

# Health-related quality of life of type 2 diabetics in German primary care: Results of the DETECT study

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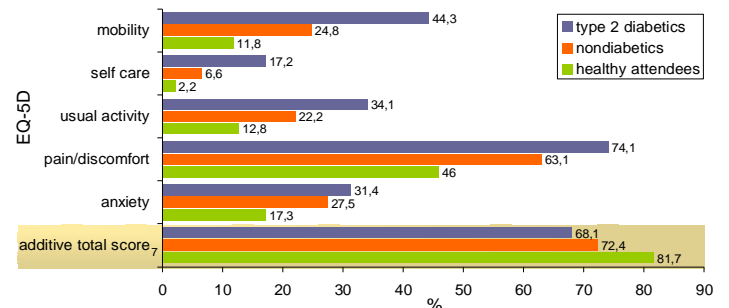
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## Abstract

**OBJECTIVES:** To describe the health-related quality of life (QoL) of type 2 diabetics by age group, duration of disease, comorbidities and complications, therapeutic interventions and HbA1c status. **METHODS:** DETECT ('Diabetes Cardiovascular Risk-Evaluation: Targets and Essential Data for Commitment of Treatment'; <http://www.detect-studie.de>) is a large-scale, nationally representative, cross-sectional clinical-epidemiological study with a prospective-longitudinal component in primary care. Based on a randomised sample of 3,188 physicians, the health state of 55,519 patients was assessed in a standardised way in 2003. Frequency of problems in the EQ-5D items mobility, self-care, usual activities, pain/discomfort and anxiety/depression as well as the additive total score were analysed in n=6,558 type 2 diabetics. **RESULTS:** The most frequent QoL restrictions were in the domains of pain/discomfort (74.1%), mobility (44.3%), daily activities (34.1%), anxiety/depression (31.4%) and self-care (17.2%). The mean additive total score was 68.1. That was, after adjustment for age and gender, significantly lower than in nondiabetics (72.4) or in healthy attendees (81.7). Overall and in each QoL domain, problems increased if micro- and macrovascular disease was present, and with the age of patients or duration of diabetes respectively. There were no significant differences between patients with or without therapy (diet, exercise and oral antidiabetics). However, patients with insulin and combined therapy had considerably lower QoL scores, even after adjustment for age, gender, duration of diabetes and presence of micro- and macrovascular disease. HbA1c adjustment had only small effects on the EQ-5D dimensions. Compared to patients with optimal HbA1c values (< 6%), poorly adjusted patients (HbA1c > 8%) reported significantly more problems at the dimensions mobility and self-care. **CONCLUSIONS:** Our data provide, in unprecedented detail, the health related QoL of type 2 diabetics in German primary care, highlighting the association of insulin and combined treatments with reduced QoL.

(4) Compared to type 2 diabetics without vascular comorbidities patients with microvascular as well as with macrovascular comorbidities reported significantly more problems in all EQ-5D domains. Diabetics with both, micro- and macrovascular disease had the lowest score (58.8). (5) HbA1c adjustment had nearly no influence on the patient reported QoL. Insufficiently adjusted patients (HbA1c ≥ 8) differed from optimal adjusted diabetics (HbA1c < 6) only in the domains mobility and self care as well as in the total score. (6) There were no significant differences in the EQ-5D scores between patients with oral antidiabetic therapy, patients who received no therapy or only diet and exercise interventions. Compared to diabetics without any therapy, patients with combined therapy (oral antidiabetics + insulin) reported more problems in the self care domain. However, patients with insulin therapy had considerably lower QoL scores (except for anxiety), even after adjustment for age, gender, duration of diabetes, HbA1c adjustment and presence of micro- and macro-vascular disease.

Figure 2: Frequency of „any problems“ in the EQ-5D domains and the additive total score



## Background

The prevalence of diabetes mellitus is reaching epidemic proportions in many parts of the world. In Germany, diabetes afflicts 7% of the general population<sup>1</sup> and 15.3% of primary care patients<sup>2</sup>. €14.6 billion is spent on diabetes-excess-costs in Germany alone. In addition, diabetes represents an everyday challenge for patients (e.g. blood sugar control and insulin intake). Quality of life can be characterized as the goal of all health interventions and is often used as a short-term outcome measure in clinical trials<sup>3</sup>.

