

BÖLÜM 6

YAŞLILARDA KRONİK HASTALIKLAR

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GİRİŞ

Dünya Sağlık Örgütü (DSÖ) verilerine göre 60 yaş üstü bireylerin oranının 2050 yılında %22 olacağı tahmin edilmektedir (1). Ülkemizde ise 2017 yılı verilerine göre 65 yaş üzeri nüfusun %8.5 olduğu bildirilmektedir (2). Yaşlanmayla birlikte bireyde fizyolojik, psikolojik ve sosyal sorunlar gelişmektedir. Dolayısıyla yaşlı nüfusun artması sağlık hizmetleri başta olmak üzere, toplumsal ve ailesel düzeyde önemli değişimleri beraberinde getirir. Bu durumdan da hiç şüphesiz en çok bireyin kendisi etkilenir (3).

Yaşlanma, DSÖ tarafından stres ve çevresel etkenlere olan uyumun azalması şeklinde tanımlanmaktadır (1). Yaşlanma tüm hücre, doku ve organları etkileyerek vücut sistemlerinin çoğunda kademeli fonksiyon kaybı oluşumuna neden olmaktadır (4). Aynı zamanda bireyde fizyolojik, ruhsal ve psikososyal yönleriyle bir bütün olarak gelişen sorunları da kapsamaktadır (3). Tüm bu değişiklikler geri dönüşü olmayan fizyolojik bir sürecin bileşenidir ve hastalık durumundan bağımsız gerçekleşmektedir (5). Yaşlanmayla birlikte kardiyovasküler, solunum, boşaltım, gastrointestinal, kas-iskelet ve nörolojik sistem fonksiyonlarında bozulma meydana gelmektedir (5).

Günümüzde yaşlı nüfusun artması ve buna paralel olarak yaşlanmayla ortaya çıkan kronik hastalıklar da artmaktadır. Yaşlı bakımı özel bir alanı oluşturmaktayken kronik hastalığı olan yaşlıların bakımını daha önemli bir alanı oluşturmaktadır. Bu bölüm, yaşlıarda sık görülen kronik hastalıklar ve yönetimini ele almak amacıyla Bu bölümde yaşlanmanın sistemlere etkisi, kardiyovasküler sisteme ait kronik hastalıklar, endokrin sisteme ait kronik hastalıklar, nörolojik sisteme ait kronik hastalıklar, solunum sistemine ait kronik hastalıklar ve yönetimi ele alınacaktır.

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KAYNAKLAR

- WHO. Ageing and health, Key facts. [Online] <http://www.who.int/news-room/fact-sheets/detail/ageing-and-health>. [Accessed: 20 Sep 2021]
- TÜİK. Adrese Dayalı Nüfus Kayıt Sistemi Sonuçları, 2017. [Online] http://www.tuik.gov.tr/Pre-HaberBuletinerleri.do?i_d=27587 [Accessed: 20 Sep 2021]
- Akdeniz M, Kavukcu E, Eksan A. Yaşlanmaya bağlı fizyolojik değişiklikler ve kliniğe yansımaları. İzbırak G, Ed Birinci Basamakta Yaşı Sağlığı 1 Baskı Ankara *Türkiye Klin.* 2019;1-15.).
- Mathers JC, Deary IJ, Kuh D, et al. Guidelines for biomarkers of healthy ageing Prepared for the Medical Research Council by the MRC Unit for Lifelong Health and Ageing at UCL. 2012
- Boltz M, Capezuti E, Zwicker D, et al. "Age-related changes in health". Evidence-based geriatric nursing protocols for best practice. Springer Publishing Company. 2020;59-80.
- Paneni F, Canestro CD, Libby P, et al. The aging cardiovascular system: Understanding it at the cellular and clinical levels. *Journal of the American College of Cardiology*, 2017;69(19):1952–1967 . doi: 10.1016/j.jacc.2017.01.064 .
