admission and cause of death records. We performed Cox Proportional Hazards models to estimate the risk of MCVE among participants with depression compared to those without depression. Fully adjusted models included measures of age, sex, ethnicity, education, income, area-based deprivation, body mass index, alcohol intake, physical activity, smoking, home-ownership, fruit and vegetable consumption, oily fish intake, and family history of stroke, heart disease, hypertension and/or depression.

**Results** We identified a total of 21,842 (7.9%) participants with depression at baseline. During a median of 6.7 years of follow-up, an incident MCVE occurred among 326 participants with depression and 3718 participants without depression. In fully adjusted models, hazard ratios (95% confidence intervals) for MCVE were 1.13 (1.01–1.27) for participants with any indication of depression, 1.14 (1.00–1.31) for participants with self-reported depression, 1.60 (1.18–2.17) for participants with history of a hospital admission with depression, and 1.12 (0.99–1.27) for participants reporting antidepressant use. Similar patterns were observed when stroke and myocardial infarction were used separately as outcomes.

**Conclusion** All measures of depression remained independent risk factors for MCVE after adjustment for a variety of potential confounding factors and effect estimates were similar for all sub-categories of depression. The adjusted hazard ratios should only be interpreted causally if one assumes that the covariates are common sources of depression and MCVE. This assumption remains controversial. Future studies should apply more advanced statistical methods in order to determine the effect of lifestyle factors as potential mediators and explore potential for interactions.

**RF13 THE IMPACT OF LIFE EVENTS ON LATER LIFE: A LATENT CLASS ANALYSIS OF THE ENGLISH LONGITUDINAL STUDY OF AGEING**

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Background Events over an individual’s life course can positively or negatively affect their health and wellbeing in older age. We aimed to identify associations between groups of older people with similar life events and their health, behaviours and social interactions in older age.

Methods We undertook a latent class analysis of the English Longitudinal Study of Ageing wave 3. Groups of participants with similar life events were generated based on eight life events; maternal and paternal closeness, educational opportunities in childhood, financial hardship, bereavement due to war, involvement in conflict, violence, and experiencing a natural disaster. The number of groups was determined based on model fit and team discussion. Linear and logistic regression were used to explore associations between these groups and pre-specified health and wellbeing factors, adjusted for age, gender, ethnicity and socioeconomic class and weighted for group probability.

Results 7555 participants were allocated to one of four groups: Group A ‘few life events’ (n=6,250), Group B ‘emotionally cold mother’ (n=724), Group C ‘violence in combat’ (n=274) and Group D ‘many life events’ (n=307). Participants in Group D were statistically significantly more likely than those in Group A to experience disability (coefficient 0.35, 95% CI 0.20 to 0.50), reduced quality of life (coefficient −5.33, 95% CI −6.61 to −4.05), psychological disorders (OR 3.01, 95% CI 2.18 to 4.17) and social detachment (OR 2.60, 95% CI 1.36 to 4.97). Group C membership compared to Group A was associated with reduced quality of life (coefficient −1.95, 95% CI −3.08 to −0.82) and a life-threatening
illness or accident (OR 1.98, 95% CI 1.52 to 2.59). Group B membership, compared to Group A, was associated with reduced quality of life (coefficient −1.89, 95% CI −2.62 to −1.15), psychological disorders (OR 1.73, 95% CI 1.34 to 2.23), social detachment (OR 2.60, 95% CI 1.68 to 4.04) and the perceived long-term effect of ill health (OR 1.42, 95% CI 1.10 to 1.84).

Conclusion We have identified four broad groups of older people; those with few life events, those with many life events, those with an emotionally cold mother and those who have experienced violence in combat. Compared to the group with few life events, all other groups had adverse health and wellbeing in later life, especially those with an emotionally cold mother or many life events. Policies to improve health and wellbeing in later life should have a life course perspective focusing on at risk groups.

A SYSTEMATIC REVIEW OF 30-DAY READMISSIONS IN ADULTS HOSPITALISED WITH COMMUNITY-ACQUIRED PNEUMONIA

Background Community-acquired pneumonia (CAP) is one of the most common communicable diseases worldwide associated with significant levels of morbidity and mortality causing a substantial economic burden. 30-day hospital readmission rate is often used as a secondary outcome in studies of CAP. This data can be used to define the burden of disease and the reasons for readmissions potentially amenable to intervention.

A systematic review and random meta-analysis were conducted to estimate the pooled 30-day readmission rate of adult patients with CAP and 30-day pneumonia-related/non-pneumonia-related and cardiovascular-related readmission rates of such patients.

Methods MEDLINE, EMBASE, AMED (until October 2017) and reference lists of papers were searched to identify studies of CAP including 30-day hospital readmission rate of adult patients. Each step of the study selection process was conducted by two independent reviewers. The quality was assessed using a pre-tested form based on the Newcastle-Ottawa Scale. Pooled proportions of patients readmitted within 30 days with 95% confidence intervals (CI), were estimated. Additional subgroup analyses were conducted.

