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PREMATURE MORTALITY DUE TO SUICIDE, HOMICIDE, AND MOTOR VEHICLE ACCIDENTS IN HEALTH SERVICE DELIVERY AREAS: COMPARISON OF STATUS INDIANS IN BRITISH COLUMBIA, CANADA, WITH ALL OTHER RESIDENTS[1]

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Summary.—From each of 15 health regions, potential years of life lost (PYLL) before age 75 for Status Indians is compared for select causes of death with all other residents. Mortality data from 1991 to 2001 for rates of PYLL (standardized to the 1991 population) are from tables of the British Columbia Vital Statistics Agency and First Nations and Inuit Health Branch in 2002. PYLL rate differences and rate ratios were compared for two groups with significance of the former indicated by the 95% confidence interval. Overall, the rates of PYLL for suicide, homicide, and deaths due to motor vehicle accidents were about 224%, 340%, and 248% higher among Status Indians than all other residents. Rates of PYLL for homicide and deaths from motor vehicle accidents among Status Indian women exceeded those of other residents who were men. For suicide, Status Indian men ranked first and all other male residents of British Columbia ranked second.

Durkheim (1897/1951) argued that "the social suicide-rate can be explained only sociologically" (p. 299). Furthermore, Durkheim (1951) suggested "that each social group really has a collective inclination for the act [of suicide] quite its own" (p. 299) and that "there must then be some force in their common environment inclining them all" to suicide (p. 305). Wechsler and Pugh's findings (1967) supported their hypothesis "that people with a particular personal characteristic who are living in communities where that characteristic is less common should have a higher rate of psychiatric hospitalization than people with the characteristic living in communities where it is more common" (p. 331). Later, Lester (1987) reported support for their hypothesis for suicide, i.e., "the scarcer a particular social group in a community, the higher was its suicide rate" (p. 340). Lester (1989) offered a 'social deviancy theory of suicide' and "argued that in regions where a particular social group was relatively less common, deviant behavior, including suicide, should be more common in that group" (cf. 1991, p. 24). Later, Lester (1995) reported that the rate of Aboriginal suicide was not associated with the size (proportion) of the Aboriginal population across nine regions in Canada.

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In 2004, Allard, Wilkins, and Berthelot reported that "Aboriginal populations worldwide have undergone major social, economic and cultural changes in the past decades, some of which may have negatively affected their health status. In Canada, as in other countries, Aboriginal peoples bear a disproportionate burden of disease and die younger and at higher rates than do members of the non-Aboriginal population" (p. 51). These researchers noted that for Aboriginal people injuries are the leading cause of death, followed by diseases of the circulatory system and cancer. However, the leading causes of death in Canada are diseases of the circulatory system, cancer, respiratory diseases, and injuries which ranks fourth. Allard, *et al.* stated that for the years 1996 and 1997, Aboriginal people had a six times greater chance of dying of injuries than did Canadian people in general.

The present study was designed to (1) identify those health service delivery areas for which Status Indians (men, women, and both sexes) had the highest excess premature mortality (as measured by PYLL) due to suicide, homicide, and motor vehicle accidents and (2) estimate the statistical significance of the PYLL rate difference between the two population groups, i.e., Status Indians and all other residents.

Method

Unlike the usual mortality statistics, which are based on deaths in elderly people, potential years of life lost (PYLL) emphasizes deaths of younger persons. When applied in the present analysis, the measure of PYLL emphasizes the disparity in mortality between Status Indians and other residents by weighting or accentuating those causes of death that disproportionately affect young Status Indians (Centers for Disease Control and Prevention, 1989, 1993; Allared, *et al.*, 2004). According to the British Columbia Vital Statistics Agency and First Nations and Inuit Health Branch (2002), PYLL was defined in this report as "the number of years of life lost when a person dies before a specified age (75 years)" (p. 58), rather than 65 years as others have done. Recently data for PYLL (under the age of 75) for suicide per 1,000 population (based on Canada Census 1991 as standard population) became available for 1991 to 2001 (British Columbia Vital Statistics Agency & First Nations and Inuit Health Branch, 2002, pp. 139-155). In the reporting of these data, the agency staff assumed deaths occurred at the midpoint of 5-yr. age groups. These PYLL data were for Status Indians and other residents, by sex, in each health service delivery area. Status Indians are the only group of First Nations people, i.e., Status, Non-Status, or Metis, in British Columbia for whom relevant data exist.