- Heckman GA, Forman, DE, Cheng S. Vascular aging and atherosclerosis. In: Halter JB, Ouslander JG, Tinetti ME, et al. (eds.) Hazzard's geriatric medicine and gerontology (7th ed.,2017. p.1145–1154). NY: McGraw-Hill
- Schroder TH, Storbeck B, Rabe KF, et al. The aging lung: Clinical and imaging findings and the fringe of physiological state. *Fortschr Rontgenstr.* 2015;187:430–439. doi:10.1055/s-0034-1399227.
- Sillanpaa E, Stenroth L, Biljlsma AY, et al. Associations between muscle strength, spirometric pulmonary function and mobility in healthy older adults. *American Aging Association.* 2014; 36: 9667. doi: 10.1007/s11357-014-9667-7.
- Lederer E, Nayak V. Disorders of fluid and electrolyte balance. In: Halter JB, Ouslander JG, Tinetti ME, et al. (eds.) Hazzard's geriatric medicine and gerontology. 7th ed. 2017. p.1317–1332. NY: McGraw-Hill.
- Hall KE. Aging of the gastrointestinal system. In: Halter JB, Ouslander JG, Tinetti ME, et al. (eds.) Hazzard's geriatric medicine and gerontology. 7th ed. 2017. p.1333–1342. NY: McGraw-Hill.
- TodorovaV, Blokland A. Mitochondria and synaptic plasticity in the mature and aging nervous system. *Current Neuropharmacology.* 2017;15:166–173. doi:10.2174/1570159X14666160414111821).
- Paladina S, Conte A, Caggiano R, et al. Nrf2 pathway in age-related neurological disorders: Insights into micro RNAs . *Cellular Physiology and Biochemistry.* 2018;47: 1951–1976 . doi: 10.1159/000491465).
- Prince MJ, Guo Y, Gutierrez Robledo LM et al. The burden of disease in older people and implications for health policy and practice. *Lancet.* 2015;385:549–546.
- Galobardes B, Smith GD, Lynch JW. Systematic review of the influence of childhood socio-economic circumstances on risk for cardiovascular disease in adulthood. *Ann Epidemiol.* 2006;16(2):91–104.
- Hardy R, Kuh D, Langenberg C, et al. Birthweight, childhood social class, and change in adult blood pressure in the 1946 British birth cohort. *Lancet* 2003;362:1178–1183
- Zhou P, Hughes AK, Grady SC, et al. Physical activity and chronic diseases among older people in a mid-size city in China: A longitudinal investigation of bipolar effects. *BMC Public Health.* 2018;18(1):1–15.
- Guzik TJ, Touyz RM. Oxidative stress, inflammation, and vascular aging in hypertension. *Hypertension.* 2017;70:660–667.
- Jousilahti P, Laatikainen T, Pelttonen M, et al. Primary prevention and risk factor reduction in coronary heart disease mortality among working aged men and women in eastern Finland over 40 years: population based observational study. *BMJ* 2016;352:i721. <https://doi.org/10.1136/bmj.i721>.

20. Michel J-P. Prevention of chronic diseases and age-related disability [Internet]. 2019. p.199. Available from: <http://link.springer.com/10.1007/978-3-319-96529-1>.
21. Öztürk A. Sol ana koroner arter hastalığı risk faktörlerinin akut koroner sendrom ve stabil koroner arter hastalığı üzerine etkisi. *Sakarya Medical Journal*. 2021. doi:10.31832/smj.847622.
22. Ayaz G, Karadağ B, Güven M, et al. Koroner Arter Hastalığı Siddeti ve Trombosit Agregasyonu. *Istanbul University Institute of Health Sciences Journal of Advanced Research in Health Sciences*. 2021;4(1). doi:10.26650/jarhs2021-843387.
