Patients with multiple illnesses

ABSTRACT

Approximately one-third of all individuals have multiple chronic conditions (MCCs) worldwide. Certain disorders tend to cluster together often, with correlations, such as depression and stroke, Alzheimer's illness and infectious diseases such as HIV/AIDS and tuberculosis coupled and diabetes and cardiovascular diseases. The prevalence of MCC is highly variable according to the definition used and the number of conditions included in the study. In the United States, it was reported to be 23.1%. While other studies report MCC as high as 80% among elder population. The patient hardship encompasses a decline in standards of living, costly expenditures, adherence to multiple medications, incapacity to work, symptoms management, and a significant financial load on caregivers. This significant load from MCCs is expected to rise further. At the current time, the presence of more than one disease causes the patients to take multiple drugs, further prescribing may be indicated for the side effects of the used drugs. Furthermore, new conditions can be misdiagnosed and mistaken as side effects of the drugs the patients is taking. Strategies for treatments include establishing agreement on MCC taxonomy, putting more emphasis on MCC research, focusing on primary prevention to reduce morbidity, and shifting healthcare institutions and policies to a multiple-condition paradigm.

Keywords: Chronic, multiple illnesses, patients, polypharmacy

1. INTRODUCTION

People managing various chronic diseases have increased dramatically over the last decade. Multiple chronic conditions (MCCs) are defined as two or more special continuing situations that occur concurrently. This has evolved into a broader medical concern that poses critical clinical challenges to our healthcare system [1]. The most common reason for this unique alteration to MCC becoming more widespread is an increase in the shift from acute infectious life-threatening diseases to chronic diseases mainly due to change in the lifestyle and unhealthy behavior, which has contributed enormously to our aging population. A few models recall a decrease in youth mortality due to improved baby care through vaccines and malignant growth screening, such as mammograms, colonoscopies, and prostate-specific antigen (PSA) testing in grownups. Other factors that contribute include cholesterol screening, the management of hypertension, smoking cessation, and diabetes Screening [1].

As more patients arrive with diverse health-related difficulties that can be difficult to treat in a time-constrained context, consultations are getting highly sophisticated. Patients with numerous diseases, according to studies, will increase an average of one to three complaints or concerns per visit if given the chance [2]. When doctors question patients about their worries at the beginning of a consultation, for example, "How can I help you today?" This usually leads to a not more than one issue or concern [3]. Because the remaining of the session is typically defined by general physicians (GPs) accumulating further information about the major issue raised, this may be the only apparent chance for patients to voice their complaints and concerns [4]. Patients may express their concerns towards the end of the session, when the physician might not be in a position to examine them, or they may not express their fears at all. Unspoken clinical issues have been connected to worsening symptoms, higher patient anxiety, and the necessity for additional essential consideration visits, which are costly in terms of patients' time and professional assist [2]. MCC, generally known as multiple illnesses, affect one out of every three persons, resulting in health and economic disadvantages. In older individuals residing in industrialized countries, this ratio is closer to three out of four [5]. Between 2015 and 2035, the

number of persons in the United Kingdom with four or more diseases is predicted to nearly triple. MCCs, on the other hand, are still largely unexplored [6].

2. MATERIAL AND METHOD

The information used for the report comprises scholarly writing efforts and 'gathering momentum' to differentiate other referred to publications and reports. An assessment of English language articles was done, using electronic information bases (MEDLINE, PubMed). Among the search phrases utilized were “multiple continuing conditions", "multimorbidity," "polychronicity", "comorbidities", "persistent conditions", "ongoing infections", "persistent disease groupings", and “polypharmacy”. Extra articles were uncovered by looking through each article's reference areas. Other sources of information such as the World Health Organization's (WHO) were explored for pertinent information.

3. RESULTS AND DISCUSSION

3.1 Prevalence of multiple chronic diseases

MCC dominance gauges are extremely varied due to methodological differences, such as the amount of stable circumstances recalled for the check, which can cause gauges to shift up to three-crease. The majority of research in America employed a list of twenty common disorders classified by the Department of Health and Human Services. However, a few audits included 40 infections and up to 140 diseases [7]. MCC prevalence percentages in the UK ranged from 16% (17 ongoing circumstances examined) to 58%. (114 persistent conditions included). MCC was detected in approximately 25.5% of the US population, contributing for 10 current actual ailments, with frequency expanding to half of individuals aged 45-65 years old and all the way to 80% of those older than 64 years of age [8]. The differences in the ranges are probably due to the difference in diseases included and the age range difference between studies.

