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Research letter

Impaired day-to-day activities worsened but diabetes control improved self-rated health: The UK diabetes survey, 2006

1. Introduction

1.1. Evidence before this study

Self-rated health, an indicator to assess one's general health, could be used at different times of life. It is also correlated with quality of life across populations from adolescents to the elderly and from patients to health individuals, although research has shown that women tended to score lower than men [1–5]. People with diabetes, being a major health issue causing disability worldwide [6,7], are no exception [8].

1.2. Knowledge gap

Various studies have indicated that people with diabetes (mostly type 2) tended to report poor self-rated health. It is also predictive of mortality. In addition, there have been studies looking into contributors for poor self-rated health in people with diabetes and subsequently summarising these factors including age, sex, depression, obesity, physical activity, comorbidity, socioeconomic status and disability. However, little is known on how diabetes control status might also play a role in the pathway.

1.3. Study aim

Following this context, therefore, the aim of the present study was to investigate how people with diabetes had rated their general health and to understand how diabetes control status might also be involved in the pathway of diabetes to self-rated health in a national and population-based setting.

2. Methods

2.1. Study sample

Data was retrieved from Diabetes Survey (National Survey of People with Diabetes), 2006 (more details via http://discover.ukdataservice.ac.uk/doi/?sn=6380#). It asked whether people with diabetes get the care, treatment and information they need to manage their diabetes well and to reduce the risk of complications. Local primary care trusts sent the questionnaire to 124,366 adults (aged 16 and over) with diabetes, asking about their experiences of services provided by the National Health Service. Staff at each primary care trust identified the patients who were eligible for inclusion and drew a random sample following a standard procedure set out in the survey guidance. Each primary care trust was responsible for ensuring that their survey was carried out following the standard sampling and survey procedures, as set out in the guidance issued to trusts. Responses were received from 68,500 people, which was a response rate of 55%. The characteristics of all the invited adults were similar to those of the included study participants. There were more young adults than older adults who did not respond, but the difference was not significant ($P > 0.05$).

2.2. Variables and analyses

The primary study exposures (x variable) were diabetes types (i.e. definite type 1, definite type 2, probable type 1, probable type 2) and the secondary study exposures were diabetes controls methods (i.e. insulin, tablets, diet, physical activity, other). The study outcome (y variable) was self-rated health (i.e. excellent, very good, good, fair, poor). Covariates including age, sex and ethnicity were adjusted in the modelling. In the initial analysis, variance in self-rated health was correlated with 4 diabetes types by accounting for other long-standing illnesses, impaired day-to-day activities due to diabetes and diabetes control status separately. In the subsequent analysis, variance in self-rated health was then correlated with diabetes control status in a numerical way. Multi-nominal regression modelling was performed. The effects were estimated by producing relative risk ratios (RRR) and 95% confidence intervals (CI), with $P < 0.05$ considered to be statistically significant. Statistical software STATA version 13.0 (STATA, College Station, Texas, USA; more details via http://www.stata.com/) was used to carry out all the analyses.

2.3. Ethics considerations

Since there were only secondary data analyses employed without any participant personal information identified by extracting statistical data from the UK Data Archive website in the present study, no further ethics approval for conducting the present study was required (more details via http://www.ethicsguidebook.ac.uk/Secondary-analysis-106).