23. Güngör ZB, Ekmekçi H, Tüten A, et al. Is there any relationship between adipocytokines and angiogenesis factors to address endothelial dysfunction and platelet aggregation in untreated patients with preeclampsia? *Arch Gynecol Obstet*. 2017;296(3):495-502.
24. İkitimur B, Karadağ B, Öngen Z. Yaşlılarda koroner arter hastalığı. *Turkish Journal of Geriatrics*. 2010 (Supp 2):13-20.
25. Gillis NK, Arslanian-Engoren C, Struble LM. Acute coronary syndromes in older adults: a review of literature. *J Emerg Nurs*. 2014;40(3):270-5; quiz 292. doi: 10.1016/j.jen.2013.03.003. Epub 2013 May 3. PMID: 23647882.
26. Cacciata MC, Alvarado I, Jose MM. Health determinants and risk factors for coronary artery disease among older Filipinos in rural communities. *Eur J Cardiovasc Nurs*. 2021; 20;20(6):565-571. doi: 10.1093/eurjcn/zvaa039. PMID: 34019082; PMCID: PMC8324596.
27. Lu M, Hravnak M, Ma J, et al. Prediction of changes in adherence to secondary prevention among patients with coronary artery disease. *Nurs Res*. 2020;69(5):E199-E207. doi: 10.1097/NNR.0000000000000433. PMID: 32205787.
28. Hickson RP, Robinson JG, Annis IE, et al. Changes in statin adherence following an acute myocardial infarction among older adults: Patient predictors and the association with follow-up with primary care providers and/or cardiologists. *Journal of the American Heart Association*. 2017;6:e007106. doi:10.1161/JAHA.117.007106.
29. Luckson M. Hypertension management in older people. *Br J Community Nurs*. 2010;15(1):17-21. doi: 10.12968/bjcn.2010.15.1.45779. PMID: 20216514.
30. WHO. (2019). Hypertension. [Online] Retrieved from: <https://www.who.int/news-room/fact-sheets/detail/hypertension>. [Accessed: 24 Sep 2021]
31. Moss KO, Still CH, Jones LM, et al. Hypertension self-management perspectives from african american older adults. *West J Nurs Res*. 2019;41(5):667-684. doi: 10.1177/0193945918780331. Epub 2018 Jun 28. PMID: 29954259; PMCID: PMC6274623.
32. Whelton PK, Carey RM, Aronow WS, et al. 2017 ACC/- AHA/AAPA/ABC/ACPM/AGS/ APhA/ASH/ASPC/NMA/PCNA guideline for the prevention, detection, evaluation, and management of high blood pressure in adults: Executive summary: A report of the American College of Cardiology/American Heart Association Task Force on Clinical Practice Guidelines. *Journal of the American College of Cardiology*, 2018;71(19): 2199–2269. <https://doi.org/10.1016/j.jacc.2017.11.005>.
33. Benjamin EJ, Blaha MJ, Chiuve SE, et al. Heart disease and stroke statistics—2017 Update: A report from the American Heart Association. *Circulation*, 2017;135(10): e146-e603. doi: 10.1161/CIR.0000000000000485.
34. Jurgens CY, Goodlin S, Dolansky M, et al. Heart failure management in skilled nursing facilities: a scientific statement from the American Heart Association and the Heart Failure Society of America. *J Card Fail*, 2015;21: 263-99.
35. Rong X, Peng Y, Yu HP, et al. Cultural factors influencing dietary and fluid restriction behaviour: perceptions of older Chinese patients with heart failure. *J Clin Nurs*. 2017;26(5-6):717-26.
36. Song EK, Wu JR. Associations of vitamin D intake and sleep quality with cognitive dysfunction in older adults with heart failure. *J Cardiovasc Nurs*. 2018;33(4):392-9.
37. Wu FL, Tai HC, Sun JC. Self-management experience of middle-aged and older adults with type 2 diabetes: A Qualitative Study. *Asian Nurs Res (Korean Soc Nurs Sci)* [Internet]. 2019;13(3):209-15. Available from: <https://doi.org/10.1016/j.anr.2019.06.002>.
