



The Health Impact of Unemployment

One vitally important economic and social (and indeed, cultural and political) determinant of people's health is work, especially employment. In modern society, employment means work, usually on a regular basis, for which money is received (paid work, "having a job"). The necessity of earning money for daily survival (and preferably a decent standard of living) makes having a paying job often the top priority in the lives of most people.

For these reasons, work, especially employment, can significantly influence the mental, physical and social health of people. There is plenty of research and empirical evidence on the health effects of different kinds of jobs and workplace settings. Epidemiological evidence, such as the renowned Whitehall study of British civil servants, has shown how the hierarchy of workplace organization has significant impact on health outcomes (including mortality), with the people in the lowest-status jobs (with the least sense of control) having the worst outcomes.^{1,2} A personal sense of satisfaction with the job is also an important determinant of health.

Of course, people perform work without pay, such as child care, household chores and voluntary work in the community. However, employment is generally more highly valued by individuals and society, and not only because it provides needed income. For many people, employment provides a sense of regularity, purpose and identity; social status and social connectedness ("belonging"); and opportunities for personal development and growth. For some, it offers creativity and self-realization.³

Intuitively, being "unemployed" would mean not having, or losing, such important benefits, and one may thus expect a greater likelihood of detrimental effects on health.

Unemployment in Canada

In the last decade, unemployment has risen in Canada and is projected to remain high through the turn of the century. According to Statistics Canada, in December 1995, 9.4% of the labour force or 1,411,000 persons were unemployed. In March 1993, 1,696,000 or 12.4% of the labour force were out of work, the highest level since World War II. This official figure, however, is based on a narrow definition of "the unemployed": those people who actively sought work in the preceding four weeks and did not work more than one hour in the previous week.

Excluded are two large groups that constitute the "hidden unemployed". The first group consists of people on the "margins of the labour force": those "who want work and are available for work" but did not seek employment in the previous week because of illness, personal or family responsibilities, pending replies to job applications, or abandonment of the search for work ("discouraged workers").

The second group comprises those who hold part-time jobs but are available for full-time work ("the underemployed"). Although not truly jobless, the underemployed may be said to suffer relative unemployment. Including these two groups in unemployment figures for December 1995 would result in a "real" unemployed population of approximately 2,527,000 Canadians, or 16.5% of the labour force (Table I). Note that these figures do not include those who are working full-time but are considered overqualified for their jobs, also sometimes referred to as "underemployed."

This paper reviews the literature on the association between unemployment and health outcomes. Postulated mechanisms are discussed, but research on possible mechanisms was not a major focus of this paper. The direct health care costs as well as social costs of unemployment are also delineated.

Table 1
Canada's Labour Force - December 1995

| | |
|---|------------|
| Working Age Population: 16 yr. and over | 23 150 000 |
| No. in Labour Force | 14 978 000 |
| Employed | 13 567 000 |
| Involuntary Part-time Workers | 769 000 |
| Unemployed | 1 411 000 |
| No. Not in Labour Force | 8 385 000 |
| Discouraged workers | 347 000 |
| | |
| Official Unemployed | 1 411 000 |
| "Real" Unemployed | 2 527 000 |
| | |
| Official Labour Force | 14 978 000 |
| "Real" Labour Force | 15 325 000 |
| | |
| Official Unemployment Rate | 9.4 % |
| "Real" Unemployment Rate | 16.5 % |

Note:

- The "Real" Labour Force includes those in the labour force plus discouraged workers.
- The Official Unemployment Rate (as defined by Statistics Canada) is derived by Unemployed divided by the No. in Labour Force.
- The "Real" Unemployment Rate is derived by those Unemployed plus the Involuntary Part-time Workers and the Discouraged Workers divided by the "Real" Labour Force.

Mortality Rates

Published aggregate-level studies have investigated possible associations between unemployment and the outcomes of total mortality and disease-specific causes of death. The relative certainty of death outcomes, their universal tabulation in vital statistics, and their ready availability from official sources (as are unemployment data) have facilitated the analysis of large data sets with adequate statistical power over long time spans.

