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(up to 250 words)

Title: Sex and socioeconomic disparities in the development of multimorbidity in Scotland: the benefits of applying a sequence based, longitudinal approach.

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To understand health inequalities, we need to go beyond the single disease framework. Multimorbidity, defined as the cooccurrence of two or more chronic diseases, has been shown to be more prevalent in older population, in women and those with lower socio-economic status (SES). Most multimorbidity research remains cross-sectional, typically aiming to identify disease clusters at a single point in time. We aim to investigate the social patterning of multimorbidity trajectories in Scotland both cross-sectionally and longitudinally. We used the Scottish Longitudinal Study (SLS), which links censuses (2001 and 2011) to hospitalisation, diabetes and cancer register data to identify multimorbidity and disease trajectories over 10 years (2001-2011). Our cohort focuses on 120K individuals aged ≥ 40 years in 2001. Educational level in 2001 and the Scottish Index of Multiple Deprivation (SIMD 2004) were used as SES proxies. We explored sex and SES inequalities in multimorbidity using Poisson regression. Men and those with lower individual and neighbourhood SES were more likely to be multimorbid. Using sequence analysis to characterise multimorbidity trajectories as well as sex and SES inequalities in diverse disease trajectories, we expect these same groups to experience faster levels of multimorbidity accumulation and specific disease trajectories. This study highlights the influence of the timing of and sequencing of disease onset in shaping social health inequalities in later life and the need to go beyond a cross-sectional approach in researching multimorbidity differences. It also provides a characterisation of multimorbidity progression through the application of sequence analysis used in life course studies.