

**An educational intervention to improve the
quality of care of diabetic patients**

by

Helena Oosthuizen

Submitted in fulfilment of the requirements for the degree:

MSc (Clinical Epidemiology)

in the Faculty of Health Sciences

University of Pretoria

Pretoria

April 2003

Acknowledgements

I would like to acknowledge a number of people who were involved in this project for their valuable contributions:

Authors/Contributors

Roeland Riedijk¹

Joost Nonner¹ MSc

Paul Rheeder² MBChB, MMed, MSc;

James A Ker(senior)³ MBChB, MMed, MD

¹Erasmus University Medical School, Rotterdam, Holland.

²Division of Clinical Epidemiology, University of Pretoria, South Africa.

³Department of Internal Medicine, University of Pretoria, South Africa.

I wish to add a special word of thanks, firstly to my colleagues and supervisors who motivated me to continue developing my interest in research, and secondly to the medical personnel at the Diabetic Clinic of the Pretoria Academic Hospital, including doctors Janie van den Berg and Hanlie de Villiers, nursing sisters Anne Roos and Chrystelle Burger, and the Registrars and Consultants who so willingly participated in this project.

I am grateful to R M Anderson from the University of Michigan Medical Center for granting permission to use the Diabetes Attitude Scale (DAS-3) and I thank L.K. Sharp and M S Lipski for permission to use their treatment-related knowledge questionnaire used in the Diabetes Practice Scale (DPS).

Last but not least, I sincerely thank my children, parents and close friends who supported me throughout the time I was working on this project.

of Diabetic Patients

Table of Contents

A. Declaration	5
B. Publication and Presentation	6
C. List of Abbreviations	7
D. List of Tables	8
E. Opsomming	9
F. Summary	11
9. References	35
1. Introduction	13
2. Aims	17
2.1 Primary aim	17
2.2 Secondary aims	17
3. Objectives	17
3.1 Primary endpoint	17
3.2 Secondary endpoints	17
4. Methodology	18
4.1 Research Design	18
4.2 Study Site	18
4.3 Measures	18
4.3.1 Diabetes Attitude Scale	18
4.3.2 Diabetes Practice Scale	19
4.3.3 Patient Questionnaire	19
4.4 Sample Size	19
4.5 Procedure	19
5. Data Analysis	23

6. Results	24
6.1 Table 1: Results of the Diabetes Attitude Scale (DAS-3)	24
6.2 Table 2: Results of Diabetes Practice Scale (DPS)	26
6.3 Table 3: Optimal Metabolic and Blood Pressure Control as Reported by the Doctors	27
6.4 Table 4: Baseline Characteristics of the Study Population	28
6.5 Table 5: Work-Up of Study Population	30
7. Conclusion	31
8. Discussion	32
9. References	36
10. Attachments	40
10.1 Appendix A: Informed Consent to Health Care Professionals	40
10.2 Appendix B: Diabetes Attitude Scale	42
10.3 Appendix C: Practice Questionnaire	45
10.4 Appendix D Informed Consent of Patients	47
10.5 Appendix E: Patient Demographic Information	49
10.6 Appendix F: Patient Education Process	52
10.7 Appendix G: The Charlson Comorbidity Index	53
10.8 Appendix H: Health-Related Quality of Life Questionnaire	54
10.9 Appendix I: Patient Satisfaction Questionnaire	57
10.10 Appendix J: Data Pertaining to Workload	59

A. Declaration



Project Supervisor: **Prof Paul Rheeder**

Student number: **81133350**

I declare that the dissertation/thesis, which I hereby submit for the degree MSc(Clinical Epidemiology) at the University of Pretoria, is my own work and has not previously been submitted by me for a degree at another university.

Signature:

Date:

This study was approved by the Ethics Committee of the Pretoria Academic Hospital.