Since the 1970s, many time-series analyses have reported patterns of higher total mortality rates following negative economic trends, such as rising unemployment. Brenner showed such “positive” (same-direction) associations for nine Western countries: the United States (for the periods 1909-1976 and 1940-1973), England and Wales (1936-1976), Sweden (1940-1973), Scotland (1952-1983), Canada, France, Germany, Italy and Spain.³⁻⁸ (Analyses of the last five countries were in an unpublished manuscript not available for this review.)³ The most common time lag reported between the unemployment event and subsequent mortality changes was 0 to 5 years (usually 2 to 3).^{3,4} There were also wide-ranging time lags of 0 to 10 years for England and Wales, and 0 to 13 for Scotland, suggesting that mortality was influenced by chronically high, as well as recently rising, unemployment.⁴ In a report of his analyses to the US Congress in 1976, Brenner predicted that a 1% rise in unemployment in the US would lead to some 6,000 excess annual deaths.^{5,9}

Two papers critical of Brenner’s time-series work were cited by several authors (including Brenner himself) and reviewed in the present report. Gravelle et al. (1981) felt that Brenner’s analysis of England and Wales omitted relevant data and variables, and used a flawed statistical model. However, Gravelle et al. did conclude that the unemployment-mortality connection was still worth testing with a “superior statistical technique”.¹⁰ Illustrating the cyclical fluctuations in unemployment and mortality in the US from 1950 to 1975, Eyer (1977) noted that peaks in the former coincided with troughs in the latter.¹¹ Brenner, however, pointed out that, obviously, time lags of other than 0 years ought to be considered.³

In Canada, O.B. Adams (Statistics Canada, 1981) analyzed national unemployment and mortality data for the period from 1950 to 1977. Although he used techniques similar to Brenner’s, Adams obtained the opposite result for total mortality rates: inverse time-lagged associations with unemployment. However, Adams did find a significant relationship between unemployment and heart disease and motor vehicle accident mortality. (see below)¹² Another Canadian, Macleod (1978), found only a “mixed” relationship between unemployment and mortality trends.¹³

Moser, Fox, Goldblatt and Jones published several analyses of data from Britain’s Office of Population Censuses and Surveys (OPCS).¹⁴⁻¹⁶ Standardized Mortality Ratio (SMRs) are a method of comparing expected rates of death for unemployed and employed groups; a ratio of 100 indicates no difference between the groups. A cohort of 14,700 working-age males “seeking work” just prior to the 1981 census had a subsequent all-cause standardized mortality ratio (SMR) of 147 by 1983. A comparable cohort of men surveyed in 1971 had an SMR of 145 for the 1974 to 1981 period. Both SMRs were significant at the 5% level.¹⁶

Similarly in Italy, Costa and Segnan (1987) determined an elevated SMR of 202 among a group of 13,500 males seeking work during the week before the 1981 census and followed up from 1981 to 1985. This SMR remained statistically significant after controlling for possible confounders (education, marital status, etc.).¹⁷ In Denmark, Iversen et al. (1987) also found an elevated SMR in unemployed males followed from 1970 to 1980.¹⁸ And in Finland, Martikainen (1990) analyzed the entire cohort of 30- to 54-year-old men enumerated in the 1980 census. Between 1981 and 1985, unemployed men (who sought work during the year before the census) had a total mortality risk 1.93 times that of employed men (95% confidence interval, 1.82 to 2.05), after controlling for demographic and health variables.¹⁹

The similar fates of these cohorts of unemployed men provide strong evidence of an association in the direction of greater mortality risk. Although the reverse-direction mechanism was possible in the reported studies (prior poor health making joblessness more likely), the choice of including only men “seeking work” tended to exclude those already sick or disabled. Moreover, no “health selection” effect was evident in the analysis stage of these studies.^{16,17,19}

Indeed, the editor of the British Medical Journal was moved to comment in 1991 that “the evidence that unemployment kills—particularly the middle-aged—now verges on the irrefutable.”²⁰

Cardiovascular Diseases

The apparent association of unemployment with total mortality may be better understood by investigating disease-specific causes of death. Among the papers reviewed, the most commonly studied specific causes were cardiovascular diseases (especially coronary heart disease) and suicide. (Non-fatal disorders are discussed later in this review.)

