Comorbidity is the co-existence of two or more health conditions.

**Key points**
- Psychiatric comorbidities are pervasive in MS. Depression and anxiety were the most widely experienced comorbid conditions at diagnosis and throughout the disease course.
- The consequences of psychiatric comorbidity are significant.
- Depression and anxiety were associated with higher rates of smoking, alcohol dependence, pain, fatigue, and a reduced quality of life.
- Mood and anxiety disorders were associated with worsened MS disability and mortality risk.
- Given these findings, mental health services should be integrated into standard care for people with MS.

**Background**
- Multiple sclerosis is a chronic, debilitating disease of the brain and spinal cord that affects approximately 2.5 million persons worldwide (2013).
- The relatively young onset age and the chronic nature of MS translates into higher societal costs than either stroke or Alzheimer’s disease.
- Though the physical symptoms of the disease take precedence in defining its progression, there are also detrimental emotional changes.

**Aims and Data sources**

ECoMS is a cross-Canada CIHR-funded research team, with the long-term goal of improving the health of persons with MS by reducing the impact of comorbidity. Research began in 2009 across 4 Canadian provinces, using two main data sources:

**Province-wide health administrative databases**
- Hospitalizations
- Physician visits
- Prescriptions dispensed
- Socioeconomic status
- Demographic information

**Longitudinal cohort**
949 patients were recruited from 4 MS clinics across Canada. Each participant completed specific questionnaires at three points over a two year period. Clinical data were obtained from medical records.

*Comorbidity is the co-existence of two or more health conditions*
Incidence and prevalence of psychiatric conditions in MS

- All persons with MS were at a significantly higher risk of depression, anxiety, bipolar disorder, and schizophrenia, relative to the general population.  
- The higher risk for depression was even greater for men with MS than for women with MS.  
- Within the longitudinal cohort of 949 patients followed for two years, 54% were symptomatically anxious and 35% were depressed.  
- Among 1250 new cases of MS followed for an average of 9 years, nearly half met the administrative definition for a mood or anxiety disorder.

Impact on health outcomes

- Many people with MS experience reductions in quality of life. Depression was the second most important predictor of quality of life among MS patients, second only to MS-related disability.  
- Tobacco and alcohol use can lead to damage of the brain, which is already compromised in people with MS. Both depression and anxiety were associated with smoking and alcohol dependence.  
- Fatigue is a pervasive, debilitating symptom of MS. Both depression and anxiety increased the risk of fatigue.  
- Pain is also a detrimental and common symptom of MS. Both depression and anxiety were associated with disruptive pain that limited daily activities. Anxiety led to worsening pain over time.

### Psychiatric Comorbidities in MS

- Mortality
- Pain
- MS Disability
- Fatigue
- Quality of Life
- Alcohol dependence
- Smoking
Impact on disability progression and mortality

- The course of MS is highly unpredictable, and can vary substantially from person to person.
- Mood and anxiety disorders significantly increased the risk of disability progression over time among new cases of MS.\(^5\)
- Women with a comorbid psychiatric condition were at a particularly increased risk of worsened disability.
- Of the mood and anxiety disorders studied, depression was the most significant moderator of disability.\(^5\)
- Having comorbid MS and depression or bipolar disorder significantly increased mortality risk.\(^9\)

To reduce the burden of these comorbidities, healthcare providers should focus on early detection and treatment. Pharmacological and non-pharmacological therapies for depression have been shown to be effective in the MS population.\(^10\)

Future Directions

- Appropriate mental health services should be integrated into the standard care for people with MS.
- Screening for depression and anxiety should be implemented in MS clinics, where appropriate mental health care can be provided.
- Further research should explore the impact of interventions to treat psychiatric conditions on health outcomes like quality of life and disability progression.