38. Lean MEJ, Leslie WS, Barnes AC, et al. Primary care-led weight management for remission of

- T2D (direct): an open label, cluster-randomised trial. *Lancet* 2018; 391(10120):541–551. [https://doi.org/10.1016/S0140-6736\(17\)33102-1](https://doi.org/10.1016/S0140-6736(17)33102-1).
- 39. Powers MA, Bardsley J, Cypress M, et al. Diabetes self-management education and support in type 2 diabetes: a joint position statement of the American diabetes association, the American association of diabetes educators, and the academy of nutrition and dietetics. *Clin Diabetes*.2016;34(2):70e80. <https://doi.org/10.2337/diaclin.34.2.70>.
 - 40. Tan CCL, Cheng KKF, Wang W. Self-care management programme for older adults with diabetes: An integrative literature review. *Int J Nurs Pract.* 2015;21(S2):115–24.
 - 41. Koo M, Lee MH, Chang YY, et al. Factors associated with self-care behaviors in middle-aged adults and elderly with diabetes mellitus. *J Nurs.* 2011;58(5):43e52.
 - 42. Weinger K, Beverly EA, Smaldone A. Diabetes self-care and the older adult. *West J Nurs Res.* 2014;36(9):1272–98.
 - 43. Kirkman MS, Briscoe VJ, Clark N, et al. Diabetes in older adults. *Diabetes Care.* 2012; 35(12):2650–2664. [10.2337/dc12-1801](https://doi.org/10.2337/dc12-1801).
 - 44. American Diabetes Association. Standards of medical care in diabetes--2013. *Diabetes Care.* 2013b; 36 (Suppl 1):S11–S66. [10.2337/dc13-S011](https://doi.org/10.2337/dc13-S011) .
 - 45. Seaquist ER, Anderson J, Childs B, et al. Hypoglycemia and diabetes: A report of a workgroup of the American Diabetes Association and the Endocrine Society. *Diabetes Care.* 2013; 36(5):1384–1395. [10.2337/dc12-2480](https://doi.org/10.2337/dc12-2480).
 - 46. Hammond L, Pullen RL. Managing loneliness and chronic illness in older adults. *Nursing (Lond).* 2020;50(12):22–8.
 - 47. Hyman BT, Phelps CH, Beach TG, Bigio EH, Cairns NJ, Carrillo MC, et al. National Institute on Aging-Alzheimer's Association guidelines for the neuropathologic assessment of Alzheimer's disease. *Alzheimers Dement* 2012;8:1–13.
 - 48. Bondi MW, Edmonds EC, Salmon DP. Alzheimer's disease: past, present, and future. *J Int Neuropsychol Soc.* 2017;23:818–3.
 - 49. Aslan SN, Karahalil B. Oksidatif stres ve parkinson hastalığı. *Journal of Faculty of Pharmacy of Ankara University.* 2019;43(1): 94-116.
 - 50. Aşiret GD, Kapucu S. The effect of reminiscence therapy on cognition, depression and activities of daily living for patients with Alzheimer disease. *J Geriatr Psychiatry Neurol.* 2016;29(1): 31-37
 - 51. Keleş E, Özalevli S. Alzheimer hastalığı ve tedavi yaklaşımları. *İzmir Kâtip Çelebi Üniversitesi Sağlık Bilimleri Fakültesi Dergisi* 2018; 3(2): 39-42
 - 52. Gurvit İH. Demans Sendromu, Alzheimer Hastalığı ve Alzheimer Dışı Demanslar. İstanbul Tıp Fakültesi Nöroloji Kitabı, 2011. p:443
 - 53. Heun R, Schoepf D, Potluri R, et al. Alzheimer's disease and co-morbidity: Increased prevalence and possible risk factors of excess mortality in a naturalistic 7-year follow up. *European Psychiatry,* 2013;28(1): 40-48.