3.2 Projections of multiple chronic conditions

As populations advance in age, the amount of time people spend living with infirmity and chronic illness increases, and MCC incidence rates in affluent countries approach 3/4 of older adults [1]. A reproduction model of critical consideration patients in the United Kingdom predicts a huge increase, with individuals with at least four conditions nearly doubling between 2015 and 2035. Furthermore, 66% of those with at least four conditions are anticipated to have bad mental health illnesses e.g. loss of memory, despair, psychological disability, and dementia [9]. A good projected will be accompanied by at least four infections, rather than longer endurance with multiple chronic illnesses or ailment, due to higher prevalence of, rather than greater endurance with, multiple chronic conditions or ailment.

3.3 Multiple chronic conditions globally

Women between the ages of 18–64 are most probable than men to have multiple illnesses, two ailments (14.5% vs. 13%), and three ailments in the United States (12.6% vs. 10.7%) [7]. This could, however, be explained by a higher proclivity for female health-seeking behaviors. There is a lot of diversity in the fundamental continuous state among people under 45, but it gets better as they get older [10]. MCC was discovered in the majority of people under 45 years of age who had malignant tumors, chronic obstructive pulmonary disease (COPD), or rheumatological diseases. The association between MCC and socioeconomic status (SES) is based on both region and age on a global scale [11]. In Western and Eastern Europe, as well as Central Asia, there is a strong negative connection between socioeconomic status and multiple diseases in grown-ups below 55 years old in numerous places. Except in Southeast Asia, where there is a solid correlation between SES and MCC, no or only tenuous relationships have been recorded in all areas for over 55 years [12]. This is in line with results from other Indian studies, which show that people from higher socioeconomic levels suffer from more chronic illness such as obesity, cardiovascular diseases (CVD), and MCC. This geography and age instance may depict the dispersion of crucial danger features for chronic ailments, e.g. poor eating, physical inactivity, cigarette use, and liquor usage in socioeconomic groups, which are more in more affluent population groups in agricultural nations and lower pay groups in industrialized economies [11].

3.4 Common disease clusters

There is a scarcity of widely disseminated extensive studies on a wide range of chronic illnesses and their effect on patients, healthcare structures, and medical-care expenses. One effective audit that looked at groups involved 39 examinations with approximately 70,000,000 patients from 12 nations [13]. Unfortunately, only three of the examined studies utilized all consistent medical issues; the remaining studies used various conditions ranging between five and 335.

Nevertheless, the audit presents a valuable rundown of MCC groups [14]. The most commonly associated groups are Alzheimer's disease and stroke, burdensome issues and stroke with relative risk of 3.2, heart conditions and stroke close by challenge with chances proportion of 1.43, CVD and stroke close by long haul infectious illnesses in non-industrial nations like TB and diabetes with relative risk of more than 3.10, and HIV/AIDS and heart conditions [15]. Other ailments that frequently occur together are TB and COPD, Cardiovascular conditions and asthmatic conditions, diabetes, heart conditions, osteoarthritis, breast cancer and COPD [16].

However recent research has focused on disease clusters of chronic illness danger factors, with minimal attention on the expected effect of clustering of specific disorders. Clusters can arise as a result of high similarity instances, combined risk issues or disease causation by the other [17]. Another technique to categorize groups is concordance that is common danger elements or infection routes and severity on apparently irrelevant conditions [18]. The recognition of these groupings is crucial for the expectation and anticipation of upcoming persistent situations. The medication and management strategies of disease clusters may also be impacted by whether they are consistent or inconsistent [19]. Prescription drugs for one ailment for example, tuberculosis may aggravate another chronic condition for example, diabetes or enhance the dangers connected with the sickness, especially if the disorders are incompatible.

