

# What are the Variables Associated with Multimorbidity Among United States Adults with a Diagnosis of Arthritis? Findings From a Cross-Sectional Database Study.

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## INTRODUCTION

- Arthritis is a debilitating condition that causes inflammation in body joints and affects approximately 19% of United States (US) adults.<sup>1</sup>
- Multimorbidity (defined as 2+ chronic conditions) is increasing across the US.
- Multimorbidity is associated with poorer health, well-being, quality of life, and functionality, and increased hospital admissions, length of stays, healthcare use and costs, and mortality.<sup>2-3</sup>
- There is a need to better understand the factors associated with multimorbidity among US adults with arthritis.

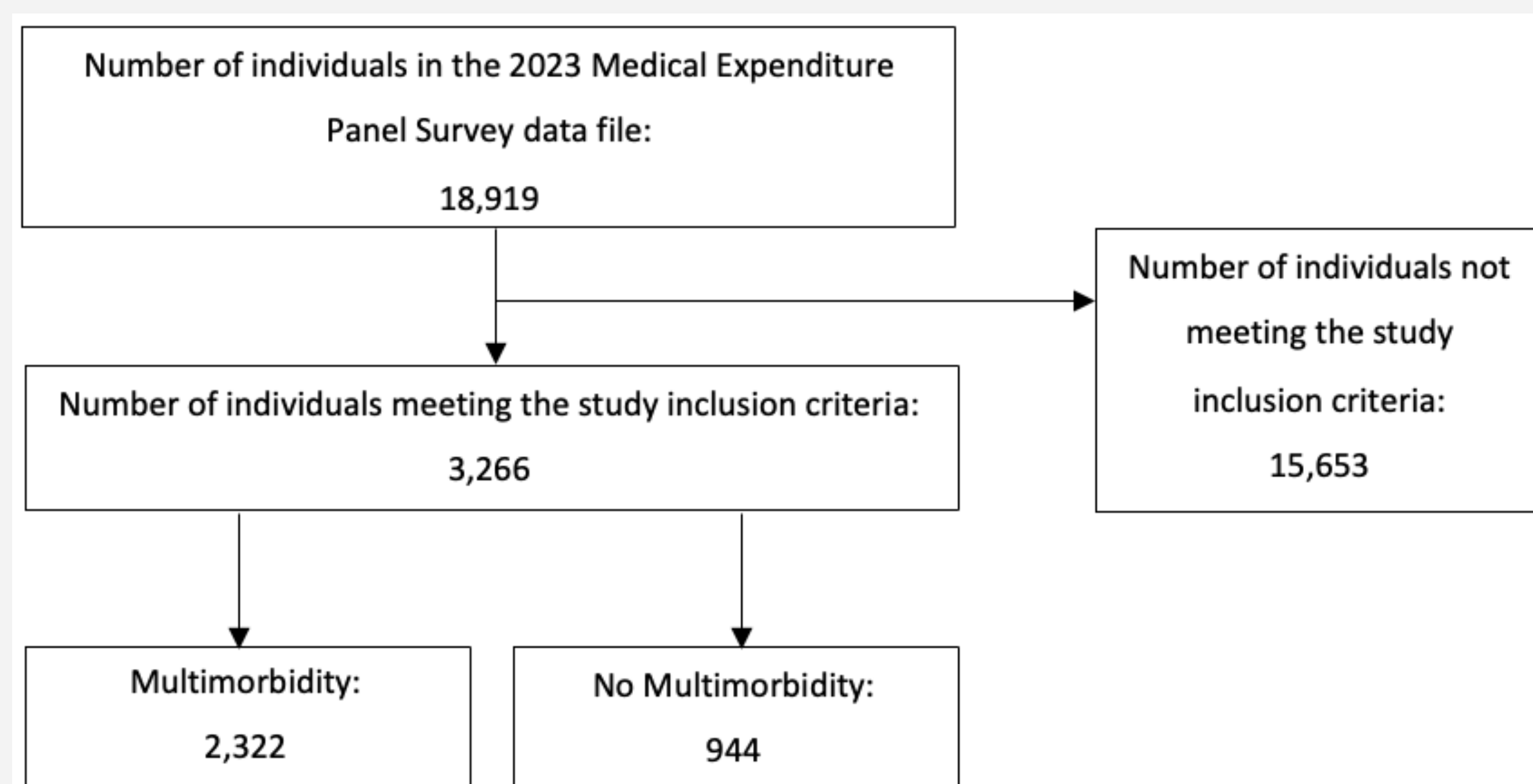
## OBJECTIVES

- The objective of this study was to investigate the variables significantly associated with multimorbidity among US adults (18+ years) with arthritis.