For coronary (or ischaemic) heart disease, interest was stimulated three decades ago with the hypothesized role of stress as a risk factor for cardiac disease and hypertension and the emerging psychological research on the effects of stressful life events, such as job loss.^{3,21}

In this review, six aggregate-level analyses reported positive time-series associations between unemployment and heart disease mortality. Brenner found this in the US, England, Scotland and six other European nations over various spans of 20 to 40 years.^{3,4,7,22} The time lags were 0 to 5 (usually 1 to 3) years. After adjusting for trends in epidemiological risk factors (e.g., tobacco and alcohol) and seasonal fluctuations in death rates (e.g., unusually long, cold winters), evidence of this association persisted.⁴ Bunn (1979) also reported positive correlation for Australia.²³

Adams' analysis for Canada, 1950 to 1977, also revealed a same-direction relationship between unemployment and heart disease death rates despite the inverse correlation with all-cause mortality. To account for these opposite patterns, Adams postulated that the unemployment trend in older adults (in whom most fatal heart diseases occur) tends to run counter to the overall jobless rate, since when there are few jobs around, older workers are more likely to leave the labour force (retire or receive disability pension), thus lowering their unemployment rate.¹²

Four census-based studies reported positive correlations. Three were the British OPCS studies by Moser, Fox, et al., on 1971 and 1981 cohorts of unemployed men.¹⁴⁻¹⁶ The latter group had, by 1983, a statistically significant SMR of 182 for ischaemic heart disease and 159 for circulatory diseases overall.

Martikainen's whole-population co-hort of jobless men in Finland had significantly elevated relative risks for all cardiovascular causes of death, including 1.36 for myocardial infarction and 1.54 for all circulatory diseases.¹⁹

Looking at deaths from strokes, Franks et al. (1991) used OPCS data on all men and women aged 45 to 74 living in 32 boroughs of London, England, between 1971 and 1981. For men, the stroke mortality rate was strongly correlated with unemployment, after controlling for other socioeconomic indices. In fact, a "dose-response relationship" was found in which the male stroke death rate increased by 5.4 per 100,000 for every 1% rise in male unemployment. No significant association was found in women. The authors suggested that "social factors" may mediate the association, but these "remain to be identified".²⁴ Positive time-series correlations for cerebrovascular disease mortality were also reported by Brenner in Canada, Sweden, France and Germany.³

Despite the positive findings, Catalano's review (1991) noted that the unemployment-heart disease connection has seldom been reproduced in individual-level studies.²¹ This may be due to the difficulty of assembling groups large enough to yield a statistically sufficient number of fatal outcomes. Several individual-level studies have measured intermediate outcomes more feasibly and have found risk conditions such as elevated blood pressure and cholesterol, or risk behaviours such as tobacco and alcohol consumption.²⁵⁻²⁷

Suicide

At the aggregate level, Brenner demonstrated time-lagged correlations in several Western countries.³ Reviewers have noted that the evidence is "strong" in showing a same-direction association between "economic insecurity" and suicide incidence,²¹ and that "over a dozen aggregate-level time-series studies [have] consistently shown a strong positive association".²⁸ One reviewer was more cautious.²⁶

Platt (1984) reviewed 95 studies, both aggregate and individual-level, published from 1953 to 1982.²⁹ Most of these studies found that significantly more of those who committed or attempted suicide had been unemployed compared to non suicides. Moreover, the unemployed were more likely to commit suicide than the comparable employed.³⁰ Many studies were cross-sectional or retrospective, however, and thus could not rule out prior "health selection", i.e., a predisposition to suicide unrelated to unemployment. A few longitudinal studies showed that those who eventually killed themselves had more "job problems" compared to non suicides.²¹

Morrell et al.'s analysis (1993) of 83-year trends (1907-1990) in unemployment and age-adjusted suicide rates for all of Australia revealed significant correlation between suicide and unemployment for male suicide rates but not female. The association was strongest for male youths aged 15 to 24 during 1966-1990. The authors concluded that unemployment was a "significant predisposing factor for increased suicide risk, especially in (young) males".³¹