 - 54. Manabe T, Mizuukami K, Akatsu H, et al. Influence of pneumonia complications on the prognosis of patients with autopsy-confirmed Alzheimer's disease, dementia with Lewy bodies, and vascular dementia. *Psychogeriatrics.* 2016;16(5): 305-314.
 - 55. Giri M, Zhang M, Lu Y. Genes associated with Alzheimer's disease: an overview and current status. *Clin Interv Aging.* 2016;11:665–81.
 - 56. Mayeux R, Stern Y. Epidemiology of Alzheimer Disease. *Cold Spring Harb Perspect Med.* 2012;2:a006239.
 - 57. Lesuis SL, Maurin H, Borghgraef P, et al. Positive and negative early life experiences differentially modulate long term survival and amyloid protein levels in a mouse model of Alzheimer's disease. *Oncotarget.* 2016;7(26):39118–35.
 - 58. Wu KY, Lin KJ, Chen CH, et al. Diversity of neurodegenerative pathophysiology in nondemented patients with major depressive disorder: Evidence of cerebral amyloidosis and hippocampal atrophy. *Brain Behav.* 2018;8 (7):e01016.
 - 59. Shi L, Chen SJ, Ma MY, et al. Sleep disturbances increase the risk of dementia: a systematic

- review and meta-analysis. *Sleep medicine reviews*, 2018;40:4-16.
- 60. Espeland MA, Rapp SR, Manson JE, et al. Long-term effects on cognitive trajectories of postmenopausal hormone therapy in two age groups. *J Gerontol A Biol Sci Med Sci*. 2017;72(6):838-45.
 - 61. Xu W, Yu JT, Tan MS, et al. Cognitive reserve and Alzheimer's disease. *Mol Neurobiol*. 2015;51(1):187-208.
 - 62. de Wilde MC, Vellas B, Girault E, et al. Lower brain and blood nutrient status in Alzheimer's disease: Results from meta-analyses. *Alzheimers Dement (NY)*. 2017;3:416-31.
 - 63. Alzheimers stage. [Online] <https://www.alz.org/alzheimers-dementia/stages>. [Accessed: 29 Sep 2021]
 - 64. Yiannopoulou KG, Papageorgiou SG. Current and future treatments in Alzheimer disease: an update. *Journal of central nervous system disease*, 2020;12: 1179573520907397.
 - 65. Na R, Yang JH, Yeom Y, et al. A systematic review and meta-analysis of nonpharmacological interventions for moderate to severe dementia. *Psychiatry Investig*. 2019;16:325-335.
 - 66. Atri A. Current and future treatments in Alzheimer's disease. *Semin Neurol*. 2019;39:227-240.
 - 67. GBD 2016 Parkinson's Disease Collaborators. Global, regional, and national burden of Parkinson's disease, 1990-2016: a systematic analysis for the Global Burden of Disease Study 2016. *Lancet Neurol*. 2018;17(11):939-953. doi:10.1016/S1474-4422(18)30295-3.
 - 68. Dickson DW, Braak H, Duda JE, et al. Neuropathological assessment of Parkinson's disease: refining the diagnostic criteria. *Lancet Neurol* 2009;8:1150-7.
 - 69. Gelb DJ, Oliver E, Gilman S. Diagnostic criteria for Parkinson disease. *Arch Neurol*. 1999;56:33-39
 - 70. Parkinson hastalığı. [Online] [https://www.noroloji.org.tr/TNDData/Uploads/files/parkinson_iki%20renk%20ayarl%C4%B1%20\(1\).pdf](https://www.noroloji.org.tr/TNDData/Uploads/files/parkinson_iki%20renk%20ayarl%C4%B1%20(1).pdf). [Accessed: 29 Sep 2021]
 - 71. Noyce AJ, Bestwick JP, Silveira-Moriyama L, et al. Meta-analysis of early nonmotor features and risk factors for Parkinson disease. *Annals of Neurology*, 2012;72(6): 893-901.