Results A total of 63 studies were included in the statistical analysis, covering the period from 1994 to 2017. The pooled 30-day readmission rate estimate was 0.10 (CI 0.08–0.11). High levels of heterogeneity were identified, $I^2=98.95\%$. Only two subgroups analysis reported statistically significant differences ($p$-value <0.05). Retrospective studies had a higher readmission rate of 0.12 (95% CI 0.10 to 0.14, $I^2=99.39\%$) compared to prospective studies, 0.07 (95% CI 0.06 to 0.09, $I^2=93.35\%$). Europe had significantly lower 30-day readmission rate, 0.08 (95% CI 0.07 to 0.10, $I^2=94.98\%$) than North America, which reported 0.11 (95% CI 0.09 to 0.14, $I^2=99.50\%$). Non-pneumonia-related readmissions accounted for 0.60 (95% CI 0.48 to 0.72, $I^2=89.00\%$) of all 30-day readmissions. Additionally, 0.31 (95% CI 0.25 to 0.37, $I^2=79.74\%$) of 30-day readmissions were pneumonia-related, while 0.20 (95% CI 0.14 to 0.26, $I^2=33.55\%$) were cardiovascular-related. The studied populations were mostly composed of elderly patients. High levels of heterogeneity may have been due to different selection criteria of included studies and variations among health-care systems and treatment practices.

Conclusion Among all adult patients with CAP, 10% are readmitted to the hospital within 30 days. The majority of all-cause readmissions are non-pneumonia-related, specifically 20% are cardiovascular related. Only one third of 30-day readmissions are due to pneumonia.

BACKGROUND COMMUNITY-ACQUIRED PNEUMONIA (CAP) IS ONE OF THE MOST COMMON COMMUNICABLE DISEASES WORLDWIDE ASSOCIATED WITH SIGNIFICANT LEVELS OF MORBIDITY AND MORTALITY CAUSING A SUBSTANTIAL ECONOMIC BURDEN. 30-DAY HOSPITAL READMISSION RATE IS OFTEN USED AS A SECONDARY OUTCOME IN STUDIES OF CAP. THIS DATA CAN BE USED TO DEFINE THE BURDEN OF DISEASE AND THE REASONS FOR READMISSIONS POTENTIALLY AMENABLE TO INTERVENTION.

A SYSTEMATIC REVIEW AND RANDOM META-ANALYSIS WERE CONDUCTED TO ESTIMATE THE POOLED 30-DAY READMISSION RATE OF ADULT PATIENTS WITH CAP AND 30-DAY PNEUMONIA-RELATED/ NON-PNEUMONIA-RELATED AND CARDIOVASCULAR-RELATED READMISSION RATES OF SUCH PATIENTS.

METHODS MEDLINE, EMBASE, AMED (UNTIL OCTOBER 2017) AND REFERENCE LISTS OF PAPERS WERE SEARCHED TO IDENTIFY STUDIES OF CAP INCLUDING 30-DAY HOSPITAL READMISSION RATE OF ADULT PATIENTS. EACH STEP OF THE STUDY SELECTION PROCESS WAS CONDUCTED BY TWO INDEPENDENT REVIEWERS. THE QUALITY WAS ASSESSED USING A PRE-TESTED FORM BASED ON THE NEWCASTLE-OTTAWA SCALE. POOLED PROPORTIONS OF PATIENTS READMITTED WITHIN 30 DAYS WITH 95% CONFIDENCE INTERVALS (CI), WERE ESTIMATED. ADDITIONAL SUBGROUP ANALYSES WERE CONDUCTED.

RESULTS A TOTAL OF 63 STUDIES WERE INCLUDED IN THE STATISTICAL ANALYSIS, COVERING THE PERIOD FROM 1994 TO 2017. THE POOLED 30-DAY READMISSION RATE ESTIMATE WAS 0.10 (CI 0.08–0.11). HIGH LEVELS OF HETEROGENEITY WERE IDENTIFIED, $I^2=98.95\%$. ONLY TWO SUBGROUPS ANALYSIS REPORTED STATISTICALLY SIGNIFICANT DIFFERENCES ($p$-VALUE <0.05). RETROSPECTIVE STUDIES HAD A HIGHER READMISSION RATE OF 0.12 (95% CI 0.10 TO 0.14, $I^2=99.39\%$) COMPARED TO PROSPECTIVE STUDIES, 0.07 (95% CI 0.06 TO 0.09, $I^2=93.35\%$). EUROPE HAD SIGNIFICANTLY LOWER 30-DAY READMISSION RATE, 0.08 (95% CI 0.07 TO 0.10, $I^2=94.98\%$) THAN NORTH AMERICA, WHICH REPORTED 0.11 (95% CI 0.09 TO 0.14, $I^2=99.50\%$). NON-PNEUMONIA-RELATED READMISSIONS ACCOUNTED FOR 0.60 (95% CI 0.48 TO 0.72, $I^2=89.00\%$) OF ALL 30-DAY READMISSIONS. ADDITIONALLY, 0.31 (95% CI 0.25 TO 0.37, $I^2=79.74\%$) OF 30-DAY READMISSIONS WERE PNEUMONIA-RELATED, WHILE 0.20 (95% CI 0.14 TO 0.26, $I^2=33.55\%$) WERE CARDIOVASCULAR-RELATED. THE STUDIED POPULATIONS WERE MOSTLY COMPOSED OF ELDERLY PATIENTS. HIGH LEVELS OF HETEROGENEITY MAY HAVE BEEN DUE TO DIFFERENT SELECTION CRITERIA OF INCLUDED STUDIES AND VARIATIONS AMONG HEALTH-CARE SYSTEMS AND TREATMENT PRACTICES.

CONCLUSION AMONG ALL ADULT PATIENTS WITH CAP, 10% ARE READMITTED TO THE HOSPITAL WITHIN 30 DAYS. THE MAJORITY OF ALL-CAUSE READMISSIONS ARE NON-PNEUMONIA-RELATED, SPECIFICALLY 20% ARE CARDIOVASCULAR RELATED. ONLY ONE THIRD OF 30-DAY READMISSIONS ARE DUE TO PNEUMONIA.