

Chapter 8

Diabetes and Mental Health Disorders in Alberta



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DIABETES AND MENTAL HEALTH DISORDERS IN ALBERTA

KEY MESSAGES

- The prevalence of mental health conditions have increased in the diabetes population in the past decade and are much more prevalent than in the non-diabetes population.
- Affective and anxiety disorders are most common in younger adults with diabetes.
- Psychotic disorders, due to either organic or non-organic causes, are more common in diabetes across all age groups.

BACKGROUND

Mental illness is increasingly being recognized as an important comorbidity in people with diabetes. Previous research has demonstrated an increased risk of type 2 diabetes in people with a history of depression or depressive symptomatology.⁽¹⁻⁴⁾ In a Canadian context, data from the province of Saskatchewan demonstrated an increased risk of type 2 diabetes in people with depression.⁽¹⁾ Similarly, schizophrenia is considered a risk factor for many chronic medical conditions including diabetes. The Canadian Diabetes Association lists schizophrenia as a risk factor for diabetes;⁽⁵⁾ and observational studies have found the prevalence of diabetes to be 2 to 3 times higher in individuals with schizophrenia compared to the general population.^(5,6) The mechanism behind the increased risk of diabetes in people with mental illness is unclear, but may be related to a combination of biochemical changes or behavioral symptoms, or even may be due to the medications used to treat mental illness.⁽⁷⁻⁹⁾

The combination of comorbid diabetes and mental illness is important because it is associated with worse outcomes compared to having diabetes alone. For example, diabetes and depression are associated with an increased risk of functional disability, work loss, microvascular and macrovascular complications, health care costs and mortality compared to those with diabetes alone.⁽¹⁰⁻¹⁵⁾

The objective of this chapter is to compare the prevalence of diagnosed mental illnesses in people with and without diabetes in Alberta between 1995 and 2005. The mental illnesses evaluated in this chapter include affective disorders (e.g., depression), anxiety disorders, organic (e.g., dementia) and non-organic psychoses (e.g., schizophrenia), and substance abuse disorders.

METHODS

Data from Alberta Health and Wellness (AHW) Physician Claims databases were utilized for this analysis. This dataset captures Alberta resident demographic information and mental health diagnoses (see Appendix for a listing of all the ICD-9 codes of the mental health conditions reported in this chapter). All adult residents of Alberta aged 20 years or greater were included in these analyses.

From these data, rates of affective disorders, anxiety disorders, non-organic psychoses, organic psychoses and substance abuse disorders for those with and without diabetes were calculated. For people with and without diabetes, the number of people with the mental health diagnoses of interest (numerator) was divided by the number of people in the province or region (denominator), respectively.

Trends over time (1995-2005), as well as regional and age-specific rates for each of the five mental health conditions were calculated. Persons with diabetes were identified as described in the Methods chapter.

As with other rates in the Atlas, direct standardization was used to adjust rates by age and sex for comparisons across time and regions, using the Alberta population according to the 2001 Canadian Census.

FINDINGS

The age and sex-adjusted prevalence of mental illness was consistently higher in people with diabetes compared to people without diabetes. This trend was consistent over the 10 year time period examined (1995–2005) for all of the mental illnesses studied.

The age and sex-adjusted rates of affective disorders were higher in people with diabetes over the 10-year period from 1995 to 2005 (Figure 8.1). Rates for both groups increased until 2002, after which they have decreased. The rates of affective disorders were significantly higher in people with diabetes under the age of 50 compared to people without diabetes of the same age (Figure 8.2), but the rates were relatively equal for those over the age of 50.

