


Mental Health: Occupations & Industries at Risk in the Canadian Workforce

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Extent of mental health problems in the workforce

- An important proportion of workers are affected by psychological distress, depression and burn out
 - 15 to 20% of the workers in Europe-United States
 - 43% of Canadian workers had experienced 1 episode of psychological distress between 1994-95 and 2000-01
- Consequences : ↗ expenditure for companies (absenteeism, loss of productivity...) and the society (↗ health care and services...)




Background

- Few studies have examined how occupations and industries have been associated with poor mental health in workers
- Overall, blue and white collars as well as supervisory occupations appear more vulnerable to mental health imbalance
- Vezina and Gingras (1996) studying Québec workers in 1987 identified some industries at risk
 - Studying occupations and industries might help identifying clusters in which working conditions needs to be more closely investigated



Data


- Cross-sectional data from Cycle 2.1 of the Canadian Community Health Survey (CCHS). Statistics Canada (2003)
 - 134,072 12 years old individuals ; 144,836 households
- Response rate =80.7% (92.6% individuals; 87.1% households)
- Sub-sample of 77,377 workers (15 years old and over + employed during the last 12 months)
- ♀=46.7%; mean age=38.5 years (SD=13.3 years)
- Adjusted data according to the probability of selection, the response rate and the demographic distribution for gender, age and the 126 health regions of Canada



Variables 1


- Mental health is measured by 1 item on a scale in 5 points:
 - In general, would you say that your mental health is: excellent, very good, good, fair, poor?
 - Binary re-coded with 0 (excellent and very good) and 1 (others)
- Prevalence of poorer mental health:

24.0% (95% CI =23.5%-24.5%)




Variables 2

- Occupation was measured according to the four-digit codes of the 1991 Standard Occupational Classification (SOC-1991) developed by Statistics Canada (1993)
 - Keep three digits, n=138
- Industry was measured using the four-digit codes of 1997 North American Industry Classification System (NAICS) of Statistics Canada (2003)
 - Keep three digits, n=95




Variables 3

- Other confounding variables:
 - **Gender:** dichotomous variable 0=♂ 1=♀
 - **Age:** measured in years
 - **Marital status:** dichotomous variable 0=people living as a couple and 1=others
 - **Household income:** determined with a scale in 5 points (low/high) from Statistics Canada, which measured the level of sufficiency of income according to the household size
 - **Level of education:** measured with a scale in ten points of 1 (8 years and less) to 10 (graduate studies diploma/certificate)



Analysis

- Prevalence of workers reporting poorer mental health for each occupation and each industry
- Logistic regressions to evaluate the significance and magnitude of differences by occupation and industry
- All models were adjusted for gender, age, educational level, marital status and household income
- Because of the complex sampling design of the CCHS 2.1, standard errors and 95% confidence intervals were corrected with the bootstrap method of Statistics Canada



Results: Prevalence



SOC-1991 10 highest-prevalence

Codes	Occupations	%	95% CI
H82	Trades helpers and labourers	32.7	27.4-38.0
G93	Cleaners	33.1	29.9-36.2
I15	Logging machinery operators	33.5	21.6-45.5
H72	Train crew operating occupations	33.9	17.2-56.0
J31	Labourers in processing, manufacturing and utilities	35.2	29.2-41.3
H83	Public works and other labourers, n.e.c.	37.7	24.4-51.0
H62	Crane operators, drillers and blasters	39.1	24.2-54.1
J15	Machine operators and related workers in textile processing	39.2	21.6-56.9
J22	Other assembly and related occupations	40.9	32.1-49.7
J16	Machine operators and related workers in fabric, fur and leather products manufacturing	43.1	32.2-53.9



