*
Pair 23	k= N/A	N/A (Constant)
Pair 24	k=0.82	<0.001*
Pair 25	k= N/A	N/A (Constant)
Pair 26	k=0.64	<0.001*
Pair 27	k=0.65	<0.001*
Pair 28	k=-0.05	0.74
Pair 29	k=0.55	<0.001*
Pair 30	k=0.57	<0.001*

Interpretation	Range
Poor	<0.00
Slight	0.00-0.20
Fair	0.20-0.40
Moderate	0.41-0.60
Substantial	0.61-0.80
Almost Perfect	0.81-1.00




 **Radiation Exposure**

Risk of cancer secondary to radiation exposure increases with the total lifetime dose<sup>13</sup>

**0.001 mSv / radiograph\***

\* Increased cancer risk has been correlated with <50mSv exposure<sup>13</sup>

 **Cost Analysis**

$\frac{\$100}{\text{film}} \times \frac{10 \text{ fractures}}{10,000 \text{ adults}} \times 6.1 \times 10^7 \text{ Medicare recipients} =$

**\$6.1 million annually\*\***

\*Estimates based on sources 9-12  
\*\*Estimated billed to Medicare

**Sources**  
 Nellans KW, Kowalski E, Chung KC. The epidemiology of distal radius fractures. *Hand Clin.* 2012;28(2):113-125. doi:10.1016/j.hcl.2012.02.001  
 Thompson PW, Taylor J, Dawson A. The annual incidence and seasonal variation of fractures of the distal radius in men and women over 25 years in Dorset, UK. *Injury* 2004;35:462-6.  
 Corsino CB, Reeves RA, Sieg RN. Distal Radius Fractures. [Updated 2020 Aug 11]. In: StatPearls [Internet]. Treasure Island (FL): StatPearls Publishing; 2020 Jan. Available from: <https://www.ncbi.nlm.nih.gov/books/NBK536916/>  
 Chung KC, Spilson SV. The frequency and epidemiology of hand and forearm fractures in the United States. *J Hand Surg Am.* 2001; 26:908-915.