http://dx.doi.org/10.1016/j.diabet.2015.10.002

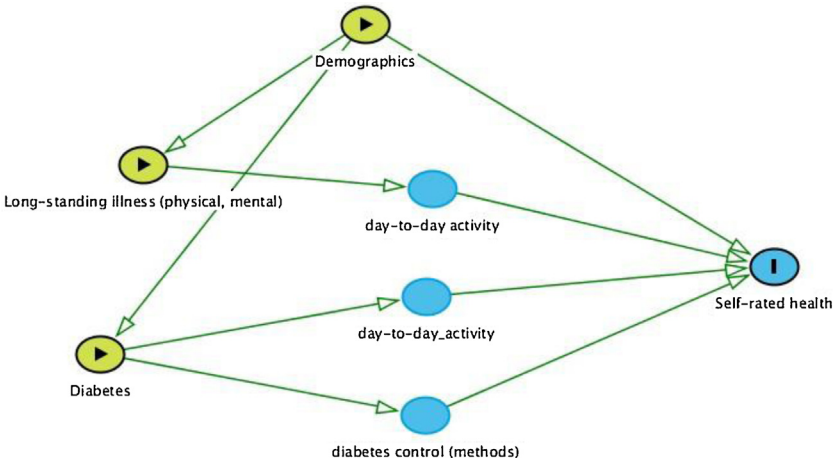

Fig. 1. Pathway of diabetes, disease control and self-rated health.

3. Results

3.1. Info-graphics

Fig. 1 presents the pathway of chronic illnesses (including diabetes and other long-standing illnesses) to self-rated health. The association of diabetes and self-rated health could be mediated by several factors including other illnesses, impaired day-to-day activities, disease control status/methods, etc. However, they do not necessarily present causal relationships.

3.2. Descriptive statistics

Table 1 shows characteristics of the study participants by diabetes types. These included age, sex, ethnicity, impaired day-to-day activities, age at diagnosis and control methods. There

Table 1
Characteristics of the study participants by diabetes type.

	Definite type 1 (n = 3731, 6.2%)	Definite type 2 (n = 37,569, 62.7%)	Probable type 1 (n = 3422, 5.7%)	Probable type 2 (n = 15,223, 25.4%)
Current age				
16–35	1302 (60.3%)	12 (0.6%)	327 (15.2%)	517 (24.0%)
36–50	1459 (18.4%)	3726 (47.1%)	899 (11.4%)	1829 (23.1%)
51–65	725 (3.4%)	14,775 (69.9%)	1166 (5.5%)	4472 (21.2%)
66+	245 (0.9%)	19,055 (66.3%)	1030 (3.6%)	8404 (29.3%)
Sex				
Male	1949 (5.8%)	21,515 (63.5%)	1891 (5.6%)	8547 (25.2%)
Female	1782 (6.8%)	16,053 (61.7%)	1531 (5.9%)	6675 (25.6%)
Whether diabetes impacted on day-to-day activities				
No	2127 (57.9%)	29,115 (79.1%)	1949 (58.3%)	10,829 (73.3%)
Yes	1544 (42.1%)	7698 (20.9%)	1393 (41.7%)	3953 (26.7%)
Age at diagnosis				
< 15	1656 (70.6%)	0 (0%)	372 (15.9%)	318 (13.6%)
16–35	2075 (39.2%)	311 (5.9%)	971 (18.4%)	1934 (36.6%)
36–50	0 (0%)	9629 (68.2%)	1048 (7.4%)	3445 (24.4%)
51–65	0 (0%)	17,979 (74.6%)	698 (2.9%)	5411 (22.5%)
66+	0 (0%)	9650 (68.5%)	333 (2.4%)	4115 (29.2%)
Ethnicity				
White	3564 (6.7%)	34,177 (64.5%)	3041 (5.7%)	12,210 (23.0%)
Mixed	23 (6.3%)	183 (52.1%)	23 (6.5%)	124 (34.9%)
Asian	41 (1.3%)	1319 (42.6%)	147 (4.8%)	1588 (51.3%)
Black	30 (2.2%)	701 (50.9%)	113 (8.2%)	534 (38.8%)
Other	3 (3.2%)	42 (44.2%)	4 (4.2%)	46 (48.4%)
Control methods				
Insulin	3682 (23.3%)	5127 (32.4%)	3153 (19.9%)	3853 (24.4%)
Tablets	141 (0.4%)	26,825 (72.4%)	695 (1.9%)	9379 (25.3%)
Diet	767 (2.5%)	22,243 (71.6%)	801 (2.6%)	7246 (23.3%)
Physical activity	555 (3.8%)	10,565 (74.3%)	460 (3.2%)	2662 (18.7%)
Other	49 (11.7%)	218 (52.2%)	24 (5.7%)	127 (30.4%)