**Multimorbidity Literature Search Results:**

**July to December 2024**

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# Epidemiology of multimorbidity: Predictors and Patterns

1. Agrawal R, Sinha A, Murmu J, Kanungo S, Pati S. Understanding the association of disability with multimorbidity, and healthcare utilization in India's older adult population: insights from cross-sectional evidence of SAGE-2. Front Public Health. 2024;12:1435315.

2. Aguiar RG, Simões D, Castro SS, Goldbaum M, Cesar CLG, Lucas R. Multimorbidity patterns and associated factors in a megacity: a cross-sectional study. Rev Saude Publica. 2024;58:26.

3. Alves CCP, Costa VVD, Costa CO, Santos BLD, Barbosa-Junior F, Meiners M, et al. Multimorbidity in the elderly of an educational program in Brazilian capital: A cross-sectional study. Medicine (Baltimore). 2024;103(46):e40493.

4. An C, Chen H, Cheng Y, Zhang Z, Yuan C, Xu X. Socioeconomic inequality in the multimorbidity trajectories of middle-aged and older adults in China: A prospective cohort study. Maturitas. 2025;192:108160.

5. Andreeva VA, Arnault N, Chambaron S, Samieri C, Brindisi MC, Duquenne P, et al. Mental Multimorbidity Among General-Population Adults: Sex-Specific Sociodemographic Profiles of Anxiety, Insomnia, and Eating Disorders. Int J Public Health. 2024;69:1607546.

6. Barbosa KL, Borges ACR, Oliveira K, Borges VS, Santos JLF, Bof de Andrade F. Multimorbidity patterns and socioeconomic conditions: Association with functional limitations in older adults. Geriatr Nurs. 2024;60:664-70.

7. Bazo-Alvarez JC, Del Castillo D, Piza L, Bernabé-Ortiz A, Carrillo-Larco RM, Smeeth L, et al. Multimorbidity patterns, sociodemographic characteristics, and mortality: Data science insights from low-resource settings. Am J Epidemiol. 2024.

8. Bhatia T, Cullum A. Improving diets and multimorbidity prevention. Proc Nutr Soc. 2024:1-8.

9. Blanchet C, Peralta M, de Maio Nascimento M, Gouveia É R, Ferrari G, Ribeiro TD, et al. Grip strength buffers the harmful association between multimorbidity and depression among middle-aged and older adults. Arch Gerontol Geriatr. 2024;122:105391.

10. Butler T, Davey MG, Kerin MJ. Molecular Morbidity Score-Can MicroRNAs Assess the Burden of Disease? Int J Mol Sci. 2024;25(15).

11. Chauhan A, Linares-Jimenez FG, Dash GC, de Zeeuw J, Kumawat A, Mahapatra P, et al. Unravelling the role of health literacy among individuals with multimorbidity: a systematic review and meta-analysis. BMJ Open. 2024;14(12):e073181.

12. Chen F, Yang Y, Yu L, Song L, Zhang J, Wang X, et al. Lifestyle, air pollution, and risk of multimorbidity in a prospective analysis of the UK Biobank cohort. Heliyon. 2024;10(15):e35768.

13. Chen YL, You J, Guo Y, Zhang Y, Yao BR, Wang JJ, et al. Identifying proteins and pathways associated with multimorbidity in 53,026 adults. Metabolism. 2024;164:156126.

14. Chilman N, Schofield P, McManus S, Ronaldson A, Stagg A, Das-Munshi J. The public health significance of prior homelessness: findings on multimorbidity and mental health from a nationally representative survey. Epidemiol Psychiatr Sci. 2024;33:e63.

15. Conderino S, Dodson J, Meng Y, Weiner MG, Rabin C, Jacobs W, et al. Descriptive Epidemiology of New York City Older Adult Patients With Multiple Chronic Conditions. Prev Chronic Dis. 2024;21:E56.

16. Dai W, Xu W, Zhou J, Liu S, Zhou Q. Individual and joint exposure to air pollutants and patterns of multiple chronic conditions. Sci Rep. 2024;14(1):22733.

17. Damor N, Makwana N, Kagathara N, Yogesh M, Damor R, Murmu AA. Prevalence and predictors of multimorbidity in older adults, a community-based cross-sectional study. J Family Med Prim Care. 2024;13(7):2676-82.

18. Du Y, de Bock GH, Vonk JM, Pham AT, van der Ende MY, Snieder H, et al. Lifestyle factors and incident multimorbidity related to chronic disease: a population-based cohort study. Eur J Ageing. 2024;21(1):37.

19. Fan B, Ren K, Li L. Propensity score matching analysis of the association between physical activity and multimorbidity in middle-aged and elderly Chinese. Sci Rep. 2024;14(1):31166.

20. Fei Z, Qian Y, Tu Y, Wu C. Association between frailty and physical-psychological multimorbidity in middle-aged and elderly Chinese adults: a longitudinal study in Chinese middle-aged and older adults. BMC Psychiatry. 2024;24(1):935.

21. Feng X, Sarma H, Seubsman SA, Sleigh A, Kelly M. Impact of age and gender differences in the prevalence and patterns of multimorbidity in the Thai Cohort Study. Int Health. 2024;16(4):454-62.

22. Feter N, Delpino FM, Reichert FF, Caputo EL, Rombaldi AJ, Huckembeck C, et al. Gender-dependent effect of physical activity on the risk of incident multimorbidity during the COVID-19 pandemic: Findings from the PAMPA cohort, Brazil. Public Health. 2024;237:449-55.

23. Freilich CD, Markon KE, Mann FD, Cole SW, Krueger RF. Associations Between Loneliness, Epigenetic Aging, and Multimorbidity Through Older Adulthood. J Gerontol B Psychol Sci Soc Sci. 2024;79(12).

24. Gao J, Mendes de Leon CF, Zhang B, Weuve J, Langa KM, D'Souza J, et al. Long-term air pollution exposure and incident physical disability in older US adults: a cohort study. Lancet Healthy Longev. 2024;5(10):100629.

25. Ghosh A, Mukhopadhyay S, Mukhopadhyay B. An investigation on the prevalence and patterns of multi-morbidity among a group of slum-dwelling older women of Kolkata, India. BMC Geriatr. 2024;24(1):624.

26. Hajek A, Gyasi RM, Kostev K, Soysal P, Veronese N, Smith L, et al. Multimorbidity clusters and their contribution to well-being among the oldest old: Results based on a nationally representative sample in Germany. Arch Gerontol Geriatr. 2025;130:105726.

27. Halder P, Kansal S, Chadhar K, Seth A, Das S, Pal S, et al. How the development of chronic morbidity and multimorbidity depends on natural age of menopause: Results from nationally representative cross-sectional Indian study. J Family Med Prim Care. 2024;13(12):5527-35.

28. Han S, Li S, Yang Y, Liu L, Ma L, Leng Z, et al. Mapping multimorbidity progression among 190 diseases. Commun Med (Lond). 2024;4(1):139.

29. He Y, Huang Y, Li R, Zhang M, Zhu M, Wang F. Switching indoor fuels and the incidence of physical-psychological-cognitive multimorbidity: A prospective cohort study. Ecotoxicol Environ Saf. 2024;282:116719.

30. Hu X, Li S, Wei Z, Wu D, Meng L, Li J, et al. Prevalence and pattern of multimorbidity in China: a cross-sectional study of 224,142 adults over 60 years old. Front Public Health. 2024;12:1349418.

31. Hunyadi JV, Zhang K, Xiao Q, Strong LL, Bauer C. Spatial and Temporal Patterns of Chronic Disease Burden in the U.S., 2018-2021. Am J Prev Med. 2025;68(1):107-15.

32. Joy S, Sreedevi A, Bhaskaran R. Non-communicable diseases related multimorbidity, catastrophic health expenditure, and associated factors in Ernakulam district. Front Public Health. 2024;12:1448343.

33. Kamper RS, Nygaard H, Schultz M, Hansen SK, Hansen P, Ekmann A, et al. Profile of the acutely admitted geriatric patient. Dan Med J. 2024;71(9).

34. Krauth SJ, Steell L, Ahmed S, McIntosh E, Dibben GO, Hanlon P, et al. Association of latent class analysis-derived multimorbidity clusters with adverse health outcomes in patients with multiple long-term conditions: comparative results across three UK cohorts. EClinicalMedicine. 2024;74:102703.

35. Li X, Dreisbach C, Gustafson CM, Murali KP, Koleck TA. Estimated prevalence of multiple chronic conditions throughout adulthood using data from the All of Us Research Program. medRxiv. 2024.

36. Li Y, Wu B, Fan B, Lv J, Li C, Su C, et al. Association between household solid fuel usage and trajectories of multimorbidity among middle-aged and older adults: a nationwide population-based cohort study. Front Public Health. 2024;12:1446688.

37. Liang X, Mounier N, Apfel N, Khalid S, Frayling TM, Bowden J. Using clustering of genetic variants in Mendelian randomization to interrogate the causal pathways underlying multimorbidity from a common risk factor. Genet Epidemiol. 2025;49(1):e22582.

