Mood Disorders in Late Life: A Population-Based Analysis of Prevalence, Risk Factors and Consequences Community-Dwelling Older Adults in Ontario

Rachel Strauss[1], Paul Kurdyak[2,3], Richard H. Glazier[1,3,4]

1. Dalla Lana School of Public Health, University of Toronto, 2. Centre for Addiction and Mental Health 3. ICES 4. Department of Family & Community Medicine, St. Michael's Hospital/University of Toronto

Introduction

Mood disorders among those aged 65 and older is an increasing public health concern that can lead to psychological distress, social isolation, and other health concerns in a vulnerable population that is rapidly growing (1,2).

There is a gap in current knowledge of the scope of mood disorders in late-life, potential risk factors, long-term outcomes among this population, as well as potential differences in healthcare utilization among individuals with and without mood disorders.

Objectives:

(1) determine the prevalence of self-reported mood disorder among older adults in Ontario, **(2)** determine risk factors of mood disorder in late life **(3)** longitudinally quantify differences in healthcare utilization and long-term outcomes between individuals with and without mood disorders.

Population

The sample was derived from the Canadian Community Health Survey (CCHS), a nationally representative survey of household residents. Those aged 65 an older interviewed in 2005, 2007-2008, 2009-2010, and 2011-2012 cycles included. Individuals were excluded if their last contact with the health system was greater than 8 years.

Prevalence

Mood disorder was defined as answer of 'yes' to the following question in the CCHS: **"Do you have a mood disorder such as depression, bipolar disorder, mania, or dysthymia?" The question is asked in the context of a health professional-diagnosed condition expected to last/has lasted at least 3 months.**

Potential Risk Factors

- Age, sex
- Immigration status
- Level of education
- Household income quintile
- Living arrangement
- Marital status
- Alcohol Consumption
- Smoking status
- Chronic opioid use (120 or more cumulative calendar days of filled opioid prescriptions)
- Johns Hopkins Aggregated Diagnosis Groups (ADG) score of morbidity (3)

Ascertained from the CCHS and linked administrative databases

Outcomes

- Emergency department visits
- Hospitalizations
- Admission to long-term care
- Death

Ascertained from linked administrative databases at ICES

Cohort followed longitudinally for 5 years post index interview date

Statistical Analysis

- Cross tabulations for frequencies of risk factors and outcomes by age and sex
- Logistic regression to quantify associations between potential risk factors and late-life depression and depression with health service use outcomes
- Estimates and confidence limits are weighted with bootstrap sampling weights applied using Balanced Repeated Replication (BRR)

Findings

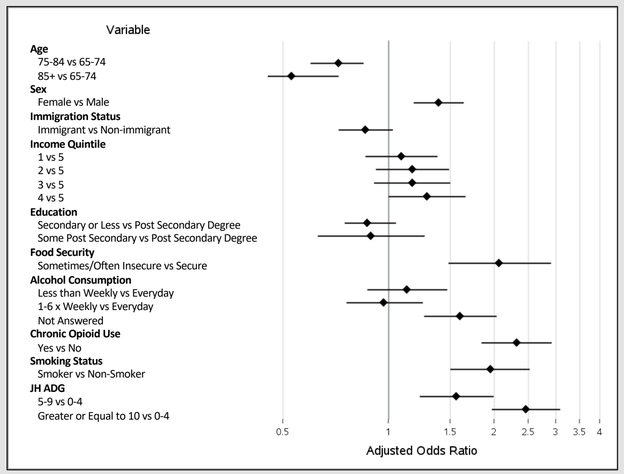
General Population Characteristics

- 55% female, age distribution displayed in Figure 1
- Higher proportion of males were married (80.8%) compared to females (51.7%)
- Lower proportion of males living alone (15.2% vs 35.2%)
- Low overall percentages of food insecurity (2.7%) and chronic opioid use (3.7%) (both were slightly higher among females compared to males)

Prevalence of Mood Disorder in Late Life

- Overall prevalence of 6.1%
- 4.9% among males, 7.1% among females
- Prevalence decreased with increasing age

Figure 2. Adjusted Weighted Associations between Potential Risk Factors and Mood Disorder