Many other national time-series analyses have scrutinized suicide trends and unemployment among youth and young adults because of their high jobless rates relative to the adult population. Pritchard (1992) noted significant correlations for the youth of nine of the twelve European Community countries during the 1974 to 1987 period.³² Other analyses for 1966 to 1987 showed significantly high correlation coefficients between suicide and youth unemployment for France (0.77), Australia (0.68), the US (0.60)

and Canada (0.58), but significantly low coefficients for Sweden (0.03), Japan (0.01) and West Germany (0.005). It was postulated that these last three countries have had historically low youth unemployment rates and good social support structures (state welfare in Germany and Sweden, and family networks in Japan).³¹

It may be the exception that unemployment is solely responsible for “causing” suicide. Rather, joblessness may produce more extreme mental health consequences, such as suicide, in those who are already psychologically or socially vulnerable.³² A counter hypothesis suggests that suicide (and mental health disorders) may increase during prosperous times; for example, among the marginalized who fail to share in an economic boom.^{12,11} In his seminal work entitled *Suicide* (1897), Durkheim believed that suicide risk could increase during either economic “good” or “bad” times, since both destabilize the existing “social fabric”.³³ Mental health consequences could result from both the inability to lower expectations during economic downturns and to cope with unrealistic rising expectations during economic booms.^{12,34}

The relationship between unemployment and suicide is further complicated by the underreporting of suicide (sometimes hidden as “accidental” motor vehicle and drug overdose deaths) and obfuscation caused by trends such as copycat behaviour, cultural attitudes and the availability of lethal means such as firearms.³¹

Other Causes of Death

In his analysis of Canadian mortality trends, Adams (1981) found an inverse correlation between motor vehicle accident (MVA) fatality rates and unemployment rates from 1950 to 1977. This finding generated the hypothesis that higher unemployment was associated with lower rates of driving (and hence, less exposure to possible accidents) because: (1) the unemployed could less afford to drive, and (2) the unemployed drove fewer miles in order to save money and because of decreased demand (travel for employment).¹²

The most recent time-series analysis (Leigh and Waldon, 1991) confirmed that in the US, from 1976 to 1980, higher unemployment was associated with lower fatality rates due to curtailment of driving and lower alcohol consumption, especially among young males. This group has a high risk of both injury-related death and unemployment. Controlling for the number of miles driven, however, Leigh and Waldon found a positive-direction association between unemployment and traffic fatalities.⁹

Physical and Mental Health Disorders

The articles reviewed for this paper outlined the associations between acute job loss, chronic joblessness and a broad array of physical and mental health disorders, including self-reported symptoms. There was consensus that the “harmful effects of unemployment on mental and physical health are now well established”.^{35,36} Aggregate-level research has been supportive.^{17,36} One review cited the results of four individual-level studies as evidence of a “strong” association with “nonspecific physiologic illness”.²¹

Mental health consequences of unemployment include anxiety, depression, disturbed sleep, self-harming behaviour, feelings of apathy, isolation, hopelessness, low self-esteem, and reduced decision-making ability.^{21,35,37,38} Distress does not always end immediately upon re-employment.^{35,39,40}

There were four Canadian papers of note: two originated from the same aggregate-level analysis, and two were individual-level cohort studies of workers followed after factory shutdowns. The two aggregate-level reports were from D’Arcy (1986) and D’Arcy and Siddique (1985) who used results from the 1978-79 Canada Health Survey to examine a national subsample of 14,313 respondents 15 years or older and active in the labour force. (The Survey defined unemployed respondents as seeking work “in the past year”, in contrast to the government’s usual definition of “in the past four weeks”.) Of the Survey’s 12 validated measures of self-reported health status, seven were worse among unemployed respondents compared to the employed: (i) a scale of psychological distress; (ii) anxiety or depressive symptoms; (iii) short-term disability in the past two weeks; (iv) long-term disability in the past 12 months; (v) number of “current health problems”; (vi) hospitalizations in the past year (2.1 times more); and (vii) visits and telephone calls to physicians in the past year (33% more). For alcohol, tobacco, and prescription and non prescription drug use, the only significant difference was a higher average weekly alcohol consumption among the employed. (13,38) All these health differences remained significant after adjusting for demographic and socioeconomic variables.