38. Lin WQ, Luo LY, Li YH, Sun MY, Zhou Q, Yang YO, et al. Trends in prevalence of multimorbidity for chronic diseases in China: serial cross-sectional surveys from 2009 to 2018. J Nutr Health Aging. 2024;28(8):100260.

39. Litt JS, Belfort MB, Everson TM, Haneuse S, Tiemeier H. Neonatal multimorbidity and the phenotype of premature aging in preterm infants. Pediatr Res. 2024.

40. Liu Y, Dai W, Yang Y, Ning X, Huang Y, Luo Y, et al. Adverse childhood experiences and multimorbidity among middle-aged and older adults: Evidence from China. Child Abuse Negl. 2024;158:107100.

41. Loyd C, Picken L, Sanders R, Zhang Y, Kennedy RE, Brown CJ. Changes in multimorbidity among hospitalized adults in the US. J Multimorb Comorb. 2024;14:26335565241283436.

42. Mira R, Newton JT, Sabbah W. The Longitudinal Relationship between Edentulism and the Progress of Multimorbidity. Nutrients. 2024;16(14).

43. Moustakas A, Thomson LJM, Mughal R, Chatterjee HJ. Effects of Community Assets on Major Health Conditions in England: A Data Analytic Approach. Healthcare (Basel). 2024;12(16).

44. Nuermaimaiti Q, Heizhati M, Luo Q, Li N, Gan L, Yao L, et al. The Cross-Sectional Association Between Multimorbidity and Sleep Quality and Duration Among the Elderly Community Dwellers in Northwest China. Nat Sci Sleep. 2024;16:2217-30.

45. Pan C, Yu L, Cao N. Reciprocal Relations of Social Isolation and Multimorbidity in Chinese Elderly. Am J Prev Med. 2025;68(1):91-7.

46. Patel S, Speechley M, Nicholson K, Espin-Garcia O, Reid GJ, Stranges S. Cross-sectional and prospective associations between sleep health and multimorbidity in middle to older-aged adults: Results from the Canadian Longitudinal Study on Aging (CLSA). Sleep Med. 2024;124:236-43.

47. Pereira-Payo D, Pastor-Cisneros R, Mendoza-Muñoz M, Carrasco-Marcelo L. Associations Among Reduced Income, Unhealthy Habits, the Prevalence of Non-Communicable Diseases, and Multimorbidity in Middle-Aged and Older US Adults: A Cross-Sectional Study. Healthcare (Basel). 2024;12(23).

48. Piacenza F, Di Rosa M, Soraci L, Montesanto A, Corsonello A, Cherubini A, et al. Interactions between patterns of multimorbidity and functional status among hospitalized older patients: a novel approach using cluster analysis and association rule mining. J Transl Med. 2024;22(1):669.

49. Rajovic N, Grubor N, Cirkovic A, Maheswaran R, Bath PA, Green D, et al. Insights into relationship of environmental inequalities and multimorbidity: a population-based study. Environ Health. 2024;23(1):99.

50. Reaume SV, Dubin JA, Perlman C, Ferro MA. An Epidemiological Study of Physical-Mental Multimorbidity in Youth: Une étude épidémiologique de la morbidité physique-mentale chez les jeunes. Can J Psychiatry. 2024;69(10):749-58.

51. Ribe E, Cezard GI, Marshall A, Keenan K. Younger but sicker? Cohort trends in disease accumulation among middle-aged and older adults in Scotland using health-linked data from the Scottish Longitudinal Study. Eur J Public Health. 2024;34(4):696-703.

52. Roberson PNE, Woods S, Tasman J, Hiefner A. Relationship quality and educational attainment links to development of cardiometabolic morbidity and multimorbidity across middle adulthood. Fam Process. 2024.

53. Robert B, Bonjour M, Grosgogeat B, Gritsch K. Multimorbidity Patterns and Periodontal Diseases in a French Hospital-Based Dental School: A Retrospective Cross-Sectional Study. J Clin Med. 2024;13(22).

54. Saavedra-Moreno C, Hurtado R, Velasco N, Ramírez A. Identification of population multimorbidity patterns in 3.9 million patients from Bogota in 2018. Glob Epidemiol. 2024;8:100171.

55. Santhosh R, Kakade SV, Durgawale PM. Determinants of multimorbidity among elderly population in maharashtra, India: Logistic regression analysis. J Educ Health Promot. 2024;13:270.

56. Senaratne DNS, Thakkar B, Smith BH, Hales TG, Marryat L, Colvin LA. The impact of adverse childhood experiences on multimorbidity: a systematic review and meta-analysis. BMC Med. 2024;22(1):315.

57. Shahunja KM, Ushula TW, Hussain MA, Pati S, Mamun AA. Multimorbidity among the Indigenous population: A systematic review and meta-analysis. Ann Epidemiol. 2024;98:8-17.

58. Shan J, Yin R, Panuthai S. Body mass index and multimorbidity risk: A systematic review and dose-response meta-analysis. Arch Gerontol Geriatr. 2024;123:105418.

59. Sinha A, Suman SS, Subedi N, Sahoo KC, Poudel M, Chauhan A, et al. Epidemiology of multimorbidity in Nepal: A systematic review and meta-analysis. J Multimorb Comorb. 2024;14:26335565241284022.

60. Son YJ, Lee YM, Kim DY, Kim EJ, Ahn JA. Prevalence and Risk Factors of Self-Reported Sarcopenia and Its Association With Multimorbidity in Community-Dwelling Older Adults: A Cross-Sectional Study. Nurs Health Sci. 2024;26(4):e13190.

61. Stannard S, Berrington A, Fraser SDS, Paranjothy S, Hoyle RB, Owen RK, et al. Mapping domains of early life determinants of future multimorbidity across three UK longitudinal cohort studies. Sci Rep. 2024;14(1):21454.

62. Suntjens AF, Leontjevas R, van den Brink AMA, Voshaar RCO, Koopmans R, Gerritsen DL. Personality assessment in nursing home residents with mental and physical multimorbidity: two informant perspectives. Int Psychogeriatr. 2024;36(12):1219-31.

63. Valenzuela S, Peak KD, Huguet N, Marino M, Schmidt TD, Voss R, et al. Social Deprivation and Multimorbidity Among Community-Based Health Center Patients in the United States. Prev Chronic Dis. 2024;21:E75.

64. Vega-Cabello V, Al Hinai M, Yévenes-Briones H, Caballero FF, Lopez-García E, Baylin A. Plant-Based Diets and Risk of Multimorbidity: The Health and Retirement Study. J Nutr. 2024;154(7):2264-72.

65. Volarić N, Šojat D, Volarić M, Včev I, Keškić T, Majnarić LT. The gender and age perspectives of allostatic load. Front Med (Lausanne). 2024;11:1502940.

66. Wagner C, Jackisch J, Ortega N, Chiolero A, Cullati S, Carmeli C. Educational inequalities in multimorbidity at older ages: a multi-generational population-based study. Eur J Public Health. 2024;34(4):704-9.

67. Wang H, Sun X, Wang Z, Liu H, Huang J, Tang Y, et al. The association between maternal smoking during pregnancy and multimorbidity of non-communicable chronic diseases trajectory in offspring. BMC Public Health. 2024;24(1):3282.

68. Wang S, Chen Y, Xiong L, Jin N, Zhao P, Liang Z, et al. Multimorbidity measures associated with cognitive function among community-dwelling older Chinese adults. Alzheimers Dement. 2024;20(9):6221-31.

69. Westergaard D, Jørgensen FH, Waaben J, Jung AW, Lademann M, Hansen TF, et al. Uncovering the heritable components of multimorbidities and disease trajectories using a nationwide cohort. Nat Commun. 2024;15(1):7457.

70. Xu Y, Yan M, Fu C, Xu W, Liu Y, Li Y. Complex patterns and determinants of regional multiple chronic conditions across the United States. PNAS Nexus. 2024;3(12):pgae513.

71. Ye X, Liang M, Chen Z, Jiang X, Xie M, Xie X, et al. Association between healthy lifestyle on life course and multimorbidity in adults: results from two national prospective cohort studies. BMC Public Health. 2024;24(1):2942.

72. Yogesh M, Makwana N, Trivedi N, Damor N. Multimorbidity, health Literacy, and quality of life among older adults in an urban slum in India: a community-based cross-sectional study. BMC Public Health. 2024;24(1):1833.

73. Zheng C, MacRae C, Rowley-Abel L, Arakelyan S, Abubakar E, Dibben C, et al. The impact of place on multimorbidity: A systematic scoping review. Soc Sci Med. 2024;361:117379.

74. Zhou Y, Kivimäki M, Yan LL, Carrillo-Larco RM, Zhang Y, Cheng Y, et al. Associations between socioeconomic inequalities and progression to psychological and cognitive multimorbidities after onset of a physical condition: a multicohort study. EClinicalMedicine. 2024;74:102739.

# Epidemiology of multimorbidity: Outcomes

1. Adzrago D, Williams DR, Williams F. Multiple chronic diseases and psychological distress among adults in the United States: the intersectionality of chronic diseases, race/ethnicity, immigration, sex, and insurance coverage. Soc Psychiatry Psychiatr Epidemiol. 2024.

