

Prescription Cascades and Their Association With Falls and Reduced Muscle Strength in Older Adults

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Prescription cascades are common among older adults in outpatient care and are associated with a higher prevalence of falls and impaired muscle strength, reinforcing their role as a potentially preventable clinical-pharmacological marker of iatrogenesis and dementia vulnerability.

INTRODUCTION	METHODS	RESULTS	CONCLUSIONS	REFERENCES
Prescription cascades occur when adverse drug effects are misinterpreted as new clinical conditions, leading to the prescription of additional medications. In older adults, this process may increase medication burden and contribute to adverse outcomes such as falls, functional decline, and cognitive vulnerability. However, evidence on the association between prescription cascades, falls, and muscle strength in real-world outpatient settings remains limited. Objective: to estimate the prevalence of prescription cascades and examine their association with falls and impaired muscle strength among older adults receiving outpatient care.	This cross-sectional study included 616 older adults receiving care in a public outpatient setting. Prescription cascade exposure was defined as the presence of at least one identified cascade within the patient's medication regimen. Falls were assessed as a binary outcome, and muscle strength was measured using a handgrip dynamometer. Figure 1 – Study workflow and analytical strategy. Clinical and pharmacological characteristics were compared according to prescription cascade status. Associations between prescription cascades and falls were examined using chi-square tests and Poisson regression with robust variance, reporting prevalence ratios (PR). Adjusted models included age, sex, multimorbidity, and pharmacological burden assessed using the Drug Burden Index (DBI).	The study included 616 older adults, with a mean age of 71.0 years (SD 7.2). Most participants were women (56.7%). This data is shown in figure 2. Prescription cascades were identified in approximately one in four participants (26.3%). Falls were more frequent among individuals exposed to prescription cascades compared with those without cascades: 32.4% vs 24.4%; $p = 0.04$ (figure 3). Exposure to prescription cascades was also associated with a higher prevalence of impaired muscle strength: 33.3% vs 22.8%; $p = 0.005$ (figure 3). In adjusted analyses, prescription cascades remained associated with a higher prevalence of falls, independently of age, sex, multimorbidity, and overall pharmacological burden (Figure 4). These findings suggest that prescription cascades may reflect a clinically meaningful and potentially modifiable phenotype of medication-related vulnerability in older adults.	Prescription cascades are common among older adults receiving outpatient care and are associated with an increased prevalence of falls and impaired muscle strength. These results support prescription cascades as a clinically relevant marker of potentially preventable iatrogenesis. Targeted medication review strategies may help reduce fall risk, functional decline, and downstream dementia vulnerability in older adults.	ROCHON, P. A.; GURWITZ, J. H. The prescribing cascade revisited. <i>The Lancet</i>, v. 389, n. 10081, p. 1778–1780, 2017. MCCARTHY, L. M.; VISENTIN, J. D.; ROCHON, P. A. Assessing the scope and appropriateness of prescribing cascades. <i>Journal of the American Geriatrics Society</i>, v. 67, n. 5, p. 1023–1026, 2019. WOOLCOTT, J. C. et al. Meta-analysis of the impact of 9 medication classes on falls in elderly persons. <i>Archives of Internal Medicine</i>, v. 169, n. 21, p. 1952–1960, 2009. HILMER, S. N. et al. A Drug Burden Index to define the functional burden of medications in older people. <i>Archives of Internal Medicine</i>, v. 167, n. 8, p. 781–787, 2007. SEPPALA, L. J. et al. Fall-risk-increasing drugs: a systematic review and meta-analysis: III. Others. <i>Journal of the American Medical Directors Association</i>, v. 19, n. 4, p. 372.e1–372.e8, 2018.