By focusing on clusters of illnesses rather than one illness, intervention and frameworks can address issues raised by patients, for instance medication design, testing and finding methods, and treatment guidelines [20]. Clinical rules should consider the number of diseases present in the body, but not the severity, to identify consistent condition interconnectedness and indicate therapy possibilities, demonstration cycles, and executive [21]. Additionally, the expenses of medical services for MCC patients are likely to be significantly higher than the additional pharmacological impact of treating people with each continuous condition [22]. Thus, if many patients are neglected, analyses of medical care expenses for persistent ailments are likely to overlook the real expenses for such individuals.

3.5 POLYPHARMACY

Multiple morbidities in general are associated with higher use of medications. The more diseases a patient has the more medications indicated [23]. There have been many definitions for polypharmacy, some see it as the prescription of two or more drugs and others consider the usage of five or more drugs as polypharmacy [24]. Furthermore, some may divide polypharmacy according to the number of drugs the patient is taking into categories like, minor, major, excessive, severe and hyperpolypharmacy [24]. As elder population is increasing, comes with it the increase prevalence in MCC which would cause increase in the prevalence of polypharmacy. It has been reported that the number of medications significantly increases with the increase of comorbidities [23]. The prevalence of polypharmacy among elderly was reported in one study to be 23.1% [25]. Some reported that the prevalence of unnecessary medications among elderly reaches 50% [26]. The prevalence ratios would be highly variable across the literature as a wide range of definitions exist according to the number of medications counted as polypharmacy. The core of the issue comes to the side effects and the drugs interactions, drug that may improve one disease, could also worse another co-existing comorbidity. To prevent side effects and to improve the patients' quality of life, doctors may describe more medications which may lead to what is called a "prescribing cascade" (5). The drug adverse effects were attributed to about 10% of ER visits [28]. As regard to drugs interactions, the prevalence was reported to be as high as 80% among those taking five or more medications [26].

The literature has reported many negative health effects caused by polypharmacy, poor compliance [29-33], declined cognitive functions [34], falls [35], and urinary incontinence [36]. It is worth mentioning that polypharmacy was found to be an independent risk factor for hip fracture [27]. Furthermore, in a meta-analysis, mortality was found to be increased for each additional drug used among elder population [37]. Following clinical guidelines for drug prescribing for elderly might results in drugs interactions and other side effects, for elder population with MCC, a careful review of the case before deciding the treatment plan is of great importance. On the other hand, prescribing new drugs to a patient with multiple chronic conditions may not be a preferred option for many physicians, which may cause progression of diseases and symptoms [38].

3.6 OPPORTUNITIES FOR ACTIONS AND INTERVENTIONS

Medical care providers, the medicine industry, strategy makers, the advanced wellbeing sector, and the larger general wellbeing local area have the chance to reduce the weight of multiple chronic ailments [39]. Recently, there are some helpful developments in multiple ailments management, especially in the sector of high innovation arrangements. The new arrangements and approaches address MCC difficulties, practical wellbeing, life quality, and medical care costs [40]. However, various more chances and possibilities exist, including preventive strategies, health care systems, and specialists, and more intelligent and personalized enhancement of medication and patient emotionally supporting networks.

Community health management of chronic ailments is considered to be the most successful in when it comes to expenses and outcomes. Identifying modifiable and constant risk factors is crucial when devising effective intervention to avoid diseases [41]. Furthermore, medical care frameworks should encourage treatment models and practices that collaborate with cross-condition management [42]. Individuals with a few concordant multiple chronic illnesses must be addressed as anticipated individuals at danger of insufficient care, as these people are usually advanced in their disease development. Engaging and teaching professionals can aid in patient wellbeing since doctor-patient relationships such as attention, affection, trust, and confidence can have an influence on patient' treatment as well as overall health [43].

4. CONCLUSION

According to available data, in the age range between 16 and 57, a percentage of persons in affluent countries have more than one chronic condition. Non-industrial nations are presently grappling with the combined weight of long-term communicable diseases close to non-communicable diseases, as well as clustering and causality between standard situations. Based on minimal proof, MCC has been related to substantially greater rises in costs of healthcare and different kinds of asset usage. MCC can lead to polypharmacy, which was linked to hip fracture, cognitive dysfunction, psychiatric illnesses, and increased mortality. Compression of numerous illnesses by chronic disease prevention would be the most effective strategy and would necessitate a change of lifestyle. Individuals with few comorbidities should be taught to prevent further comorbidities and drug prescribing for patients with MCC should be done with caution.

