Work Productivity Loss among Adults Aged 18–64 Years with Osteoarthritis in the United States: 2016-2020

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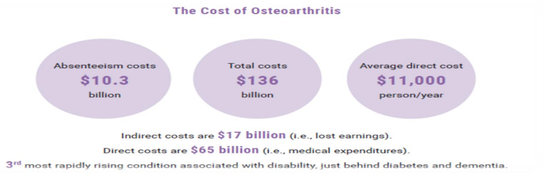
BACKGROUND

Osteoarthritis

- Arthritis is a serious health concern, with an estimated 1 in 4 (or 54.4 million) US adults having some form of arthritis, a figure that is projected to reach 78 million by the year 2040 [1].
- While there are estimated to be more than 100 types of arthritis, osteoarthritis (OA) is the most common form of arthritis, affecting 32.5 million US adults [2].
- More than half of individuals with symptomatic OA are younger than 65.
- OA increases the risk of developing heart disease by 50% and 55% increase in all-cause mortality due to reduced levels of physical activity.



Research Gap

- Since OA is a leading cause of disability, individuals with OA typically have lower employment or reduced work efficiency than those without OA [3].
- OA is the most expensive disease with more than $6.3 billion in healthcare costs [4].
- There is a literature gap for employed United States adults for their work of productivity loss.

OBJECTIVE

This study aims to exaime the work of productivity loss among osteoarthritis adults (18-64 years) in the U.S

METHODS

Data sources:

- This retrospective, cross-sectional study used the Medical Expenditure Panel Survey (MEPS) from 2016 to 2020.
- It is a nationally representative survey of American individuals, their families, and their healthcare providers sponsored by the Agency for Research and Quality of Care Health Care (AHRQ).

Study population:

- The study included all employed adults aged 18-64.
- Individuals with OA were identified using medical component files involving International Classification of Diseases, Clinical Modification (ICD-10-CM) codes of “M16”,” M17,” & “M19”
- Adults with no OA diagnosis were included as the non-OA control group.
- The study controlled for predisposing, enabling, and need factors using the Anderson Behavioral Model (ABM).

Outcomes:

- Work productivity loss was captured using missed workdays - the number of half-day or more missed from work annually for health-related reasons.

Analyses:

- The number of missed workdays, a count variable, was analyzed using different models, including Poisson, Adjusted Poisson, Negative Binomial, Zero-inflated Poisson, and Zero-inflated Negative Binomial. Based on AIC and BIC values, the Negative Binomial Regression (NBR) model was selected for the final analysis.
- Weighted descriptive statistics and incidence rate ratios (IRR) were reported for OA patients, adjusting for d predisposing, enabling, and need factors based on the Anderson Behavioral Model (ABM).
- Analysis was performed by using SAS version 9.4.

RESULTS

Table 1. Demographic Characteristics of Adults with Osteoarthritis and Non-osteoarthritis: MEPS 2016-2020

	No Osteoarthritis Group 41,440 (n=52,393,948)		Osteoarthritis Group 2,613 (n=3,210,487)		
	Weighted Frequency	% age	Weighted Frequency	% age	p-value
Age in years					
18-44	29,758,046	56.8	657,357	20.48	<.0001
45-64	22,635,902	43.2	2,553,130	79.52	
Sex					
Male	24,864,876	47.46	1,350,884	42.08	0.0005
Female	27,529,072	52.54	1,859,603	57.92	
Physical Health Status					
Ex/v. good	23,269,348	44.41	805,929	25.1	<.0001
Good	20,621,845	39.36	1,338,585	41.69	
Fair/poor	8,502,756	16.23	1,065,973	33.2	
Mental Health Status					
Ex/v. good	26,884,467	51.31	1,344,854	41.89	<.0001
Good	19,350,596	36.93	1,371,623	42.72	
Fair/poor	6,158,885	11.76	494,010	15.39	
ADL Limitations					
No	52,268,765	99.76	3,188,137	99.3	<.0001
Yes	125,183	0.24	22,350	0.7	
IADL Limitations					
No	52,008,444	99.26	3,124,995	97.34	<.0001
Yes	385,504	0.74	85,492	2.66	

Table 2. Multivariate analysis for No. Of Missed Workdays among Osteoarthritis Patients vs. No. Osteoarthritis Employed U.S Adults from 2016-2020

Parameter	IRR	95% Confidence Limits		SE	p-value*
Osteoarthritis					
No	Reference	--	--	--	--
Yes	1.34	1.24	1.45	0.0394	<.0001

Adjusting for age, sex, race, education, income, insurance type, region, marital status, year, and Elixhauser comorbidities ; *P-value <0.05

CONCLUSIONS

- The study found a 1.34-fold higher rate of missed workdays for adults with OA compared to those without OA.
- Effective OA disease management can not only improve quality of life but also can help with productivity loss.

LIMITATIONS

- A cross-sectional, observational study design has inherent external validity limitations.
- Only non-institutionalized patients were included. Specific information on the severity of OA was not available.

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