Depression Among Rheumatoid Arthritis Patients Using the Medical Expenditure Panel Survey Database

EPH176

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Introduction

Patients with rheumatoid arthritis (RA), a chronic inflammatory autoimmune disease that affects the joints, are known to have higher rates of depression than patients without RA. However, there have been numerous changes in the pharmacological management of RA with the addition of DMARDS.

The primary objective of this study is to determine if medicated patients with RA suffer more pain, work limitations, and depression than patients without RA using the Medical Expenditure Panel Survey from 2022.

Methodology

Retrospective data analysis from the Medical Expenditure Panel Survey (MEPS) for the year 2022 was conducted to find connection between patients with RA and concurrent depression. Patients were included if patients self-reported RA, combined with ICD-10 (M06), and were using a prescription medication because of RA condition. Patients who self-reported osteoarthritis or unknown types were excluded. The RA patients with RA medication usage were compared to non-RA patients by univariate analyses.

Multiple factors such as age, gender, ethnicity, education level, income, and insurance coverage are also considered in a logistic regression analysis to predict depression outcome among RA patients with and without RA medications.

Result

Table 1. Predictor of RA patients among MEPS 2022 data

Predictor	RA	Non-RA	p-value
Mean age (95% CI)	62.7 (60.5-64.8)	48.0 (47.5-48.5)	
	Weighed n in millions (%)		
Female	1.98 (67)	166.71 (51)	<.001
Non-Hispanic	2.52 (86)	266.36 (81)	<.01
Previously or currently married	2.70 (92)	179.59 (54)	<.001
No college degree	1.80 (62)	139.35 (43)	<.001
Low income (less than 200% FPL)	1.09 (37)	90.93 (28)	.0545
South region	1.30 (45)	126.60 (39)	.4131
Public only insurance	1.30 (44)	93.04 (28)	<.001

Results

A total of 263 eligible RA patients with RA medications were identified from the MEPS database. Of these 263 patients, 67% were female. This represents a weighted estimate of 2.9 million RA patients, about 0.9% of the total population in the U.S. The Average age for RA group was 62.7 years (SD 14.7), with diagnosis at an average of 44 years (SD 21).

Depression ranked the third most common comorbidity among patients with RA (18.7%, p < 0.01), following hypertension and chronic pulmonary disease, and was followed by solid tumor without metastasis and fluid and electrolyte disorders.
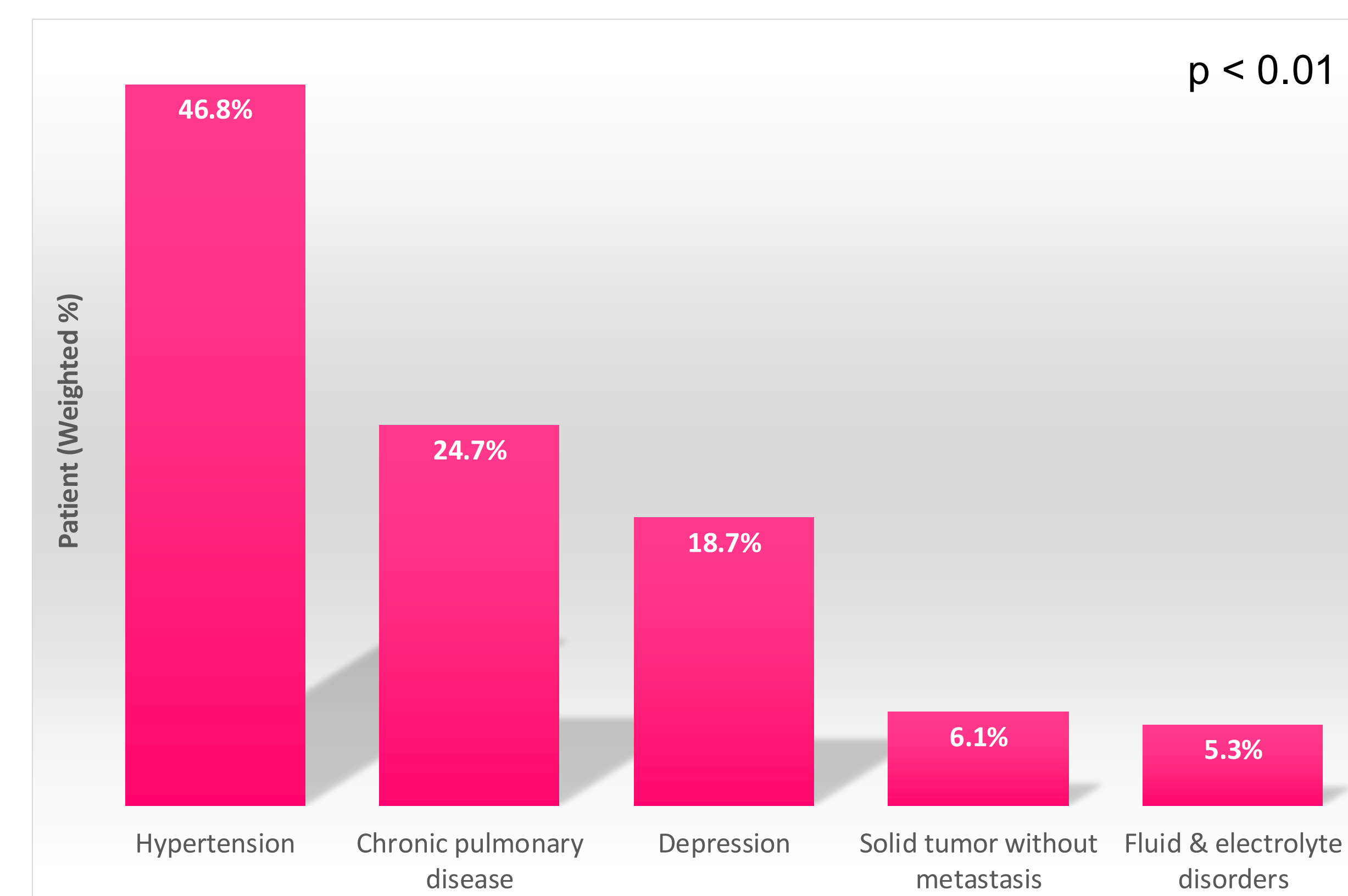