Figure 8.1 Age and Sex-Adjusted Rates of Affective Disorder, 1995-2005

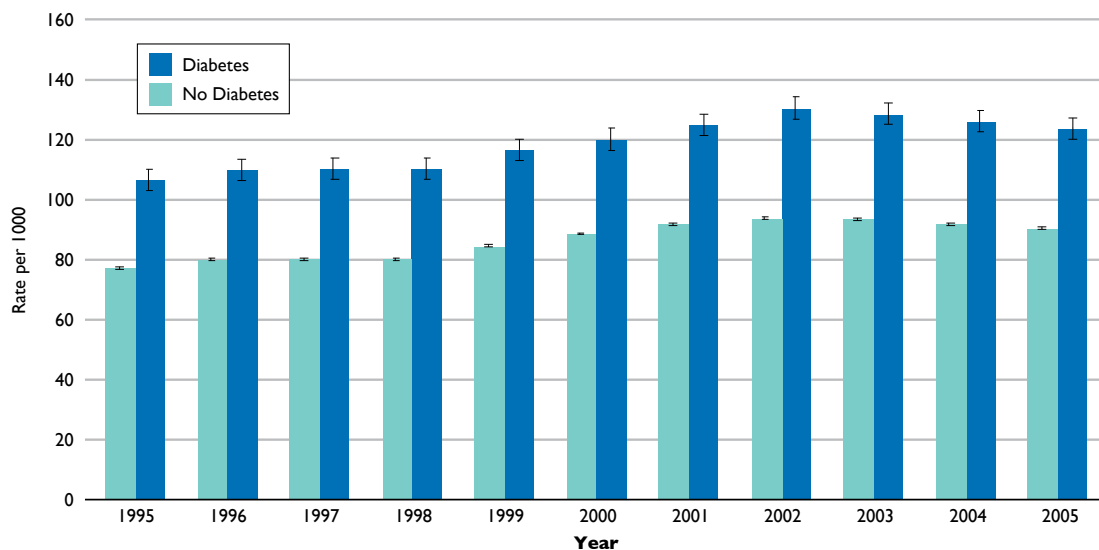
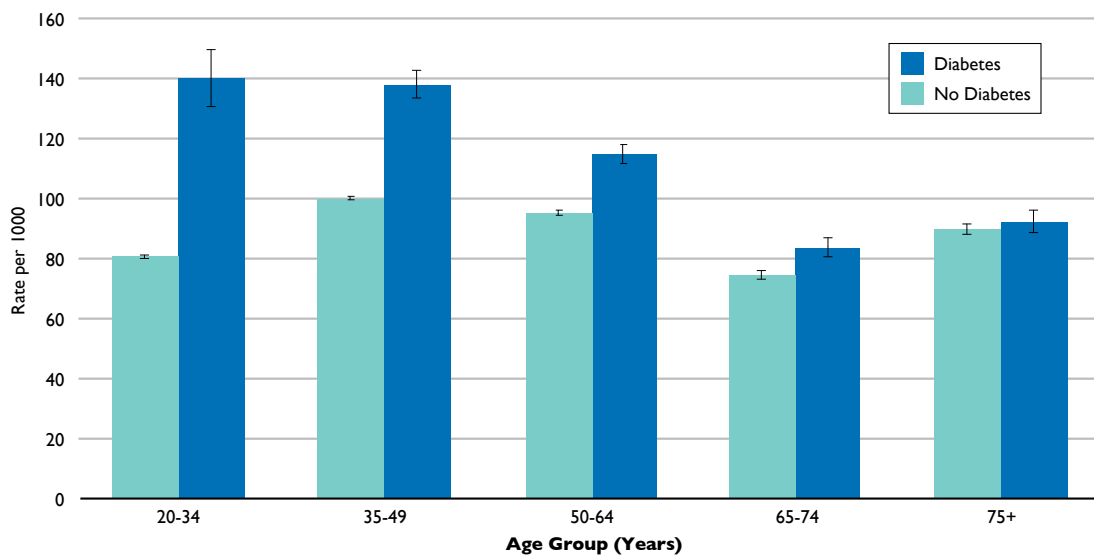
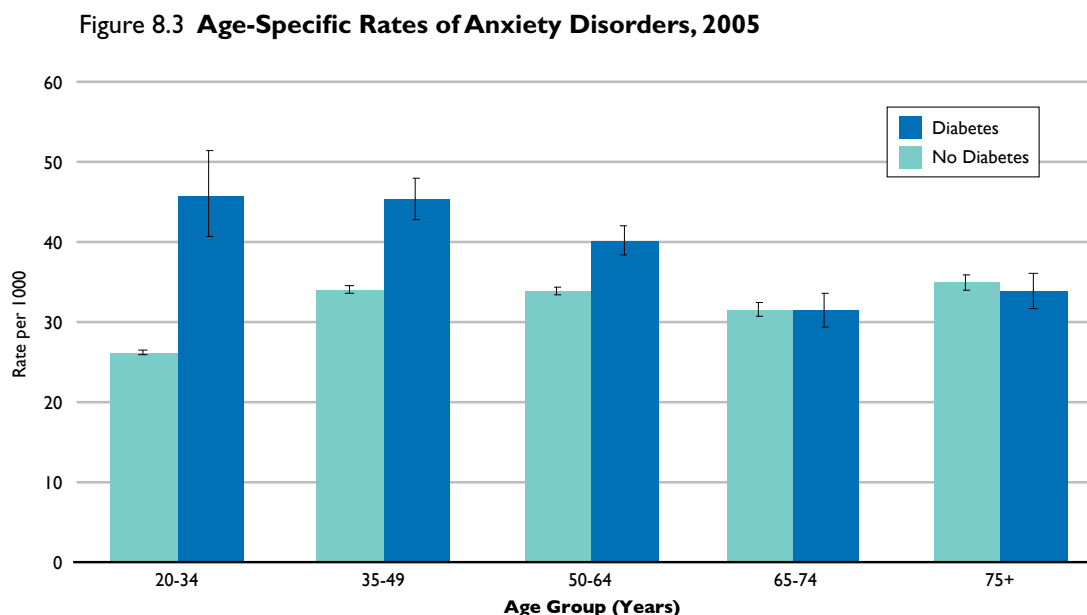