The British Columbia Vital Statistics Agency and First Nations and Inuit Health Branch (2002) reported that by "using an extensive computer matching process, a birth or death in the VS database was considered to be

a Status Indian event if the individual was identified as a Status Indian in any of the three sources" (p. 4). These three sources were the British Columbia Vital Statistics Agency's statistical database, the Indian Status Verification File of the First Nations and Inuit Health Branch, and the Status Indian Entitlement files from the British Columbia Medical Services Plan. Data were available for the number and percentage of Status Indians in the population in each of 16 (including provincial total) Canadian health service delivery areas from British Columbia Vital Statistics Agency and First Nations and Inuit Health Branch for 1991 to 2001 (2002, pp. 11-13). A health service delivery area was defined as a geographic subdivision of the province used by the Health Authorities for administrative purposes. Comparison of rates of PYLL for different population groups, which had different age structures, was possible because the rates were standardized to 1991 Census data. In addition, the health service delivery areas of East Kootenay and Kootenay Boundary were combined to avoid small numbers that would result in unreliable PYLL rates.

The methods of other researchers who used PYLL were modified to quantify premature mortality by sex and selected causes of death among Status Indians and other residents living in 16 health service delivery areas (including provincial total) in British Columbia, Canada (Romeder & McWhinnie, 1977; Allard, *et al.*, 2004). The variation by population group (Status Indian/other resident for both sexes), sex (Status Indian male/other resident male and Status Indian female/other resident female), and cause of death (suicide/homicide/death due to motor vehicle accident) for each health service delivery area was measured in the form of PYLL rate ratios (Centers for Disease Control and Prevention, 1986a). These were calculated separately by one of us, F. Stephen Bridges. Then the largest four ratios, those health service delivery areas for which Status Indians (men, women, and both sexes) have the highest excess premature mortality due to suicide, homicide, and motor vehicle accidents, were identified. For the boundaries of the PYLL rate differences between the two population groups, i.e., Status Indians and other residents, the 95% confidence interval for the rate difference was calculated. Where this confidence interval did not contain zero, it was concluded that the observed difference was statistically significant (Schenker & Gentleman, 2001).

Results

Potential Years of Life Lost

Overall, the PYLL rates for suicide, homicide, and deaths due to motor vehicle accidents were about 224%, 340%, and 248% higher among Status Indians than all other residents. Between 1991 and 2001, the provincial rate of PYLL for suicide among Status Indian residents was 12.3 potential years

TABLE 1

RATES OF POTENTIAL YEARS OF LIFE LOST BEFORE AGE 75 PER 1,000 POPULATION FOR SUICIDE AND BY SEX AMONG STATUS INDIANS AND OTHER RESIDENTS IN HEALTH SERVICE DELIVERY AREAS OF BRITISH COLUMBIA, CANADA (1991–2001)

Area	Both Sexes				Men				Women			
	Status Indians	Other Residents	Rate Ratio	Rate Difference	Status Indians	Other Residents	Rate Ratio	Rate Difference	Status Indians	Other Residents	Rate Ratio	Rate Difference
Provincial Total	12.3	3.8	3.2	8.5*	19.6	5.9	3.3	13.7*	5.7	1.6	3.6	4.1
East Kootenay/Kootenay Boundary	12.0	4.9	2.4	7.1	24.1	8.1	3.0	16.0*		1.5		
Okanagan	10.0	4.6	2.2	5.4	18.9	7.3	2.6	11.6*	2.5	1.9	1.3	.6
Thompson/Cariboo/Shuswap	12.0	4.8	2.5	7.2	20.5	8.1	2.5	12.4*	3.9	1.4	2.8	2.5
Fraser Valley	11.7	4.3	2.7	7.4	16.7	6.4	2.6	10.3*	7.5	2.1	3.6	5.4
Simon Fraser	14.8	3.2	4.6	11.0*	16.3	4.8	3.4	11.5*	13.6	1.6	8.5	12.0*
South Fraser	10.9	3.1	3.5	7.8*	25.4	4.8	5.3	20.6*		1.4		
Richmond	6.2	1.9	3.3	4.3†		3.0			11.5	.8	14.4	10.7*
Vancouver	11.7	4.0	2.9	7.7	15.2	6.4	2.4	8.8	8.3	1.6	5.2	6.7*
North Shore/Coast Garibaldi	9.3	3.2	2.9	6.1	16.3	4.7	3.5	11.6*	2.7	1.7	1.6	1.0†
South Vancouver Island	17.0	3.7	4.6	13.3*	26.1	5.7	4.6	20.4*	9.2	1.8	5.1	7.4*
Central Vancouver Island	21.0	4.4	4.8	16.6*	31.3	7.2	4.3	24.1*	11.7	1.6	7.3	10.1*
North Vancouver Island	10.8	4.4	2.5	6.4	20.0	6.3	3.2	13.7*	2.4	2.3	1.0	.1†
North West	8.8	3.9	2.3	4.9	14.0	6.2	2.3	7.8	4.1	1.2	3.4	2.9
Northern Interior	14.1	3.9	3.6	10.2*	23.7	6.8	3.5	16.9*	5.4	.7	7.7	4.7
Northeast	6.2	3.7	1.7	2.5	11.4	5.6	2.0	5.8	2.2	1.5	1.5	.7†