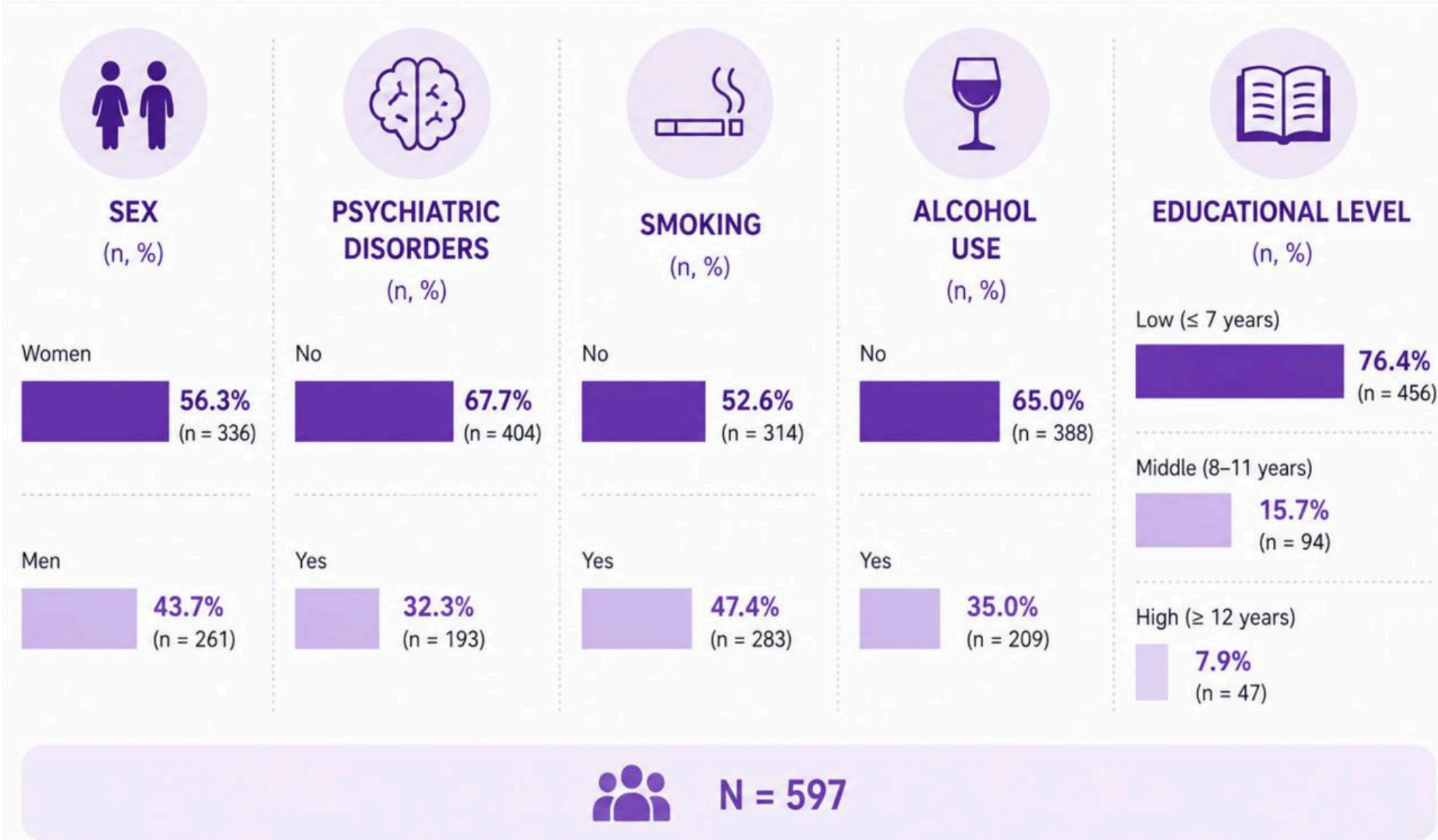


Figure 2. Sociodemographic and clinical characteristics of the study population (N = 597).

