

# The impact of work stress on the risk of developing major depression

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# Outline

- Background
- A Canadian Study
- Discussion

# Background

- Mental illness has a significant impact on society
  - Over 30% of disability claims were related to mental illnesses in Canada
  - The productivity loss and presenteeism costs were estimated to be \$33.1 billion each year

# Background

- Work stress may be an important risk factor for developing major depression in workplace.
- The Demand – Control model has been widely used.
- The association between work stress and major depression has been found in cross-sectional studies.

# Objectives

- To estimate the incidence of major depression by levels of work stress
- To estimate the association between work stress and major depression using population – based longitudinal data

# Data Source

- The Canadian National Population Health Survey (NPHS)
  - Initiated by Statistics Canada in 1994/95
  - Household residents aged 12 and older
  - Multi-stage random sampling procedure
  - A longitudinal cohort (n = 17,276)
  - Interviewed every two years

# Data Source

- The NPHS
  - WHO' Composite International Diagnostic Interview – Short Form for Major Depression
  - Short form of the Job Content Questionnaire for work stress

*The Items Measuring Work Stress in Each of Six Dimensions*

Dimension	Item
Skill discretion	1. Your job requires that you learn new things. 2. Your job requires a high level of skill. 3. Your job requires that you do things over and over.
Decision authority	4. Your job allows you freedom to decide how you do your job. 5. You have a lot to say about what happens in your job.
Psychological demands	6. Your job is very hectic. 7. You are free from conflicting demands that others make.
Job insecurity	8. Your job security is good.
Physical exertion	9. Your job requires a lot of physical effort.
Social support from coworkers and supervisors	10. You are exposed to hostility or conflict from the people you work with. 11. Your supervisor is helpful in getting the job done. 12. The people you work with are helpful in getting the job done.

*Note.* From “National Population Health Survey, 1994–95: Public Used Data Files.” In *Statistics Canada*, 1995, by Minister of Industry, Ottawa, Ontario, Canada. In the public domain.

# The NPHS

- The cycle response rates are
  - Cycle 1 : 83.6%
  - Cycle 2 : 92.8%
  - Cycle 3 : 88.2%
  - Cycle 4 : 84.8%
  - Cycle 5 : 80.6%
  - Cycle 6: 77.4%.

# Analysis

- Data from the 1994/95 to 2000/01 NPHS were used
- 6,633 were aged 18 and 64 years, were employed at the time of the interviews and had not had MDE in the 12 months prior to the interviews.

# Results

**TABLE 1.** Incidence of MDE in each cohort and associations between work stress and MDE (weighted data)

	Incidence of Depression, %	Crude OR (95% CI)	Adjusted OR (95% CI)
Skill discretion ( <i>N</i> = 6465)			
High stress	12.8	1.39 (1.16–1.64)**	1.24 (1.04–1.48)*
Low stress	9.5		
Decision authority ( <i>N</i> = 6463)			
High stress	11.5	1.18 (0.99–1.43)	1.04 (0.86–1.27)
Low stress	9.9		
Physical exertion ( <i>N</i> = 6466)			
High stress	11.0	1.09 (0.90–1.28)	1.08 (0.91–1.29)
Low stress	10.3		
Psychological demands ( <i>N</i> = 6465)			
High stress	12.8	1.58 (1.31–1.87)**	1.33 (1.11–1.63)**
Low stress	8.5		
Job insecurity ( <i>N</i> = 6461)			
High stress	13.5	1.54 (1.31–1.82)**	1.31 (1.09–1.56)**
Low stress	9.2		
Social support ( <i>N</i> = 6454)			
High stress	13.2	1.51 (1.29–1.79)**	1.31 (1.10–1.55)**
Low stress	9.1		

\**p* < .05, \*\**p* < .005.

# Results

**Table 1. The incidence of major depressive episode(s) by the levels of baseline work stress and the association between work stress and major depressive episode(s)**

Levels of work stress	Incidence Weighted %	Crude OR 95% C.I.	Adjusted OR 95% C.I.
0 – 25 <sup>th</sup> percentile	2.0	1.00	1.00
26 <sup>th</sup> – 50 <sup>th</sup> percentile	2.6	1.32 (0.62, 2.33)	1.19 (0.55, 2.20)
51 <sup>st</sup> – 75 <sup>th</sup> percentile	3.0	1.52 (0.87, 2.54)	1.62 (0.76, 2.88)
76 <sup>th</sup> percentile +	7.1	3.73 (2.29, 6.83)	2.98 (1.62, 4.97)

# Results

**Table 2. Summary of the results of the logistic regression**

Variables	Model One	Model Two
Work stress <sup>a</sup>	2.29 (1.44, 3.73)**	2.35 (1.54, 3.77)**
Gender	1.11 (0.70, 1.76)	1.11 (0.68, 1.75)
Age	0.98 (0.97, 1.00)	0.98 (0.96, 1.00)
Marital status	0.94 (0.61, 1.52)	0.92 (0.56, 1.50)
Family income	1.12 (0.61, 2.05)	1.13 (0.57, 1.87)
Race	0.94 (0.43, 1.77)	0.93 (0.41, 1.75)
Education levels	1.70 (1.16, 2.65)*	1.72 (1.14, 2.59)*
Number of long-term medical illnesses	1.15 (1.00, 1.33)*	1.17 (0.99, 1.33)*
Recent life events	1.29 (0.82, 1.91)	
Childhood traumatic events	1.51 (1.00, 2.41)*	1.54 (1.07, 2.59)*
Baseline mental health	0.88 (0.46, 1.66)	
Service use		
Subsequent mental health	16.94 (10.01, 25.88)**	16.79 (11.29, 23.93)**
Service use		

“a”: work stress scores above the 75<sup>th</sup> percentile vs. scores at the 75<sup>th</sup> percentile and lower.

\*:  $p < 0.05$

\*\* :  $p < 0.001$

# Discussion

- The results were consistent with the demand – control model
- Unlike cross-sectional studies, the longitudinal data revealed that high stress in decision authority was not associated with major depression
- No effect modifications were found

# Discussion

- The impacts of major depression history and of depression on reporting work stress on the results were not clear
- Strategies of improving work environment are needed
- Well designed evaluation studies are important

# Limitations

- The short forms of CIDI and JCQ were used.
- Self-reported data
- About 10% of baseline participants did not provide complete information about major depression subsequently
- "incidence" used in this analysis has limitations