2. Akagi T, Saijo Y, Yoshioka E, Sato Y, Nakanishi K, Kato Y, et al. Association between maternal multimorbidity and neurodevelopment of offspring: a prospective birth cohort study from the Japan Environment and Children's Study. BMJ Open. 2024;14(8):e082585.

3. Alenazi AM, Alhwoaimel NA, Alqahtani BA, Alshehri MM, Alhowimel AS, Khunti K. Prevalence of multiple long-term chronic conditions and associated disabilities among community-dwelling adults in Riyadh. Front Public Health. 2024;12:1275124.

4. Anindya K, Zhao Y, Hoang T, Lee JT, Juvekar S, Krishnan A, et al. Interrelationships between physical multimorbidity, depressive symptoms and cognitive function among older adults in China, India and Indonesia: A four-way decomposition analysis. Arch Gerontol Geriatr. 2024;122:105386.

5. Arias-Fernández L, Caballero FF, Yévenes-Briones H, Rodríguez-Artalejo F, Lopez-Garcia E, Lana A. Association between Multimorbidity and Risk of Falls and Fear of Falling among Older Adults: The Mediation Effect of Physical Function, Use of Sleeping Pills, and Pain Relievers. J Am Med Dir Assoc. 2024;25(10):105201.

6. Axon DR, Eckert B. Association of Number of Comorbid Conditions and Pain among United States Adults. Diseases. 2024;12(7).

7. Batty JA, Smith L, Hall M. Impact of multiple long term conditions on hospital admission and mortality during winter: importance of linked, population scale healthcare data. BMJ Med. 2024;3(1):e001114.

8. Benny D, Giacobini M, Catalano A, Costa G, Gnavi R, Ricceri F. A Multimorbidity Analysis of Hospitalized Patients With COVID-19 in Northwest Italy: Longitudinal Study Using Evolutionary Machine Learning and Health Administrative Data. JMIR Public Health Surveill. 2024;10:e52353.

9. Beridze G, Dai L, Carrero JJ, Marengoni A, Vetrano DL, Calderón-Larrañaga A. Associations between multimorbidity and kidney function decline in old age: A population-based cohort study. J Am Geriatr Soc. 2024.

10. Bishop NJ, Nagel C, Quiñones AR. Exploring Perceived Limitations to Daily Activities Due to Chronic Conditions: A Person-Centered Approach to Measuring Multimorbidity Severity. J Gerontol A Biol Sci Med Sci. 2024;79(12).

11. Blayney MC, Reed MJ, Masterson JA, Anand A, Bouamrane MM, Fleuriot J, et al. Multimorbidity and adverse outcomes following emergency department attendance: population based cohort study. BMJ Med. 2024;3(1):e000731.

12. Campbell F, McGregor S, Marryat L, Stewart R, Clarkson J, Cassie H. The influence of maternal long term health conditions including multimorbidity on child oral health: A scoping review and evidence gap map protocol. Wellcome Open Res. 2024;9:299.

13. Catalano A, Sacerdote C, Alvich M, Macciotta A, Milani L, Destefanis C, et al. Multimorbidity and COVID-19 Outcomes in the Emergency Department: Is the Association Mediated by the Severity of the Condition at Admission? J Clin Med. 2024;13(23).

14. Chalitsios CV, Santoso C, Nartey Y, Khan N, Simpson G, Islam N, et al. Trajectories in long-term condition accumulation and mortality in older adults: a group-based trajectory modelling approach using the English Longitudinal Study of Ageing. BMJ Open. 2024;14(7):e074902.

15. Chao G, Zhang L, Zhan Z, Bao Y. Effect of multimorbidity on depressive status in older Chinese adults: evidence from the China Health and Retirement Longitudinal Study (CHARLS). BMJ Open. 2024;14(8):e081776.

16. Chen Y, Liu L, Yang X, Wan W, Liu Y, Zhang X. Correlation between malnutrition and mortality in older patients aged ≥90 years with multimorbidity. Geriatr Nurs. 2024;59:321-9.

17. Cook WK, Li L, Martinez P, Kerr WC. When the Going Gets Tough: Multimorbidity and Heavy and Binge Drinking Among Adults. Am J Prev Med. 2024;67(3):407-16.

18. Dooley EE, Bowling CB, Hornikel B, Chen B, Badon SE, Lewis CE, et al. Multimorbidity Trajectories From Early to Middle Adulthood and Physical Activity. Am J Prev Med. 2024.

19. Dorr DA, Markwardt S, Bobo M, Allore HG, Botoseneanu A, Newsom JT, et al. The extent and burden of high multimorbidity on older adults in the US: a descriptive analysis of Medicare beneficiaries. BMC Geriatr. 2024;24(1):777.

20. Du M, Liu M, Liu J. Effects of physical and psychological multimorbidity on the risk of dementia: multinational prospective cohorts and a meta-analysis. BMC Med. 2024;22(1):423.

21. Engels LWS, van Merode T, Heijmans M, Menting J, Duncan P, Rademakers J. Measurement of treatment burden in patients with multimorbidity in the Netherlands: translation and validation of the Multimorbidity Treatment Burden Questionnaire (NL-MTBQ). Fam Pract. 2024;41(6):901-8.

22. Fernandes B, Spezani MMT, Bosco LC, Souza B, Viviani GH, Cunha L, et al. Chronic noncommunicable diseases and absenteeism from work: National Survey of Health, 2019. Rev Bras Epidemiol. 2024;27:e240061.

23. Foy AJ, Schaefer EW, Ruzieh M, Nudy M, Ali O, Chinchilli VM, et al. Re-Analyses of 8 Historical Trials in Cardiovascular Medicine Assessing Multimorbidity Burden and Its Association with Treatment Response. Am J Med. 2024;137(7):608-16.e3.

24. Ge H, Dong S, Su W, Guan W, Yu Q, Liu Y, et al. Relationship between social participation and depressive symptoms in patients with multimorbidity: the chained mediating role of cognitive function and activities of daily living. BMC Public Health. 2024;24(1):1844.

25. Ginggeaw S, LeBlanc R, Chung J. Social Determinants of Quality of Life in the Last Year of Life Among Community-Dwelling Older Adults with Multimorbidity. Clin Nurs Res. 2024:10547738241304575.

26. Grob CA, Angehrn LW, Kaufmann M, Hahnloser D, Winiker M, Erb TO, et al. The number of comorbidities as an important cofactor to ASA class in predicting postoperative outcome: An international multicentre cohort study. Acta Anaesthesiol Scand. 2024;68(10):1347-58.

27. Gustafsson LK, Bondesson A, Pettersson T, Östlund G. Successful ability to stay at home - an interview study exploring multiple diagnosed older persons and their relatives' experiences. BMC Geriatr. 2024;24(1):872.

28. Habtemichael M, Molla M, Tassew B. Catastrophic out-of-pocket payments related to non-communicable disease multimorbidity and associated factors, evidence from a public referral hospital in Addis Ababa Ethiopia. BMC Health Serv Res. 2024;24(1):896.

29. Handajani YS, Schroeder-Butterfill E, Hogervorst E, Turana Y, Hengky A. Multimorbidity and Depression Increase Prevalence of Frailty of Community-dwelling Indonesian Older Adults: Indonesia Care Networks Study. Int J Prev Med. 2024;15:69.

30. He L, Lin S, Yang J, Fang Y. Associations between multimorbidity patterns and sarcopenia transitions in Chinese older adults. Geriatr Gerontol Int. 2024;24(11):1137-43.

31. Holland E, Matthews K, Macdonald S, Ashworth M, Laidlaw L, Cheung KSY, et al. The impact of living with multiple long-term conditions (multimorbidity) on everyday life - a qualitative evidence synthesis. BMC Public Health. 2024;24(1):3446.

32. Hong SN, Lai FTT, Wang B, Choi EPH, Wong ICK, Lam CLK, et al. Age-specific Multimorbidity Patterns and Burden on All-Cause Mortality and Public Direct Medical Expenditure: A Retrospective Cohort Study. J Epidemiol Glob Health. 2024;14(3):1077-88.

33. Hu HY, Hu MY, Feng H, Cui PP. Association between chronic conditions, multimorbidity, and dependence levels in Chinese community-dwelling older adults with functional dependence: a cross-sectional study in south-central China. Front Public Health. 2024;12:1419480.

34. Islam N, Shabnam S, Khan N, Gillies C, Zaccardi F, Banerjee A, et al. Combinations of multiple long term conditions and risk of hospital admission or death during winter 2021-22 in England: population based cohort study. BMJ Med. 2024;3(1):e001016.

35. Jafari-Koulaee A, Mohammadi E, Fox MT, Rasekhi A, Akha O. The Relationships Between Activities of Daily Living, Depression, and Quality of Life in Older Adults with Multiple Chronic Conditions: A Path Analysis. Clin Gerontol. 2024:1-12.

36. Jia Z, Niu Z, Wang JJ, Hernandez J, Li YT, Wang HHX. Trajectories of Treatment Burden Among Primary Care Patients with Long-Term Conditions in Southern China: A Latent Class Growth Analysis. Risk Manag Healthc Policy. 2024;17:2009-21.