Figure 8.2 Age-Specific Rates of Affective Disorder, 2005



Anxiety disorders have a similar relationship as people with diabetes 50 years of age and under had higher rates compared to people of the same age without diabetes. The rates of anxiety disorders were similar for those over the age of 50 years (Figure 8.3).



People with diabetes were more than twice as likely to have a diagnosis of non-organic psychoses compared to people without diabetes; this relationship was consistent over the age groups examined, but were more marked in the younger age groups (Figure 8.4). The rate of non-organic psychosis increased in general over the past decade, but more importantly, the rate increased faster in those with diabetes compared to those without (Figure 8.5). In 2005, we observed considerable regional variation of non-organic psychoses in Alberta (Figure 8.6). The health regions of Chinook, Capital, and David Thompson had the highest rates of non-organic psychosis compared to the rest of the province.

Figure 8.4 Age-Specific Rates of Non-Organic Psychoses, 2005

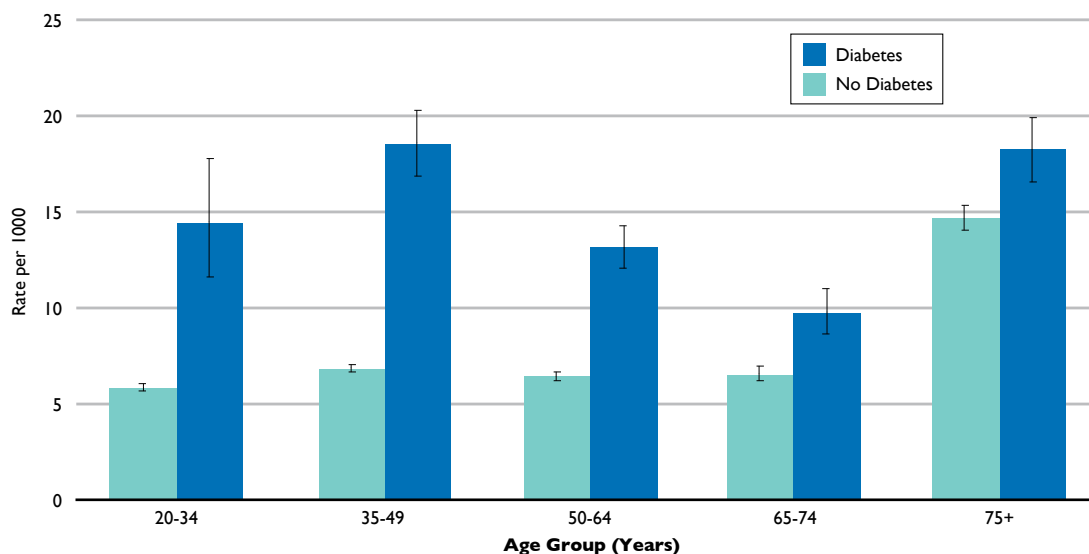


Figure 8.5 Age and Sex-Adjusted Rates of Non-Organic Psychoses, 1995-2005

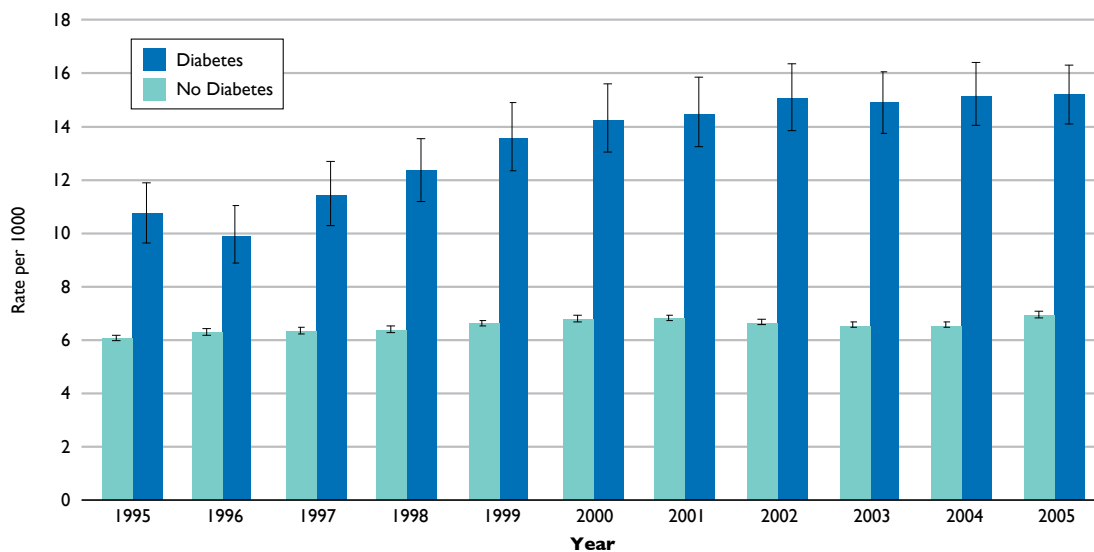
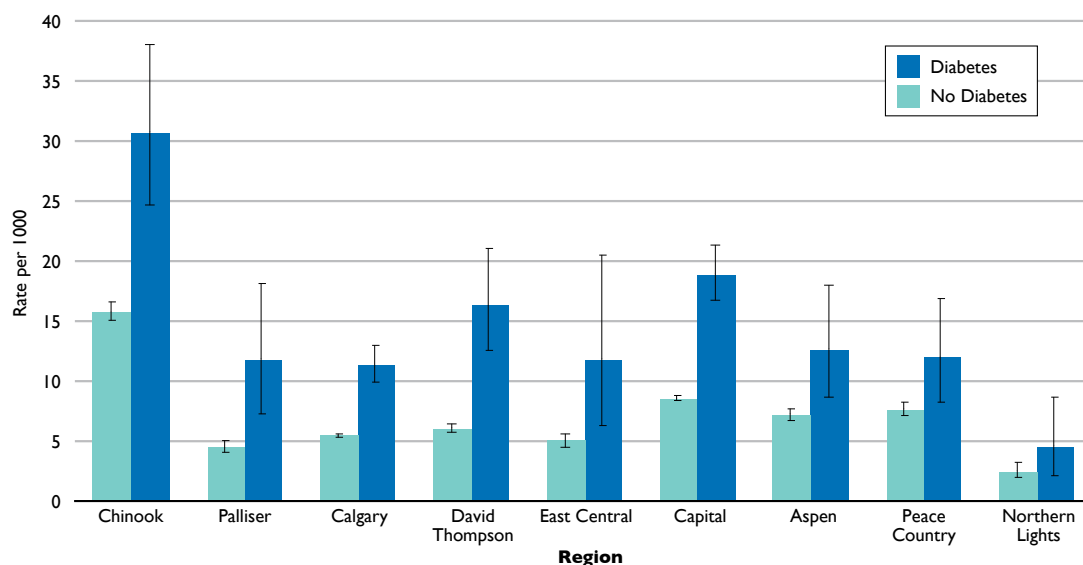