Note.—PYLL per 1,000 population (based on Canada Census 1991 as standard population). †The statistic was not computed when rates were based on fewer than 5 deaths. *$p < .05$.

of life lost per 1,000 population, compared with 3.8 for other residents (Table 1). Similarly, the provincial rate of PYLL for homicide among Status Indian residents was 4.4 potential years of life lost per 1,000 population, compared with 1.0 for other residents (Table 2). In addition, the provincial rate of PYLL for deaths from motor vehicle accidents among Status Indian residents was 14.6 potential years of life lost per 1,000 population, compared with 4.2 for other residents (Table 3). In both groups of residents, the suicide, homicide, and motor vehicle accident rates of PYLL for men were well above those of women, but the disparity between the Status Indians and other residents persisted (Tables 1–3). For men, the respective provincial rates of PYLL for suicide were 20 (Status Indians) versus 6 (other residents); for women, 6 (Status Indians) versus 2 (other residents). Likewise, for men, the respective provincial rates of PYLL for homicide were 6 (Status Indians) versus 1 (other residents); for women, 3 (Status Indians) versus 1 (other residents). Lastly, the respective provincial rates of PYLL for motor vehicle accident fatalities for men were 21 (Status Indians) versus 6 (other residents); for women, 9 (Status Indians) versus 2 (other residents).

Leading Health Service Delivery Areas

For the Status Indian residents, Central Vancouver Island accounted for the greatest loss of potential years of life due to suicide, followed by South Vancouver Island, Simon Fraser, and the Northern Interior (Table 1). For all other residents, only one of these four leading health service delivery areas for PYLL was the same, i.e., Central Vancouver Island (tied for fourth with North Vancouver Island) with East Kootenay/Kootenay Boundary (combined) ranked first, followed second by Thompson/Cariboo/Shuswap, then Okanagan was ranked third (Table 1). The rate of PYLL for suicide for Status Indians residing in Central Vancouver Island was 4.8 times (rate ratio) that of the other resident groups (Table 1). The rate of PYLL for suicide for both South Vancouver Island and Simon Fraser was 4.6 times (rate ratio) higher for the Status Indians than for the other residents (Table 1). The rate of PYLL for Status Indians residing in the Northern Interior was 3.6 times (rate ratio) higher (Table 1).

Among Status Indian residents, the health service delivery area of Vancouver accounted for the greatest loss of potential years of life due to homicide, followed by the Northern Interior, Central Vancouver Island, and Northeast (Table 2). For all other residents, two of the four leading health service delivery areas for PYLL were the same, i.e., Vancouver and Northern Interior (tied for first), then East Kootenay/Kootenay Boundary (combined) was ranked second followed by Thompson/Cariboo/Shuswap (tied with Okanagan) ranked third, and three health service delivery areas tied for the fourth rank, i.e., Simon Fraser, North Vancouver Island, and Northeast (Ta-

TABLE 2

RATES OF POTENTIAL YEARS OF LIFE LOST BEFORE AGE 75 PER 1,000 POPULATION FOR HOMICIDE AND BY SEX AMONG STATUS INDIANS AND OTHER RESIDENTS IN HEALTH SERVICE DELIVERY AREAS OF BRITISH COLUMBIA, CANADA (1991–2001)