Abbreviations:

- MCC: multiple chronic conditions.
- PSA: prostate-specific antigen.
- GPs: general physicians.
- COPD: chronic obstructive pulmonary disease.
- SES: socioeconomic status.
- CVD: cardiovascular diseases.

REFERENCES

1. Nobili, Alessandro, Silvio Garattini, and Pier Mannuccio Mannucci. “Multiple Diseases and Polypharmacy in the Elderly: Challenges for the Internist of the Third Millennium.” Journal of Comorbidity, vol. 1, no. 1, SAGE Publications Sage UK: London, England, 2011, pp. 28–44.

2. Bjørland, Elisabeth, and Mette Brekke. “What Do Patients Bring up in Consultations? An Observational Study in General Practice.” Scandinavian Journal of Primary Health Care, vol. 33, no. 3, Taylor & Francis, 2015, pp. 206–11.

3. Deveugele, M., Derese, A., van den Brink-Muinen, A., Bensing, J., & De Maeseneer, J. “Consultation Length in General Practice: Cross Sectional Study in Six European Countries.” Bmj, vol. 325, no. 7362, British Medical Journal Publishing Group, 2002, p. 472.

4. Salisbury, Chris, Sunita Procter, Kate Stewart, Leah Bowen, Sarah Purdy, et al. “The Content of General Practice Consultations: Cross-Sectional Study Based on Video Recordings.” British Journal of General Practice, vol. 63, no. 616, British Journal of General Practice, 2013, pp. e751–59.

5. Kringos, Dionne S., Wienke GW Boerma, Allen Hutchinson, Jouke Van der Zee, and Peter P. Groenewegen. “The Breadth of Primary Care: A Systematic Literature Review of Its Core Dimensions.” BMC Health Services Research, vol. 10, no. 1, Springer, 2010, pp. 1–13.

6. Vardell, Emily. “Global Health Observatory Data Repository.” Medical Reference Services Quarterly, vol. 39, no. 1, Taylor & Francis, 2020, pp. 67–74.

7. Buttorff, Christine, Teague Ruder, and Melissa Bauman. Multiple Chronic Conditions in the United States. Rand Santa Monica, CA, 2017.

8. Fortin, Martin, Moira Stewart, Marie-Eve Poitras, José Almirall, and Heather Maddocks. “A Systematic Review of Prevalence Studies on Multimorbidity: Toward a More Uniform Methodology.” The Annals of Family Medicine, vol. 10, no. 2, Annals Family Med, 2012, pp. 142–51.

9. Kingston, Andrew, Louise Robinson, Heather Booth, Martin Knapp, Carol Jagger, et al. “Projections of Multi-Morbidity in the Older Population in England to 2035: Estimates from the Population Ageing and Care Simulation (PACSim) Model.” Age and Ageing, vol. 47, no. 3, Oxford University Press, 2018, pp. 374–80.

10. Ward, Brian W., Jeannine S. Schiller, and Richard A. “Peer Reviewed: Multiple Chronic Conditions among Us Adults: A 2012 Update.” Preventing Chronic Disease, vol. 11, Centers for Disease Control and Prevention, 2014.

11. Afshar, Sara, Paul J. Roderick, Paul Kowal, Borislav D. Dimitrov, and Allan G. Hill. “Multimorbidity and the Inequalities of Global Ageing: A Cross-Sectional Study of 28 Countries Using the World Health Surveys.” BMC Public Health, vol. 15, no. 1, Springer, 2015, pp. 1–10.

12. Arokiasamy, Perianayagam, Uttamacharya, and Kshipra Jain. “Multi-Morbidity, Functional Limitations, and Self-Rated Health among Older Adults in India: Cross-Sectional Analysis of LASI Pilot Survey, 2010.” Sage Open, vol. 5, no. 1, SAGE Publications Sage CA: Los Angeles, CA, 2015, p. 2158244015571640.

