

Psychological distress and short-term disability in people with diabetes: Results from the Canadian Community Health Survey

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Abstract

Objectives: Psychological distress may have different effects on short-term disability depending on individual disease severity, which can affect daily life activities. The objective of this study was to evaluate the interaction between psychological distress and activity limitations in daily life, in relation to self-reported disability days in a community sample of people with diabetes. **Methods:** The responses of 3082 adults with self-reported diabetes to the Canadian Community Health Survey Cycle 3.1 were analyzed. **Results:** Prevalence of disability days was higher in diabetic subjects with coexisting psychological distress and activity limitations (67%) than in individuals with either activity limitations in daily life (38%)

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or psychological distress (30%) alone. With no psychological distress and no activity limitations as reference and after adjusting for relevant covariates, the odds ratio of disability was 2.63 [95% confidence interval (95% CI)=1.60–4.33] for psychological distress, 5.57 (95% CI=3.86–8.05) for activity limitations, and 19.4 (95% CI=11.7–31.9) for activity limitations and comorbid psychological distress. **Conclusions:** The results suggest that there is a joint effect of psychological distress and activity limitations on short-term disability. Detecting and managing psychological distress might be particularly beneficial for persons with diabetes. © 2008 Elsevier Inc. All rights reserved.

Introduction

Disability is a major public health issue confronting society today, and chronic diseases are major determinants of disability [1]. Diabetes is a chronic disease condition that, in spite of treatment, can compromise physical functioning. There are at least three major ways in which diabetes can negatively affect physical health [2–5]: (a) long-term complications, such as cardiovascular diseases, amputations, loss of vision, and other physical problems; (b) sequelae of elevated blood glucose levels: elevated blood glucose levels may lead to increased fatigue, sleep problems, and more

frequent infections; and (c) physical symptoms resulting from the demands of the diabetes regimen (unpleasant side effects due to prescribed medications, e.g., chronic gastrointestinal distress resulting from specific oral hypoglycemic agents [2]).

Historically, disability has been conceptualized in medical terms as an individual dysfunction. As social models of disability have become more prominent [6], disability has been conceptualized as a phenomenon resulting from the interaction between a particular impairment (e.g., chronic diseases), incapacities (restriction or inability to perform daily living activities), and environment (e.g., living environment, family support). Less attention has been paid to the psychological dimension as an individual dimension determining disability. For example, psychological distress has been reported to interact with diabetes to amplify the discomfort and disability normally associated with diabetes.

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According to data from the 1999 National Health Interview Survey in the United States, subjects with diabetes and major depression had higher functional disability compared to individuals with either diabetes or major depression alone [7,8]. Von Korff et al. [9] found that among patients with diabetes, those with diabetes complications and depression had higher work disability than those with either diabetes complications or depression alone.

Psychological problems may have different effects on disability, depending on individual incapacities and limitations. Somatic symptoms of psychological distress (e.g., fatigue, sleeplessness) may enhance subjective reactions to activity limitations in daily life (e.g., need for help in doing everyday housework), resulting in increased disability. Therefore, the interaction between psychological problems and activity limitations might be an important predictor for disability.

Identification of the role of psychological distress as a modifiable (risk) factor associated with disability among people with diabetes may suggest avenues for reducing the disability burden of this common chronic disease. Using data from the recent Canadian Community Health Survey Cycle 3.1 (CCHS 3.1) [10], the objective of the present study was to evaluate the association between psychological distress, incapacities (restrictions in daily life activities), and disability days in a community sample of people with diabetes. We hypothesized that individuals with psychological distress and limitations in daily life would have higher short-term disability (disability days) than individuals with psychological distress or activity limitations in daily life alone, even after controlling for other physical disorders.

Research design and methods

Data sources

The CCHS is a cross-sectional survey that collects information related to health status, health care utilization, and health determinants from the Canadian general population [10]. The CCHS 3.1 was conducted by Statistics Canada in 2005. The target population comprised household residents aged ≥ 12 years who were living in private dwellings in 10 provinces. The survey participants were selected using multistage stratified random sampling procedures. Data from 132,221 individuals were collected by trained Statistics Canada interviewers.

The response rate was 79%. The study was approved by an advisory committee consisting of representatives of health regions, all provincial and territories ministries of health, and Health Canada. Informed consent was obtained by interviewers from Statistics Canada.

The CCHS 3.1 questionnaire consisted of a main module, which was asked of all respondents, and several submodules. The main module included, among others, questions regarding sociodemographic characteristics, chronic conditions, general health, and disabilities. The optional modules

included questionnaires that were chosen by regional representatives from a fixed list according to local needs and priorities.

The psychological distress module was administered in five provinces (Alberta, British Columbia, Prince Edward Island, Quebec, and Saskatchewan). In the present study, we included only subjects who were assessed for psychological distress, resulting in a sample size of 62,274 subjects (weighted data: 62,545).

Assessment

Nonspecific psychological distress was measured by the K10 scale [11,12]. The K10 scale is a 10-item self-report questionnaire that intends to yield a global measure of psychosocial distress based on questions about the level of anxiety and depressive symptoms in the most recent 4-week period. Responses are recorded using a five-category scale (*all of the time, most of the time, some of the time, a little of the time, and none of the time*). Several population-based studies have shown excellent screening properties of the K10 scale [11–13]. Furukawa et al. [12] concluded that the K10 scale outperforms the General Health Questionnaire, which is the current de facto standard screening scale for mental health worldwide. The K10 scale is a self-rating test. It measures nonspecific psychological distress rather than psychiatric diagnoses or specific distress. Prior studies have suggested that a K10 score of ≥ 12 is related to high psychological distress [14].

The presence of diabetes was ascertained by self-reports of physician diagnosis. Respondents with diabetes were asked about their current diabetes treatment (insulin and/or oral drugs) and age of diabetes onset. In addition, respondents were asked to report previously diagnosed medical conditions. In the present analyses, we included conditions that are related to macrovascular diabetes complications (high blood pressure and heart disease) and other chronic conditions: asthma, stomach or intestinal ulcers, arthritis/rheumatism, migraine headaches, and back problems. Body mass index was included as an additional predictor.

Activity limitations in daily life due to physical conditions were assessed by seven questions. Respondents were asked if they needed help for instrumental activities of daily living such as preparing meals, shopping for groceries or other necessities, doing everyday housework, doing heavy household chores (washing walls, yard work), personal care (washing, dressing, or eating), moving about inside the house, or paying bills. The questions were developed for Statistics Canada's Participation and Activity Limitation Survey (PALS) [15]. The PALS used the World Health Organization's framework of disability provided by the *International Classification of Functioning, Disability and Health: ICF* [16]. This framework defines disability as the relationship between body structures and functions, daily activities, and social participation. Activity limitation was

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