

University of Groningen

## Fatigue, mood disorders and sleep problems in patients with Parkinson's disease

Havlikova, Eva

**IMPORTANT NOTE: You are advised to consult the publisher's version (publisher's PDF) if you wish to cite from it. Please check the document version below.**

*Document Version*

Publisher's PDF, also known as Version of record

*Publication date:*

2008

[Link to publication in University of Groningen/UMCG research database](#)

*Citation for published version (APA):*

Havlikova, E. (2008). *Fatigue, mood disorders and sleep problems in patients with Parkinson's disease*. s.n.

### Copyright

Other than for strictly personal use, it is not permitted to download or to forward/distribute the text or part of it without the consent of the author(s) and/or copyright holder(s), unless the work is under an open content license (like Creative Commons).

The publication may also be distributed here under the terms of Article 25fa of the Dutch Copyright Act, indicated by the "Taverne" license. More information can be found on the University of Groningen website: <https://www.rug.nl/library/open-access/self-archiving-pure/taverne-amendment>.

### Take-down policy

If you believe that this document breaches copyright please contact us providing details, and we will remove access to the work immediately and investigate your claim.

Downloaded from the University of Groningen/UMCG research database (Pure): <http://www.rug.nl/research/portal>. For technical reasons the number of authors shown on this cover page is limited to 10 maximum.

**Fatigue, mood disorders and sleep problems  
in patients with Parkinson's disease**

Eva Havlíková

© E. Havlikova 2008

© Elsevier (Chapter 2 and 4)

© Blackwell Publishing (Chapter 3)

Address for correspondence:

Eva Havlikova, Department of Neurology, Medical Faculty, P.J. Safarik  
University Kosice, Trieda SNP 1, 040 11 Kosice, Slovakia,

eva.havlikova@upjs.sk, e\_havlikova@yahoo.com

This work was supported by the Slovak Research and Development Agency  
under the contract No. APVV-20-038305.

Design: Claudia Jutkova

Press: Equilibria, s.r.o.

Printed in Slovak Republic

ISBN 9789077113797

RIJKSUNIVERSITEIT GRONINGEN

**Fatigue, mood disorders and sleep problems  
in patients with Parkinson's disease**

**Proefschrift**

ter verkrijging van het doctoraat in de  
Medische Wetenschappen  
aan de Rijksuniversiteit Groningen  
op gezag van de  
Rector Magnificus, dr. F. Zwarts,  
in het openbaar te verdedigen op  
maandag 15 december 2008  
om 13.15 uur

door

Eva Havlíková

geboren op 6 mei 1975

te Košice (Slowakije)

Promotor	: Prof. dr. J.W. Groothoff	Rijksuniversiteit Groningen
Copromotores	: Dr. J.P. van Dijk	Rijksuniversiteit Groningen
	Dr. J. Rosenberger	Faculty Hospital Košice, Slovakia
	Dr. Z. Gdovinová	Šafárik University Košice, Slovakia
	Dr. L.J. Middel	Rijksuniversiteit Groningen
Beoordelingscommissie:	Prof. dr. I. Sulla	Safarik University Košice, Slovakia
	Prof. dr. J.H.A. de Keyser	Vrije Universiteit Brussel, België
	Prof. dr. K. van der Meer	Rijksuniversiteit Groningen

# Acknowledgements

I remember one day in the spring of 2002, when I was abruptly interrupted from my work in order to meet a group of Dutch scientists who were visiting our faculty with a proposal for conducting international research in the field of quality of life and Parkinson's disease. My current boss, Assoc. Prof. Zuzana Gdovinova, was in the position of vice dean of our faculty for international affairs at the time, and it was her idea that the faculty use not only the potential of graduates being appointed at our faculty for this type of research, but also that of the people working in the hospital. So I quickly ran out to meet Dr. Jitse P. van Dijk, and thus our cooperation began.

Many people contributed to this project and this thesis, and I am pleased to dedicate this work to all of them. Without their help and support, this project would have been much more complicated, if it had been realized at all.

Particular thanks go to all the patients who participated in this research. Without their contribution and cooperation this thesis would not have been possible.

From the University Medical Centre Groningen, I would like to thank in particular all the people at the Department of Social Medicine.