13. Violan, Concepció, Quintí Foguet-Boreu, Gemma Flores-Mateo, Chris Salisbury, Jeanet Blom, Michael Freitag, et al. “Prevalence, Determinants and Patterns of Multimorbidity in Primary Care: A Systematic Review of Observational Studies.” PloS One, vol. 9, no. 7, Public Library of Science San Francisco, USA, 2014, p. e102149.

14. Baker, Meghan A., Hsien-Ho Lin, Hsing-Yi Chang, and Megan B. Murray. “The Risk of Tuberculosis Disease among Persons with Diabetes Mellitus: A Prospective Cohort Study.” Clinical Infectious Diseases, vol. 54, no. 6, Oxford University Press, 2012, pp. 818–25.

15. Islam, F. M., J. Wu, J. Jansson, and D. P. Wilson. “Relative Risk of Cardiovascular Disease among People Living with HIV: A Systematic Review and Meta-Analysis.” HIV Medicine, vol. 13, no. 8, Wiley Online Library, 2012, pp. 453–68.

16. Jeon, Christie Y., and Megan B. Murray. “Correction: Diabetes Mellitus Increases the Risk of Active Tuberculosis: A Systematic Review of 13 Observational Studies.” PLoS Medicine, vol. 5, no. 8, Public Library of Science San Francisco, USA, 2008, p. e181.

17. Vogeli, Christine, Alexandra E. Shields, Todd A. Lee, Teresa B. Gibson, William D. Marder, et al. “Multiple Chronic Conditions: Prevalence, Health Consequences, and Implications for Quality, Care Management, and Costs.” Journal of General Internal Medicine, vol. 22, no. 3, Springer, 2007, pp. 391–95.

18. Sinnige, Judith, Jozé Braspenning, François Schellevis, Irina Stirbu-Wagner, Gert Westert, and Joke Korevaar.. “The Prevalence of Disease Clusters in Older Adults with Multiple Chronic Diseases–a Systematic Literature Review.” PloS One, vol. 8, no. 11, Public Library of Science San Francisco, USA, 2013, p. e79641.

19. Magnan, Elizabeth M., Mari Palta, Heather M. Johnson, Christie M. Bartels, Jessica R. Schumacher, and Maureen A. Smith. “The Impact of a Patient’s Concordant and Discordant Chronic Conditions on Diabetes Care Quality Measures.” Journal of Diabetes and Its Complications, vol. 29, no. 2, Elsevier, 2015, pp. 288–94.

20. Campbell, Michelle, Ray Fitzpatrick, Andrew Haines, Ann Louise Kinmonth, Peter Sandercock, David Spiegelhalter, et al. "Framework for design and evaluation of complex interventions to improve health." Bmj 321.7262 (2000): 694-696.

21. Curran, Geoffrey M., Mark Bauer, Brian Mittman, Jeffrey M. Pyne, and Cheryl Stetler. "Effectiveness-implementation hybrid designs: combining elements of clinical effectiveness and implementation research to enhance public health impact." Medical care 50.3 (2012): 217.

22. Jayathilaka, Ruwan, Sheron Joachim, Venuri Mallikarachchi, Nishali Perera, and Dhanushika Ranawaka.. "Chronic diseases: An added burden to income and expenses of chronically-ill people in Sri Lanka." PloS one 15.10 (2020): e0239576.

23. Roberts, Eyitope R., Daniel Green, and Umesh T. Kadam. "Chronic condition comorbidity and multidrug therapy in general practice populations: a cross-sectional linkage study." BMJ open 4.7 (2014): e005429.

24. Masnoon, Nashwa, Sepehr Shakib, Lisa Kalisch-Ellett, and Gillian E. Caughey. "What is polypharmacy? A systematic review of definitions." BMC geriatrics 17.1 (2017): 1-10.

25. Hosseini, Seyed Reza, Ali Zabihi, Seyedeh Roghayeh Jafarian Amiri, and Ali Bijani. "Polypharmacy among the elderly." Journal of mid-life health 9.2 (2018): 97.