B. Publication and Present



This work has been published in the following journal:

South African Medical Journal (S Afr Med J) 2002 ; **92 (6)** : 459-464

D : dissatisfied

An abstract was also presented at the :

Society for Endocrinology, Metabolism and Diabetes of South Africa

(SEMDSA) congress in 2001 as an oral presentation

DPS : Diabetes Practice Scale

HbA_{1c} : Haemoglobin A_{1c} = Glycated Haemoglobin

HRQOL : Health Related Quality of Life

MBChB : Baccalaureus in Medicine and Surgery

MD : Doctorate in Medicine

mmol/l : millimol per litre

mm Hg : Millimeters mercury

MMed : Magister in Medicine

MS : Microsoft

MSc : Magister in Science

N : Number

Prof : Professor

RCT : Randomised Controlled Trial

S : Satisfied

SD : Standard Deviation

TP : Tibialis Posterior

VD : Very Dissatisfied

Vol : Volume

VS : Very satisfied

C. List of Abbreviations



ANCOVA : Analysis of Covariance

COPD : Chronic Obstructive Pulmonary Disease

D : dissatisfied

DAS : Diabetes Attitude Scale

DM : Diabetes Mellitus

DP : Dorsalis Pedis

DPS : Diabetes Practice Scale

HbA_{1c} : Haemoglobin A_{1c} = Glycated Haemoglobin

HRQOL : Health Related Quality of Life

MBCChB : Baccalaureus in Medicine and Surgery

MD : Doctorate in Medicine

mmol/l : millimol per litre

mm Hg : Millimeters mercury

MMed : Magister in Medicine

MS : Microsoft

MSc : Magister in Science

N : Number

Prof : Professor

RCT : Randomised Controlled Trial

S : Satisfied

SD : Standard Deviation

TP : Tibialis Posterior

VD : Very Dissatisfied

Vol : Volume

VS : Very satisfied

D. List of Tables:

Table 1. Results of the Diabetes Attitude Scale (DAS-3)

Table 2. Results of Diabetes Practice Scale (DPS)

Table 3. Optimal Metabolic and Blood Pressure Control as Reported by the
Doctors

Table 4. Baseline Characteristics of the Study Population

Table 5. Work-up of Study Population

Keywords: Diabetes ; Diabetes Education ; Diabetes Attitude Scale.

Graad: MSc (Kliniese Epidemiologie)

Inleiding:

Daar is 'n gebrek aan studies wat kyk na intervensies om die sorg van
gehospitaliseerde diabetiese pasiënte te verbeter en die doel van hierdie
studie was dus om te ondersoek of 'n opvoedkundige intervensie aan dokters
die kwaliteit van sorg aan diabetiese pasiënte kan verbeter.

Metode:

Hierdie studie was 'n ongekontroleerde voor- en na-intervensiestudie in 'n
terisiere sorg hospitaal in Pretoria. Dokters werksaam in die departement
Inferne Geneeskunde was die populasie waarop die twee opvoedings
intervensie sessies, oor sorg aan diabetiese pasiënte wat gehospitaliseer
was, uitgevoer is. 'n Gestandaardiseerde Diabetes houdingskaal (Diabetes
Attitude Scale DAS-3) en Diabetes Praktijk kwelys is deur alle dokters
voltooi voor die aanvang van die opvoeding sessie en ook na voltooiing van die
laaste sessie. Inligting van gehospitaliseerde diabetiese pasiënte is versamel
vir vyf weke voor die eerste inligting sessie en ook weer vir 'n tydperk van vyf

'n Opvoedkundige Intervensie om die Kwaliteit van sorg aan Diabetiese

Pasiënte te Verbeter

deur

Helena Oosthuizen

Promotor: Prof Paul Rheeder

Departement: Kliniese Epidemiologie

Skool van Geneeskunde

Fakulteit van Gesondheidswetenskappe

Graad: MSc (Kliniese Epidemiologie)

Inleiding:

Daar is 'n gebrek aan studies wat kyk na intervensies om die sorg van gehospitaliseerde diabetiese pasiënte te verbeter en die doel van hierdie studie was dus om te ondersoek of 'n opvoedkundige intervensie aan dokters die kwaliteit van sorg aan diabetiese pasiënte kan verbeter.

