

Background

- Shoulder pain: **2nd most common musculoskeletal (MSK) complaint** in general practice
- 18% of work **absenteeism** and **sickness**
- Increased functional impairment** levels associated with shoulder disorders and poorer long-term outcomes
- Prevalence of **6.9-34% for shoulder injuries** in populations over 70 years old
- Positive correlation between **socioeconomic status and better health outcomes** overall for patients
- Studies have endorsed the **significant effects of education, socioeconomics, employment, and marital status** on both physical and psychologic well-being

Objectives

- To assess the **relationship between demographic, psychosocial, and socioeconomic factors and incident shoulder pain** in a large cohort of individuals with varying shoulder pathologies.

Hypothesis

- We hypothesized that various demographic, psychosocial, and socioeconomic characteristics would correlate with incident shoulder pain scores in patients with various shoulder pathologies

Design

- Retrospective chart review
- outpatient musculoskeletal clinic
- 389 subjects** with incident shoulder pain **between 2013-2019**
- Demographic and socioeconomic factors **including age, sex, BMI, level of education, marital status, the presence of anxiety/depression, patients’ insurance status, and per capita income (generated via their zip code) were investigated**
- Incident pain scores were rated using the numeric pain rating scale (**NPRS, 0-10**)

Results

Subject Characteristics		
Age	<50	31%
	50-64	50%
	65-74	12%
	>75	7%
BMI	Underweight (<18.5)	1%
	Normal (18.5-25)	30%
	Overweight (25-30)	36%
	Obese (>30)	32%
Marital Status	Married	51%
	Divorced	8%
	Widowed	10%
	Single	23%
	Unknown	8%
Physical Activity	None	19%
	Structured	22%
	Unstructured	59%
Household Income	<\$60,000	28%
	\$60,000-\$85,999	48%
	\$86,000-\$102,999	14%
	>\$103,000	11%
Employment	Full-Time	36%
	Part-Time	6%
	Retired	32%
	Not-Employed	15%
	Unknown	12%
Shoulder Diagnosis	Glenohumeral Osteoarthritis	27%
	Acromioclavicular Osteoarthritis	6%
	Adhesive Capsulitis	16%
	Subacromial Impingement	14%
	Rotator Cuff Tear	21%
	Other	17%
Taking Pain Medications	No	62%
	Yes	38%

Category	Variable	# of subjects (%)	Correlation with Pain Score	P value
Sex	Male	161 (41.4%)	5.70	0.039
	Female	228 (58.6%)	6.21	
Alcohol	Number of glasses per day (0-2 median)	1	-0.14	0.006
Race	Caucasian	247 (70.6%)	5.76	0.002
	Black/African American	39 (11.1%)	7.18	
	Other	64 (18.3%)	6.26	
Insurance	Commercial	199 (51.7%)	5.72	0.006
	Medicare	149 (38.7%)	6.17	
	Other	37 (9.6%)	7.03	
Income	Mean	\$84191.23	-0.12	0.02

Multivariate Analysis

Category	Estimated Change in Pain Score	P value
Alcohol	-0.08634	0.0403
Race: African American	0.98258	0.0341
Insurance: Not Medicare	1.01596	0.0346

Discussion

- There are many potential pain generators in the shoulder
- Variables such as **sex, race, household income, and insurance can affect one’s perception of incident shoulder pain**
- While this study was limited by lack of racial diversity and predominately elderly population, we believe the findings are representative of the general public
- Understanding how these factors impact a **patient’s perception** of pain may in turn **improve communication** between medical practitioners and their patients, as well as **improve perceived efficacy** of our overall treatments

Conclusion

- Psychosocial, socioeconomic, and demographic factors** do have a significant association to the perceived **severity of incident shoulder pain**
- Further delineation of modifiable factors may be beneficial for the physician managing these shoulder pathologies

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References

- Ostor AJ, Richards CA, Prevost AT, Speed CA, Hazleman BL. Diagnosis and relation to general health of shoulder disorders presenting to primary care. Rheumatology 2005; 44: 8005.
- M. Urwin, D. Symmons, T. Allison, T. Brammah, H. Busby, M. Roxby, A. Simmons, G. Williams. Estimating the burden of musculoskeletal disorders in the community: the comparative prevalence of symptoms at different anatomical sites, and the relation to social deprivation. Ann Rheum Dis, 57 (1998), pp. 649-655
- Bartolozzi A, Andreychik D, Ahmad S. Determinants of outcomes in the treatment of rotator cuff disease. Clin Orthop Rel Res 1994; 308:90-7.
- Hossain S, Jacobs LGH, Hashmi R. The long-term effectiveness of steroid injections in primary acromioclavicular joint arthritis: a five-year prospective study. J Shoulder Elbow Surg. 2008;17:535–8.
- Pasquall Ronchetti I, Guerra D, Taparelli F, Boraldi F, Bergamini G, Mori G, Zizzi F, Frizziero L: Morphological analysis of knee synovial membrane biopsies from a randomized controlled clinical study comparing the effects of sodium hyaluronate (Hyalgan) and methylprednisolone acetate (Depomedrol) in osteoarthritis. Rheumatology. 2001, 40: 158-169.
- Pickett, K.E. and M. Pearl, Multilevel analyses of neighbourhood socioeconomic context and health outcomes: A critical review. Journal of Epidemiology and Community Health, 2001, 55(2): p. 111-122.
- Vargas-Prada, S. and D. Coggon, Psychological and psychosocial determinants of musculoskeletal pain and associated disability. Best Practice and Research: Clinical Rheumatology, 2015, 29(3): p. 374-390.
- Heuts, P.H.T.G., et al., Pain-related fear and daily functioning in patients with osteoarthritis. Pain, 2004, 110(1-2): p. 228-235.