Figure 8.6 Age and Sex-Adjusted Rates of Non-Organic Psychoses by Region, 2005



From 1995-2005, people with diabetes also had much higher rates of organic psychoses than people without diabetes, with the differences being more pronounced after the year 2000 (Figure 8.7). Age and sex-adjusted rates for both those with and without diabetes increased over the decade of observation. The ratio of the rates for those with and without diabetes was consistent across age groups, however rates for both groups more than tripled in the over 65 population (Figure 8.8).

Figure 8.7 Age and Sex-Adjusted Rates of Organic Psychoses, 1995-2005

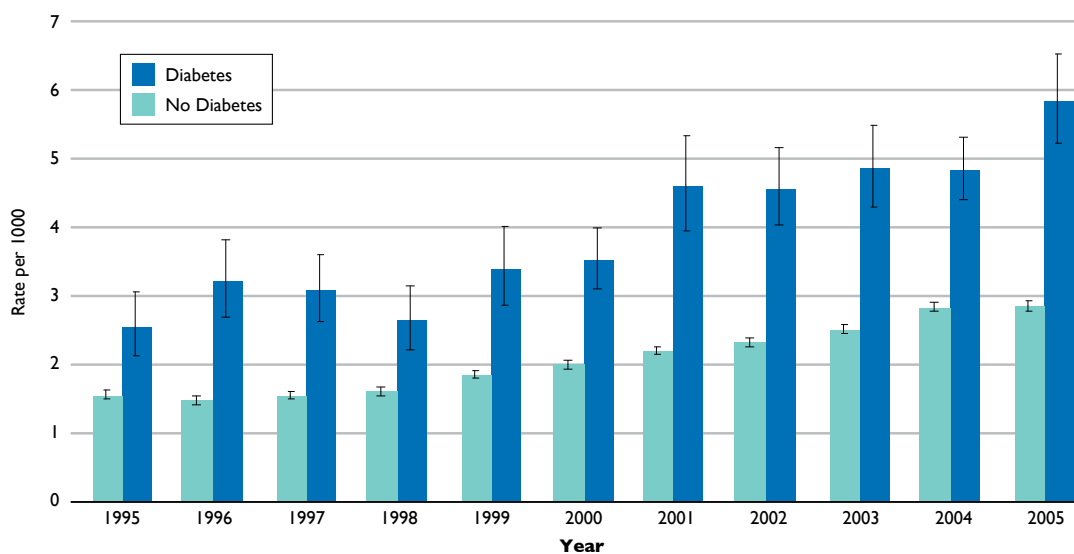
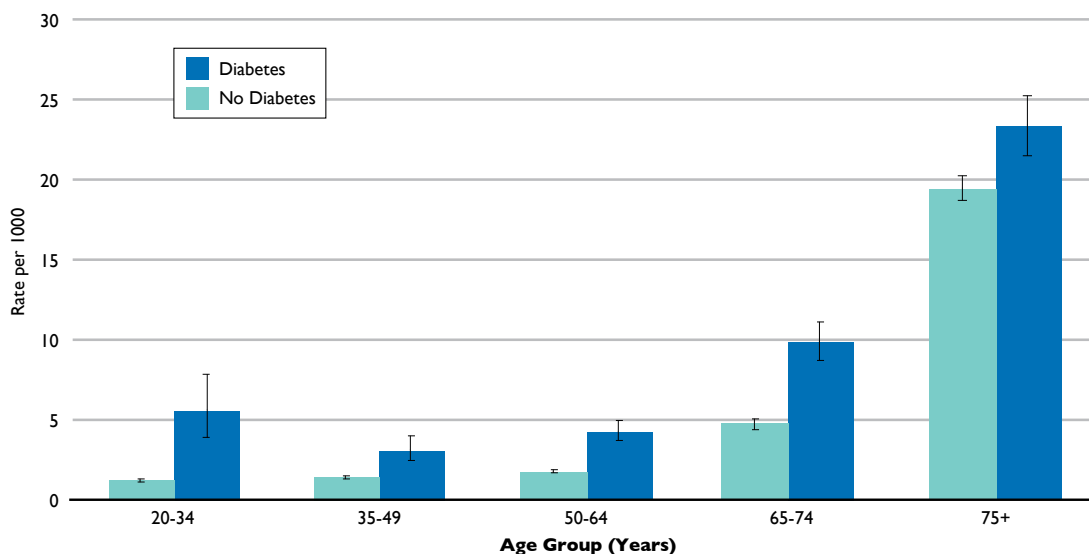


