

University of Groningen

## Distress and health-related quality of life in Indonesian type 2 diabetes mellitus outpatients

Arifin, Bustanul

**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:*

2018

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

*Citation for published version (APA):*

Arifin, B. (2018). *Distress and health-related quality of life in Indonesian type 2 diabetes mellitus outpatients*. [Thesis fully internal (DIV), University of Groningen]. University of Groningen.

### 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.

# **Distress and Health-related Quality of Life in Indonesian Type 2 Diabetes Mellitus Outpatients**

**BUSTANUL ARIFIN**

Paranymphs:

Muh. Akbar Bahar

Arjan Jacobus Postma

Studies presented in this thesis was funded by grants from Beasiswa Pendidikan Indonesia (BPI)/ LPDP (the Indonesian Endowment Fund for Education, Ministry of Finance of Republic of Indonesia) and from the University of Groningen, the Netherlands.

Printing of this thesis was financially supported by the University of Groningen, the Graduate School of Science (GSS) and Institute of Science in Health Aging & healthcaRE (SHARE)

Cover layout	: Bustanul Arifin
Cover design	: Natalino Mella (nat_arch@hotmail.com) & Bustanul Arifin (@ury.arifin)
Layout	:  Lovebird design. <a href="http://www.lovebird-design.com">www.lovebird-design.com</a>
Printing	: Eikon +
ISBN (printed book)	: 978-94-034-0574-2
ISBN (electronic version)	: 978-94-034-0573-5

Copyright, 2018, Bustanul Arifin

No part of this thesis may be reproduced or transmitted in any form or by any means, electronically or mechanically by photocopying, recording, or otherwise, without written permission of the author. The copy right of previously published article of this thesis remains with the publisher or journal.



university of  
 groningen

# **Distress and Health-related Quality of Life in Indonesian Type 2 Diabetes Mellitus Outpatients**

**PhD thesis**

to obtain the degree of PhD at the  
 University of Groningen  
 on the authority of the  
 Rector Magnificus Prof. E. Sterken  
 and in accordance with  
 the decision by the College of Deans.

This thesis will be defended in public on

Friday 29 June 2018 at 11.00 hours

by

**Bustanul Arifin**

born on 16 March 1983

in Luwuk, Indonesia

## **Supervisor**

Prof. dr. M. J. Postma

## **Co-supervisors**

Dr. P. F.M. Krabbe

Dr. J. Atthobari

## **Assessment committee**

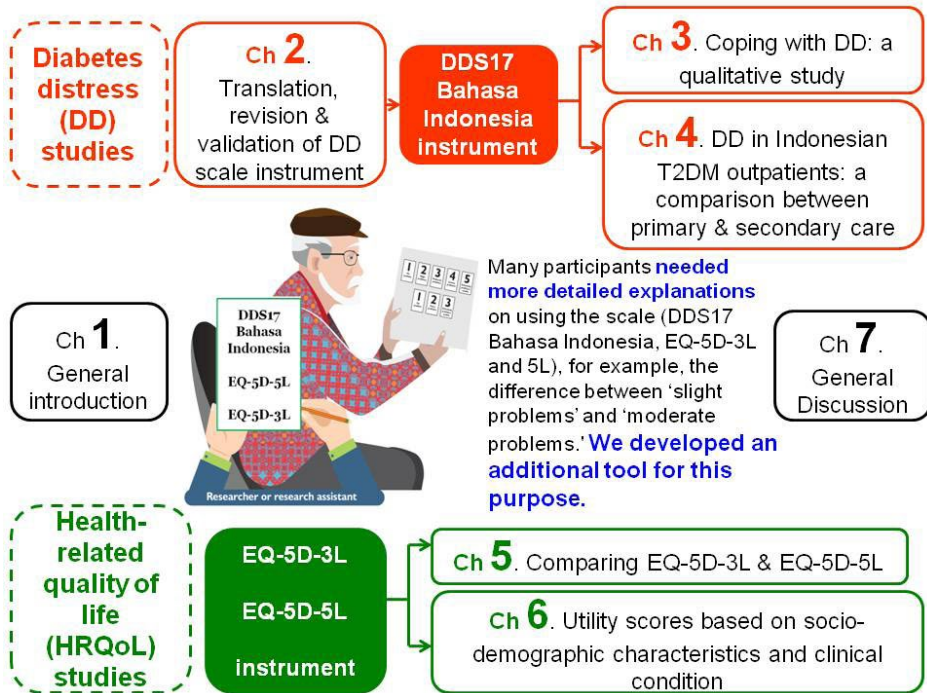
Prof. dr. B. Wilffert

Prof. dr. E. Buskens

Prof. dr. I. Dwiprahasto

*To my mother, father, and my brothers  
Ros. S. Ali, Sardjito Sarikaya,  
Moh. Fikri Maárif, & Muh. Ramlan Budikusuma  
Thank you for all your support and love.*

## MAPPING OF THIS THESIS



## TABLE OF CONTENTS

<b>Chapter 1</b>	General introduction	<b>11</b>
<b>Chapter 2</b>	Translation, revision, and validation of the diabetes distress scale for Indonesian type 2 diabetic outpatients with various types of complications	<b>23</b>
<b>Chapter 3</b>	Coping with diabetes distress by Indonesian outpatients	<b>41</b>
<b>Chapter 4</b>	Diabetes distress in Indonesian patients with type 2 diabetes: a comparison between primary and secondary care	<b>67</b>
<b>Chapter 5</b>	Comparing measurement properties of the EQ-5D 3 and 5-level versions, a study in Indonesian type 2 diabetes mellitus outpatients	<b>81</b>
<b>Chapter 6</b>	Association between patient characteristics and EQ-5D-based utility measures in Indonesian type 2 diabetes mellitus outpatients	<b>95</b>
<b>Chapter 7</b>	General discussion	<b>111</b>
	Summary	<b>119</b>
	Samenvatting	<b>121</b>
	Acknowledgement	<b>123</b>
	Poster presentation	<b>128</b>





## **ABBREVIATIONS**

3L	: EQ-5D three version
5L	: EQ-5D five version
BPJS	: Badan Penyelenggara Jaminan Sosial (Social Security Administrative Agency)
CBIA-DM	: Community-based Interactive Approach Diabetes Mellitus
CUA	: Cost-utility analysis
D-39	: Diabetes-Specific Quality of Life Diabetes Questionnaire
DD	: Diabetes Distress
DDS	: Diabetes Distress Scale
DDS17 Bahasa Indonesia	: Diabetes Distress Scale in Bahasa Indonesia version
DM	: Diabetes Mellitus
DQLCTQ	: Diabetes Quality of Life Clinical Trial Questionnaire
EuroQoL	: European Quality of Life
EQ-5D	: EuroQoL five-Dimensional
IDF	: International Diabetes Federation
FGD	: Focus Group Discussion
GP	: General Practitioner
HbA1c	: Glycated haemoglobin
HRQoL	: Health-Related Quality of Life
PHC	: Primary Healthcare Centre (Pusat Kesehatan Masyarakat/Puskesmas)
Prolanis	: Program Pengelolaan Penyakit Kronis (The chronic diseases management program)
QoL	: Quality of Life
T2DM	: Type 2 Diabetes Mellitus
WHO-5	: WHO- Wellbeing index questionnaire
WHO-BREF	: WHO- Quality of Life BREF questionnaire