37. Jørgensen LB, Mortensen SR, Tang LH, Grøntved A, Brønd JC, Jepsen R, et al. Associations between number and type of conditions and physical activity levels in adults with multimorbidity - a cross-sectional study from the Danish Lolland-Falster health study. J Multimorb Comorb. 2024;14:26335565241307614.

38. Ju C, Liu H, Gong Y, Guo M, Ge Y, Liu Y, et al. Changes in patterns of multimorbidity and associated with medical costs among Chinese middle-aged and older adults from 2013 to 2023: an analysis of repeated cross-sectional surveys in Xiangyang, China. Front Public Health. 2024;12:1403196.

39. Kato D, Kawachi I, Saito J, Kondo N. Complex Multimorbidity and Trajectories of Functional Disabilities in the Last Three Years of Life: A Prospective Cohort Study of Older Adults in Japan. J Appl Gerontol. 2024:7334648241303256.

40. Lakra K, Pandey M, Meher S, Panda BK, Meher RK, Panigrahi D, et al. Economic Burden of Multimorbidity and Polypharmacy Among Geriatric Patients: A Single-Center Experience From Odisha, India. Cureus. 2024;16(11):e74752.

41. Lam A, Keenan K, Cézard G, Kulu H, Myrskylä M. Inequalities in Disability-Free and Disabling Multimorbid Life Expectancy in Costa Rica, Mexico, and the United States. J Gerontol B Psychol Sci Soc Sci. 2024;79(8).

42. Lapi F, Marconi E, Aprile PL, Magni A, Vetrano DL, Rossi A, et al. Frailty, comorbidity, and multimorbidity and their relation with medications adherence in primary care older adults. Eur Geriatr Med. 2024.

43. Liang X, Wei H, Mo H, Yang G, Wan L, Dong H, et al. Impacts of chronic diseases and multimorbidity on health-related quality of life among community-dwelling elderly individuals in economically developed China: evidence from cross-sectional survey across three urban centers. Health Qual Life Outcomes. 2024;22(1):91.

44. Limo L, Nicholson K, Stranges S, Gomaa N. Suboptimal Oral Health, Multimorbidity, and Access to Dental Care. JDR Clin Trans Res. 2024;9(1\_suppl):13s-22s.

45. Liu Y, Huang L, Hu F, Zhang X. Investigating Frailty, Polypharmacy, Malnutrition, Chronic Conditions, and Quality of Life in Older Adults: Large Population-Based Study. JMIR Public Health Surveill. 2024;10:e50617.

46. Londoño Pereira M, Estrada Restrepo A, Preciado Tamayo Á M, Botero Bernal M, Germán Borda M. Associations between nutritional status and abdominal adiposity with cognitive domains and depressive symptoms in older persons with multimorbidity: Understanding an understudied population. Rev Esp Geriatr Gerontol. 2024;60(1):101558.

47. López-Novis I, Marques-Sule E, Deka P, Dobarrio-Sanz I, Klompstra L, Hernández-Padilla JM. Exploring physical activity experiences of community-dwelling oldest-old adults with chronic multimorbidity: A qualitative study. J Adv Nurs. 2024.

48. Lorino A, Talero Cabrejo P, Coppola S. Occupational Experiences of Medication Management Among Adults Living With Multiple Chronic Conditions. OTJR (Thorofare N J). 2024;44(3):414-26.

49. Lu J, Li Y, Cao L, Zhao H. Effect of Multimorbidity on Old-Age Disability Among Adults Over 50 Years Old: Evidence From a Meta-Analysis. Public Health Nurs. 2025;42(1):524-34.

50. Ma L, Li Y, Li G, Sun J, Zhang X, Shi Z, et al. Adiposity indicators exhibit depot- and sex-specific associations with multimorbidity onset: A cohort study of the UK Biobank. Diabetes Obes Metab. 2024;26(7):2890-904.

51. McMenamin A, Turi E, Dixon J, Liu J, Martsolf G, Poghosyan L. Acute Care Use Among Patients With Multiple Chronic Conditions Receiving Care From Nurse Practitioner Practices in Health Professional Shortage Areas. Nurs Res. 2024;73(5):E212-e20.

52. Nie XY, Dong XX, Lu H, Li DL, Zhao CH, Huang Y, et al. Multimorbidity patterns and the risk of falls among older adults: a community-based study in China. BMC Geriatr. 2024;24(1):660.

53. Nie Z, Gao S, Chen L, Yang R, Edelman LS, Sward KA, et al. Social media use and mental health among older adults with multimorbidity: the role of self-care efficacy. J Am Med Inform Assoc. 2024;31(10):2210-6.

54. Ohinata H, Yun S, Miyajima N, Yuki M. Association between Dynapenia and Multimorbidity in Community-Dwelling Older Adults: A Systematic Review. Ann Geriatr Med Res. 2024;28(3):238-46.

55. Perrella A, Geen O, Ahuja M, Scott S, Kaushik R, Ferrante LE, et al. Exploring the Impact of Age, Frailty, and Multimorbidity on the Effect of ICU Interventions: A Systematic Review of Randomized Controlled Trials. Crit Care Med. 2024;52(9):e463-e72.

56. Richardson SJ, Cropp AD, Ellis SW, Gibbon J, Sayer AA, Witham MD. The interrelationship between multiple long-term conditions (MLTC) and delirium: a scoping review. Age Ageing. 2024;53(7).

57. Ruiz-Baena JM, Moreno-Juste A, Poblador-Plou B, Castillo-Jimena M, Calderón-Larrañaga A, Lozano-Hernández C, et al. Influence of social determinants of health on quality of life in patients with multimorbidity and polypharmacy. PLoS One. 2024;19(9):e0297702.

58. Santos-López M, Gómez-San Martín P, Margozzini P, Ortuño D. Multimorbidity and tooth loss: data from Chilean National Health Survey 2016-2017. BMC Oral Health. 2024;24(1):1417.

59. She R, Vetrano DL, Leung MKW, Jiang H, Qiu C. Differential interplay between multimorbidity patterns and frailty and their mutual mediation effect on mortality in old age. J Nutr Health Aging. 2024;28(8):100305.

60. Shivgotra VK, Kumar M, Nanda H. Survival Analysis of the Geriatric Population having Multiple Diseases in the Jammu District, J and K, India. Indian J Community Med. 2024;49(4):642-8.

61. STARSurg Collaborative EC. Association between multimorbidity and postoperative mortality in patients undergoing major surgery: a prospective study in 29 countries across Europe. Anaesthesia. 2024;79(9):945-56.

62. Sultana R, Panuthai DS, Chaiard DJ, Chintanawat DR. A Causal Model of Health-related Quality of Life Among Pakistani Older Persons with Multimorbidity (HRQL-OPM). Geriatr Nurs. 2024;61:210-6.

63. Teixeira SC, Flores TR, Xavier MO, Nunes BP, Tomasi E, Bertoldi AD, et al. Trajectory of Multiple Chronic Conditions and Associated Factors Among Noninstitutionalized Adults Aged 60 Years or Older in Southern Brazil. Prev Chronic Dis. 2024;21:E91.

64. Tomkova K, Roman M, Adebayo AS, Sheikh S, Yusoff S, Gulston M, et al. Multimorbidity is associated with myocardial DNA damage, nucleolar stress, dysregulated energy metabolism, and senescence in cardiovascular disease. NPJ Aging. 2024;10(1):58.

65. Tran T, Bliuc D, Abrahamsen B, Chen W, Eisman JA, Hansen L, et al. Multimorbidity clusters potentially superior to individual diseases for stratifying fracture risk in older people: a nationwide cohort study. Age Ageing. 2024;53(7).

66. Tucher EL, Steele AL, Uratsu CS, McCloskey JK, Grant RW. Social Risks and Health Care Use in Medically Complex Patients. JAMA Netw Open. 2024;7(9):e2435199.

67. Wang Y, Liu T, Zheng T, Zhang Y, Li L, Gao M. Phase angle as a predictor of mortality in elderly patients with multimorbidity: a matched case-control study. PeerJ. 2024;12:e18592.

68. Westbury LD, Pearse C, Rambukwella R, Ward KA, Cooper C, Dennison EM. Multimorbidity and risk of falls, fractures, and joint replacements over two decades: Findings from the Hertfordshire Cohort Study. Geriatr Gerontol Int. 2024;24(9):912-7.

69. Westbury LD, Rambukwella R, Pearse C, Ward KA, Cooper C, Dennison EM. Multimorbidity and risk of adverse outcomes in the Hertfordshire Cohort Study: does sex matter? Aging Clin Exp Res. 2024;36(1):218.

70. Wister A, Li L, Ferris J, Kim B, Klasa K, Linkov I. Resilience among older adults with multimorbidity using the Connor-Davidson scale in the Canadian Longitudinal Study on Aging: health behaviour, socio-economic, and social support predictors. BMC Public Health. 2024;24(1):2567.

71. Yang S, Zhong P, Shen X, Su B, Talifu Z, Guo S, et al. A Multi-State Model Study of the Disability-Free Life Expectancy Among Older Adults with Chronic Multimorbidity Based on CHARLS - China, 2011-2020. China CDC Wkly. 2024;6(28):695-8.

