Advertisement
SPRINGER NATURE
Turn your research into a book
Submit your book idea and get matched with an editor
Learn more

Validation of the Medication Management Ability Assessment Tool (MMAA) for the Portuguese Older Adults

Conference paper | First Online: 28 March 2023
pp 412–420 | Cite this conference paper

Gerontechnology V
(IWoG 2022)

Ana Margarida Advinha, Rita de Oliveira Cachão, Ana Catarina Raposo, Miguel Domingos, Anabela Afonso, Ana Serralheiro, Manuel José Lopes & Sofia de Oliveira-Martins

Part of the book series: Lecture Notes in Bioengineering ((LNBE))
Included in the following conference series: International Workshop on Gerontechnology
393 Accesses

Access this chapter
Log in via an institution →
Subscribe and save
Springer+ from €37.37 /Month
- Starting from 10 chapters or articles per month
- Access and download chapters and articles from more than 300k books and 2,500 journals
- Cancel anytime
View plans →
Buy Now
Chapter EUR 29.95
Price includes VAT (Portugal)
- Available as PDF
- Read on any device
- Instant download
- Own it forever
Buy Chapter →
eBook EUR 188.31
Softcover Book EUR 235.39
Hardcover Book EUR 235.39
Tax calculation will be finalised at checkout
Purchases are for personal use only
Institutional subscriptions →

Sections References
Abstract
References
Acknowledgments
Author information
Editor information
Rights and permissions
Copyright information
About this paper
Publish with us

Abstract

This study aimed to validate1 the Medication Management Ability Assessment (MMAA) and determine the level of functional ability of older adults to manage a simulated therapeutic regimen, understand their main limitations when facing alterations and determine the relationship between the functional ability to manage medication and cognitive function.

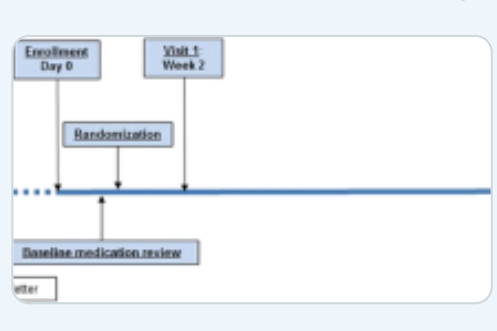
The adaptation was initiated with the translation and back-translation by four independent bilingual experts. The cultural dimension was developed through an external experts meeting, with a screening of concepts and constructs of the tool. The pilot study of MMAA-PT was run on a sample of 100 Portuguese community-dwelling elders. Three additional instruments were used to characterize the sample and to convergent analysis, the Mini-Mental State Examination (MMSE), the Clock Drawing Test (CDT), and the Instrumental Activities of Daily Living (IADL). Descriptive analysis, correlations, and convergent validity were conducted using Microsoft Office Excel (2022) and SPSS Statistics (v.27).

Of the 100 subjects, 70% were women, and the general mean age was 75.44 (±6.68) [65.00–94.00] years. The MMAA-PT mean score was 18.75 (±8.72) [0.00–33.00]. The convergent validity of the MMAA-PT was verified using the *Spearman* coefficient, with MMSE and CDT. It obtained an *r*-value of 0.44 in both correlations ($p < 0.001$), being, therefore, two significant positive correlations of moderate strength, which indicates that better scores on the MMAA-PT are associated with better cognitive function.

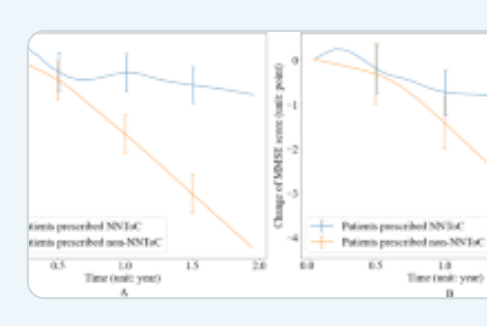
A European Portuguese version of the MMAA with acceptable convergent validity was obtained, which can be used in future research and clinical settings, namely in the medication reconciliation process.