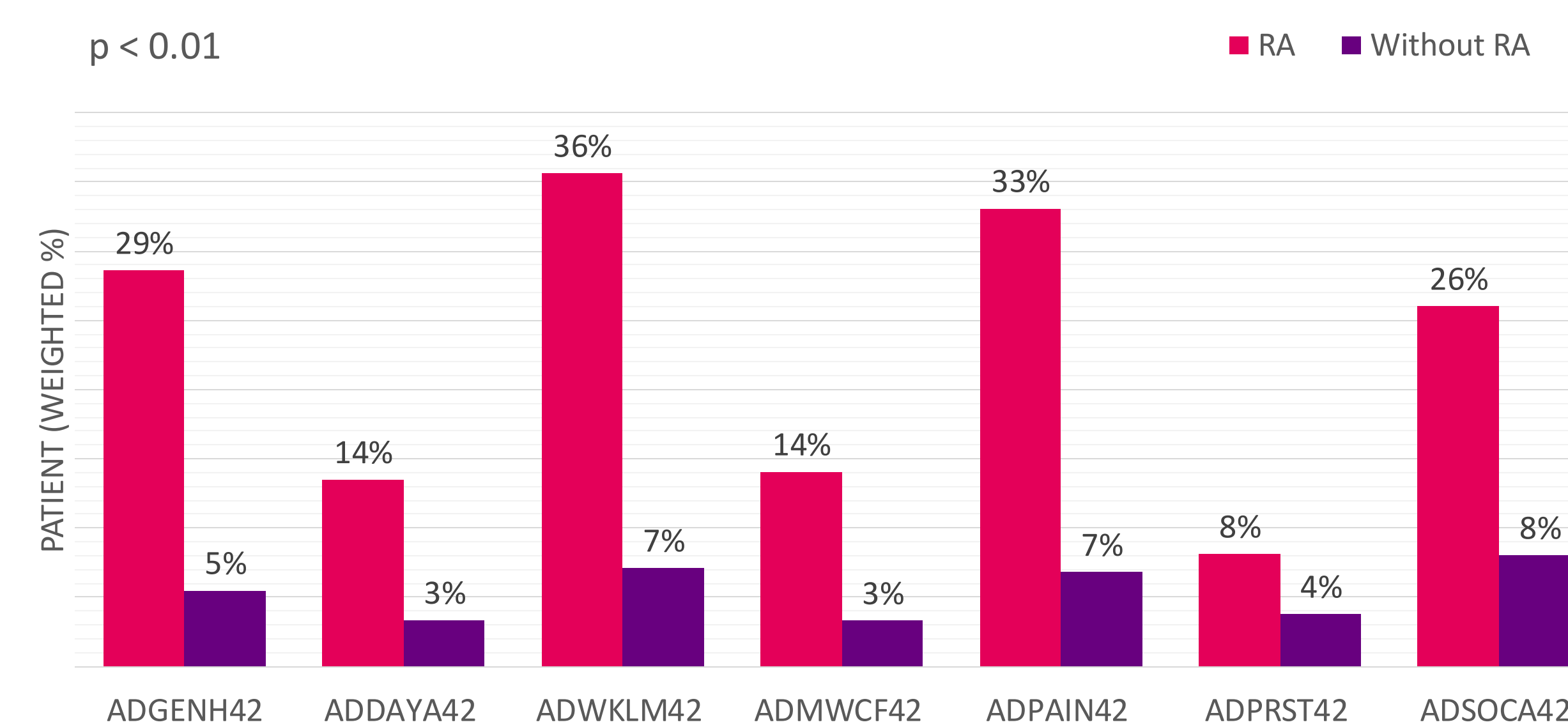**Figure 1.** Comorbidities among RA patients with medication, MEPS 2022