72. Yoshida Y, Ishizaki T, Masui Y, Miura Y, Matsumoto K, Nakagawa T, et al. Effects of multimorbidity and polypharmacy on physical function in community-dwelling older adults: A 3-year prospective cohort study from the SONIC. Arch Gerontol Geriatr. 2024;126:105521.

73. Young HML, Henson J, Dempsey PC, Willis SA, Billany RE, Curtis F, et al. Physical activity and sedentary behaviour interventions for people living with both frailty and multiple long-term conditions and their informal carers: a scoping review and stakeholder consultation. Age Ageing. 2024;53(11).

74. Zhang J, Sun Y, Li A. The prevalence of disability in older adults with multimorbidity: a meta-analysis. Aging Clin Exp Res. 2024;36(1):186.

75. Zhang J, Wang Y, Xu H, Gong E, Shao R. The association between the ten-year trajectory of multimorbidity and depressive symptoms among the middle-aged and older adults: Results from the China Health and Retirement Longitudinal Study. J Affect Disord. 2025;370:140-6.

76. Zhang Y, Yuan X, Jiang Z, Hu R, Liang H, Mao Q, et al. The relationship between multimorbidity and cognitive function in older Chinese adults: based on propensity score matching. Front Public Health. 2024;12:1422000.

77. Zhang Z, Gong Q, Gilleskie D, Moulton JG, Sylvia SY. The Impact of Multimorbidity on Labor Force Participation Among the Middle-Aged and Older Working Population in the United States. J Gerontol B Psychol Sci Soc Sci. 2024;79(10).

# Polypharmacy

1. Anderssen-Nordahl E, Fernández-Liz E, Sabaté Gallego M, Bosch Ferrer M, Sánchez-Arcilla Rosanas M, Cervera León M, et al. The impact of a multidisciplinary team intervention on medication prescription in nursing homes in Catalonia. Front Pharmacol. 2024;15:1445141.

2. Błeszyńska-Marunowska E, Jagiełło K, Wierucki Ł, Renke M, Grodzicki T, Kalarus Z, et al. Potentially Inappropriate Medications Involved in Drug-Drug Interactions in a Polish Population over 80 Years Old: An Observational, Cross-Sectional Study. Pharmaceuticals (Basel). 2024;17(8).

3. Carollo M, Crisafulli S, Vitturi G, Besco M, Hinek D, Sartorio A, et al. Clinical impact of medication review and deprescribing in older inpatients: A systematic review and meta-analysis. J Am Geriatr Soc. 2024;72(10):3219-38.

4. Chang BC, Lai IH, Ng YY, Wu SC. Potentially Inappropriate Medication Use in Older Adults With Multimorbidity in Taiwan. Pharmacoepidemiol Drug Saf. 2024;33(9):e70000.

5. Costanzo S, Di Castelnuovo A, Panzera T, De Curtis A, Falciglia S, Persichillo M, et al. Polypharmacy in Older Adults: The Hazard of Hospitalization and Mortality is Mediated by Potentially Inappropriate Prescriptions, Findings From the Moli-sani Study. Int J Public Health. 2024;69:1607682.

6. de Godoi Rezende Costa Molino C, Rübel L, Mantegazza N, Bischoff-Ferrari HA, Freystaetter G. Association of polypharmacy with cognitive impairment in older trauma patients: a cross-sectional study. Eur J Hosp Pharm. 2024;31(5):428-33.

7. Dołoto A, Bąk E, Batóg G, Piątkowska-Chmiel I, Herbet M. Interactions of antidepressants with concomitant medications-safety of complex therapies in multimorbidities. Pharmacol Rep. 2024;76(4):714-39.

8. Falke C, Karapinar F, Bouvy M, Emmelot M, Belitser S, Boland B, et al. The association between medication use and health-related quality of life in multimorbid older patients with polypharmacy. Eur Geriatr Med. 2024;15(6):1713-23.

9. Gillespie P, Moriarty F, Smith SM, Hobbins A, Walsh S, Clyne B, et al. Cost effectiveness of a GP delivered medication review to reduce polypharmacy and potentially inappropriate prescribing in older patients with multimorbidity in Irish primary care: the SPPiRE cluster randomised controlled trial. Eur J Health Econ. 2024.

10. Hilmer SN, Johnell K, Mach J. Pre-clinical Models for Geriatric Pharmacotherapy. Drugs Aging. 2024;41(8):633-40.

11. Kim GJ, Lee JS, Jang S, Lee S, Jeon S, Lee S, et al. Polypharmacy and Elevated Risk of Severe Adverse Events in Older Adults Based on the Korea Institute of Drug Safety and Risk Management-Korea Adverse Event Reporting System Database. J Korean Med Sci. 2024;39(28):e205.

12. Liu X, Zhao R, Zhou X, Yu M, Zhang X, Wen X, et al. Association between polypharmacy and 2-year outcomes among Chinese older inpatients: a multi-center cohort study. BMC Geriatr. 2024;24(1):748.

13. Liu X, Zhao Y, Da T, Zhang S, Wang H, Li H. The Attitudes Toward Polypharmacy and Willingness to Deprescribe Among Patients with Multimorbidity in Rural Areas of Shandong Province in China: A Cross-Sectional Study. Patient Prefer Adherence. 2024;18:2637-46.

14. Majewski G, Grodzka O, Walkowski R, Kandefer T, Papciak K, Słyk S, et al. A Review of Risk Factors for Polypharmacy: Age, Level of Education, and Physician's Attitude. Cureus. 2024;16(10):e71868.

15. Ortonobes S, Herranz S, Lleal M, Sevilla-Sánchez D, Jordana R, Mascaró O, et al. Multidisciplinary medication review during older patient hospitalization according to STOPP/START criteria reduces potentially inappropriate prescriptions: MoPIM cohort study. BMC Geriatr. 2024;24(1):584.

16. Pocknell S, Fudge N, Collins S, Roberts C, Swinglehurst D. 'Troubling' medication reviews in the context of polypharmacy and ageing: A linguistic ethnography. Soc Sci Med. 2024;352:117025.

17. Rafhi E, Stupans I, Stevens JE, Soo Park J, Wang KN. The influence of beliefs and health literacy on medication-related outcomes in older adults: A cross-sectional study. Res Social Adm Pharm. 2025;21(1):47-55.

18. Rojas-Solé C, Pinilla-González V, Lillo-Moya J, González-Fernández T, Saso L, Rodrigo R. Integrated approach to reducing polypharmacy in older people: exploring the role of oxidative stress and antioxidant potential therapy. Redox Rep. 2024;29(1):2289740.

19. Santra G. Polypharmacy and Deprescription: Role of Internists. J Assoc Physicians India. 2024;72(9):83-91.

20. Schäfer L, Paulitsch M, Hanf M, Dinh TS, Klein AA, Klasing S, et al. Polypharmacy in Older Patients with Multimorbidity: The Agreement Between Patient and General Practitioner-Reported Drugs Observed in a Pilot cRCT. Int J Environ Res Public Health. 2024;21(10).

21. Simal I, Somers A, Amrouch C, Capiau A, Cherubini A, Cruz-Jentoft AJ, et al. A descriptive analysis of drug-drug interactions and corresponding adverse drug reactions in multimorbid older inpatients: findings from the SENATOR trial. Eur Geriatr Med. 2024;15(5):1357-67.

22. Szoszkiewicz M, Deskur-Śmielecka E, Styszyński A, Urbańska Z, Neumann-Podczaska A, Wieczorowska-Tobis K. Potentially Inappropriate Prescribing Identified Using STOPP/START Version 3 in Geriatric Patients and Comparison with Version 2: A Cross-Sectional Study. J Clin Med. 2024;13(20).

23. Tsang JY, Sperrin M, Blakeman T, Payne RA, Ashcroft DM. Protocol for the development and validation of a Polypharmacy Assessment Score. Diagn Progn Res. 2024;8(1):10.

24. Vashishat A, Islam MM, Das Gupta G, Kurmi BD. Navigating Drug-Drug Interactions in Multimorbid Patients: Utilizing Tools, Guidelines, and Clinical Implications. Curr Drug Saf. 2024.

25. Wahler RG, Jr., Olbrich CL, McCarthy LM. Preventing Prescribing Cascades: Ensuring Medication Safety for Older Adults. J Gerontol Nurs. 2024;50(9):7-11.

26. Woodford HJ. Polypharmacy in Older Patients. Br J Hosp Med (Lond). 2024;85(10):1-12.

# Management of multimorbidity

1. Abrignani MG, Lucà F, Abrignani V, Pelaggi G, Aiello A, Colivicchi F, et al. A Look at Primary and Secondary Prevention in the Elderly: The Two Sides of the Same Coin. J Clin Med. 2024;13(15).

2. Ando T, Sasaki T, Abe Y, Nishimoto Y, Hirata T, Haruta J, et al. Determinants of polydoctoring among multimorbid older adults; a cross-sectional study in an urban area of Japan. J Gen Fam Med. 2024;25(6):376-83.

3. Ando T, Sasaki T, Abe Y, Nishimoto Y, Hirata T, Tajima T, et al. Association of polydoctoring and mortality among persons over 85 years with multimorbidity: a prospective cohort study in Japan. BJGP Open. 2024;8(3).

