HelmholtzZentrum münchen
German Research Center for Environmental Health

Scientific Highlight   October 2008

X co-ordinated with the Director of the Institute / Head of Department

Institute/ Independent Department / Clinical Co-operation Group / Junior Research Group:
Institute of Health Economics and Health Care Management

FE-No.: 75354

Person to contact for further enquiries:
Dr. Michaela Schunk, Michaela.Schunk@helmholtz-muenchen.de, -4169

Title of the Highlight:
Time trends in type 2 diabetes patients' disease management and outcomes: evidence from two KORA surveys in Germany

Keywords:
time trends, type 2 diabetes, disease management, glycemic control, KORA

Central statement of the Highlight in one sentence:
Time trends in type 2 diabetes patients' self-management and intermediate health outcomes indicate significant improvements in diabetes disease management over the 7 year period between 1997/8 and 2003/4.

Text of the Highlight:
To explore time trends in diabetes management and intermediate health outcomes of people with type 2 diabetes, data from two population-based survey studies were compared. The surveys were conducted as part of the KORA study in the Augsburg region of Southern Germany in 1997/98 and in 2004/05, and included physical examinations, interviews, self-administered questionnaires and laboratory tests. Data from 334 participants with type 2 diabetes aged 40-84 were analysed, including a longitudinal sub-sample of 50 persons. Results show significant time trends towards improvements over the seven year period. Controlling for age, sex, education and duration of diabetes, people felt better informed about diabetes and stated greater adherence to the treatment plan as well as higher participation in diabetes education programmes. Mean HbA1c levels decreased from 7.3% to 6.3%. Physical activity ($\geqslant$ 1h/week) was more frequent, although Body Mass Index increased by 1.4 kg/m^2. The positive changes in disease management and metabolic outcomes for type 2 diabetic patients between 1997/98 and 2004/05 indicate a shift towards greater patient involvement in diabetes care and possibly more efficient medical management practices.

Taking account of the HMGU mission:
The cornerstones of modern diabetes care are the availability of high quality health care as well as encouragement of patients to take an active role in management of the disease. The KORA surveys offer the opportunity to evaluate whether and to what extent these efforts have already taken effect in the broader population.

The internal HMGU co-operation partners with whom the Highlight was compiled, if appropriate:
Institute of Epidemiology, Helmholtz Zentrum München
KORA Study Centre, Augsburg

Variable	KORA-A (1997/8) n=175		F3 (2004/5) n=209		Odds Ratio[a] baseline=1997/8
Information about diabetes					
("Very good"), n (%)	29	(19)	58	(31)	1.87 **
Self monitoring (≥1/month) of					
weight, n (%)	134	(77)	167	(80)	1.02
feet, n (%)	114	(65)	137	(65)	1.04
blood pressure, n (%)	93	(53)	144	(69)	2.04 **
Participation in					
Education Programmes (≥1), n (%)	54	(31)	102	(49)	2.20 **
Self-help groups (≥1), n (%)	17	(10)	44	(21)	2.40 **
Compliance					
Adherence to treatment ("Always") n (%)	34	(22)	97	(51)	4.42 **

[a] controlled for age, sex, education, duration of diabetes; statistical significance (p-value) ** >0.01 *>0.05

Type 2 Diabetes Patients in 2004/5 vs. 1997/8

⟹ better informed about diabetes

⟹ more involved in health checks

⟹ adhere more closely to treatment plan

⟹ participate more in diabetes education programmes

Improvement in intermediate health outcomes of type 2 diabetes patients 2004/5 vs. 1997/8

Variable	KORA-A (1997/8) n=175	F3 (2004/5) n=209	β-estimate[a] baseline=1997/8
Bio-medical measures			
HbA1c, mean (SD)[b]	7.3±1.8	6.3±0.8	-0.97 **
Systolic BP, mean (SD)[c]	152.0±19.9	138.6±19.6	-12.56 **
Diastolic BP, mean (SD)[c]	82.9±9.6	80.3±11.1	-3.42 **
BMI, mean (SD) [d]	29.7±4.3	31.2±4.9	1.43 **
			Odds Ratio [a]
HbA1c target (≤6.5%), n (%)	70 (40)	153 (73)	3.87 **
BMI target (<25 for men, <24 for women), n (%)	18 (6)	13 (10.5)	0.77
Lifestyle			
Physical activity (≥1hr/week), n (%)	30 (17)	77 (37)	2.75 **
Smoking (no), n (%)	158 (90)	182 (87)	0.70

[a] controlled for age, sex, education, duration of diabetes; statistical significance (p-value) ** >0.01 *>0.05
[b] HbA1c is percentage of haemoglobin with an attached glucose moiety
[c] BP= Blood Pressure, unit is mmHg
[d] BMI=Body Mass Index

Type 2 Diabetes Patients in 2004/5 vs. 1997/8

⟹ Improvements in glycemic control, blood pressure

⟹ Lifestyle changes: more physical activity

Improvement of intermediate health outcomes of type 2 diabetes patients confirmed by results from longitudinal sub-sample

Institute of Health Economics and Health Care Management

Variable	KORA-A (1997/8) n=50	F3 (2004/5) n=50	β-estimate[a] baseline=1997/8
Bio-medical measures			
HbA1c, mean (SD) [b]	7.1±1.6	6.4±0.8	-0.71**
Systolic BP, mean (SD) [c]	148.7±18.4	136.1±18.1	-12.95 **
Diastolic BP , mean (SD) [c]	85.2±8.8	76.1±10.6	-9.30 **
BMI, mean (SD) [d]	29.4±4.4	30.1±4.2	0.73 *
Lifestyle			*Odds Ratio[a]*
Physical activity (≥1hr/week), n (%)	10 (20)	19 (38)	2.16

[a] controlled for age, sex, education, duration of diabetes; statistical significance (p-value) ** >0.01 *>0.05
[b] HbA1c is percentage of haemoglobin with an attached glucose moiety
[c] BP= Blood Pressure, unit is mmHg
[d] BMI=Body Mass Index

➡ Consistent findings in cross-sectional and longitudinal study segments

➡ Linkage of self-reported data and bio-medical measurements supports validity of findings

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