ORIGINAL ARTICLE

Musculoskeletal Injuries Affecting Radiologists According to the 2017 ACR Human Resources Commission Workforce Survey

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Abstract

Practice leaders surveyed in the 2017 ACR Human Resources Commission workforce survey reported that 25% of the radiologists or radiation oncologists they supervised had neck pain, 32% had low back pain, and 16% were dealing with a repetitive stress injury. The prevalence rates of these musculoskeletal ailments among radiologists and radiation oncologists were consistent with those reported in the literature in other populations. However, these prevalence rates may be underestimated because practice leaders, not the radiologists themselves, were surveyed, and the leaders may not be aware of all injuries.

Key Words: Radiologist, occupational injury, work-related illness, repetitive stress injury, back pain, neck pain

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INTRODUCTION

During the past 3 decades, radiologists in the United States have steadily transitioned from a film environment to a digital environment with PACS [1]. Compared with the film environment, the PACS environment has inherent potential benefits for radiologists and patients, including more efficient scheduling and workflow, less space required for data storage, greater ease of standardization of structured reporting, and improved billing [1,2]. However, the PACS transition also has drawbacks for radiologists, including reducing the time radiologists spend in direct interactions with referring clinicians [3]. Recently, studies have raised the possibility that the PACS work environment may also contribute to musculoskeletal ailments among radiologists [4].

Although the concept that musculoskeletal ailments affect radiologists may be intuitive, the ACR Human Resources Commission is unaware of any national survey that has specifically investigated the prevalence of musculoskeletal illnesses among radiologists across the US workforce. Because of its commitment to investigating and promoting radiologist wellness, the commission, as part of its annual 2017 workforce survey [5], asked practice leaders about musculoskeletal conditions affecting radiologists in their practices.

METHODS

Recently, the ACR Human Resources Commission published the results of its most recent annual workforce survey, conducted in 2017 [5]. The methodology of this annual survey of the radiology workforce in the United States has been consistent since 2012 and was previously described [5]. An electronic survey is e-mailed to the practice leaders in the ACR's Practice of Radiology Environment Database. For the survey, leaders are defined as the chair, vice chair, managing partner, or executive committee member.

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In 2017, the commission added questions to the survey to evaluate musculoskeletal injuries to the radiologist workforce. Specifically, practice leaders were asked to identify the numbers of radiologists or radiation oncologists they had supervised within the past 5 years in their practice who had experienced neck pain, back pain, or a repetitive stress injury. Leaders were asked to provide data separately for each type of musculoskeletal injury. Leaders were also asked to indicate the gender and age group of each injured radiologist (<35, 35-45, 46-55, 56-65 years, or >65 years).

RESULTS

Overall, 477 of the 1,811 identified practice leaders (26%) responded to the survey. These practice leaders led practices with a total of 11,056 radiologists, approximately 33% of all practicing radiologists in the United States [5]. The rate of survey response varied by injury type. Of the 349 practice leaders who responded to the questions about back pain, 113 (32%) responded that their practice had at least one radiologist or radiation oncologist with back pain, 151 (43%) responded that their practice had none, and 85 (24%) responded that they did not know. Of the 349 practice leaders who responded to the questions about neck injury, 88 (25%) responded that their practice had at least one radiologist or radiation oncologist with neck pain, 177 (51%) responded that their practice had none, and 84 (24%) responded that they did not know. Of the 346 practice leaders who responded to the questions about repetitive stress injuries, 55 (16%) responded that their practice had at least one radiologist or radiation oncologist with a repetitive stress injury, 196 (57%) responded that their practice had none, and 95 (27%) responded that they did not know. The distribution of these individuals by age and gender is provided in Table 1.

Table 1. Distribution of radiologists and radiation oncologists with musculoskeletal injuries by age and gender

	Neck Pain (n = 145)		Low Back Pain (n = 201)		Repetitive Stress Injury (n = 89)	
Age (y)	Men	Women	Men	Women	Men	Women
<35	0	1	6	0	1	1
35-45	13	3	27	6	10	7
46-55	45	13	58	5	24	6
56-65	48	10	73	8	32	7
>65	8	4	18	0	1	0
Total	114	31	182	19	68	21

Comparisons of the rate of the musculoskeletal injuries to the distribution of all radiologists were performed. Table 2 demonstrates a specific comparison by distribution by age of the three types of musculoskeletal injury rates to the age distribution of all radiologists and radiation oncologists. A χ^2 analysis produced a P value of .0029 for back pain, a P value of .000144 for neck pain, and a P value of .0002 for repetitive stress injuries, with all differences being statistically significant.

Table 3 demonstrates a specific comparison by distribution by gender of the three types of musculoskeletal injury rates with the gender distribution of all radiologists and radiation oncologists. A χ^2 analysis produced a P value of .0012 for back pain, a P value of .89 for neck pain, and a P value of .71 for repetitive stress injuries. The difference in distributions was found to be statistically significant only for back pain. No statistically significant difference in the distributions was found for either neck pain or repetitive stress injuries.

Table 4 demonstrates a specific comparison of the distribution of musculoskeletal injury rates by age and gender with the distribution of all radiologists and radiation oncologists by age and gender. An analysis of variance produced a P value of .0016 for back pain, a P value of .0035 for neck pain, and a P value of .0031 for repetitive stress injuries. All three differences in distributions were statistically significant.

DISCUSSION

The rates of back pain, neck pain, and repetitive stress injury reported by practice leaders among radiologists in their practices in the 2017 ACR workforce survey are within the ranges observed in previous studies in other populations.

Table 2. Comparison by distributions of musculoskeletal injury rates by age with distribution of all radiologists and radiation oncologists by age, using χ^2 test

	All Radiologists (n = 7,642)		Low Back Pain (n = 201)		Neck Pain (n = 145)		Repetitive Stress Injury (n = 89)	
Age (y)	n	%	n	%	n	%	n	%
<35	866	11.3	6	3.0	1	0.7	2	2.3
35-45	2,429	31.8	33	16.4	16	11.0	17	19.1
46-55	2,257	29.5	63	31.3	58	40.0	30	33.7
56-65	1,590	20.8	81	40.3	58	40.0	39	43.8
>65	500	6.5	18	9.0	12	8.3	1	1.1
P			.0029		.0001		.0002	