Figure 2. Patients' self-report of the clinical burden of RA. Selected criteria is included in each index: ADGENH42 (fair or poor health today), ADDAYA42 (limitation in moderate activities during a typical day), ADWLKLM42 (some limits due to physical health during the last 4 weeks), ADMWCF42 (some limits due to emotional problems during the last 4 weeks), ADPAIN42 (moderate to severe interference with normal work outside home and housework due to pain during the last 4 weeks), ADPRST42 (felt downhearted and blue during the last 4 weeks), ADSOCA42 (social activities interfered due to physical health or emotional problems)
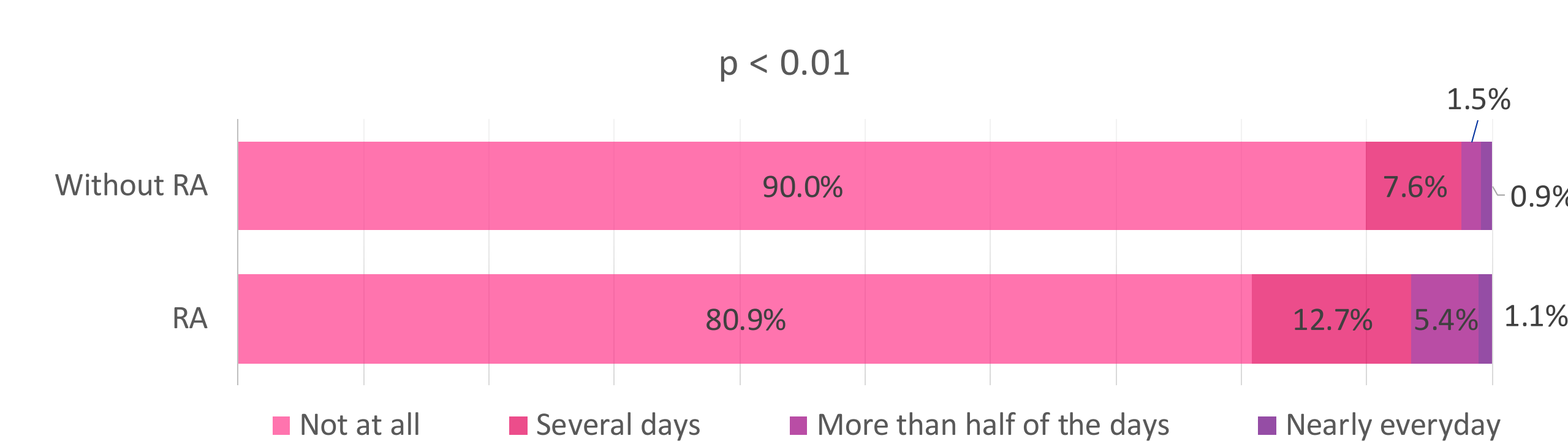

Figure 3. Self-assessed questionnaire (SAQ) last 2 weeks: Feeling down, hopeless, and depressed