Area	Both Sexes				Men				Women			
	Status Indians	Other Residents	Rate Ratio	Rate Difference	Status Indians	Other Residents	Rate Ratio	Rate Difference	Status Indians	Other Residents	Rate Ratio	Rate Difference
Provincial Total	4.4	1.0	4.4	3.4	5.7	1.3	4.4	4.4	3.2	.6	5.3	2.6
East Kootenay/Kootenay Boundary	1.9	1.2	1.6	.7†	4.5	1.2	3.8	3.3†		1.2		
Okanagan	1.3	1.1	1.2	.2	2.0	1.0	2.0	1.0	.8	1.2	.7	–0.4
Thompson/Cariboo/Shuswap	4.4	1.1	4.0	3.3	5.1	1.5	3.4	3.6	3.8	.8	4.8	3.0
Fraser Valley	2.9	.8	3.6	2.1	5.1	.9	5.7	4.2	.7	.8	.9	–0.1†
Simon Fraser	4.8	1.0	4.8	3.8	6.6	1.5	4.4	5.1	3.1	.4	7.8	2.7
South Fraser	4.4	.9	4.9	3.5	4.7	1.0	4.7	3.7	4.3	.7	6.1	3.6
Richmond	3.3	.4	8.3	2.9	7.2	.6	12.0	6.6		.2		
Vancouver	7.9	1.3	6.1	6.6*	10.0	1.9	5.3	8.1*	5.8	.7	8.3	5.1
North Shore/Coast Garibaldi	3.8	.4	9.5	3.4	4.5	.4	11.3	4.1	3.2	.3	10.7	2.9
South Vancouver Island	3.5	.7	5.0	2.8	3.8	.8	4.8	3.0	3.2	.6	5.3	2.6
Central Vancouver Island	6.9	.7	9.9	6.2*	8.6	.9	9.6	7.7*	5.0	.5	10.0	4.5
North Vancouver Island	1.3	1.0	1.3	.3	1.2	1.6	.8	–0.4	1.5	.4	3.8	1.1
North West	1.7	.7	2.4	1.0	2.9	1.2	2.4	1.7	.7	.1	7.0	.6
Northern Interior	7.4	1.3	5.7	6.1‡	9.7	2.1	4.6	7.6*	5.3	.5	10.6	4.8
Northeast	5.3	1.0	5.3	4.3	6.0	1.5	4.0	4.5	4.8	.4	12.0	4.4

Note.—PYLL per 1,000 population (based on Canada Census 1991 as standard population). †The statistic was not computed when rates were based on fewer than 5 deaths. ‡The lower limit was zero, without continuity correction. *$p < .05$.

ble 2). The rate of PYLL for homicide by Status Indians residing in Central Vancouver Island was 6.1 times (rate ratio) that of the other resident groups (Table 2). The rates of PYLL due to homicide for Vancouver, Northern Interior, and Northeast were 6.1, 5.7, and 5.3 (rate ratios), respectively, times higher for the Status Indians than for the other residents (Table 2).

Finally, among Status Indian residents, Northeast accounted for the greatest loss of potential years of life due to deaths from motor vehicle accidents, followed by Thompson/Cariboo/Shuswap, Okanagan, and the Northern Interior (Table 3). For all other residents, three of the four leading health service delivery areas for PYLL were the same, i.e., Northeast, then Thompson/Cariboo/Shuswap was ranked second followed by Northern Interior ranked third, and East Kootenay/Kootenay Boundary (combined) ranked fourth (Table 3). The rate of PYLL due to deaths from motor vehicle accidents for Status Indians residing in Okanagan was 3.9 times (rate ratios) that of the other resident groups (Table 3). The rates of PYLL due to deaths from motor vehicle accidents for Thompson/Cariboo/Shuswap, the Northern Interior, and Northeast were all the same, i.e., 2.6 times (rate ratios) higher for the Status Indians than for the other residents (Table 3).

Overall, the Northern Interior was one of the four leading health service delivery areas for PYLL due to suicide, homicide, and motor vehicle accidents among Status Indians (Tables 1–3). Similarly, Central Vancouver Island was one of the four leading health service delivery areas for PYLL due to both suicide and homicide among Status Indians (Tables 1 and 2). In addition, Northeast was one of the four leading health service delivery areas for PYLL due to both homicide and motor vehicle accidents among Status Indians (Tables 2 and 3).