Metode:

Hierdie studie was 'n ongekontroleerde voor-en na-intervensiestudie in 'n tersiêre sorg hospitaal in Pretoria. Dokters werksaam in die departement Interne Geneeskunde was die populasie waarop die twee opleidings intervensie sessies, oor sorg aan diabetiese pasiënte wat gehospitaliseer was, uitgevoer is. 'n Gestandaardiseerde Diabetes houdingskaal (Diabetes Attitude Scale DAS-3) en Diabetiese Praktyk vraelys is deur alle dokters voltooi voor die aanvang van die opleiding sessie en ook na voltooiing van die laaste sessie. Inligting van gehospitaliseerde diabetiese pasiënte is versamel vir vyf weke voor die eerste inligting sessie en ook weer vir 'n tydperk van vyf

weke na die voltooiing van die lesings sessie. Hierdie twee stellings inligting is met mekaar vergelyk om die effek van die opleiding te evalueer.

Resultate:

Subskale van die Diabetiese houdingskaal het verbetering getoon met 'n statisties betekenisvolle verbetering in die houding teenoor ernstigheid van diabetes mellitus ($p = 0.03$) en 'n neiging na verbetering in houdings teenoor nodigheid vir spesiale opleiding en ook pasiënt outonomie. Meeste van die items in die Diabetiese Praktykskaal (DPS) het betekenisvol verbeter ($p < 0.05$).

Gevolgtrekking:

'n Kort opleidingsintervensie het gelei tot 'n verbetering in houding, kennis en kliniese hantering van diabetiese pasiënte.

Methods:

This was an uncontrolled before-after interventional study in a tertiary care hospital in Pretoria. Doctors working in the Department of Internal Medicine were the subjects of two interventional sessions on diabetic care and all diabetic patients admitted to the wards in Internal Medicine were evaluated. Diabetes Attitude scale (DAS-3) and a Diabetes Practice Scale (DPS) were completed by each doctor before and after the interventional educational sessions. Data from diabetic patients in the wards were collected for 5 weeks before the interventional training and for 5 weeks after the interventional training and these 2 sets of data were compared to measure the effect of the interventional training.

An Educational Intervention to Improve the Quality of Care of Diabetic

Patients
by

Helena Oosthuizen

Promotor: Prof Paul Rheeder

Department: Clinical Epidemiology

School of Medicine

Faculty of Health Sciences

Degree: MSc (Clinical Epidemiology)

Introduction:

As few studies have addressed intervention for in-hospital care of diabetes mellitus, the purpose of this study was to investigate if an educational intervention for doctors could improve the quality of care for diabetic patients.

Methods:

This was an uncontrolled before-after interventional study in a tertiary care hospital in Pretoria. Doctors working in the Department of Internal Medicine were the subjects of two interventional sessions on diabetic care and all diabetic patients admitted to the wards in Internal Medicine were evaluated. Diabetes Attitude scale (DAS-3) and a Diabetes Practice Scale (DPS) were completed by each doctor before and after the interventional educational sessions. Data from diabetic patients in the wards were collected for 5 weeks before the interventional training and for 5 weeks after the interventional training and these 2 sets of data were compared to measure the effect of the interventional training.

1. Introduction :

Results:

Sub-scales of the Diabetes Attitude scale (DAS-3) showed an improvement, with a statistically significant improvement in attitude regarding seriousness of diabetes mellitus ($p=0.03$) and a trend towards improvement in attitudes regarding need for special training and patient autonomy. Most of the items on the Diabetes Practice Scale (DPS) improved significantly ($p < 0.05$).

Conclusions:

A short educational intervention resulted in an improvement in attitude, knowledge and clinical management of diabetic patients.