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Lower Socioeconomic Status Adversely Affects Timing of Care and Rate of Bucket Handle Meniscus Tears Following Anterior Cruciate Ligament Injury

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Background

- Delayed treatment of ACL rupture known to increase pathology found at surgery^{1,2}
- Insurance established as risk factor³
- Cost also assumed to be a factor⁴
- No studies on the impact of other socioeconomic factors or the impact of these factors on the type of meniscus pathology at the time of ACL reconstruction

Problem Statement

1. Further define the impact of socioeconomic factors, including primary language spoken, on the timing of ACL reconstruction at our institution.
2. Determine if these socioeconomic variables were associated with additional intra-articular pathology, such as bucket handle tears of the meniscus, at the time of surgery.

Methods

- After IRB approval, all ACL reconstructions between 11/2015 and 8/2018 were queried using the Surgical Outcome System (Arthrex, Naples, FL)
- Charts were reviewed for the following information:
 - Date of injury, date of 1st visit with orthopedic surgery, date of surgery, insurance status, type and location of any meniscus tear, and pre-injury activity level
- Socioeconomic data was obtained through a REDcap survey asking patients to report primary language spoken at home, highest level of education achieved, household income, and number of reinjuries
- Reminder emails sent five times; patients were then called twice

Results

- 230 patients met inclusion criteria; 126 responded to survey
 - Average age 26.5 years
- Insurance Status
 - Private insurance saw orthopedics 39.48 ± 15.49 weeks earlier than government (p=0.012)
- Language Spoken
 - Primary English speakers saw orthopedics 19.38 ± 7.08 weeks earlier (p=0.007)
 - Also had 0.81 ± 0.16 fewer reinjuries (p<.001)
 - Lower prevalence of bucket handle meniscus tears (OR 0.22, 0.047-0.59, P= 0.01)
- Maximum Education Level
 - HS graduates saw orthopedics 301.38 ± 57.81 weeks earlier (p<.001)
 - College degree or higher saw orthopedics 36.5 ± 15.82 weeks earlier (p=.012)
 - No difference found with graduate degree (p=0.397)
- Household Income
 - Income >\$100k/year had 0.26 ± 0.12 fewer repeat injuries (p=0.04)
 - Less likely to have a bucket handle tear at surgery (OR 0.14; 0.02-0.83)
- Delay in Care
 - Delay in seeking care greater than 13 weeks were associated with higher rates of any meniscus tear
 - Delays greater than 30 weeks were associated with higher rates of bucket handle tears of the meniscus (p<0.001)

Discussion

- Delays in care associated with government insurance, lower education level, & ESL
 - Several studies have reported delayed orthopedic care in pediatric Medicare populations^{5,6}
 - Study from Sweden reported lower education level was associated with decreased likelihood of ACL reconstruction⁷
- Increased instability associated with ESL and income <\$100k/year
 - 1 episode of instability = 3x increase in likelihood of bucket handle tear⁸
 - First study to associate specific tear type with socioeconomic status
- Delay in care >30 weeks increases likelihood of bucket handle tear
 - Many reports of delayed ACL reconstruction increasing likelihood and severity of meniscus tears^{1,3,8}
- Limitations
 - Recall bias & response rate
 - Data sampled from highly educated are

Conclusions

- Patients with lower socioeconomic status had delayed access to orthopedic care, increased preoperative instability, and a greater risk of bucket handle tears of the meniscus
- Delays in care longer than 30 weeks increased the risk of bucket handle meniscus tears

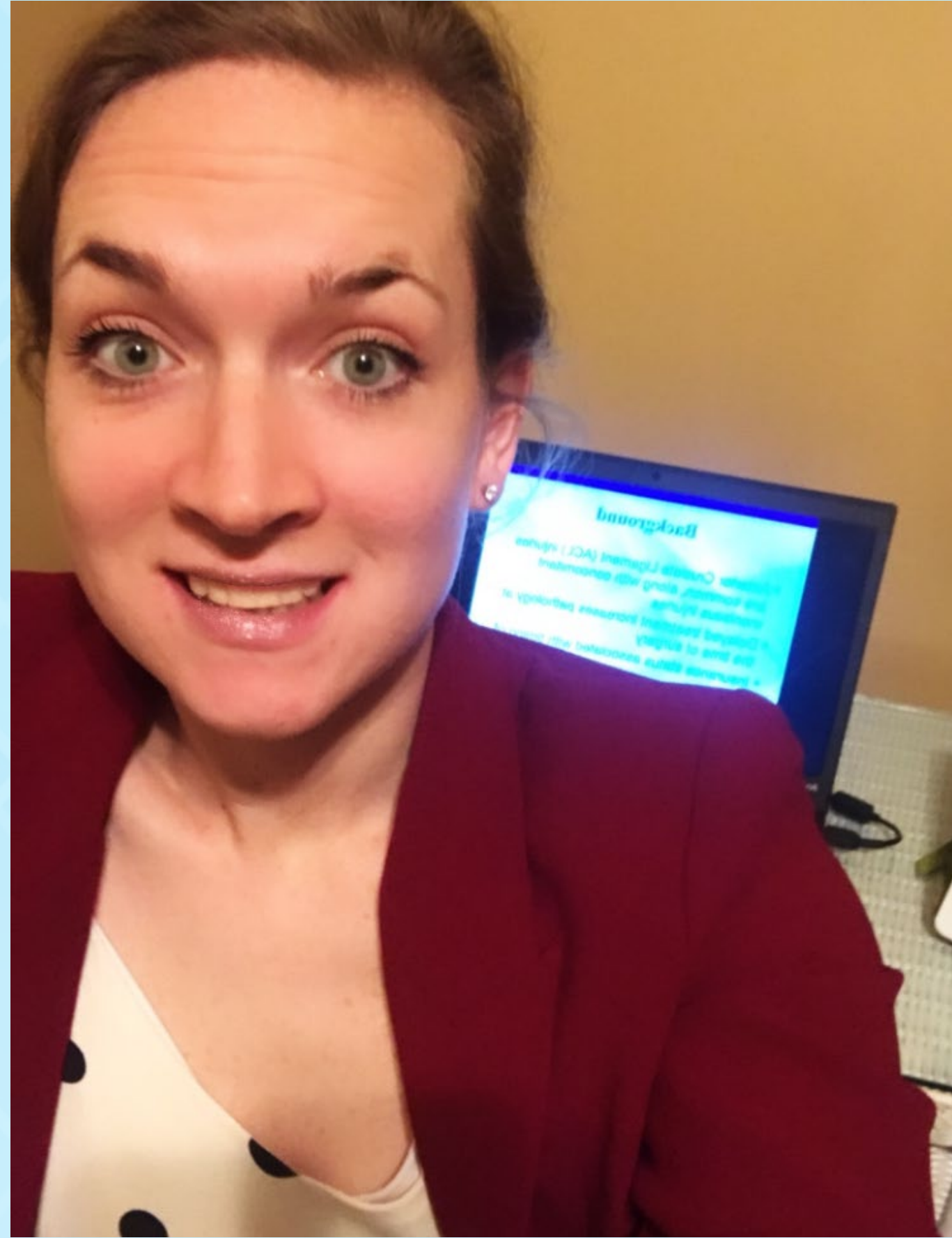
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