Sex Differences

In both Status Indians and other residents, the suicide, homicide, and motor vehicle accident rates of PYLL for men exceeded rates for women (Tables 1–3). This indicates a higher risk of early death for men than women, regardless of their race, i.e., Status Indians or other residents. Depending on data availability for the health service delivery areas, Status Indian men had considerably higher rates of PYLL due to suicide and deaths from motor vehicle accidents than did women (Tables 1 and 3). Likewise, Status Indian men had considerably higher rates of PYLL due to homicide than did women, except for the health service delivery area of North Vancouver Island, i.e., men 1.2 vs women 1.5 (cf. Table 3). Among the other male residents in the health service delivery areas, although their PYLL rates of suicide, homicide, and motor vehicle accidents were lower than those seen for Status Indians, men still had higher rates than women with exceptions being for homicide in the health service delivery areas of Okanagan, i.e., men 1.0

TABLE 3

RATES OF POTENTIAL YEARS OF LIFE LOST BEFORE AGE 75 PER 1,000 POPULATION FOR MOTOR VEHICLE ACCIDENTS AND BY SEX AMONG STATUS INDIANS AND OTHER RESIDENTS IN HEALTH SERVICE DELIVERY AREAS OF BRITISH COLUMBIA, CANADA (1991–2001)

Area	Both Sexes				Men				Women			
	Status Indians	Other Residents	Rate Ratio	Rate Difference	Status Indians	Other Residents	Rate Ratio	Rate Difference	Status Indians	Other Residents	Rate Ratio	Rate Difference
Provincial Total	14.6	4.2	3.5	10.4*	20.8	6.1	3.4	14.7*	9.0	2.3	3.9	6.7
East Kootenay/Kootenay Boundary	16.4	7.4	2.2	9.0	21.2	10.1	2.1	11.1‡	12.8	4.5	2.8	8.3†
Okanagan	21.9	5.6	3.9	16.3*	34.5	8.4	4.1	26.1*	9.6	2.8	3.4	6.8
Thompson/Cariboo/Shuswap	22.7	8.7	2.6	14.0*	32.7	12.1	2.7	20.6*	13.0	5.1	2.6	7.9
Fraser Valley	18.8	5.1	3.7	13.7*	23.0	7.3	3.2	15.7*	15.0	2.7	5.6	12.3*
Simon Fraser	8.0	3.0	2.7	5.0	10.6	4.4	2.4	6.2	6.1	1.5	4.1	4.6†
South Fraser	15.3	4.0	3.8	11.3*	21.7	5.9	3.7	15.8*	9.2	2.0	4.6	7.2*
Richmond	16.4	2.1	7.8	14.3†	30.1	3.0	10.0	27.1†		1.3		
Vancouver	8.6	2.0	4.3	6.6	10.6	2.8	3.8	7.8*	6.9	1.3	5.3	5.6
North Shore/Coast Garibaldi	13.4	2.7	5.0	10.7*	19.6	4.0	4.9	15.6*	7.5	1.4	5.4	6.1
South Vancouver Island	10.7	2.7	4.0	8.0*	17.2	3.7	4.7	13.5*	4.8	1.7	2.8	3.1
Central Vancouver Island	11.9	5.3	2.2	6.6	14.9	8.0	1.9	6.9	9.3	2.6	3.6	6.7
North Vancouver Island	9.9	4.7	2.1	5.2	14.0	6.2	2.3	7.8	6.5	3.1	2.1	3.4
North West	9.1	7.0	1.3	2.1	14.9	10.8	1.4	4.1	3.7	2.8	1.3	.9
Northern Interior	20.1	7.8	2.6	12.3*	27.0	11.0	2.5	16.0*	14.1	4.4	3.2	10.0*
Northeast	23.4	8.9	2.6	14.5*	32.2	13.4	2.4	18.8*	17.0	3.8	4.5	13.2*

Note.—PYLL per 1,000 population (based on Canada Census 1991 as standard population). †The statistic was not computed when rates were based on fewer than 5 deaths. ‡The lower limit was zero, without continuity correction. *$p < .05$.

vs women 1.2 (cf. Table 2) and East Kootenay/Kootenay Boundary, i.e., both 1.2 or equal (cf. Table 2).

