

Long-term Associations Between ‘Polysocial Risk’ And Dementia: A Retrospective Cohort Study

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Background

Dementia risk is complex and partially modifiable. Many risks relate to social environments. Polysocial risks scores (PRS) can help estimate overall contributions of multiple social factors to disease risk, recognising their overlapping and interactive effects.

Methods

A weighted PRS was constructed in the population-based EPIC-Norfolk cohort. Sex-stratified survival models examined associations between PRS and incident dementia, adjusted for age, ethnicity, LIBRA score (modifiable medical risk), and APOE ε4 genotype. The interplay between PRS and LIBRA score with dementia risk was also examined.

	Incident Dementia Hazard Ratio	95% CI	P value
Adjusted for age, ethnicity			
All (ref = low PRS)			
Medium PRS	1.14	1.03, 1.26	< 0.01
High PRS	1.38	1.18, 1.61	< 0.01
Men (ref = low PRS)			
Medium PRS	1.10	0.94, 1.30	0.22
High PRS	1.49	1.15, 1.92	< 0.01
Women (ref = low PRS)			
Medium PRS	1.16	1.02, 1.32	0.02
High PRS	1.33	1.09, 1.62	< 0.01
Adjusted for age, ethnicity, LIBRA score, and APOE ε4 genotype			
All (ref = low PRS)			
Medium PRS	1.12	1.00, 1.24	0.04
High risk PRS	1.39	1.17, 1.64	< 0.01

Findings

Our sample of 16,818 people included 2,350 with dementia. Our PRS consisted of education level, number of childhood difficulties, marital status, and financial stability (living alone, lack of social support, housing stability, occupational social class, and area deprivation were not significantly associated with dementia risk in this cohort). Higher PRS was associated with higher dementia risk (compared to low PRS group, medium PRS group had HR 1.14 (95% CI 1.03,1.26), and high PRS group 1.38 (1.18,1.61), over 25 years of follow-up (see table). PRS and LIBRA score both contributed independently to dementia risk (see figure).

Conclusion

Higher polysocial risk was associated with increased dementia risk, independent of medical factors. Wider determinants should be key targets for dementia risk reduction efforts.

