

# Factors Influencing Telemedicine Usage in Orthopaedics during the COVID-19 Pandemic

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## INTRODUCTION:

The usage of telemedicine increased greatly following the onset of the COVID-19 pandemic. The aim of this study was to determine patient demographic factors that were associated with usage of telemedicine among patients seeking care for hip and knee arthritis from orthopaedic surgeons.

## METHODS:

Demographic data and visit type were collected from the electronic medical record for patients seen either before or during the COVID pandemic by orthopaedic surgeons in our academic medical center who specialize in hip and knee arthroplasty. Univariate and multivariate analyses were performed regarding age, race, insurance status, Area Deprivation Index (ADI), and distance to a clinical site.

**RESULTS:** In the COVID era, among 4,901 visits with 3,124 unique patients, patients using telemedicine were younger ( $p=0.002$ ) and more likely to be white ( $p=0.040$ ) compared to those who did not use telemedicine. There was no significant difference in telemedicine utilization based on ADI, distance to a clinical site, or insurance status.

## DISCUSSION AND CONCLUSION:

Our analysis showed that patients who were white and of younger age were more likely to utilize telemedicine. There was no statistically significant relationship between distance from a clinical site and telemedicine use, suggesting that factors other than geographic distance are greater contributors to telemedicine utilization in our cohort. Further information is needed to determine how the continued implementation of telemedicine may disproportionately limit access to orthopaedic care according to these and other patient factors.

|                                    | COVID telemedicine | COVID in-person | p-value       |
|------------------------------------|--------------------|-----------------|---------------|
| Age (%)                            |                    |                 |               |
| n                                  | 956                | 3945            |               |
| 18-24                              | 73 (7.6)           | 241 (6.1)       |               |
| 25-34                              | 40 (4.1)           | 129 (3.2)       | <b>0.002*</b> |
| 35-50                              | 139 (14.5)         | 406 (10.3)      |               |
| 51-64                              | 335 (35.0)         | 1309 (33.0)     |               |
| 65+                                | 369 (38.6)         | 1789 (45.3)     |               |
| ADI (%)                            |                    |                 |               |
| n                                  | 919                | 3813            |               |
| 1-24                               | 201 (21.9)         | 775 (20.3)      |               |
| 25-49                              | 288 (31.3)         | 1182 (31.0)     | 0.560*        |
| 50-74                              | 285 (31.0)         | 1192 (31.2)     |               |
| 75-100                             | 145 (15.8)         | 664 (17.4)      |               |
| Distance to clinical site (mi) (%) |                    |                 |               |
| n                                  | 943                | 3891            |               |
| 0-1.9                              | 85 (9.0)           | 387 (9.9)       |               |
| 2.0-4.9                            | 189 (19.1)         | 716 (18.4)      |               |
| 5.0-9.9                            | 168 (17.8)         | 758 (19.4)      | 0.081*        |
| 10.0-24.9                          | 204 (21.6)         | 896 (23.0)      |               |
| 25.0-49.9                          | 67 (7.1)           | 332 (8.5)       |               |
| 50.0-99.9                          | 102 (10.8)         | 358 (9.2)       |               |
| 100.0-199.9                        | 81 (8.6)           | 265 (6.8)       |               |
| 200.0+                             | 56 (5.9)           | 179 (4.6)       |               |
| Race (%)                           |                    |                 |               |
| n                                  | 953                | 3936            |               |
| White                              | 882 (92.5)         | 3540 (89.9)     | <b>0.046*</b> |
| Black                              | 62 (6.5)           | 338 (8.6)       |               |
| Other                              | 9 (0.9)            | 58 (1.5)        |               |
| Insurance status (%)               |                    |                 |               |
| n                                  | 950                | 3930            |               |
| Medicaid                           | 13 (1.4)           | 64 (1.6)        |               |
| Medicare                           | 361 (38.0)         | 1693 (43.1)     | 0.055*        |
| Private                            | 557 (58.6)         | 2196 (55.6)     |               |
| Worker's Comp                      | 13 (1.4)           | 50 (1.3)        |               |
| Self-pay                           | 6 (0.6)            | 17 (0.4)        |               |

\*Chi-squared test