26. Maher, Robert L., Joseph Hanlon, and Emily R. Hajjar. "Clinical consequences of polypharmacy in elderly." Expert opinion on drug safety 13.1 (2014): 57-65.

27. Dagli, Rushabh J., and Akanksha Sharma. "Polypharmacy: a global risk factor for elderly people." Journal of international oral health: JIOH 6.6 (2014): i.

28. Hohl, Corinne Michèle, Jerrald Dankoff, Antoinette Colacone, and Marc Afilalo. Polypharmacy, adverse drug-related events, and potential adverse drug interactions in elderly patients presenting to an emergency department. Ann Emerg Med. 2001; 38:666–71. [PubMed: 11719747]

29. Hajjar ER, Cafiero AC, Hanlon JT. Polypharmacy in elderly patients. Am J Geriatr Pharmacother. 2007; 5:345–51. [PubMed: 18179993]

30. Vik SA, Maxwell CJ, Hogan DB. Measurement, correlates, and health outcomes of medication adherence among seniors. Ann. Pharmacother. 2004; 38:303–12. [PubMed: 14742770]

31. Lee, Vivian WY, Kathy KW Pang, Ka Chun Hui, Jennifer CK Kwok, Siu Ling Leung, Doris Sau Fung Yu, and Diana Tze Fan Lee. Medication adherence: is it a hidden drug-related problem in hidden elderly? Geriatr Gerontol Int. 2013 [available on-lineMarch 3].

32. Colley CA, Lucas LM. Polypharmacy: the cure becomes the disease. J Gen Int Med. 1993; 8:278–83.

33. Salazar JA, Poon I, Nair M. Clinical consequences of polypharmacy in the elderly: xpect the unexpected, think the unthinkable. Expert Opin Drug Saf. 2007; 6:695–704. [PubMed: 17967158]

34. Jyrkkä, Johanna, Hannes Enlund, Piia Lavikainen, Raimo Sulkava, and Sirpa Hartikainen. Association of polypharmacy with nutritional status, functional ability and cognitive capacity over a three-year period in an elderly population. Pharmacoepidemiol Drug Saf. 2010; 20:514–522. [PubMed: 21308855]

35. Fletcher PC, Berg K, Dalby DM, Hirdes JP. Risk factors for falling among community-based seniors. J Patient Saf. 2009; 5:61–66. [PubMed: 19920442]

36. Nuotio M, Jylha M, Luukkaala T, Tammela T. Health problems associated with lower urinary tract symptoms in older women. Scand J Prim Care. 2005; 23:209–214.

37. Wastesson, Jonas W., Lucas Morin, Edwin CK Tan, and Kristina Johnell. "An update on the clinical consequences of polypharmacy in older adults: a narrative review." Expert opinion on drug safety 17.12 (2018): 1185-1196.

38. Doos, Lucy, Eyitope O. Roberts, Nadia Corp, and Umesh T. Kadam. "Multi-drug therapy in chronic condition multimorbidity: a systematic review." Family practice 31.6 (2014): 654-663.

39. GHAJARIEH, SEPANLOU S., Farin Kamangar, Hossein Poustchi, and Reza Malekzadeh. "Reducing the burden of chronic diseases: a neglected agenda in Iranian health care system, requiring a plan for action." (2010): 340-350.

40. Dantas, Inês, Rui Santana, João Sarmento, and Pedro Aguiar. "The impact of multiple chronic diseases on hospitalizations for ambulatory care sensitive conditions." BMC health services research 16.1 (2016): 1-8.

41. Franklin, Catherine M., Jean M. Bernhardt, Ruth Palan Lopez, Ellen R. Long-Middleton, and Sheila Davis. "Interprofessional teamwork and collaboration between community health workers and healthcare teams: An integrative review." Health services research and managerial epidemiology 2 (2015): 2333392815573312.

42. McPhail, Steven M. "Multimorbidity in chronic disease: impact on health care resources and costs." Risk management and healthcare policy 9 (2016): 143.

43. Ruben, Mollie A., Danielle Blanch- Hartigan, and Judith A. Hall. "Communication skills to engage patients in treatment." The Wiley Handbook of Healthcare Treatment Engagement: Theory, Research, and Clinical Practice (2020): 274-296.