



Universiteit
Leiden
The Netherlands

The migraine triad: chronification, depression, and medication overuse

Louter, M.A.

Citation

Louter, M. A. (2018, January 30). *The migraine triad: chronification, depression, and medication overuse*. Retrieved from <https://hdl.handle.net/1887/61141>

Version: Not Applicable (or Unknown)

License: [Licence agreement concerning inclusion of doctoral thesis in the Institutional Repository of the University of Leiden](#)

Downloaded from: <https://hdl.handle.net/1887/61141>

Note: To cite this publication please use the final published version (if applicable).

Cover Page



Universiteit Leiden



The following handle holds various files of this Leiden University dissertation:

<http://hdl.handle.net/1887/61141>

Author: Louter, M.A.

Title: The migraine triad: chronification, depression, and medication overuse

Issue Date: 2018-01-30

The migraine triad: chronification, depression, and medication overuse

Mark. A. Louter

Mark Louter

The migraine triad: chronification, depression, and medication overuse
PhD thesis, Leiden University, The Netherlands, 2017

ISBN: 978-94-6332-233-1

© Mark Louter, The Netherlands, 2017

Cover design and lay-out: Pjotr Design Studio, Utrecht

Printed by: GVO drukkers & vormgevers B.V., Ede

No part of this thesis may be reproduced in any form, by print, photocopy, digital file, internet, or any other means without written permission of the copyright owner.

The research described in this thesis was supported by grants of the Netherlands Organisation for Scientific Research (NWO): [VICI 918.56.602 to M.D.F., VIDI 917.11.319 to G.M.T.]; the European Community (EC) [FP7-EUROHEADPAIN - no. 602633]; and the Centre for Medical Systems Biology (CMSB) in the framework of the Netherlands Genomics Initiative (NGI). They had no role in the design or conduct of any of the studies.

Financial support for publication of this thesis has been provided by the Nederlandse Hoofdpijn Vereniging, and was gratefully accepted.

The migraine triad: chronification, depression, and medication overuse

Proefschrift

ter verkrijging van de graad van Doctor aan de Universiteit Leiden
op gezag van de Rector Magnificus Prof. Mr. C.J.J.M. Stolker,
volgens het besluit van het College voor Promoties
te verdedigen op dinsdag 30 januari 2018
klokke 16.15 uur

door

Mark Arend Louter
Geboren te Moerkapelle
Op 24 augustus 1982

Promotores:

Prof. Dr. M.D. Ferrari

Em. Prof. Dr. F.G. Zitman

Copromotor:

Dr. G.M. Terwindt

Leden promotiecommissie:

Prof. Dr. A.M.W. Evers (Faculteit der Sociale
Wetenschappen, Universiteit Leiden)

Prof. Dr. A.M. van Hemert

Prof. Dr. R.C. van der Mast

Prof. Dr. R.A. Schoevers (Faculteit Medische
Wetenschappen, Rijksuniversiteit Groningen)

Contents

Chapter 1	General Introduction and scope of the thesis	10
1.1	<i>Migraine</i>	10
1.1.1	Migraine epidemiology and socioeconomic impact	10
1.1.2	Migraine criteria and characteristics of the migraine attack	10
1.1.3	Migraine pathophysiology	12
1.1.4	Migraine genetics	12
1.1.5	Migraine treatment	13
1.1.6	Migraine chronification	13
1.2	<i>Depression</i>	15
1.2.1	Depression epidemiology and socioeconomic impact	15
1.2.2	Depression criteria and characteristics of a depressive episode	15
1.2.3	Depression pathophysiology	17
1.2.4	Depression genetics	17
1.2.5	Depression treatment	17
1.3	<i>Migraine and depression</i>	18
1.3.1	Comorbidity	18
1.3.2	Migraine-specific comorbidities	18
1.3.3	Interpretation of comorbidity	19
1.3.4	Why study the comorbidity of migraine with depression?	19
1.3.5	What is known about migraine and depression comorbidity?	20
1.3.6	The triad of migraine chronification, depression, and medication overuse	21
1.3.7	Depression and cluster headache	21
1.4	<i>Scope of the thesis</i>	22
Chapter 2	Allodynia is associated with a higher prevalence of depression in migraine patients	30
	M.A. Louter, K.J. Wardenaar, G. Veen, W.P.J. van Oosterhout, F.G. Zitman, M.D. Ferrari, G.M. Terwindt	
	<i>Cephalalgia</i> 2014;34(14):1187-1192	