 - 72. Fereshtehnejad SM, Montplaisir JY, Pelletier A, et al. Validation of the MDS research criteria for prodromal Parkinson's disease: Longitudinal assessment in a REM sleep behavior disorder (RBD) cohort. *Mov Disord* 2017;32:865-73.
 - 73. Pedrosa DJ, Timmermann L. Management of Parkinson's disease. *Neuropsychiatric disease and treatment*, 2013;9:321.
 - 74. van Nimwegen M, Speelman AD, Overeem S, et al. Promotion of physical activity and fitness in sedentary patients with Parkinson's disease: Randomised controlled trial. *British Medical Journal*, 2013;346(f576). doi:10.1136/bmj.f576.
 - 75. Rae-Grant AD, Turner AP, Sloan A, et al. Self-management in neurological disorders: Systematic review of the literature and potential interventions in multiple sclerosis care. *Journal of Rehabilitation Research & Development*, 2011;48:1087-1100.
 - 76. Pretzer-Aboff I, Galik E, Resnick B. Feasibility and impact of a function focused care intervention for Parkinson's disease in the community. *Nursing Research*, 2011;60:276-283.
 - 77. Shin Ju Young. Nursing Research in Parkinson's Disease From 2006 to 2015: A Systematic Review. *Clinical Nursing Research* 2017; 26(2):142-156
 - 78. Fincher L. Using telehealth to educate parkinson's disease patients about complicated medication regimens. *Journal of Gerontological Nursing*. 2009.
 - 79. Lee J, Choi M, Yoo Y. A meta-analysis of nonpharmacological interventions for people with Parkinson's disease. *Clinical Nursing Research*, 2017;26(5):608-631.
 - 80. Lee SH, Yim SJ, Kim HC. Aging of the respiratory system. *Kosin Medical Journal*, 2016;31(1):11-18
 - 81. Adığüzel N. Göğüs Duvarı Hastalıkları. 2020. [Online] <http://File.Lookus.Net/TGHYK/Tghyk.30.Pdf>. [Accessed date: 30 Sep 2021]
 - 82. Ağar A. Yaşlılarda Ortaya Çıkan Fizyolojik Değişiklikler. *Ordu Üniversitesi Hemşirelik Çalışmaları Dergisi*, 2020;3(3):347-354.
 - 83. Beğer T. Geriatrik yaş grubunda fizyolojik değişiklikler. 2003. [Online] <http://www.tihud.org.tr/uploads/content/kongre/5/5.31.pdf>. [Accessed date: 30 Sep 2021]

84. Singh D, Agusti A, Anzueto A, et al. Global strategy for the diagnosis, management, and prevention of chronic obstructive lung disease: the GOLD science committee report 2019. *European Respiratory Journal*, 2019; 53(5).
85. KOAH patogenezi ve fizyopatolojisi. [Online] file:///C:/Users/Baykal/Downloads/2422011175421-114118%20(1).pdf [Accessed date: 30 Sep 2021]
86. Tanımlama ve hastalığa genel bakış. Kronik obstrüktif akciğer hastalığı (KOAH) koruma, tanı ve tedavi raporu 2014. Turkish Thoracic Journal. 2014. Supp 2. April. ISSN:1302-7808.
87. Brashier BB, Kodgule R. Risk factors and pathophysiology of chronic obstructive pulmonary disease (COPD). *J Assoc Physicians India* 2012;60:17-21.
88. Mirza S, Clay RD, Koslow MA, et al. COPD guidelines: a review of the 2018 GOLD report. In *Mayo Clinic Proceedings* 2018; (93)10:1488-1502). Elsevier.