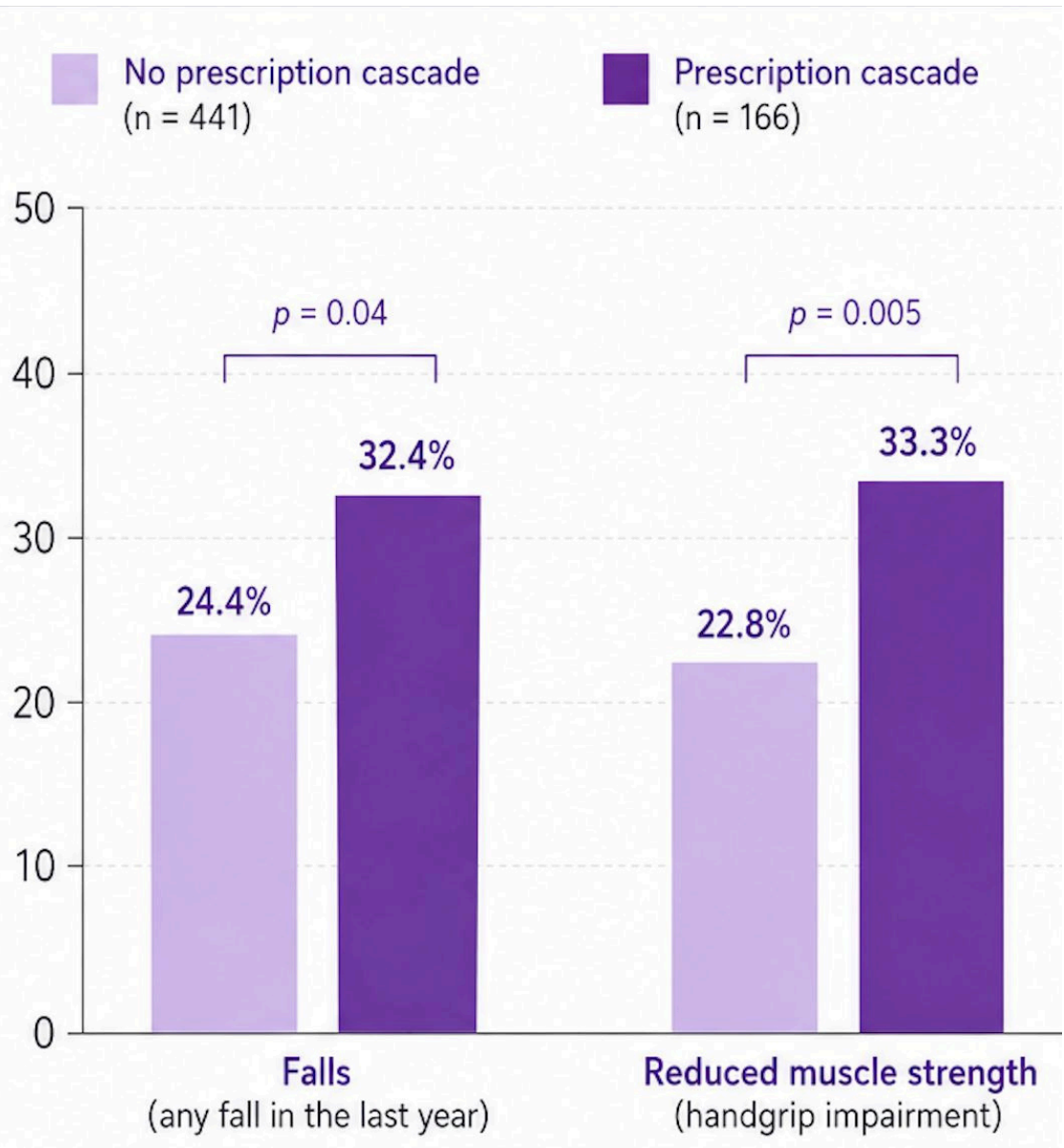


Figure 3. Prevalence of falls and reduced muscle strength according to prescription cascade status.