Another Canadian, J.P. Grayson, published two studies of the impact of major factory closure on the self-perceived health of workers and their spouses.^{40,41} The first study (1985) examined the shutdown of

the Toronto branch plant of SKF, a Swedish ball-bearing manufacturer, during the 1981-82 recession when unemployment levels were high.⁴⁰ Of the 310 men laid off, most who were still unemployed after two years reported persistent feelings of stress attributed to the closure. Those who became re-employed had lower stress levels, but these still increased over time because of the general atmosphere of economic insecurity. A "Health Index"-an amalgam of self-rated health status, number of visits to MDs and prescription medications taken-worsened in those still unemployed over the post-shutdown, two-year study period. The spouses had similarly increased stress-related symptoms which were worse when they too were unemployed.⁴⁰ Grayson concluded that the stress attributed to factory closure was significantly associated with worse health status, especially among older workers (over age 40). Pre-closure health status, however, was also a significant predictor of post-closure ill health ("health selection" hypothesis).

Grayson also published a longitudinal study of the Canadian General Electric's (CGE) Toronto branch plant closure in 1984. The 400 workers laid off were mostly male, highly skilled, well paid and had comprised a stable workforce. Surveyed up to 27 months post-closure, both workers and their spouses experienced "considerable trauma . . . half still ranked the stress as greater than or equal to divorce". Compared to the reference population of Ontario respondents to the 1978-79 Canada Health Survey, the workers and spouses reported significantly more chronic symptoms, especially "headaches", "hay fever and allergy", "back, limb or joint disorder" and "arthritis".⁴¹ These self-reported health effects were reported "long after" new jobs were obtained. "Finding a new job is no guarantee against the ill effects of a plant closure."⁴⁰

The unique "cross-level" study design combines individual- and aggregate-level approaches in order to examine the triangular relations between the occurrence of individual job loss and health outcomes within the context of a changing economic environment.^{28,42} Dooley and Catalano (1984) conducted such a cross-level study by random telephone interview of over 8,000 persons in the Los Angeles area from 1978 to 1982. During this period, the region's unemployment rate varied from 4.8% to 8.6%. Mental health outcomes were measured by a validated psychological distress scale.²⁸

Two findings in particular were noteworthy. First the loss of job (or significant income) by individuals explained much more of the variance in mental health outcomes than did changes in the unemployment rate itself. Second, persons of lower socio-economic status (SES, defined by education and income) were most likely to suffer job or income loss independent of the unemployment rate. Thus, existing inequalities in society may be stronger determinants of adverse health consequences (through individual job loss) than are general economic conditions as measured by changes in the unemployment rate.²⁸

Utilization of Health Care Services

Because of their routine collection and availability, population-level utilization measures of health care services have been frequently used as aggregate-level outcomes. Utilization of health services may not reflect the actual incidence of disease in the population, but the information can be important for public policy-making.

Mental health services in particular have been studied, most commonly admissions to inpatient psychiatric facilities and sometimes, case openings in community agencies. Of 19 time-series analyses published between 1973 and 1986, most found same-direction correlations with unemployment or other indices of economic contraction.^{28,42} Brenner found same-direction correlations for first admissions to public psychiatric hospitals in New York State,^{43,8} as did Adams for Canada.¹² Ahr et al. (1981), on the other hand, found that in Missouri, the unemployment rate in the 1970s correlated significantly with re-admissions to state mental hospitals, not first admissions.⁴⁴ Within six months after the jobless rate peaked in 1975, inpatient readmissions increased nearly 30% and outpatient caseloads increased over 50%. Among the unemployed subpopulation, however, first admissions were also correlated with the jobless rate.⁴⁵

In a time-series analysis for the State of Illinois between 1970 and 1985, Kiernan et al. (1987) found that rates of first admissions and case openings correlated inversely with overall labour force participation and employment in the manufacturing sector (but not the service sector). Moreover, there was a bimodal (twin-peaked) time lag. A near-immediate (one-month lag) rise in mental hospital admissions probably consisted of marginal persons "tipped over the edge" by hard times. The more gradual (three- to six-month lag) increase in community agency caseloads might have comprised more stable persons who had exhausted their personal and informal support resources.⁴² There was also individual-level evidence of association between either acute job loss or chronic unemployment and increased use of mental health services. Visits to primary care physicians and use of medications were frequently associated with diagnosed depression, anxiety or somatization in one study.⁴⁶ A recent review characterized the overall

evidence as “strong” in showing a relation between “economic insecurity” and “seeking help for psychological disorder”.⁸