89. TÜSAD KOAH Çalışma Grubu. GOLD 2017 değerlendirme raporu ve stabil KOAH'da tanı, değerlendirme, farmakolojik tedavi önerileri. [Online] <https://www.solunum.org.tr/TusadData/Bookcase/910201714150.pdf> [Accessed date: 30 Sep 2021]
90. Wu J, Sin DD. Improved patient outcome with smoking cessation: when is it too late? *Int J Chronic Obstruct Pulmonary Dis* 2011;6:259.
91. The Global Initiative for Chronic Obstructive Lung Disease [GOLD] [Online] <https://goldcopd.org/wp-content/uploads/2017/11/GOLD-2018>. [Accessed date: 30 Sep 2021]
92. ur Rehman A, Hassali MAA, Abbas S, et al. Pharmacological and non-pharmacological management of COPD; limitations and future prospects: a review of current literature. *Journal of Public Health*, 2019; 1-10.
93. Spruit MA, Singh SJ, Garvey C, et al. Key concepts and advances in pulmonary rehabilitation based on the official 2013 American Thoracic Society/European Respiratory Society statement on pulmonary rehabilitation. *Am J Respir Crit Care Med*, 2013;188: e13-e64.
94. Yusen RD, Criner GJ, Sternberg AL, et al. The long-term oxygen treatment trial for chronic obstructive pulmonary disease: rationale, design, and lessons learned. *Annals of the American Thoracic Society*, 2018;15(1): 89-101.
95. Ahn JH, Chung JH, Shin KC, et al. The effects of repeated inhaler device handling education in COPD patients: a prospective cohort study. *Scientific Reports*, 2020;10(1):1-9.
96. van Geffen WH, Slebos DJ, Herth FJ, et al. Surgical and endoscopic interventions that reduce lung volume for emphysema: a systemic review and meta-analysis. *The Lancet Respiratory Medicine*, 2019;7(4): 313-324.
97. Kar S, Zengin N. The relation between self-efficacy in patients with chronic obstructive pulmonary disease and caregiver burden. *Scandinavian journal of caring sciences*, 2020;34(3):754-761.
98. Wysokiński A, Sobów T, Kłoszewska I, et al. Mechanisms of the anorexia of aging—a review. *Age*. 2015; 37(4), 1-14. doi: 10.1007/s11357-015-9821-x.
99. Trevisan, C., Crippa, A., Ek, S., Welmer, A. K., Sergi, G., Maggi, S., ... & Rizzuto, D. (2019). Nutritional status, body mass index, and the risk of falls in community-dwelling older adults: a systematic review and meta-analysis. *Journal of the American Medical Directors Association*, 20(5), 569-582.
100. Crooke SN, Ovsyannikova IG, Poland GA, Kennedy RB. Immunosenescence and human vaccine immune responses. *Immun Ageing*. 2019; 16:25. doi: 10.1186/s12979-019-0164-9
101. Coll PP, Costello VW, Kuchel GA, et al. The prevention of infections in older adults: vaccination. *Journal of the American Geriatrics Society*. 2020; 68(1), 207-214. doi: 10.1111/jgs.16205
102. Sağlık Bakanlığı. Yetişkin aşılama. [Online] <https://asi.saglik.gov.tr/asi-kimlere-yapilir/liste/30-yeti%C5%9Fkin-a%C5%9F%C4%B1lama.html> [Accessed: 2th December 2021].
103. Suzuki K, Miyamoto M, Hirata K. Sleep disorders in the elderly: Diagnosis and management. *Journal of General and Family Medicine*. 2017;18(2):61-71. doi: 10.1002/jgf2.27.
104. Safa A, Adib HM, Moradi T. Quality of sleep and its related factors in elderly and retired teachers of Kashan (2015). *Avicenna Journal Of Nursing And Midwifery Care* 2016;4(51):29-38
105. Jaussent I, Bouyer J, Ancelin ML, et al. Insomnia and daytime sleepiness are risk factors for depressive symptoms in the elderly. *Sleep*. 2011;34(8):1103-1110. doi: 10.5665/SLEEP.1170