Figure 8.8 Age-Specific Rates of Organic Psychoses, 2005



Substance abuse was more common in people with diabetes, although this relationship was strongest in those under the age of 50 years (Figure 8.9). The Chinook, Northern Lights, and Peace Country health regions had the highest rates of substance abuse disorders (Figure 8.10). This relationship between substance abuse and diabetes has remained relatively consistent over the past decade (Figure 8.11).

Figure 8.9 Age-Specific Rates of Substance Abuse Disorders, 2005

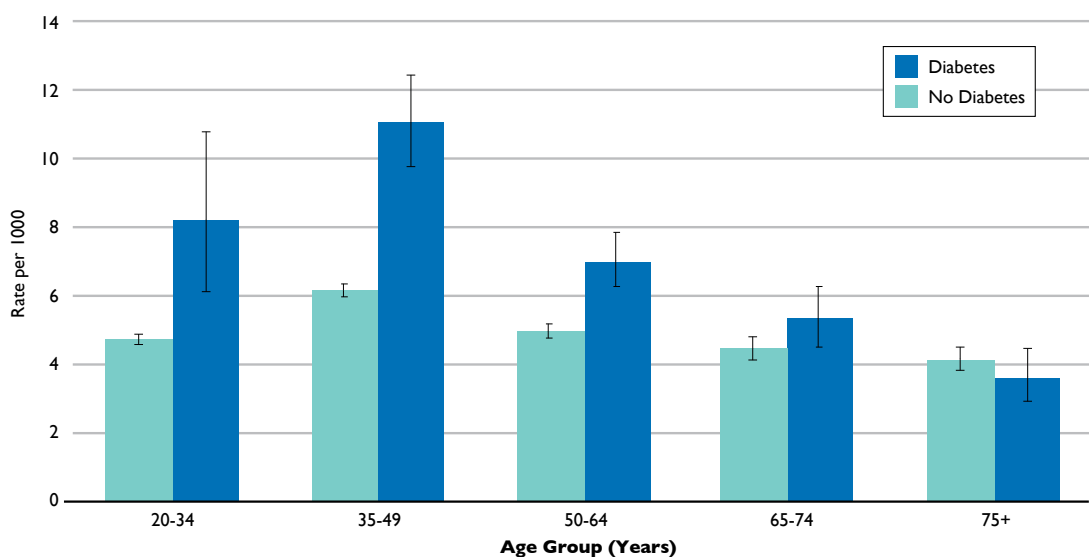


Figure 8.10 Age and Sex-Adjusted Rates of Substance Abuse Disorders by Region, 2005