Studies have also found increased utilization of general health care services, such as physician visits, hospital inpatient or outpatient admissions, and prescription medication use.^{20,35,39,47} In D’Arcy’s Canada Health Survey analysis, unemployed respondents were twice as likely to have reported admission to hospital in the past year—one in six unemployed persons compared to one of every 13 employed.^{13,38} Beale and Nethercott’s long-term follow-up studies of British workers laid off by factory shutdown also found double the rate of general hospital admissions and 60-63% more outpatient clinic visits.^{48,49} Several papers gave evidence of increased visits to physicians. In D’Arcy’s Canada Health Survey analysis, the unemployed reported an average of 33% more visits to physicians in the past year, 3.40 on average compared to 2.55 among the employed (this was significant at the 5% level).^{13,38} Beale and Nethercott reported ranges of 20% to 57% more consultations with British general practitioners.^{20,37,48,49}

Also in Britain, Yuen and Balarajan (1989) looked at a sample of 13,275 men using annual household survey results from the OPCS.⁵⁰ After adjusting for potential confounders, the unemployed had a significantly higher odds ratio (OR = 1.83) of consulting a “GP” within the past week. Those who were jobless for five or more years had an odds ratio of 2.12. Those men who were both out of work and had “long-standing illness” visited GPs 4.5 times more often. Excluding persons with long-standing illness from the analysis (to minimize prior “health selection”), the results showed a significant odds ratio of 1.53 for the unemployed having consulted a GP recently.⁵⁰

Linn et al. (1985) found that unemployed US military veterans made nearly five times as many physician visits in the prior six months as did their working counterparts (average 5.9 versus 1.2).³⁹ These unemployed veterans presented mostly with gastrointestinal, respiratory and skin disorders. The unemployed also took twice as many medications at any one time (average 3.6 versus 1.9 for employed). There were also strong correlations with physical and mental health scores and the number of medical diagnoses. However, this study was plagued by small sample sizes (30 in each group) and a subject population not representative of the general population.³⁹

All of the above studies concluded that physicians, especially in primary care, could expect higher volumes of patients during hard economic times.^{13,39,50,51} Interestingly, these studies all had subject populations eligible for universal health care coverage (including the US veterans). Frey (1982), however, has observed that, in contrast to Britain and Canada, hard times in the United States results in “nearly empty waiting rooms” for most physicians, since joblessness means there are fewer people with either health insurance or the ability to pay cash. In a system lacking universal health care, Frey wryly noted an apparently perverse “inverse care law” in which people most in need of health services (such as the unemployed and poor) become the least likely to get it.⁵²

The Impact on Women

Many unemployment-health studies focused exclusively on male populations. For example, unemployed males were the subjects of the longitudinal census-based surveys in Britain (OPCS), Denmark, Finland and Italy (15-19), and the primary focus of the Canadian and British “factory closure” cohorts.^{40,41,48,49} Until recently, women were “largely ignored” in this kind of research, probably because of traditional roles of male breadwinners and female homemakers.^{35,29,53,54} Moreover, in attempting to study jobless women, it was difficult to know how many women were in the official labour force, how many were actively seeking work, and how many had left or never entered the workforce because of discouragement.²⁹

If women were studied, it would be as the spouses of jobless husbands. At the aggregate level, their mortality may be higher than among spouses of working men.³⁷ In individual-level morbidity research, female spouses were included in the factory closure studies, such as the previously mentioned ones by Grayson (the SKF and CGE shutdowns in Canada).^{40,41} In both, the wives reported stress-related physical and emotional symptoms similar to their husbands over 24- to 27-month periods post-closure. In the US, Penkower et al.’s two-year prospective study (1988) focused on women as wives of laid-off male blue collar workers. The mental health of these women was not immediately affected, but worsened with the longer duration of the husband’s unemployment. Low perceived social support from relatives or friends was a prominent “vulnerability” factor, as was the depletion of financial savings.⁵⁴