The Veteran RAND SAQ-12 items revealed that 6.4% of RA patients reported felt down, depressed, or hopeless more than half the days or nearly every day in the past two weeks (P<0.01), and 33.09% of RA patients reported pain limited normal work in the past four weeks (P<0.01).
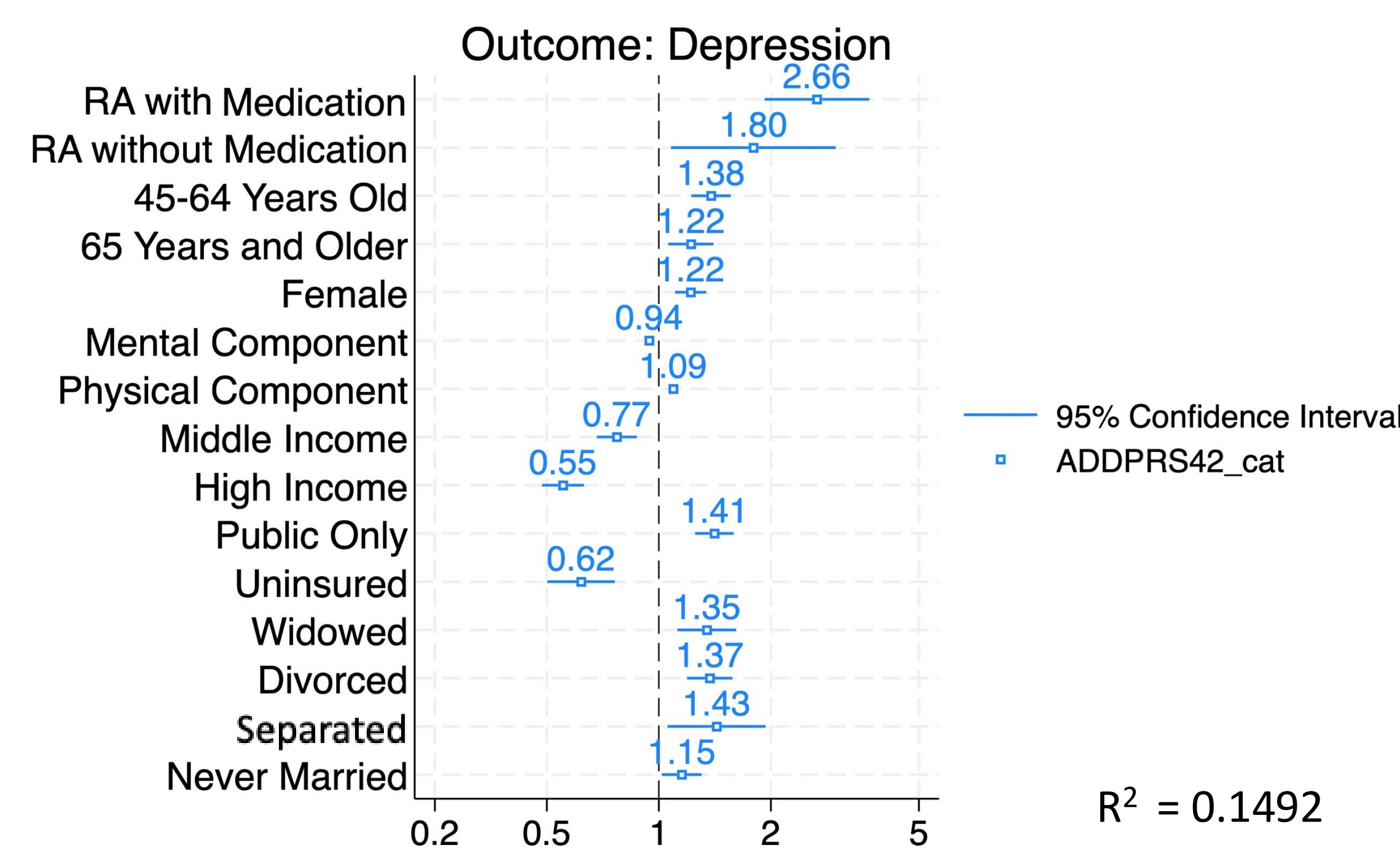

Figure 4. Backward stepwise regression used to analyze the presence of depression among selected predictor variables. Notes: Mental Component (ADEMLS42 [less accomplished in past 4 weeks due to emotional problems], ADMWCF42, ADPCFL42 [felt calm and peaceful in past 4 weeks], ADENGY42 [had a lot of energy in past 4 weeks], ADPRST42, and ADSOCA42), Physical Component (ADGENH42, ADDAYA42, ADCLIM42 [limitations in climbing several flights of stairs during a typical day], ADACLS42 [less accomplished in past 4 weeks due to physical health], ADWKLM42, and ADPAIN42), Middle Income (200-400% of federal poverty level - FPL), High Income (greater than or equal to 400% of FPL), Public Only (only public insurance coverage, excluding TRICARE/CHAMPVA),

The logistic regression model was able to explain 14.9% of the variation in the depression outcome among RA patients. An increase in mental component health score is associated with a decrease in depression. An increase in RA medication utilization is associated with an increase in depression rate.

Conclusion

- RA accounts for about 0.9% of the total population in the US, with about two-third patients being female.
- Depression is the third most common comorbidity of RA patients.
- RA patients have more physical limitations and lower emotional index as compared to non-RA patients.
- RA patients who are taking RA medications face higher rates of depression.
- A higher mental score is associated with less depression.

Discussion

A higher physical component score was associated with a higher rate of depression, which contradicts our logistic regression model's initial prediction. This discrepancy suggests the presence of confounding factors, and further evaluation of model variables is currently underway.

Limitations

- Small sample size, self-reported data utilized
- Data limited to the United States of America
- Too large numbers of comorbidities without associating coefficient. Guidelines and literature review can provide the most relevant comorbidities.

References

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