Among Status Indians, men had substantially elevated rates of PYLL for suicide and for fatalities resulting from motor vehicle accidents. For suicide, the highest rate of PYLL among Status Indian men occurred among those residing in Central Vancouver and was 31 per 1000 per years at risk compared with 12 for women; the highest rate for homicide among Status Indian men was found among those residing in Vancouver and was 10 per 1000 per years at risk compared to 6 for Status Indian women residing in Vancouver. Status Indian men living in Okanagan had the highest rate of PYLL due to death from motor vehicle accidents and this was 35 per 1000 per years at risk compared to 10 for Status Indian women living in Okanagan.

However, rates of PYLL due to homicide and deaths from motor vehicle accidents among Status Indian women exceeded those of other residents who were male. That is, the rank order was male Status Indians, followed by female Status Indians, then other male residents, and finally other female residents. This rank order was not found for suicide, i.e., male Status Indians, followed by other male residents, then female Status Indians, and finally other female residents.

Discussion

The present analysis shows a shorter life due to suicide, homicide, or motor vehicle accidents was characteristic of Status Indians residing in British Columbia, and this fact did not apply to everyone or every ethnicity who resided in the various health service delivery areas of the province having generally low proportions of Status Indian residents. In fact, only one of the health service delivery areas in the present study was included in Allard, *et al.*'s group (2004) of health regions with high Aboriginal populations, namely, the North West, with an estimated 21.5% of the population in 1996 being Aboriginal.

According to the British Columbia Vital Statistics Agency and First Nations and Inuit Health Branch (2002), there were 2,604 Status Indian residents in East Kootenay/Kootenay Boundary in 2001, representing 1.6% of the population in this health service delivery area. Likewise, in 2001 there were 8,410 (2.7%) and 20,477 (9.0%) Status Indians residing in the Okanagan and Thompson/Cariboo/Shuswap health service delivery areas, respectively. Likewise, the Fraser Valley, Simon Fraser, and South Fraser health service delivery areas reported having 10,297 (4.2%), 5,733 (1.1%), and 6,037 (1.0%) Status Indian residents, respectively. The health service delivery areas of Richmond, Vancouver, and North Shore/Coast Garibaldi had 784 (0.5%), 13,756 (2.4%), and 11,427 (4.3%) Status Indian residents in

2001. There were 12,893 (3.2%), 12,597 (5.1%), and 7,025 (11.5%) Status Indian residents in the health service delivery areas of South Vancouver Island, Central Vancouver Island, and North Vancouver Island, respectively. Also, in 2001, there were 25,190 Status Indian residents in the North West, representing 27.3% of the population of this health service delivery area; 14,044 Status Indian residents in the Northern Interior, representing 8.7% of the population; and 5,177 Status Indian residents in the Northeast, representing 7.8% of the population. Therefore, the present findings seem to be consistent with Lester's 'social deviancy theory of suicide' (1989) in which he posited that "in regions where a particular social group was relatively less common, deviant behavior, including suicide, should be more common in that group" (1991, p. 24).

Researchers have reported some striking socioeconomic statistics for Canadian Indians (Ward, Fox, & Evans, 1978; Kirmayer, 1994; Lester, 1997, 2001). One observation is reported that the birth rate of Canadian Indians is higher and the life expectancy lower than for white Canadians. Housing and education is poor and illiteracy commonplace. Cooper, Corrado, Karlberg, and Adams (1992) reported many group differences when they compared suicides among Canadian Indians in British Columbia with suicides in other ethnic groups. For example, the Canadian Indians who committed suicide were more likely to have grown up in families with alcohol abuse, suicidal behavior, and childhood sexual and physical abuse. Cooper, *et al.* (1992), as reported by Lester (1997, 2001), compared reservation areas in British Columbia, Canada with high rates of suicide for Canadian Indians with reservation areas with low rates. These researchers found on the reservation areas with high suicide rates residents had less education, larger households, greater numbers of children living at home, more single parents, fewer elders, and lower incomes generated by fewer people. So while this previous research offers some support for geographic and socioeconomic factors (unmeasured in the present analysis) which probably contribute to the disparity in the rates of suicide among the Status Indians and other ethnicities residing in these health service delivery areas, some part of the disparity may be associated with differences in Aboriginal composition, i.e., a low proportion of Status Indian residents compared to the proportion of other residents in each of the areas. And, for some time researchers have commented that "social indicators [PYLL] are considered useful for the general government interest in social policy, as well as for informing the public" (Romeder & McWhinnie, 1977, p. 150; Centers for Disease Control and Prevention, 1986b). Detailed analyses necessary for further assessment and planning are yet to be undertaken.

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