The increased labour force participation of women in recent years has resulted in more research on them as wage-earners. Other factors being equal, women are more likely than men to be laid off, fail to find work again (or to find it at a lower income level), and be single working parents.^{29,54} In terms of

mental health status, D'Arcy's Canada Health Survey analysis found that, controlling for other factors, unemployed females had, on average, worse levels of anxiety, depression and self-rated health status, and made more visits to physicians, than did unemployed males.³⁸

In a factory closure study focusing on female workers, Dew et al. (1992) followed a cohort laid off from an appliance-making plant in Pennsylvania. Controlling for prior mental health and social status, the lay-off was significantly associated with depression, but not anxiety, at 12 months post-shutdown. Depression was a long-term reaction to a major loss life event; anxiety occurred more as an immediate reaction. Since the depression was often not mitigated by finding another job, Dew et al. thought that women may be "more devastated" than men by job loss, since past studies showed that mental health of men improved more rapidly upon re-employment.²⁹

Do women suffer more than men when rendered jobless? It is arguable who has "more at stake" in holding a job, for reasons of income, social standing and self-esteem. One paper stated that most comparative studies showed that women and men suffered "about equally"; "several" studies found that the women suffered more, while "a few" studies found more impact on the men.⁵⁴ More longitudinal studies on women are needed, especially in white collar occupations.²¹ Pre-existing social circumstances should be considered as well: for example, the greater pressures on single parents rendered jobless compared to married, affluent women.

The Impact on Children

It is evident that the adverse effects of unemployment can extend beyond the jobless person to affect the spouse, children and others in the family network. Children seem especially vulnerable to the consequences of unemployed parents.

At the aggregate level, Brenner and others showed correlations between infant, fetal and maternal mortality rates and adverse economic trends.³ Child mortality may also be higher.³⁷ In terms of morbidity, hospital admissions may be more frequent. In one British study, parental unemployment "doubled" the risk of young children being admitted to hospital in a Health Authority region, with the associated poverty as the important determinant.⁵⁵ Time-series analyses, of course, are limited in terms of ecological fallacy and control of potential confounders. At the individual level, the preponderance of evidence suggests significant detrimental impacts on children.⁵⁵ Some studies, however, were cross-sectional and did not adequately control for pre-existing low income or education, or family problems. Children may be affected through several mechanisms: (1) direct material deprivation; (2) psychological sequelae (worrying, depression); (3) somatic symptoms and illness; (4) behavioural consequences (impaired school performance, strained relations with friends, isolation);^{55,56} and (5) possible parental abuse and neglect.⁵⁷ Studying the psychological impact upon children, Pautler and Lewko (1984) administered a 75-item "Worries Inventory" to 1,000 boys and girls in Grades 6, 9 and 12 in Sudbury, Ontario. The younger children (Grade 6) in particular, compared to the older ones, worried more about family financial problems when their fathers had been out of work in the previous 12 months.⁵⁶

Many studies have revealed adverse health consequences for young people (youth or adolescent children) affected by unemployment. For example, 11 European studies and two review papers from 1971 to 1984 observed increased incidences of diagnosed mental health disorders, health risk behaviours (more alcohol, tobacco and illicit drug use, and less exercise and use of contraceptives) and more attempted and completed suicides.^{26,57}

An association between parental unemployment and risks of child abuse has been suggested at the aggregate level; for example, trends in reported cases of abuse or of children taken into state custody.^{21,55,58-60} Using US statistics of reported child abuse, Gil (1969) found that nearly 50% of the fathers were unemployed, three times the national average.⁶⁰ In Britain (1976), the unemployment rate among reported abusive fathers was estimated to be six times the national rate.⁵⁵ These analyses were retrospective and at the macro level. Longitudinal individual-level studies are essential for examining this association.

Does Unemployment Cause Ill Health?

Questions often arise whether unemployment is the cause or the result of ill health. Jin, Shah and Svaboda⁶¹ reviewed the published literature and used Hill's criteria to determine the cause and effect. Hill's criteria are generally used in the epidemiological investigation to establish the causal relationship. Using these criteria, the authors found the following:

Temporal direction was shown in many study designs where the unemployment preceded adverse health effects.