4. Àngel Mas M. Caring for patients with multiple chronic conditions: Moving from morbidities to person needs. Med Clin (Barc). 2024;163(12):617-8.

5. Baldan GA, De Maria M, Luciani M, Matarese M, Vellone E, Ausili D. Self-Care of Older Patients Affected by at Least Two Chronic Conditions Between Heart Failure, Diabetes Mellitus and Chronic Obstructive Pulmonary Disease: A Comparative Study. J Clin Nurs. 2024.

6. Barello S, Anderson G, Bosio C, Lane DA, Leo DG, Lobban TCA, et al. Patient engagement in multimorbidity: a systematic review of patient-reported outcome measures. Front Psychol. 2024;15:1345117.

7. Benthien KS, Gøtzsche N, Jakobsen LM, Schiøtz M. Conditions and Co-production of Integrated Care for Patients with Multimorbidity. Int J Integr Care. 2024;24(4):3.

8. Braam A, van Wijngaarden J, Hilders C, Buljac-Samardzic M. Multidisciplinary Collaboration in Hospitals via Patient- and Process-Oriented Units: A Longitudinal Study. J Multidiscip Healthc. 2024;17:3213-26.

9. Brom H, Sliwinski K, Amenyedor K, Brooks Carthon JM. Transitional care programs to improve the post-discharge experience of patients with multiple chronic conditions and co-occurring serious mental illness: A scoping review. Gen Hosp Psychiatry. 2024;91:106-14.

10. Cheng C, Christensen M. Interventions Addressing Symptoms in Older Adults with Multimorbidity: An Umbrella Review. J Multidiscip Healthc. 2024;17:3181-92.

11. Dany A, Aujoulat P, Colin F, Le Reste JY, Le Goff D. Assessment of multi-professional primary healthcare center quality by patients with multimorbidity. BMC Health Serv Res. 2024;24(1):954.

12. Dixon J, Morton B, Nkhata MJ, Silman A, Simiyu IG, Spencer SA, et al. Interdisciplinary perspectives on multimorbidity in Africa: Developing an expanded conceptual model. PLOS Glob Public Health. 2024;4(7):e0003434.

13. Duan XY, Sun T, Lu F, Yang XJ, Yin HY, Cao DP, et al. Relieving Depressive Symptoms Through Chinese Relational Culture Among Older Adults with Multimorbidity: Evidence from CHARLS. Psychol Res Behav Manag. 2024;17:4331-44.

14. Elder E, Muir R. Failure to rescue: optimising nursing assessment and surveillance has the potential to improve outcomes for deteriorating patients with multimorbidity. Evid Based Nurs. 2024.

15. Endalamaw A, Zewdie A, Wolka E, Assefa Y. Care models for individuals with chronic multimorbidity: lessons for low- and middle-income countries. BMC Health Serv Res. 2024;24(1):895.

16. Erba I, De Maria M, Saurini M, Ausili D, Matarese M, Vellone E. Generic and disease-specific caregiver contribution to self-care in a population with multiple chronic conditions: A comparative study. J Clin Nurs. 2024.

17. Fan P, Li H, Xu H, Rong C. Impact of medical-nursing combined policy pilot on hospitalization frequency of middle-aged and older patients with chronic diseases: a quasi-experimental study based on China Health and Retirement Longitudinal Study. Front Public Health. 2024;12:1450828.

18. Forsyth F, Soh CL, Elks N, Lin H, Bailey K, Brooman-White R, et al. Development steps of multimodal exercise interventions for older adults with multimorbidity: A systematic review. Health Sci Rep. 2024;7(7):e2190.

19. Gans EA, de Ruijter UW, de Groot JF, van den Bos F, van Munster BC. Recommendations for an Interdisciplinary Patient Review for patients with multiple long-term conditions in the hospital. Eur J Intern Med. 2024;126:33-7.

20. Gustafson DH, Sr., Mares ML, Johnston D, Vjorn OJ, Curtin JJ, Landucci G, et al. An eHealth Intervention to Improve Quality of Life, Socioemotional, and Health-Related Measures Among Older Adults With Multiple Chronic Conditions: Randomized Controlled Trial. JMIR Aging. 2024;7:e59588.

21. Hayanga B, Stafford M, Bécares L. Ethnic inequalities in primary care experiences for people with multiple long-term conditions: Evidence from the general practice patient survey. Public Health. 2024;237:291-8.

22. Heckman GA, Gimbel S, Mensink C, Kroetsch B, Jones A, Nasim A, et al. The Integrated Care Team: A primary care based-approach to support older adults with complex health needs. Healthc Manage Forum. 2024:8404704241293051.

23. Khojah YY, Bashawri MA, Khojah NY, Hassanien NSM. Prevalence of and Factors Associated with Treatment Burden and Medication Adherence Among Primary Care Patients with Multimorbidity in Jeddah, Saudi Arabia: A Cross-Sectional Study. Cureus. 2024;16(8):e67514.

24. Kiely B, Keenan I, Loomba S, Mack N, Byers V, Galvin E, et al. Implementing a General Practice-Based Link Worker Intervention for People with Multimorbidity During the Covid-19 Pandemic- a Mixed Methods Process Evaluation of the LinkMM RCT. Int J Integr Care. 2024;24(4):16.

25. Kimura T, Matsumura S, Hashimoto M, Shinmura K. Background Factors that Hospital-Based Geriatricians and General Practitioners Associate with Difficulty in Treating Older People with Multimorbidity: A Cross-Sectional Survey. Tohoku J Exp Med. 2024;264(2):61-72.

26. Kimura T, Matsumura S, Hashimoto M, Shinmura K. The characteristics of general practitioners and geriatricians who take overall responsibility for the care of older patients with multimorbidity. J Gen Fam Med. 2024;25(6):366-75.

27. Knudsen AM, Dalgård Dunvald AC, Hangaard S, Hejlesen O, Kronborg T. The Effectiveness of Collaborative Care Interventions for the Management of Patients With Multimorbidity: Protocol for a Systematic Review, Meta-Analysis, and Meta-Regression Analysis. JMIR Res Protoc. 2024;13:e58296.

28. Knudsen AM, Dunvald AD, Hangaard S, Hejlesen O, Kronborg T. Collaborative Care Interventions for Patients with Multimorbidity: Protocol for a Systematic Review and Meta-Analysis with Preliminary Results. Stud Health Technol Inform. 2024;316:1763-4.

29. Kohzuki M. Multimorbidity and Multiple Disabilities: Present Status and the Roles of Rehabilitation. J Clin Med. 2024;13(21).

30. Kuebler K, Monroe T, Ricciardi R, Westlake C, Sorenson M, Pederson J, et al. Integration of palliative care in the management of multiple chronic conditions: An expert consensus paper with policy implications. Nurs Outlook. 2024;72(6):102273.

31. Lai YS, Gao XY, Hu WH, Liu YX, Zhang YJ, Liu JC, et al. Validity of the Chinese multimorbidity-weighted index in measuring disease burden using health check-ups data in primary care. BMC Public Health. 2024;24(1):1999.

32. Lammila-Escalera E, Greenfield G, Pan Z, Nicholls D, Majeed A, Hayhoe B. Interventions to improve medication adherence in adults with mental-physical multimorbidity in primary care: a systematic review. Br J Gen Pract. 2024;74(744):e442-e8.

33. Lamonato L, Sarti TD, Almeida A. Effect of primary health care on the association between multimorbidity and emergency service utilization: National Health Survey, 2019. Rev Bras Epidemiol. 2024;27:e240062.

34. Lee JE, Lee J, Shin R, Oh O, Lee KS. Treatment burden in multimorbidity: an integrative review. BMC Prim Care. 2024;25(1):352.

35. Li X, Ma D, Feng Z, Gao M, Dong P, Shi Y, et al. Preferences of patients with multiple chronic diseases for medication in rural areas of an Eastern Province China: a discrete choice experiment. Front Med (Lausanne). 2024;11:1439136.

36. Liu R, Nagel CL, Chen S, Newsom JT, Allore HG, Quiñones AR. Multimorbidity and associated informal care receiving characteristics for US older adults: a latent class analysis. BMC Geriatr. 2024;24(1):571.

37. Loewenthal JV, Ernecoff NC, Dalal AK. Novel Electronic Health Record Strategies to Identify Frailty Among Hospitalized Older Adults with Multiple Chronic Conditions. J Gen Intern Med. 2024.

38. Lopez JZ, Lee M, Park SK, Zolezzi ME, Mitchell-Bennett LA, Yeh PG, et al. An expanded chronic care management approach to multiple chronic conditions in Hispanics using community health workers as community extenders in the Rio Grande Valley of Texas. Prev Med. 2024;184:107975.

39. Lundstrøm SL, Kamstrup-Larsen N, Barrett BA, Jørgensen LMB, Hansen SS, Andersen JS, et al. A patient-centred care model for patients with complicated multimorbidity: Protocol for a pilot cluster randomised trial in general practice, municipalities, and hospitals. PLoS One. 2024;19(12):e0310697.

40. Maidment DW, Clarkson K, Shiel EV, Nielsen K, Yarker J, Munir F. A Rapid Systematic Review Assessing the Effectiveness of Interventions to Promote Self-Management in Workers with Long-Term Health Conditions and Disabilities. Int J Environ Res Public Health. 2024;21(12).