## METHODS

- This cross-sectional database study utilized 2023 Medical Expenditure Panel Survey (MEPS) data.<sup>4</sup>
- The variables included are shown in Table 1.
- A multivariable logistic regression model assessed the predisposing, enabling, and need variables associated with multimorbidity in US adults with arthritis.
- Cluster, strata, and weighting variables maintained the complex data structure and generated nationally representative data estimates. The a-priori  $\alpha = 0.05$ .

## FLOWCHART



## RESULTS

Table 1. Demographics of US adults with arthritis by multimorbidity status.

Variables	Multimorbidity % (95% CI) N=2322 Weighted N=44,031,491	No Multimorbidity % (95% CI) N=944 Weighted N=21,481,078	p
<b>Age, years</b>			<0.001
65+	61.0 (58.2, 63.8)	33.1 (29.6, 36.5)	
40-64	36.3 (33.6, 39.0)	51.2 (46.9, 55.5)	
18-39	2.7 (1.8, 3.6)	15.7 (11.9, 19.6)	
<b>Sex</b>			<0.001
Male	42.4 (40.1, 44.7)	33.5 (29.8, 37.2)	
Female	57.6 (55.3, 59.9)	66.5 (62.8, 70.2)	
<b>Hispanic</b>			0.77
Yes	10.2 (8.2, 12.3)	10.7 (7.9, 13.4)	
No	89.8 (87.7, 91.8)	89.3 (86.6, 92.1)	
<b>Race</b>			0.95
White	81.2 (78.6, 83.8)	80.5 (76.7, 84.2)	
Black	12.0 (9.7, 14.2)	12.9 (9.8, 16.0)	
Asian	3.6 (2.5, 4.7)	3.4 (1.9, 5.0)	
Other / multiple	3.3 (2.2, 4.3)	3.2 (1.4, 4.9)	
<b>Employment status</b>			<0.001
Employed	36.3 (33.3, 39.3)	61.2 (57.2, 65.1)	
Unemployed	63.7 (60.7, 66.7)	38.8 (34.9, 42.8)	
<b>Health insurance coverage status</b>			<0.001
Any private	52.1 (49.4, 54.8)	63.9 (59.9, 67.9)	
Public only	46.9 (44.3, 49.6)	33.9 (30.0, 37.8)	
Uninsured	0.9 (0.5, 1.4)	2.2 (1.0, 3.5)	
<b>Education status</b>			<0.001
Up to and including high school	45.3 (42.8, 47.8)	34.3 (30.3, 38.3)	
More than high school	54.7 (52.2, 57.2)	65.7 (61.7, 69.7)	
<b>Household income status</b>			<0.001
Low household income	30.7 (27.5, 33.9)	24.3 (20.9, 27.7)	
Middle household income	28.9 (26.2, 31.7)	26.7 (23.1, 30.3)	
High household income	40.4 (37.2, 43.5)	49.0 (44.8, 53.1)	
<b>Marriage status</b>			0.10
Married	50.7 (47.8, 53.6)	54.5 (50.6, 58.4)	
Not married	49.3 (46.4, 52.2)	45.5 (41.6, 49.4)	
<b>Functional limitation status</b>			<0.001
Functional limitation	40.0 (37.2, 42.7)	22.0 (18.3, 25.6)	
No functional limitation	60.0 (57.3, 62.8)	78.0 (74.4, 81.7)	
<b>Pain interference status</b>			<0.001
No pain interference	25.1 (22.7, 27.5)	40.9 (36.9, 45.0)	
Little / moderate pain interference	52.1 (49.8, 54.5)	48.0 (43.8, 52.2)	
Quite a bit / extreme pain interference	22.8 (20.2, 25.3)	11.1 (8.6, 13.6)	
<b>Health status</b>			<0.001
Excellent / very good health	35.6 (32.6, 38.5)	53.1 (48.8, 57.4)	
Good health	36.6 (34.3, 39.0)	33.5 (29.8, 37.2)	
Fair / poor health	27.8 (25.3, 30.3)	13.4 (10.6, 16.2)	
<b>Mental health status</b>			0.01
Excellent / very good mental health	51.4 (48.4, 54.4)	56.4 (52.2, 60.6)	
Good mental health	32.4 (29.9, 34.8)	33.0 (29.2, 36.9)	
Fair / poor mental health	16.2 (14.3, 18.1)	10.5 (8.2, 12.9)	
<b>Exercise status</b>			0.01
Regular exercise	47.0 (44.4, 49.6)	54.2 (49.9, 58.5)	
No regular exercise	53.0 (50.4, 55.6)	45.8 (41.5, 50.1)	
<b>Smoking status</b>			0.10
Smoker	13.4 (11.3, 15.5)	10.8 (8.4, 13.3)	
Non-smoker	86.6 (84.5, 88.7)	89.2 (86.7, 91.6)	