Chapter 3	Cutaneous allodynia as a predictor of migraine chronification M.A. Louter, J.E. Bosker, W.P.J. van Oosterhout, E.W. van Zwet, F.G. Zitman, M.D. Ferrari, G.M. Terwindt <i>Brain</i> 2013;136(11):3489-3496	46
Chapter 4	Prevalence of lifetime depression in a large hemiplegic migraine cohort M.A. Louter*, N. Pelzer*, I. de Boer, E.C. Kuijvenhoven, W.P.J. van Oosterhout, E.W. van Zwet, M.D. Ferrari, G.M. Terwindt <i>Neurology</i> 2016;87(22):2370-2374	68
Chapter 5	Symptom dimensions of affective disorders in migraine patients M.A. Louter*, J.A. Pijpers*, K.J. Wardenaar, E.W. van Zwet, A.M. van Hemert, F.G. Zitman, M.D. Ferrari, B.W. Penninx, G.M. Terwindt <i>Journal of Psychosomatic Research</i> 2015;79(5):458-463	82
Chapter 6	Detoxification in medication-overuse headache, a retrospective controlled follow-up study: Does care by a headache nurse lead to cure? J.A. Pijpers*, M.A. Louter*, M.E. de Bruin, E.W. van Zwet, F.G. Zitman, M.D. Ferrari, G.M. Terwindt <i>Cephalalgia</i> 2016;36(2):122-130	100
Chapter 7	Candidate gene association study searching for genetic factors involved in migraine chronification M.A. Louter*, J. Fernandez-Morales*, B. de Vries, B. Winsvold, V. Anttila, I. Fernandez-Cadenas, M. Vila-Pueyo, C. Sintas, C.M. van Duijn, B. Cormand, J. Álvarez-Sabin, J. Montaner, M.D. Ferrari, A. van den Maagdenberg, A. Palotie, J.A. Zwart, A. Macaya, G.M. Terwindt, P. Pozo-Rosich <i>Cephalalgia</i> 2015;35(6):500-507	120
Chapter 8	Cluster headache and depression M.A. Louter*, L.A. Wilbrink*, J. Haan, E.W. van Zwet, W.P.J. van Oosterhout, F.G. Zitman, M.D. Ferrari, G.M. Terwindt <i>Neurology</i> 2016;87(18):1899-1906	138

Chapter 9	Summary and general discussion	158
9.1	<i>Summary</i>	158
9.2	<i>General discussion</i>	159
9.2.1	Clinical determinants of depression in migraine patients	159
9.2.2	High migraine attack frequency is associated with depression	159
9.2.3	Genetic factors involved in migraine and depression	160
9.2.4	Cutaneous allodynia is associated with migraine chronification	160
9.2.5	Dimensions of affective disorders in migraine patients	161
9.2.6	Depression in hemiplegic migraine	162
9.2.7	Genetic factors involved in chronic migraine	163
9.2.8	Depression in cluster headache	163
9.2.9	The treatment of medication overuse headache	164
9.2.10	A critical discussion of the methodology	164
9.2.11	Clinical implications of our findings	166
Chapter 10		174
	<i>Nederlandse samenvatting</i>	174
	<i>List of publications</i>	178
	<i>Curriculum Vitae</i>	182
	<i>Dankwoord</i>	183