41. Maimaitiyiming M, Yang R, Da H, Wang J, Qi X, Wang Y, et al. The association of a low-inflammatory diet with the trajectory of multimorbidity: a large community-based longitudinal study. Am J Clin Nutr. 2024;120(5):1185-94.

42. Mair FS, Nickpour F, Nicholl B, MacDonald S, Joyce DW, Cooper J, et al. Developing SysteMatic: Prevention, precision and equity by design for people living with multiple long-term conditions. J Multimorb Comorb. 2024;14:26335565241272682.

43. Maria M, Saurini M, Erba I, Vellone E, Riegel B, Ausili D, et al. Generic and disease-specific self-care instruments in older patients affected by multiple chronic conditions: A descriptive study. J Clin Nurs. 2024.

44. Mathews L, Miller ER, 3rd, Cooper LA, Marsteller JA, Ndumele CE, Antoine DG, 2nd, et al. Remote Collaborative Specialist Panel Deployment to Address Health Disparities in the RICH LIFE Project. Qual Manag Health Care. 2024.

45. Naik AD, Shanahan ML, Dindo L, Mecca MC, Arney J, Amspoker AB, et al. An innovative approach to aligning healthcare with what matters most to patients: A hybrid type 1 trial protocol of patient priorities care for older adults with multiple chronic conditions. Contemp Clin Trials. 2024;143:107613.

46. Nelson BW, Peiper NC, Aschbacher K, Forman-Hoffman VL. Evidence-Based Therapist-Supported Digital Mental Health Intervention for Patients Experiencing Medical Multimorbidity: A Retrospective Cohort Intent-to-Treat Study. Psychosom Med. 2024;86(6):547-54.

47. Newbould J, Hocking L, Sidhu M, Daniel K. Digital First Primary Care for those with multiple long-term conditions: a rapid review of the views of stakeholders. Health Soc Care Deliv Res. 2024;12(21):1-68.

48. Norman RM, Jelin E, Bjertnaes O. Multimorbidity and patient experience with general practice: A national cross-sectional survey in Norway. BMC Prim Care. 2024;25(1):249.

49. Page E, Mazzola P. Barriers and facilitators to self-managing multiple long-term conditions: socioeconomic deprivation affects health outcomes in a UK cohort. Evid Based Nurs. 2024.

50. Park GE, Park YH, Kim KG, Park JY, Hwang M, Lee S. Mobile Application for Digital Health Coaching in the Self-Management of Older Adults with Multiple Chronic Conditions: A Development and Usability Study. Healthc Inform Res. 2024;30(4):344-54.

51. Prazeres F, Castro L, Teixeira A. The role of social support as a moderator between resilience and levels of burden of multimorbidity management among general practitioners: a cross-sectional study in Portugal. Fam Pract. 2024;41(6):909-15.

52. Remers TEP, Jeurissen PPT, Coremans A, Olde Rikkert MGM, van Dulmen SA. Experiences and preliminary effects of the Comprehensive chrOnic caRe outpatiEnt (CORE) clinic for patients with multimorbidity in the hospital setting. J Eval Clin Pract. 2024;30(7):1361-72.

53. Rockwell MS, Funk AJ, Huffstetler AN, Villalobos G, Britz JB, Webel B, et al. Screening for Unhealthy Alcohol Use Among Patients With Multiple Chronic Conditions in Primary Care. AJPM Focus. 2024;3(4):100233.

54. Sathanapally H, Chudasama YV, Zaccardi F, Rizzi A, Seidu S, Khunti K. Health outcome priorities of people with multiple long-term conditions using the outcome prioritisation tool in the UK: A survey study and feasibility assessment. PLoS One. 2024;19(12):e0301740.

55. Seger DL, Amato MG, Frits M, Iannaccone C, Mugal A, Chang F, et al. A machine learning technology for addressing medication-related risk in older, multimorbid patients. Am J Manag Care. 2024;30(8):e233-e9.

56. Shiraishi R, Nakamura M, Shiraishi N, Ogawa T. Combined Exercise and Nutritional Therapy Improves Physical Functions and Activities of Daily Living in Patients With Multimorbidity Undergoing Convalescent Rehabilitation: A Case Report. Cureus. 2024;16(10):e71944.

57. Tian J, Wang HY, Peng SH, Tao YM, Cao J, Zhang XG. Experiences of older people with multimorbidity regarding self-management of diseases: A systematic review and qualitative meta-synthesis. Int J Nurs Pract. 2024;30(5):e13289.

58. Tong X, Xu J, Gong E, Zhang X, Li Y, Shao R, et al. Frailty as a breakthrough point for multimorbidity management among older adults: challenges and opportunities in China. Bmj. 2024;387:e076767.

59. van Bokhoven MA, Brünn R, van den Akker M. Complex primary care for multimorbid patients in the Netherlands: Interprofessional perspectives within and beyond general practice. Z Evid Fortbild Qual Gesundhwes. 2024;189:82-7.

60. Vowles Z, Lovell H, Black M, Sandall J, Easter A. Models of care for pregnant women with multiple long-term conditions and the role of the midwife: A scoping review. Women Birth. 2024;37(5):101645.

61. Wang S, Yu C, Zhu J, Zhao P, Jin N, Cheng L, et al. Multimorbidity Patterns, Leisure Activities, and Cognitive Function: A Population-Based Longitudinal Study. J Gerontol A Biol Sci Med Sci. 2024;79(11).

62. Watson BN, Estenson L, Eden AR, Gerstein MT, Carney MT, Dotson VM, et al. Person-Centered Care Planning for People Living With or at Risk for Multiple Chronic Conditions. JAMA Netw Open. 2024;7(10):e2439851.

63. Wilson G, Hutchison JS. In Pursuit of a Person-Centered Approach to Care Delivery: A Qualitative Descriptive Study of the Patient Experience of a Long-Term Conditions Clinic in General Practice. Qual Health Res. 2024:10497323241272003.

64. Xu Z, Zhang D, Zhao Y, Ghosh A, Peiris D, Li Y, et al. The Chinese version of patient experience with treatment and self-management (PETS vs. 2.0): translation and validation in patients with multimorbidity in primary care in Hong Kong. J Patient Rep Outcomes. 2024;8(1):82.

65. Zaidi SH, Axon DR. Assessing the Association of Healthcare Resource Utilization and Patient-Reported Outcomes on Shared Decision-Making among Multimorbid Individuals. Healthcare (Basel). 2024;12(17).

66. Zezai D, van Rensburg AJ, Babatunde GB, Kathree T, Cornick R, Levitt N, et al. Barriers and facilitators for strengthening primary health systems for person-centred multimorbid care in low-income and middle-income countries: a scoping review. BMJ Open. 2024;14(11):e087451.

67. Zhang M, Zhao M, Wei X. Research progress on community health management model for older adults with chronic diseases and multiple morbidities. Br J Hosp Med (Lond). 2024;85(10):1-9.

68. Zhao R, Zhang J, Li M, Loban E, Nicolas S, Martiland E, et al. Primary care physicians' work conditions and their confidence in managing multimorbidity: a quantitative analysis using Job Demands-Resources Model. Fam Pract. 2024;41(6):977-84.

# Qualitative work

1. Abuzour AS, Wilson SA, Woodall AA, Mair FS, Clegg A, Shantsila E, et al. A qualitative exploration of barriers to efficient and effective structured medication reviews in primary care: Findings from the DynAIRx study. PLoS One. 2024;19(8):e0299770.

2. Alodhialah AM, Almutairi AA, Almutairi M. Ethical and Legal Challenges in Caring for Older Adults with Multimorbidities: Best Practices for Nurses. Healthcare (Basel). 2024;12(16).

3. Gaël L, Nadine K, Sandra B, Rachida B. General practitioners' views on inappropriate prescribing for older patients: a qualitative study through focus groups. BMC Geriatr. 2024;24(1):847.

4. McCallum M, Macdonald S, Mair FS. Multimorbidity and person-centred care in a socioeconomically deprived community: a qualitative study. Br J Gen Pract. 2024;74(749):e805-e13.

5. Rafiq M, Mazzocato P, Guttmann C, Spaak J, Savage C. Predictive analytics support for complex chronic medical conditions: An experience-based co-design study of physician managers' needs and preferences. Int J Med Inform. 2024;187:105447.

6. Skorini M, Petersen MS, Róin Á. Managing medication in very old age: A qualitative study among Faroese nonagenarians. Scand J Caring Sci. 2025;39(1):e13311.

7. van Bommel H, Raaijmakers LHA, van den Muijsenbergh M, Schermer T, Burgers JS, van Loenen T, et al. Patient experiences with person-centred and integrated chronic care, focussing on patients with low socioeconomic status: a qualitative study. Br J Gen Pract. 2024.

8. Yi M, Hui Y, Hu L, Zhang W, Wang Z. The Experiences and Perceptions of Older Adults with Multimorbidity Toward E-Health Care: A Qualitative Evidence Synthesis. Telemed J E Health. 2024;30(10):2527-44.