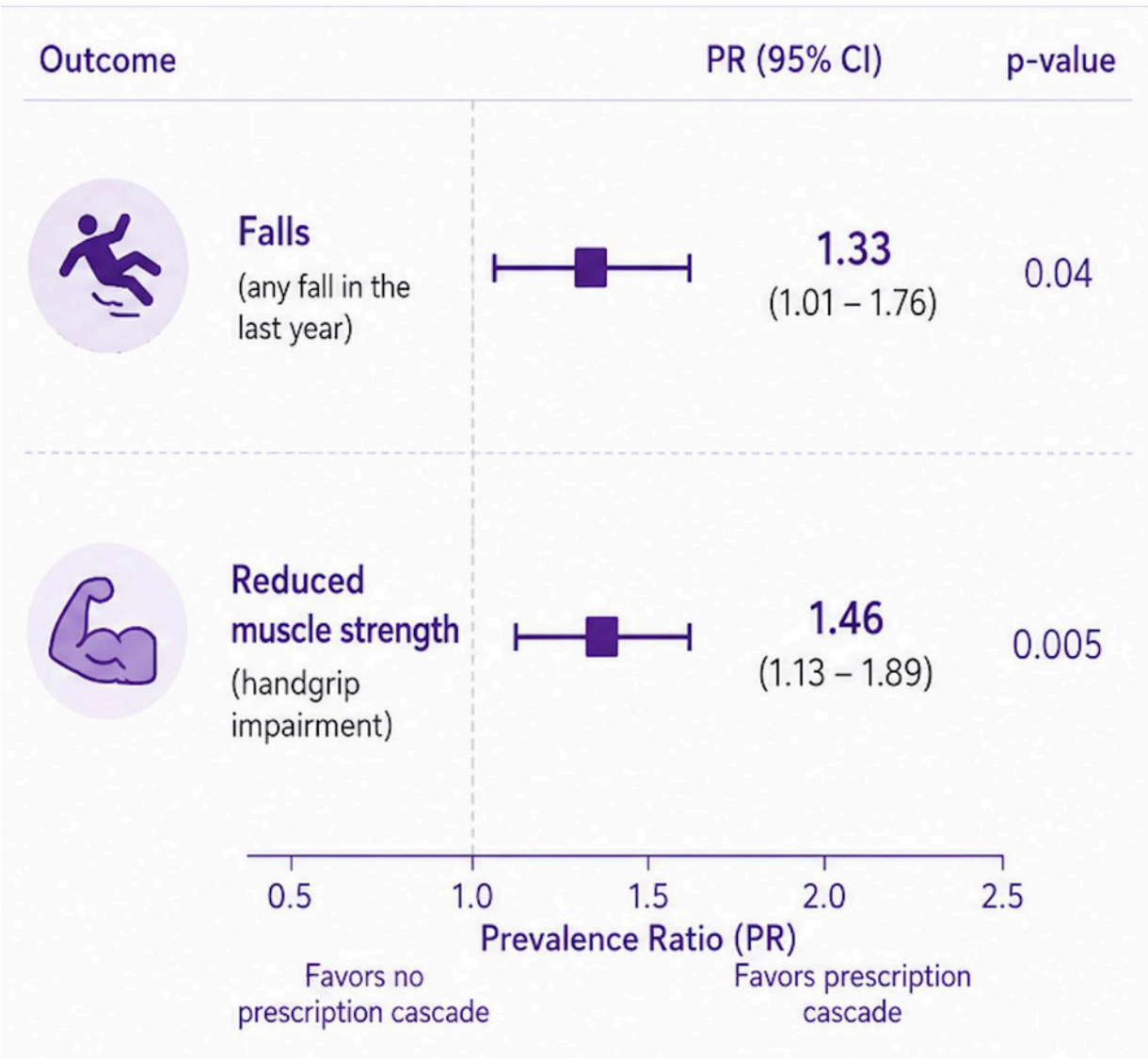


Figure 4. Forest plot showing the association between prescription cascade exposure and adverse clinical outcomes.

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