JH ADG = Johns Hopkins Adjusted Diagnosis Group

Table 1. Frequency of Potential Risk Factors by Mood Disorder Status

		Percent With a Mood Disorder, n (%)		
	Variable	**Male n=737,774**	**Female n=901,946**	**Total n=1,639,720**
	Total With Mood Disorder	36,029 (4.9)	64,145 (7.1)	100,174 (6.1)
Age	65-74	24,219 (5.4)	40,676 (8.2)	64,896 (6.9)
	75-84	10,123 (4.1)	19,529 (6.1)	29,652 (5.3)
	85 or older	1,687 (3.5)*	3,940 (4.6)*	5,627 (4.2)
Immigration Status	Non-immigrant	22,034 (5.0)	42,294 (7.5)	64,328 (6.4)
	Immigrant	12,995 (4.7)	21,851 (6.4)	35,846 (5.6)
Marital Status	Married/common-law	27,366 (4.6)	30,771 (6.6)	58,137 (5.5)
	Widowed	3,100 (4.2)	21,818 (6.7)	24,919 (6.2)
	Separated/divorced/single	5,516 (8.3)	11,529 (10.6)	17,044 (9.7)
Living Situation	Lives alone	7,067 (6.3)	25,696 (8.1)	32,763 (7.6)
	Lives with others	28,962 (4.6)	38,143 (6.5)	67,105 (5.6)
Income	1 (lowest)	5,869 (4.8)	13,647 (7.7)	19,516 (6.5)
	2	6,781 (4.6)	14,353 (7.7)	21,134 (6.3)
	3	7,250 (4.9)*	12,554 (7.2)	19,803 (6.2)
	4	8,124 (5.3)	14,044 (7.6)	22,168 (6.6)
	5 (highest)	7,810 (4.6)	9,524 (5.4)	17,335 (5.0)
Education	Secondary school or less	13,566 (4.4)	35,193 (7.1)	48,759 (6.1)
	Some post-secondary	1,731 (4.5)*	3,070 (7.4)*	4,802 (6.0)
	Post-secondary degree/diploma	20,135 (5.3)	24,818 (7.0)	44,953 (6.1)
Food Security	Secure	33,686 (4.7)	59,373 (6.8)	93,059 (5.9)
	Sometimes or often insecure	2,100 (13.4)*	4,447 (15.6)*	6,547 (14.8)
Smoking	Non-smoker	28,513 (4.3)	54,835 (6.7)	83,348 (5.6)
	Smoker	7,516 (10.4)	9,310 (11.3)	16,826 (10.9)
Alcohol	Less than weekly	8,561 (4.8)	19,523 (6.7)	28,084 (6.0)
	1-6 times weekly	8,127 (4.0)	9,610 (5.7)	17,737 (4.8)
	Everyday	7,048 (4.0)	5,656 (5.5)	12,704 (4.6)
Chronic Opioid	No	33,026 (4.6)	57,274 (6.6)	90,300 (5.7)
	Yes	3,003 (14.1)	6,870 (17.4)	9,874 (16.2)
JH ADG	No/low scores	5,305 (2.8)*	10,415 (4.7)	15,720 (3.8)
	Moderate scores (5-9)	16,646 (4.6)	29,639 (6.7)	46,285 (5.8)
	High scores (≥10)	14,078 (7.5)	24,092 (10.1)	38,169 (8.9)

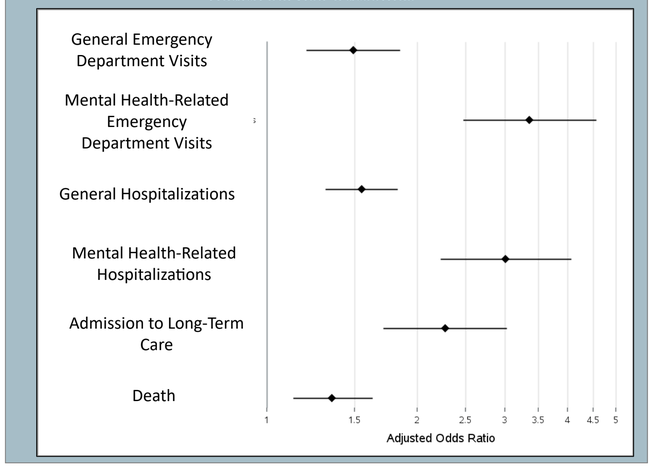
*Values are reported with caution

JH ADG = Johns Hopkins Adjusted Diagnosis Group

Cumulative Health Service Use 5 Years Post Index Interview

- Males and females were generally similar regarding health service use
- Higher percentage of females were admitted to long-term care (4.4% vs 6.7%)

Figure 3. Adjusted Weighted Associations between Mood Disorder and Health Service Outcomes



Key Findings

- Statistically significant correlates of mood disorder included age, sex, food insecurity, smoking, chronic opioid use, and co-morbidities
- Strong associations between health service utilization and mood disorder suggest important consequences for individuals with mood disorder compared to those without.

Limitations

- A self-reported measure of diagnosed mood disorder was used, potentially misclassifying individuals.
- We cannot establish that risk factors preceded reported mood disorder due to the cross-sectional nature of the data.

Policy Implications

- We present strong correlations between socio-economic, lifestyle, and behavioural factors and mood disorder, along with strikingly relationships with health care use, long-term care placement and mortality. Results provide insight into opportunities for interventions to address mood disorder in late-life and potentially prevent these adverse outcomes, such as targeted screening and treatment for females, younger individuals, substance users, and those with comorbidities.

References

1. Unutzer J, Patrick DL, Diehr P, Simon G, Grembowski D, Katon W. Quality adjusted life years in older adults with depressive symptoms and chronic medical disorders. Int Psychogeriatr. 2000;12(1):15-33.
2. Aging with Confidence: Ontario's Action Plan For Seniors. Government of Ontario 2017
3. The Johns Hopkins ACG System: The Johns Hopkins University; 2019 [Available from: https://www.hopkinsacg.org