# Multimorbidity policy and editorials

1. Arróspide Elgarresta M, Gerovska D, Soto-Gordoa M, Jauregui García ML, Merino Hernández ML, Araúzo-Bravo MJ. Chronic disease incidence explained by stepwise models and co-occurrence among them. iScience. 2024;27(9):110816.

2. Azubuike CD, Alawode OA. Delayed Healthcare Due to Cost Among Adults with Multimorbidity in the United States. Healthcare (Basel). 2024;12(22).

3. Chalk T, Srour D, McNally D. Multimorbidity in Older Adult Acute Care Hospital Patients: Impacts on Patient Flow, Medical Management, Care Transitions and Cost. Healthc Q. 2024;27(2):70-5.

4. Cheng A, Zhang Y, Qian Z, Yuan X, Yao S, Ni W, et al. Integrating multi-task and cost-sensitive learning for predicting mortality risk of chronic diseases in the elderly using real-world data. Int J Med Inform. 2024;191:105567.

5. Chudasama YV, Khunti K. Reaching the ideal cardiovascular health: is this the key to preventing multiple long-term conditions? Lancet Reg Health Eur. 2024;42:100968.

6. Cornick RV, Petersen I, Levitt NS, Kredo T, Mudaly V, Cragg C, et al. Clinically sound and person centred: streamlining clinical decision support guidance for multiple long-term condition care. BMJ Glob Health. 2024;9(Suppl 3).

7. Cuschieri S, Stranges S, Makovski TT. The different definitions of multimorbidity and their implications for research, surveillance, and policy. Eur J Public Health. 2024.

8. Faitna P, Bottle A, Klaber B, Aylin PP. Has multimorbidity and frailty in adult hospital admissions changed over the last 15 years? A retrospective study of 107 million admissions in England. BMC Med. 2024;22(1):369.

9. Grippo F, Frova L, Pappagallo M, Barbieri M, Trias-Llimós S, Egidi V, et al. Beyond the underlying cause of death: an algorithm to study multi-morbidity at death. Popul Health Metr. 2024;22(1):36.

10. Henderson M, Martin A, McElvenny D, Relton S, Stevelink S. Economic inactivity and mental-physical multimorbidity. Occup Med (Lond). 2024;74(7):467-9.

11. Hughes SE, Anderson NE, Hathaway E, McMullan C, Hughes BMA, Collis P, et al. Opportunities and challenges for patient-reported outcome assessment in multimorbidity research and practice. Nat Med. 2024;30(11):3042-3.

12. Hurst C, Dismore L, Granic A, Noble JM, Hillman SJ, Witham MD, et al. The feasibility and acceptability of engaging older adults living with multiple long-term conditions, frailty, and a recent deterioration in health in research: Findings from the Lifestyle in Later Life - Older People's Medicine (LiLL-OPM) study. BMC Geriatr. 2024;24(1):831.

13. Kamarajah SK, Bhangu A, Ahuja S, Dhesi J, Yeung J, Nirantharakumar K, et al. Embracing change: a collective call to address multimorbidity in surgical pathways. Anaesthesia. 2024;79(8):890-2.

14. Kamarajah SK, Yeung J. Growing challenge of multimorbidity in patients undergoing surgery. Br J Anaesth. 2025;134(1):26-9.

15. Kar D, Taylor KS, Joy M, Venkatesan S, Meeraus W, Taylor S, et al. Creating a Modified Version of the Cambridge Multimorbidity Score to Predict Mortality in People Older Than 16 Years: Model Development and Validation. J Med Internet Res. 2024;26:e56042.

16. Kayani Z, Willis A, Salisu-Olatunji SO, Jeffers S, Khunti K, Routen A. Reporting and representation of underserved groups in intervention studies for patients with multiple long-term conditions: a systematic review. J R Soc Med. 2024;117(9):302-17.

17. Laloux P, Gisle L, D'Hoore W, Charafeddine R, Van der Heyden J. The importance of including a mental health dimension in a multimorbidity indicator: an analysis of Belgian health survey data. BMC Public Health. 2024;24(1):3465.

18. Lenti MV, Frenna C, Brera AS, Klersy C, Corazza GR. Factors associated to multiple chronic conditions in internal medicine patients. Eur J Intern Med. 2024.

19. Liu JH. Multimorbidity in postmenopausal women: a new health challenge. Menopause. 2024;31(11):943-4.

20. Martin FC, Quinn TJ, Straus SE, Anand S, van der Velde N, Harwood RH. New horizons in clinical practice guidelines for use with older people. Age Ageing. 2024;53(7).

21. Meier N, Pedersen KZ, Andresen LC, Andersen O. Patients with Non-Specific Complaints in Emergency Departments: A Growing Patient Safety Concern in an Aging Population with Multimorbidity. Healthcare (Basel). 2024;12(20).

22. Michalowski M, Wilk S, Michalowski W, Rao M, Carrier M. Provision and evaluation of explanations within an automated planning-based approach to solving the multimorbidity problem. J Biomed Inform. 2024;156:104681.

23. Murphy C. Increasing multimorbidity and the evolving peri-operative model of care. Anaesthesia. 2024;79(12):1377-8.

24. Nagel CL, Bishop NJ, Botoseneanu A, Allore HG, Newsom JT, Dorr DA, et al. Recommendations on Methods for Assessing Multimorbidity Changes Over Time: Aligning the Method to the Purpose. J Gerontol A Biol Sci Med Sci. 2024;79(7).

25. Navale SM, Koroukian S, Cook N, Templeton A, McGrath BM, Crocker L, et al. Capturing the care of complex community-based health center patients: A comparison of multimorbidity indices and clinical classification software. Health Serv Res. 2024.

26. Ouellet GM, Ouellet JA, Tinetti ME. Challenges in Health Care for Persons With Multiple Chronic Conditions-Where to Go and How to Get There? JAMA Netw Open. 2024;7(10):e2439837.

27. Penner K, Wicklum S, Johnston A, Kelly MA. Teaching multimorbidity to medical students. Clin Teach. 2024;21(6):e13794.

28. Piraux A, Poitras ME, Lemarchand S, Sidorkiewicz S, Ramond-Roquin A. Cross-cultural adaptation of the Quebecois Patient-Centered Coordination by a Care Team Questionnaire for use in France. BMC Prim Care. 2024;25(1):364.

29. Rognan SE, Mathiesen L, Lea M, Mowé M, Molden E, Skovlund E. Development and external validation of a prognostic model for time to readmission or death in multimorbid patients. Res Social Adm Pharm. 2024;20(9):926-33.

30. Rudolph JE, Lau B, Genberg BL, Sun J, Kirk GD, Mehta SH. Characterizing multimorbidity in ALIVE: comparing single and ensemble clustering methods. Am J Epidemiol. 2024;193(8):1146-54.

31. Seeman N. The Siren Call for Business Model Innovation in Healthcare. Healthc Q. 2024;27(3):15-9.

32. Skovgaard AL, Tjørnhøj-Thomsen T, Johansson Jørgensen M, Høybye MT. Making it Work: Everyday Life and Healthcare with Multiple Chronic Illnesses in Denmark. Med Anthropol. 2024;43(5):397-410.

33. Tarn DM, Liu RY, Pun T, Schwartz JB. Navigating the Path to Inclusion: Understanding Barriers and Facilitators to Clinical Trial Participation Among Chinese Older Adults in the United States with Multimorbidity. J Gen Intern Med. 2024.

34. Vidyasagaran AL, Ayesha R, Boehnke JR, Kirkham J, Rose L, Hurst JR, et al. Core outcome sets for trials of interventions to prevent and to treat multimorbidity in adults in low and middle-income countries: the COSMOS study. BMJ Glob Health. 2024;9(8).

35. Vowles Z, Ashworth DC, Barron RL, Conti-Ramsden F, Wilson H, Leighton L, et al. Inclusion of people with multiple long-term conditions in pregnancy research: patient, public and stakeholder involvement and engagement in a randomised controlled trial. Res Involv Engagem. 2024;10(1):101.

36. Wang R, Yao L. Multiple Long-Term Conditions and Disability are Independently Associated with Higher Risk of Fall Among Community Adults: A Cross-Sectional Study [Letter]. Risk Manag Healthc Policy. 2024;17:2007-8.

37. Wang Z, Zhu D, Zhang H, Wang L, He H, Li Z, et al. Recommendations and quality of multimorbidity guidelines: A systematic review. Ageing Res Rev. 2024;102:102559.

38. Wei MY, Tseng CH, Kang AJ. Higher-Order Disease Interactions in Multimorbidity Measurement: Marginal Benefit Over Additive Disease Summation. J Gerontol A Biol Sci Med Sci. 2024;80(1).

39. Xi J, Li PW, Yu DS. Multimorbidity: The need for a consensus on its operational definition. J Adv Nurs. 2024;80(12):4755-7.

40. Yordanov Y, Beauvais A, Thiébaud PC. Multimorbidity in emergency departments: urgent need for integrated care. BMJ Med. 2024;3(1):e000989.

41. Zhang S, Strayer N, Vessels T, Choi K, Wang GW, Li Y, et al. PheMIME: an interactive web app and knowledge base for phenome-wide, multi-institutional multimorbidity analysis. J Am Med Inform Assoc. 2024;31(11):2440-6.