This is a preview of subscription content, log in via an institution to check access.

Similar content being viewed by others



Optimizing medication appropriateness in older adults: a randomized clinical interventional tria...
Article Open access
23 May 2017



Personalised treatment for cognitive impairment in dementia: development and validation of an artificial...
Article Open access
01 February 2022

Key factors of the functional ability of older people to self-manage medications
Article Open access
12 November 2021

Explore related subjects
Discover the latest articles, books and news in related subjects, suggested using machine learning.
Geriatrics Performance Assessment Pharmacotherapy Psychological Assessment Psychometrics Assessment and Testing

References

1. Han, E., Sohn, H.S., Lee, J.Y., Jang, S.: Health behaviors and medication adherence in elderly patients. Am. J. Heal. Promot. **31**, 278–286 (2017)
Article Google Scholar

2. Schmitt Júnior, A.A., Lindner, S., De Santa Helena, E.T.: Assessment of adherence in elderly patients in primary care. Rev. Assoc. Med. Bras. **59**, 614–621 (2013)
Article Google Scholar

3. Beckman, A., Parker, M.G., Thorslund, M.: Can elderly people take their medicine? Patient Educ. Couns. **59**, 186–191 (2005)
Article Google Scholar

4. Beckman, A., Bernsten, C., Parker, M.G., Thorslund, M., Fastbom, J.: The difficulty of opening medicine containers in old age: a population-based study. Pharm. World Sci. **27**, 393–398 (2005)
Article Google Scholar

5. Tordoff, J., Simonsen, K., Thomson, W.M., Norris, P.T.: "It's just routine." A qualitative study of medicine-taking amongst older people in New Zealand. Pharm. World Sci. **32**, 154–61 (2010)
Google Scholar

6. Maddigan, S.L., Farris, K.B., Keating, N., Wiens, C.A., Johnson, J.A.: Predictors of older adults' capacity for medication management in a self-medication program: a retrospective chart review. J. Aging Health **15**, 332–352 (2003)
Article Google Scholar

7. Tordoff, J.M., Bagge, M.L., Gray, A.R., Campbell, A.J., Norris, P.T.: Medicine-taking practices in community-dwelling people aged ≥75 years in New Zealand. Age Ageing **39**, 574–580 (2010)
Article Google Scholar

8. Cross, A., Elliott, R., Petrie, K., Kuruvilla, L., George, J.: Interventions for improving medication-taking ability and adherence in older adults prescribed multiple medications (Review). Cochrane Database Syst. Rev. 1–227 (2020)
Google Scholar

9. Patton, D.E., Hughes, C.M., Cadogan, C.A., Ryan, C.A.: Theory-based interventions to improve medication adherence in older adults prescribed polypharmacy: a systematic review. Drugs Aging **34**, 97–113 (2017)
Article Google Scholar

10. Elliott, R.A., Marriott, J.L.: Standardised assessment of patients' capacity to manage medications: a systematic review of published instruments. BMC Geriatr. **9**, 1–10 (2009)
Article Google Scholar

11. Edelberg, H.K., Shallenberger, E., Wei, J.Y.: Medication Management capacity in highly functioning community-living older adults: detection of early deficits. J. Am. Geriatr. Soc. **47**, 592–596 (1999)
Article Google Scholar

12. Advinha, A.M., Henriques, A., Guerreiro, M.P., Nunes, C., Lopes, M.J., Oliveira-Martins, S.: Cross-cultural validation of the Drug Regimen Unassisted Grading Scale (DRUGS) to assess community-dwelling elderly's ability to manage medication. Eur. Geriatr. Med. **7**, 424–429 (2016)
Article Google Scholar

13. Patterson, T.L., Lacro, J., McKibbin, C.L., Moscona, S., Hughs, T., Jeste, D.V.: Medication management ability assessment: results from a performance-based measure in older outpatients with schizophrenia. **22**, 11–19 (2002)
Google Scholar

14. World Health Organization. Medication Without Harm-Global Patient Safety Challenge on Medication Safety. WHO 1–16 (2017)
Google Scholar