Dr. Jitse P. van Dijk, my copromotor. I can hardly imagine making any progress in my PhD work without his travels to Slovakia. At those times when I was not prepared for our meetings the week before his visit, I worked hard to fill in the gaps. I must also express my thanks to him for his belief in my progress.

Prof. Dr. Johan W. Groothoff, my promotor, for his support and for his stimulating remarks, suggestions and great ideas for improving the manuscript.

Dr. Berrie Middel for his methodological and statistical support, which played such an important role at the start of this project.

Special thanks goes to members of the Promotion Board, Prof. Dr. I. Šulla, Prof. Dr. J.H.A. de Keyser, who allowed me to study in residence at the Department of Neurology, UMCG, in order to improve my skills in

movement disorders and to prepare for thrombolytic therapy for stroke patients, as well as Prof. Dr. K. van der Meer, for their comments and discussion.

I would like to express my thanks to all of my colleagues from Groningen, with whom I spent my time during my study stays, especially to Dr. Willem S. Lok for his support and essential help with statistics and Dr. Truus van Ittersum-Gritter for articles retrieval.

From the P. J. Safarik University Department of Neurology I would like to thank Assoc. Prof. Zuzana Gdovinova, the head of our department, for her support and for the opportunity to participate in this international project. She is my mentor in the field of neurology, and I have also learnt much about the art of teaching from her.

My special thanks go to my research partner Tatiana Dubayova, who participated in this project as a psychologist. We had a great deal of fun in our work together.

I would like to thank all my colleagues at our department for their social and emotional support and their tolerance.

From the Faculty of Arts I would like to thank Dr. Iveta Nagyova, Dr. Andrea Madarasova Geckova and Dr. Jaroslav Rosenberger for their lessons in methodology, statistics, quality of life and public health and for their stimulating comments on the manuscripts.

I am very thankful Ivana Majerova, and Martina Sukenikova for their excellent management at the Kosice Institute for Society and Health. In addition, my thanks go to all members of KISH.

I would also like to thank Andrew J. Billingham and David L. McLean for their English language proofreading and Claudia Jutkova for her design of this book.

Last but not least, I would like to thank my family and friends for their support. Special thanks especially go to my parents and my husband Miroslav.

Eva Havlikova  
October 2008

# Contents

Titlepage	3
Acknowledgements	5
Contents	7
<b>Chapter 1</b>	
Introduction	9
<b>Chapter 2</b>	
The impact of sleep and mood disorders on quality of life in Parkinson's disease patients <i>submitted to Parkinsonism Relat Disord</i>	33
<b>Chapter 3</b>	
Impact of Fatigue on Quality of Life in Patients with Parkinson's Disease <i>Impact of Fatigue on Quality of Life in Patients with Parkinson's Disease. Havlikove E, Rosenberger J, Nagyova I, Middel B, Dubayova T, Gdovinova Z, van Dijk JP, Groothoff JW. Eur J Neurol. 2008; 15(5):475-80. doi: 10.1111/j.1468-1331.2008.02103.x</i>	49
<b>Chapter 4</b>	
Fatigue in Parkinson's disease is not related to excessive sleepiness or quality of sleep <i>Fatigue in Parkinson's disease is not related to excessive sleepiness or quality of sleep. Havlikove E, van Dijk JP, Rosenberger J, Nagyova I, Middel B, Dubayova T, Gdovinova Z, Groothoff JW. J Neurol Sci. 2008; 270(1-2):107-13. doi: 10.1016/j.jns.2008.02.013</i>	63
<b>Chapter 5</b>	
Clinical and psychosocial factors associated with fatigue in patients with Parkinson's disease <i>Clinical and psychosocial factors associated with fatigue in patients with Parkinson's disease. Havlikove E, Rosenberger J, Nagyova I, Middel B, Dubayova T, Gdovinova Z, van Dijk JP, Groothoff JW. Parkinsonism Relat Disord. 2008; 14(3):187-92. doi: 10.1016/j.parkreldis.2007.07.017</i>	79



**Chapter 6**

Fatigue in Parkinson's disease is influenced by depression  
and worse functional status 91

**Chapter 7**

Discussion, clinical implications 105

Summary 117

Sammenvatting 121

Zhrnutie 125

About the author 129

Graduate School for Health Research SHARE  
and previous dissertations 131

Kosice Institute for Society and Health (KISH)  
and previous dissertations 137