## Objectives

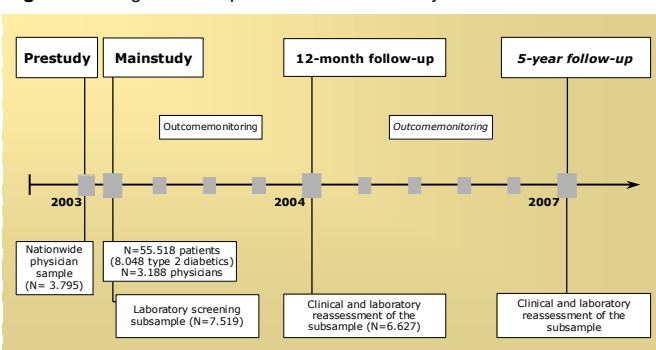
To describe the health-related quality of life (QoL) of type 2 diabetics:

- (1) in comparison to nondiabetics
- (2) by age groups
- (3) duration of disease
- (4) micro- and macrovascular disease
- (5) HbA1c adjustment
- (6) and therapeutic interventions

## Methods

- Data were from the cross-sectional part of the DETECT-study (2003)<sup>5</sup>
- Definition of type 2 diabetes based on the doctors' clinical diagnosis
- Quality of life assessment resulted from the EuroQoL (German Version of the EuroQoL Questionnaire)
- Microvascular disease: retinopathy, nephropathy, neuropathy, diabetic foot
- Macrovascular disease: coronary artery disease, cerebrovascular disease, peripheral arterial disease
- HbA1c values were taken from the patient record

Figure 1: Design and sample of the DETECT study



## Results

(1) Type 2 diabetics reported more problems in all five EQ-5D domains and had a lower additive total QoL score (68.1) than nondiabetics (72.4) and patients without chronic disease (81.7). Most problems were reported in the domains of pain/discomfort (74.1%), mobility (44.3%), daily activities (34.1%), anxiety/depression (31.4%) and self-care (17.2%). (2-3) Problems in all domains increased with age and duration of disease.

Figure 3: Relative frequency of „any problems“ in the EQ-5D domains by age and duration of the diabetes disease

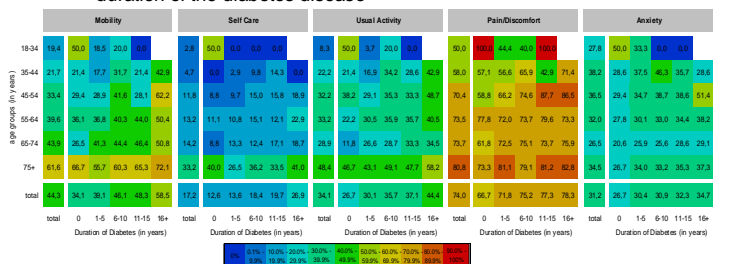


Table 1: EQ-5D domains and additive total score in relation to presentation of (a) micro- and macrovascular disease, (b) HbA1c adjustment and (c) therapeutic interventions

EQ-5D	a) Presentation of micro- and macrovascular complications																					
	Diabetics without complications (ref)					only microvascular complications					only macrovascular complications					combined micro- and macrovascular complications						
any Problem	N	%	OR*	CI(95%)	p	N	%	OR*	CI(95%)	p	N	%	OR*	CI(95%)	p	N	%	OR*	CI(95%)	p		
Mobility	1162	34.2	44.3	48.7	1.57	1.32-1.87	0.000	692	59.0	1.80	1.54-2.11	0.000	808	68.4	2.81-4.11	0.000	404	28.1	1.00	0.88-1.22	0.330	
Self Care	355	10.4	17.2	20.2	1.70	1.34-2.15	0.000	279	20.5	1.87	1.52-2.31	0.000	312	35.1	3.40	2.73-4.22	0.000	134	3.4	1.00	0.88-1.22	0.330
Usual Activities	857	25.2	35.1	38.8	1.57	1.31-1.89	0.000	541	39.8	1.93	1.64-2.27	0.000	487	54.7	3.17	2.64-3.82	0.000	247	17.2	1.00	0.88-1.22	0.330
Pain/Discomfort	2,312	68.1	71.8	75.9	1.74	1.42-2.12	0.000	1,061	75.1	1.87	1.55-2.24	0.000	769	86.4	2.78	2.20-3.55	0.000	482	68.1	1.00	0.88-1.22	0.330
Anxiety	990	29.1	33.0	33.9	1.27	1.05-1.53	0.014	423	31.1	1.41	1.19-1.68	0.000	337	37.9	1.84	1.51-2.23	0.000	233	16.7	1.00	0.88-1.22	0.330
additive total score	71.9	18.8	65.7	19.7	-5.16	-8.78--1.56	0.000	66.2	18.5	-6.39	-7.78--5.03	0.000	58.8	19.1	-12.25	-13.93--10.58	0.000	72.4	18.1	1.00	0.88-1.22	0.330