15. World Health Organization. Medication Safety in Transitions of Care. Technical Report. WHO 52 (2019)
Google Scholar

16. Mansur, N., Weiss, A., Hoffman, A., Gruenewald, T., Belooseky, Y.: Continuity and adherence to long-term drug treatment by geriatric patients after hospital discharge. A prospective cohort study. Drugs Aging **25**, 861–870 (2008)
Google Scholar

17. Arevalo-Rodriguez, I., Smailagic, N., Roqué-Figuls, M., Ciapponi, A., Sanchez-Perez, E., Giannakou, A., et al.: Mini-Mental State Examination (MMSE) for the early detection of dementia in people with mild cognitive impairment (MCI). Cochrane Database Syst. Rev. 2021 (2021)
Google Scholar

18. Sumida, C.A., Vo, T.T., Van Etten, E.J., Schmitter-Edgecombe, M.: Medication management performance and associated cognitive correlates in healthy older adults and older adults with aMCI. Arch. Clin. Neuropsychol. **34**, 290–300 (2019)
Article Google Scholar

19. Folstein, M., Folstein, S., Mchugh, P.: Mini-mental state" A practical method for grading the cognitive state of patients for the clinician. J. Psychiatr. Res. **12**, 189–198 (1975)
Article Google Scholar

20. Freedman, M., Leach, L., Kaplan, E., Winocur, G., Shulman, K.I., Delis, D.C.: Clock Drawing: A Neuropsychological Analysis. Oxford University Press, Oxford (1994)
Google Scholar

21. Tuokko, H., Hadjistavropoulos, T., Miller, J.A., Beattie, B.L.: The Clock Test: a sensitive measure to differentiate normal elderly from those with Alzheimer disease. J. Age Relat. Disord. **40**, 579–584 (1992)
Google Scholar

22. Atalaia-Silva, K.C., Lourenço, R.A.: Translation, adaptation, and construct validation of the Clock Test among elderly in Brazil. Rev Saúde Pública 1–7 (2008)
Google Scholar

23. Botelho, M.A.: Autonomia funcional em idosos - Caracterização multidimensional em idosos utentes de um centro de saúde urbano. 1–237 (1999)
Google Scholar

24. Lawton, M.P., Broody, E.M.: Assessment of older people: self-maintaining and instrumental activities of daily living. Gerontologist 179–186 (1969)
Google Scholar

25. Sousa, V.D., Rojjanasrirat, W.: Translation, adaptation and validation of instruments or scales for use in cross-cultural health care research: a clear and user-friendly guideline. J. Eval. Clin. Pract. **17**, 268–274 (2011)
Article Google Scholar

26. Streiner, D.L., Norman, G.R.: Health Measurement Scales: A Practical Guide to their Development and Use. Oxford University Press, Oxford (2008)
Book Google Scholar

27. Nunnally, J.C., Bernstein, I.H.: Psychometric Theory. McGraw-Hill, New York (1994)
Google Scholar

28. Advinha, A.M., Nunes, C., de Barros, C.T., Lopes, M.J., Oliveira-Martins, S.: Key factors of the functional ability of older people to self-manage medications. Sci. Rep. **11**, 1–9 (2021)
Article Google Scholar

29. International Pharmaceutical Federation (FIP). Medicines reconciliation: A toolkit for pharmacists. The Hague: International Pharmaceutical Federation (2021)
Google Scholar

30. Redmond, P., Grimes, T.C., McDonnell, R., Boland, F., Hughes, C., Fahey, T.: Impact of medication reconciliation for improving transitions of care. Cochrane Database Syst. Rev. 8 (2018)
Google Scholar

31. National Institute for Health and Care Excellence (NICE). Medicines optimisation: the safe and effective use of medicines to enable the best possible outcomes (2015). https://www.nice.org.uk/guidance/ng5

32. The Joint Commission. National Patient Safety Goals (2022). https://www.jointcommission.org/standards/national-patient-safety-goals/

