

Risk and Protective Factors for Arthritis Status and Severity

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Objective

To examine how cigarette smoking, alcohol consumption, obesity, and physical activity are associated with the risk and severity of arthritis among adults living in Delaware.

Introduction

Research has indicated several risk and protective factors for arthritis, including cigarette smoking, alcohol consumption, obesity, and physical activity (1–4). However, it is not well understood how all these factors interact to increase/decrease the risk of arthritis.

Methods

Data from the 2009 Delaware Behavioral Risk Factor Surveillance System (BRFSS) were analyzed in the current study. Potential risk and protective factors for arthritis status and severity examined in this study included: smoking status, alcohol consumption, weight status, and physical activity level. Weighted percentages were calculated for the risk and protective factors by arthritis status and activity limitation due to arthritis/joint symptoms, and were analyzed using a Rao-Scott χ^2 test. A logistic regression analysis was performed to determine an odds ratio (OR) while adjusting for gender, age, race/ethnicity, and education.

Results

Adults living in Delaware self-reporting arthritis were more likely to be former and current smokers than those without self-reported arthritis ($p < 0.001$, OR = 1.64–1.70). Moderate and heavy alcohol drinking was associated with lower prevalence and severity of arthritis ($p < 0.001$, OR = 0.45–0.74). There was a significant relationship between obesity and arthritis status or activity limitation due to arthritis/joint symptoms ($p < 0.01$, OR = 1.62–2.14). Furthermore, people with arthritis having activity limitation due to arthritis/joint symptoms were more likely to not meet the current physical activity recommendations (5) ($p = 0.013$, OR = 1.49).

Conclusions

Cigarette smoking, alcohol consumption, obesity, and physical activity are all associated with the prevalence and severity of arthritis. It is possible that smoking and obesity have a negative impact on the risk and severity of arthritis, whereas alcohol consumption and physical activity may reduce its risk and severity. Further research, including prospective cohort studies, is necessary to determine the true absolute risk of developing arthritis, so that we can design the effective prevention strategies.

Table 1. Risk and protective factors by arthritis status and severity

	Arthritis status (N = 3969)		p-value*	Activity limitation due to arthritis/joint symptoms (N = 1512)		p-value*
	Yes	No		Yes	No	
Potential risk/protective factor	27.5 (0.9)	72.5 (0.9)		39.1 (1.7)	60.9 (1.7)	
Smoking status			< 0.001			0.382
Non-smoker	42.1 (1.8)	57.7 (1.5)		40.6 (2.6)	43.0 (2.4)	
Former smoker	39.3 (1.7)	24.1 (1.2)		38.4 (2.6)	39.9 (2.3)	
Current smoker	18.6 (1.4)	18.2 (1.2)		21.0 (2.2)	17.1 (1.9)	
Alcohol consumption			< 0.001			< 0.001
No drinking	52.4 (1.8)	38.8 (1.5)		61.8 (2.6)	46.5 (2.4)	
Moderate drinking	27.2 (1.6)	34.3 (1.5)		24.9 (2.3)	28.5 (2.2)	
Heavy drinking	20.4 (1.6)	26.9 (1.4)		13.3 (1.8)	25.0 (2.2)	
Weight status (body mass index ^a)			< 0.001			0.008
Not overweight/obese	26.3 (1.6)	41.0 (1.6)		21.0 (2.2)	29.7 (2.3)	
Overweight	36.3 (1.7)	35.3 (1.5)		36.0 (2.6)	36.5 (2.3)	
Obese	37.4 (1.8)	23.7 (1.2)		43.0 (2.6)	33.8 (2.4)	
Recommended physical activity ^b			< 0.001			0.013
Yes	43.7 (1.8)	53.7 (1.6)		38.2 (2.7)	47.3 (2.5)	
No	56.3 (1.8)	46.3 (1.6)		61.8 (2.7)	52.7 (2.5)	

Notes: Values given as % (SE).

^aNot overweight/obese: < 25.0 kg/m², Overweight: 25.0–29.9 kg/m², Obese: ≥ 30 kg/m².

^bModerate physical activity for ≥ 30 minutes/day on ≥ 5 days/week, or vigorous physical activity for ≥ 20 minutes/day on ≥ 3 days/week (5).

*Rao-Scott χ^2 test.

Keywords

alcohol; smoking; arthritis; Behavioral Risk Factor Surveillance

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