NAICS- 1997 10 highest-prevalence

Codes	Industries	%	95% CI
314	Textile product mills	38.0	16.9-44.7
336	Transportation equipment manufacturing	31.1	27.4-34.7
335	Electrical equipment, appliance and component manufacturing	31.5	22.0-41.0
332	Fabricated metal product manufacturing	31.7	26.6-36.9
442	Furniture and home furnishings stores	31.8	2.0-43.6
110	Farming n.e.c.	32.8	25.4-41.0
413	Food, beverage and tobacco wholesaler-distributors	33.1	24.7-41.4
315	Clothing manufacturing	33.2	24.4-42.0
482	Rail transportation	33.9	24.1-43.7
484	Truck transportation	34.1	29.9-38.4

Notes: n.e.c. = not elsewhere classified



Results: Logistic Regression (Full model)



SOC-1991

Occupation ¹	OR ²	95% CI
J16 Machine operators and related workers in fabric, fur and leather products manufacturing	2.35	1.22-4.54
H83 Public works and other labourers, n.e.c.	2.07	1.15-3.73
J22 Other assembly and related occupations	1.66	1.09-2.51
H42 Motor vehicle mechanics	1.54	1.14-2.07
H81 Longshore workers and material handlers	1.39	1.10-1.75
G96 Food counter attendants and kitchen helpers	1.37	1.05-1.79
G93 Cleaners	1.35	1.14-1.60
G31 Cashiers	1.35	1.10-1.65
D31 Assisting occupations in support of health services	1.34	1.06-1.70
G41 Chefs and cooks	1.29	1.00-1.65

Notes: n.e.c. = not elsewhere classified; Reference: legislators-senior management
 1. Only occupations with p<.05 are shown; 2. Adjusted for gender, age, education, marital status, household income, occupations and industries



NAICS 1997

Industries	OR ²	95% CI
413 Food, beverage and tobacco wholesaler-distributors	1.92	1.31-2.82
335 Electrical equipment, appliance and component Manufacturing	1.77	1.12-2.79
484 Truck transportation	1.64	1.29-2.10
336 Transportation equipment manufacturing	1.61	1.29-2.01
339 Miscellaneous manufacturing	1.46	1.01-2.11
332 Fabricated metal product manufacturing	1.42	1.08-1.86
331 Primary metal manufacturing	1.62	1.04-2.51
416 Building material and supplies wholesaler-distributors	1.50	1.03-2.19
325 Chemical manufacturing	1.47	1.03-2.10

Notes: Reference: farming n.e.c. (industry) ; n.e.c. = not elsewhere classified ; ns = non significant
 1. Only occupations with p<.05 are shown; 2. Adjusted for gender, age, education, marital status, household income, occupations and industries






Discussion 1

- Variation in reporting poorer mental health across occupation
- The specific contribution of occupations is rather low.
- The risky occupations are concentrated in four major groupings of SOC-1991:
 - Health (assisting and support occupations)
 - Sales and service
 - Trades, transportation and equipment operators
 - Occupations unique to processing, manufacturing, and utilities
- Further research and interventions are needed to more closely analyse the nature of work organisations conditions in these occupations (i.e. demands-control and efforts-reward imbalance models)






Discussion 2

- The contribution of industries is also rather low
- The high-risk industries are concentrated in 3 major grouping of NAICS-1997 :
 - Manufacturing
 - Wholesale trade
 - transportation and warehousing
- ☐ 35% of the Canadian workforce in 2003
- Variations was found compared to the study of Veziina and Gingras (1996) → development of stressing conditions since these 15 last years (1987-2003)?

Limits

- Cross-sectional data
- Mechanism of selection of vulnerable individuals
- Measure of mental health: 1 item versus multi-item like the GHQ (Goldberg, 1972)
- Integrate explicitly the working conditions of the organizations (description of tasks, demands, social relations, gratifications...)
- No significant interaction with gender contrary to other studies: problem with method in adjusting χ^2 tests in the CCHS 2.1?

Conclusion

- Certain occupations and industries favour conditions where workers are at higher risk to report a lower mental health independently of their individual characteristics
- Possibility of developing interventions and public policies in certain segments of the labour market
- Further research must try to discover hidden risk factors in the occupations and industries identified here