33. Advinha, A.M., Lopes, M.J., de Oliveira-Martins, S.: Assessment of the elderly's functional ability to manage their medication: a systematic literature review. Int. J. Clin. Pharm. **39**(1), 1–15 (2016). https://doi.org/10.1007/s11096-016-0409-z
Article Google Scholar

34. Gellad, W.F., Grenard, J.L., Marcum, Z.A.: A systematic review of barriers to medication adherence in the elderly: looking beyond cost and regimen complexity. Am. J. Geriatr. Pharmacother. **9**, 11–23 (2011)
Article Google Scholar

Download references

Acknowledgments

Special acknowledgments are given to Professor Carla Teixeira de Barros (University of Lisbon, Faculty of Pharmacy), Professor Adriana Henriques (University of Lisbon, School of Nursing), and Professor Mara Pereira Guerreiro (Instituto Superior de Ciências da Saúde Egas Moniz. *In memoriam* to Professor Carla Nunes (National School of Public Health, NOVA Lisboa).

Author information

Authors and Affiliations

CHRC- Comprehensive Health Research Centre, University of Evora, Évora, Portugal
Ana Margarida Advinha, Manuel José Lopes & Sofia de Oliveira-Martins

Department of Health and Medical Sciences, School of Health and Human Development, University of Evora, Évora, Portugal
Ana Margarida Advinha

Pharmacy "Liz", Alfarim, Portugal
Rita de Oliveira Cachão

Department of Chemistry and Pharmacy, Faculty of Sciences and Technology, University of Algarve, Faro, Portugal
Ana Catarina Raposo & Ana Serralheiro

Pharmacy "Progresso", Olhão, Portugal
Miguel Domingos

CIMA – Centro de Investigação em Matemática e Aplicações, University of Evora, Évora, Portugal
Anabela Afonso

Department of Mathematics, School of Science and Technology, University of Evora, Évora, Portugal
Anabela Afonso

Centre of Marine Sciences (CCMAR), University of Algarve, Faro, Portugal
Ana Serralheiro

Department of Nursing, School of Nursing, University of Evora, Évora, Portugal
Manuel José Lopes

Department of Pharmacy, Pharmacology and Health Technology, Faculty of Pharmacy, University of Lisbon, Lisbon, Portugal
Sofia de Oliveira-Martins

Corresponding author

Correspondence to Ana Margarida Advinha .

Editor information

Editors and Affiliations

University of Extremadura, Cáceres, Spain
Enrique Moguel

University of Évora, Évora, Portugal
Lara Guedes de Pinho

University of Évora, Évora, Portugal
César Fonseca

Rights and permissions

Reprints and permissions

Copyright information

© 2023 The Author(s), under exclusive license to Springer Nature Switzerland AG

About this paper

Check for updates

Cite this paper

Advinha, A.M. *et al.* (2023). Validation of the Medication Management Ability Assessment Tool (MMAA) for the Portuguese Older Adults. In: Moguel, E., de Pinho, L.G., Fonseca, C. (eds) Gerontechnology V. IWoG 2022. Lecture Notes in Bioengineering. Springer, Cham. https://doi.org/10.1007/978-3-031-29067-1_39

Download citation
.RIS .ENW .BIB

DOI
https://doi.org/10.1007/978-3-031-29067-1_39

Published
28 March 2023

Publisher Name
Springer, Cham

Print ISBN
978-3-031-29066-4

Online ISBN
978-3-031-29067-1

eBook Packages
Medicine
Medicine (R0)
Springer Nature Proceedings excluding Computer Science

Keywords

Functional ability Medication management Medication reconciliation MMAA-PT Older adults

Publish with us

Policies and ethics

Discover content
Journals A-Z
Books A-Z

Publish with us
Journal finder
Publish your research
Language editing
Open access publishing

Products and services
Our products
Librarians
Societies
Partners and advertisers

Our brands
Springer
Nature Portfolio
BMC
Palgrave Macmillan
Apress
Discover

Your privacy choices/Manage cookies Your US state privacy rights Accessibility statement Terms and conditions Privacy policy Help and support
Legal notice Cancel contracts here

104.28.87.88
Not affiliated

SPRINGER NATURE
© 2026 Springer Nature