## RESULTS

Table 2. Adjusted odds ratios for multimorbidity versus no multimorbidity among US adults with arthritis in the multivariable logistic regression model.

Variables	Adjusted Odds Ratio (95% CI)
<b>Age, years:</b> 65+ vs. 18-39	<b>9.8 (6.25, 15.42)</b>
<b>Age, years:</b> 40-64 vs. 18-39	<b>3.8 (2.34, 6.05)</b>
<b>Sex:</b> male vs. female	<b>1.5 (1.23, 1.87)</b>
<b>Hispanic:</b> yes vs. no	1.0 (0.69, 1.55)
<b>Race:</b> White vs. other / multiple	1.1 (0.54, 2.05)
<b>Race:</b> Black vs. other / multiple	1.1 (0.50, 2.20)
<b>Race:</b> Asian vs. other / multiple	1.4 (0.62, 3.22)
<b>Employment:</b> employed vs. unemployed	<b>0.8 (0.60, 0.98)</b>
<b>Health insurance coverage:</b> any private vs. uninsured	1.5 (0.76, 2.87)
<b>Health insurance coverage:</b> public only vs. uninsured	1.3 (0.69, 2.61)
<b>Education:</b> up to and including high school vs. more than high school	1.2 (0.98, 1.54)
<b>Household income:</b> low household income vs. high household income	1.1 (0.79, 1.47)
<b>Household income:</b> middle household income vs. high household income	1.2 (0.89, 1.54)
<b>Marriage:</b> married vs. not married	1.0 (0.81, 1.27)
<b>Functional limitation:</b> functional limitation vs. no functional limitation	<b>1.4 (1.06, 1.88)</b>
<b>Pain interference:</b> no vs. quite a bit / extreme pain interference	<b>0.7 (0.44, 0.99)</b>
<b>Pain interference:</b> little / moderate vs. quite a bit / extreme pain interference	0.9 (0.61, 1.22)
<b>Health:</b> excellent / very good vs. fair / poor health	<b>0.4 (0.24, 0.53)</b>
<b>Health:</b> good vs. fair / poor health	<b>0.6 (0.45, 0.89)</b>
<b>Mental health:</b> excellent / very good vs. fair / poor mental health	1.0 (0.69, 1.52)
<b>Mental health:</b> good vs. fair / poor mental health	0.8 (0.54, 1.09)
<b>Exercise:</b> regular exercise vs. no regular exercise	0.9 (0.74, 1.12)
<b>Smoking:</b> smoker vs. non-smoker	1.2 (0.84, 1.80)

## CONCLUSION

- This analysis identified the predisposing, enabling and need variables associated multimorbidity among US adults with arthritis.
- Future work could explore targeted interventions on these variables to improve health-related outcomes.

## REFERENCES

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