Strength of association describes the magnitude of effect. If there is a large difference in health between the employed and unemployed, the adverse effects of unemployment are more likely to be real. Consistent moderate associations existed for most studies reviewed here. For most outcomes such as ischaemic heart disease, the SMR's were between 120 and 200.

Dose-response relationship occurred in the Finnish census-based cohort study where men who were unemployed longer were more likely to have higher mortality rates.

Consistency of findings occurred across different study designs, such as time-series, cohort, case-control and ecological studies, and across different outcomes including overall and cardiovascular mortality, mental disorders and health care utilization.

Analogy was not directly tested in studies. However, Jin et al. inferred that the unemployment/ill health association is analogous to other negative social or economic conditions such as poverty, low educational levels or inequality among social classes.

Biological plausibility, in the context of unemployment, describes coherence with known mechanisms of behaviour, physiology and health. Postulated mechanisms of poor health resulting from unemployment include: 1) the disruption of community and personal social relationships, 2) a consequentially greater risk of high-risk behaviours, 3) stress-related abnormal changes in physiology, and 4) precipitation of a bereavement reaction, like that caused by other losses.

In the light of the above findings, the authors concluded that "on an epidemiological basis, the evidence suggests a strong, positive association between unemployment and many adverse health outcomes. Whether unemployment causes these adverse outcomes is less straightforward, however, because there are likely many mediating and confounding factors, which may be social, economic or clinical. Many authors have suggested mechanisms of causation, but further research is needed to test these hypotheses."⁶¹

The Economic Impact on Canada's Health Care System

A working paper on *The Health Impact of Unemployment: A Review and Application of Research Evidence*⁶² calculated the direct costs to the health care system of the excess services utilized by the unemployed. However, the total economic cost of unemployment to society is certainly much higher. Other costs include: indirect cost of health care; direct costs of unemployment insurance, welfare payments and other social services; and the "opportunity" cost to society of foregone productivity by otherwise employable persons.

The cost analysis method used was the "population attributable risk approach", calculating the proportion of the total health care cost attributed to the unemployed. The unemployment rates used were the official national rate of 12.3% (March 1993) and the rate of 15% which includes the group of people discouraged from seeking work and reflects the potential "exposure" to the adversity of unemployment better than the official rate. Utilization data from Saskatchewan were used and extrapolated to Canada as a whole. Saskatchewan unit costs are lower than the national average. Therefore, it is likely that utilization data for ages 15 to 64 for the period 1989 to 1991 underestimate present-day costs. Based on these assumptions, the total excess annual cost of health care in Canada attributable to the unemployment level in 1993 was \$845 million, for 12.3% unemployed or \$1,085 million for 15% unemployed.

An Economic Impact of Unemployment on Canadian Society

The costs of unemployment are generally viewed by the society as those related to unemployment insurance and social assistance programs for those who are able to work. In 1993, for example, \$18.3 billion were spent in Canada on unemployment insurance or 2.6% of Gross Domestic Product (GDP). From this perspective, unemployment is seen as causing a loss of income only to those unable to find employment. D. Bellemare and L. Poulin-Simon from the Canadian Centre for Policy Alternatives have done studies to estimate the real cost of unemployment to both the unemployed and society in terms of unused human resources to produce goods and services, loss of salaries to the unemployed, loss of profits to companies, additional work generated through employment and loss of government revenue in tax collection for 1992 and 1993.⁶³ This cost was \$109 billion in 1993, which amounts to 15.5% of Canada's GDP or \$3,956 per capita. These numbers are quite different from the previous costs described above and should be added to those to give a more complete picture of the economic impact of unemployment.

In summary, the literature shows a strong positive relationship between unemployment and ill health. Canada has a high prevalence of unemployment, and there are high, direct, health care and societal costs resulting from current

unemployment trends. As of December 1995, there were 2.5 million Canadians who were unemployed, in involuntary part-time jobs or discouraged from seeking work. Unemployment in Canada has reached an epidemic proportion and it is taking a significant toll on the health of Canadians.

Recognition of the broader social and ecological dimensions of health and a better understanding of how unemployment affects health are important for the development of specific policies to minimize the adverse effects of unemployment. It is important to address the clear benefits of meaningful employment to health. The time is right for the Canadian Public Health Association to be involved in the debate about employment and labour policies in Canada.

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