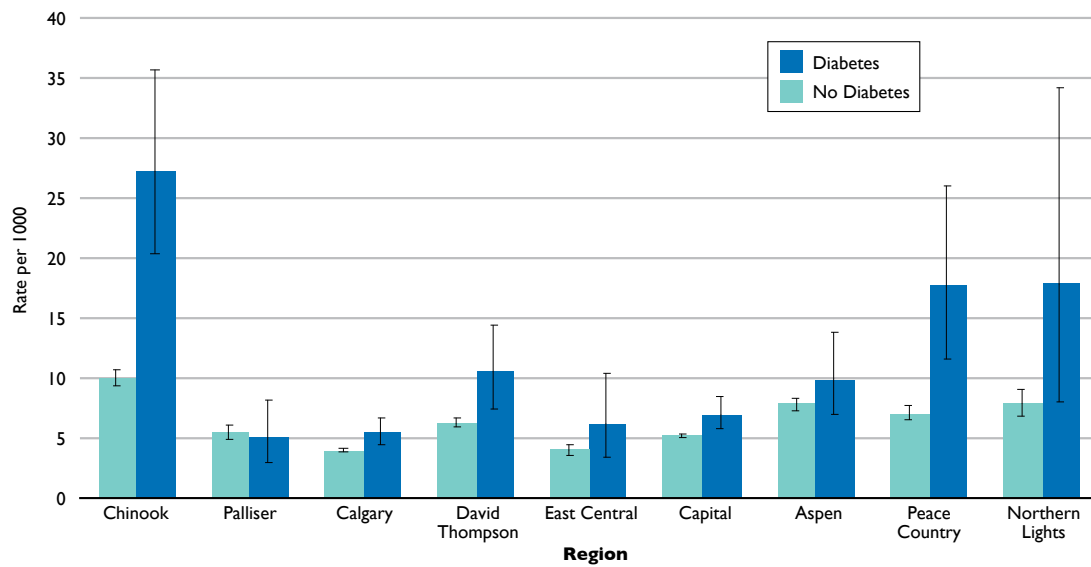
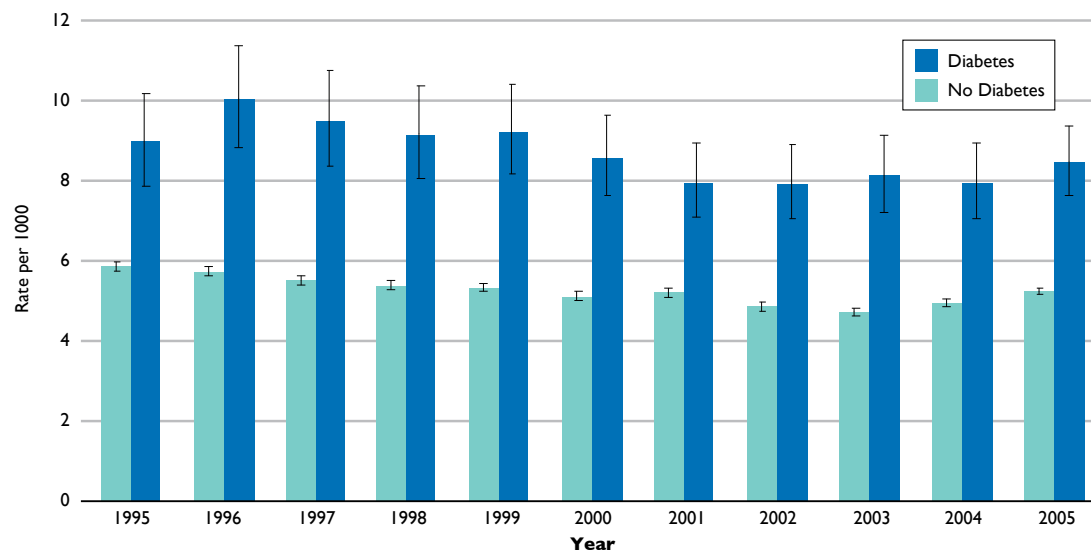