\* adjusted for gender, age, duration of diabetes disease, HbA1c adjustment and therapeutic interventions

EQ-5D	b) HbA1c adjustment																					
	HbA1c < 6% (ref)					HbA1c ≥ 6 and < 7%					HbA1c ≥ 7 and < 8%					HbA1c ≥ 8%						
any Problem	N	%	OR*	CI(95%)	p	N	%	OR*	CI(95%)	p	N	%	OR*	CI(95%)	p	N	%	OR*	CI(95%)	p		
Mobility	437	40.5	1.030	42.2	0.98	0.84-1.14	0.803	626	46.2	1.07	0.90-1.27	0.442	416	47.9	1.25	1.03-1.51	0.024	254	24.1	1.00	0.88-1.22	0.330
Self Care	157	14.6	37.7	15.5	0.87	0.79-1.00	0.716	257	19.0	1.14	0.90-1.43	0.277	182	21.0	1.42	1.10-1.83	0.007	84	7.8	1.00	0.88-1.22	0.330
Usual Activities	343	31.8	77.8	31.9	0.93	0.79-1.08	0.337	478	35.3	0.96	0.83-1.18	0.874	324	37.3	1.13	0.93-1.38	0.234	193	18.1	1.00	0.88-1.22	0.330
Pain/Discomfort	757	70.2	1.794	73.6	1.10	0.93-1.29	0.260	982	72.5	0.97	0.81-1.16	0.732	646	74.4	1.13	0.92-1.39	0.245	392	36.3	1.00	0.88-1.22	0.330
Anxiety	322	29.8	74.6	30.6	0.97	0.83-1.14	0.742	422	31.2	0.95	0.79-1.14	0.562	277	31.9	0.96	0.78-1.17	0.866	167	15.5	1.00	0.88-1.22	0.330
additive total score	70.0	19.2	68.8	18.8	0.03	-1.4-1.13	0.933	67.6	20.0	0.09	-1.6-1.4	0.927	66.1	20.6	-1.68	-3.80--0.30	0.022	81.7	21.8	1.00	0.88-1.22	0.330

\* adjusted for gender, age, duration of diabetes disease and presentation of micro- and macrovascular disease

EQ-5D	c) Therapeutic interventions																							
	oral antidiabetics					no therapy					only diet and exercise interventions					combined therapy					insulin therapy			
any Problem	N	%	OR*	CI(95%)	p	N	%	OR*	CI(95%)	p	N	%	OR*	CI(95%)	p	N	%	OR*	CI(95%)	p				
Mobility	1239	41.4	44.3	1.01	0.92-1.12	0.812	313	30.0	0.69	0.59-0.81	0.000	260	25.5	1.19	0.97-1.46	0.080	544	54.1	1.20	1.00-1.44	0.000			
Self Care	458	15.3	64	15.8	0.97	0.71-1.33	0.856	100	12.5	0.92	0.72-1.18	0.558	159	21.1	1.25	1.00-1.57	0.048	259	25.5	1.63	1.34-2.00	0.000		
Usual Activities	858	25.0	126	29.0	0.97	0.83-1.13	0.750	204	20.4	0.84	0.71-1.00	0.050	289	28.4	1.13	0.93-1.38	0.234	453	45.3	1.58	1.34-1.86	0.000		
Pain/Discomfort	2168	72.5	282	72.1	0.97	0.76-1.25	0.824	575	71.7	1.03	0.86-1.24	0.789	565	75.1	0.92	0.76-1.12	0.044	816	80.4	1.14	1.01-1.28	0.009		
Anxiety	971	29.1	131	32.4	1.13	0.89-1.44	0.327	250	29.2	1.11	0.92-1.32	0.274	260	29.6	1.10	0.91-1.32	0.304	343	34.3	1.12	0.94-1.33	0.198		
additive total score	68.2	18.1	69.4	18.8	0.05	-2.46-2.36	0.868	70.0	18.5	0.21	-0.36-0.78	0.000	66.1	20.2	-1.09	-2.70-0.52	0.184	69.3	20.2	0.98	0.82-1.17	0.000		

\* adjusted for gender, age, duration of diabetes disease and presentation of micro- and macrovascular disease

## Conclusions

Our data show in unprecedented detail the health-related QoL of type 2 diabetes in German primary care. These data highlight the fact that insulin therapy is associated with reduced QoL scores. Despite the potential benefits of insulin on hyperglycemia and vascular complications, the complex application carries the risk of hypoglycemia and weight gain. These are potential mediators for reduced QoL scores.

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