Assessing the Musculoskeletal Health Literacy and Social Network Distribution of Hip and Knee Osteoarthritis Patients at an Academic Medical Center

Philomena Burger, BA[1], Kevin McCaffery, BA[2], Gabriel Ramirez, MS[2], Rishi Balkissoon, MD[3], John Ginnetti, MD[3]

[1] University of Rochester School of Medicine & Dentistry, [2] University of Rochester Department of Orthopaedics – Clinical Research, [3] University of Rochester Department of Orthopaedics & Physical Performance
Email of presenting author: Philomena_burger@urmc.rochester.edu
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Introduction:
As osteoarthritis (OA) care expenditure increases, the U.S. is transitioning to value-based total joint arthroplasty (TJA) healthcare, rewarding quality of professional services and patient-care experience over traditional fee-for-service transactions. Health literacy (HL) has been identified as a social determinant of healthcare and significantly impacts patient-care experiences. Limited HL contributes to health disparities and ineffective care, and negatively affects healthcare outcomes in TJA as well as non-Orthopaedic medical disciplines. Patients' HL is predominantly impacted by their social networks, where patients draw upon the knowledge of others to make healthcare decisions. Patients may rely on physicians, family, friends, and acquaintances, as well as the internet and social media to shape their healthcare knowledge. Despite HL's impact on patient-outcomes, there is a lack of data on musculoskeletal (MSK) HL. To this end, this study utilized a musculoskeletal specific literacy survey, the Literacy in Musculoskeletal Problems (LiMP) questionnaire, to assess the level of comprehension in patients seeking care for hip and/or knee osteoarthritis. Scored out of 9 points, a LiMP score <6 indicates limited MSK HL. The aim of our study was to assess musculoskeletal health literacy and its association with patient's information-seeking behavior in hip and/or knee OA patients. Our hypothesis is that patients with limited musculoskeletal health literacy (LiMP score < 6) will preferentially utilize human sources of information over technological sources.

Methods:
Under the approval of the University of Rochester (UR) Medical Center IRB, patients presenting to the UR Department of Orthopaedics Ambulatory Care clinic with a primary diagnosis of severe hip and/or knee OA were recruited, and informed consent was obtained. Patients with prior TJA were excluded. A medical records review was performed to collect patient demographic data. State Area Deprivation Index (ADI) scores were extracted using online mapping tools and individual patient addresses, with a higher score indicating greater socioeconomic deprivation. Participants completed a one-time survey which assessed patient desire for total hip/knee surgery, Literacy in Musculoskeletal Problems (LiMP) score, and information sources used to learn about OA and TJA. Technological sources were defined as any internet source used, excluding forms of social media that facilitate person-to-person communication (Facebook, Instagram, Twitter). Participants were divided into limited MSK HL and non-limited MSK HL based on their LiMP scores. Descriptive statistics and bivariate analyses were performed to determine the association between health literacy and information sources used, with significance indicated when $p<0.05$.

Results Section:
Of the 150 patients surveyed, 53 (35.3%) had a limited MSK HL, and 97 (64.7%) had a non-limited MSK HL. Among the limited and non-limited MSK HL groups, there was no significant difference in age (70.2 ±8.12 vs 68.4 ± 8.82; p=0.249), race (81.1% vs 90.7% White, 18.9% vs 9.3% non-White; p=0.067) or sex distribution (56.6% vs 60.8% Female; p=0.061). Participants with a limited MSK HL did have a higher state ADI compared to non-limited MSK HL participants (limited: 8.47 ± 1.32 vs non-limited: 7.70 ± 1.46; p=0.002).

Participants identified their joint surgeon and staff (86.0%), friends/extended family with TJA (70.7%), friends/extended family without TJA (8.0%), primary care physician (44.7%), internet/media (34.0%), and coworkers/acquaintances with TJA (26.7%) as information sources. The top three internet/media sources used were search engine websites (Google, Yahoo, Bing) (86.3%), University of Rochester Medicine websites (43.1%), and social media (31.4%), with only one participant reporting the use of social media, alone. Notably, participants with limited MSK HL preferentially relied on human sources of information compared to participants with non-limited MSK HL (79.2% vs 59.8%, p=0.016).

Discussion:
Patients with limited MSK HL preferentially utilized human sources of health information over technological sources. Limited MSK HL was also associated with a greater ADI compared to non-limited participants. There was no relationship between age, race, and sex distribution among the groups. Most patients identified their joint surgeon and friends and family with prior TJAs as sources of information used to learn about OA and TJA. These findings suggest an opportunity to reduce the health literacy gap by targeting TJA health literacy interventions to both individual patients and patients' social networks, most commonly friends and extended family.

Significance/Clinical Relevance:
The findings of this study indicate an opportunity to improve health outcomes among hip and/or knee OA patients by expanding health literacy interventions to the important members of their social networks identified within this study. Additionally, increasing the amount of quality TJA experiences in social networks among disadvantaged patients will help promote TJA in underserved populations.