Figure 8.11 Age and Sex-Adjusted Rates of Substance Abuse Disorders, 1995-2005



DISCUSSION

Consistent with previously published research, prevalence of each of the mental illnesses examined were found to be higher in people with diabetes compared to those without diabetes. This trend has been consistent over the past decade. Given the increased risk of functional disability, complications, healthcare expenditures, and mortality associated with diabetes and comorbid mental illness, these results are quite concerning.

Affective and anxiety disorders were more than 30% higher in people with diabetes, however the excess was limited to people under the age of 50. This result is similar to previously published information from Saskatchewan.⁽¹⁾ As noted earlier, the combination of depression and diabetes is associated with poorer adherence and outcomes and increased health care costs.⁽¹³⁻¹⁵⁾

The prevalence of organic and non-organic psychoses were more than twice as high in people with diabetes. The increased risk of psychoses in diabetes was apparent across all ages. It was particularly interesting that the frequency of non-organic and organic psychosis increased in the last 5 years of the observation period (2001-2005). Potential mechanisms affecting the increased risk of psychoses in diabetes may include the behavioural symptoms of psychosis and the medications used to treat psychosis. Atypical antipsychotic agents used to treat psychosis have been associated with an increased risk of weight gain, type 2 diabetes, hypertension, and dyslipidemia.^(9, 16-19) Use of these medications may contribute to the relationship between non-organic and organic psychosis and diabetes and is therefore an area which requires additional research.

It was also of interest that substance abuse disorders were more common in people with diabetes compared to individuals without diabetes. This result may be due to a number of reasons. First, non-organic psychosis, like schizophrenia, is a risk factor for diabetes, and a large number of people with non-organic psychoses also have comorbid substance abuse problems.⁽²⁰⁾ Second, Aboriginal individuals are at a higher risk of developing diabetes, and also have higher reported substance abuse problems compared to the non-Aboriginal population.^(21,22) This relationship is demonstrated by the higher rates of substance abuse in the health regions of Chinook, Northern Lights and Peace Country, which have a large First Nations population (Figure 8.10). Again, the issue of comorbid mental illness and sociodemographic characteristics associated with these comorbid conditions are topics requiring further research.

In summary, people with diabetes are more likely to also have affective disorders, anxiety disorders, organic and non-organic psychoses, and substance abuse disorders compared to their non-diabetic counterparts. Given the increased prevalence of mental illness in people with diabetes, research and health care interventions should focus on strategies to minimize complications and mortality in this population.

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APPENDIX

Alberta Physician Claims Data

Diagnosis	ICD-9-CM	Description
Affective disorders	296.X	Affective psychoses
	300.4	Neurotic depression
	301.1	Affective personality disorder
	309.0	Brief depressive reaction
	309.1	Prolonged depressive reaction
	311	Depressive disorder, not elsewhere classified
Anxiety disorders	300.X	Neurotic disorders (exclude 300.4- Neurotic depression)
	308.X	Acute reaction to stress
Non-organic Psychoses	295.X	Schizophrenia
	297.X	Paranoid states (Delusional disorders)
	298.X	Other non-organic psychoses
Organic Psychoses	292.X	Drug psychoses
	293.X	Transient organic psychotic conditions
	294.X	Other organic psychotic conditions (chronic)
Substance Abuse disorders	291.X	Alcoholic psychoses
	292.X	Drug psychoses
	303.X	Alcohol dependence syndrome
	305.2-305.9	Non-dependent abuse of drugs