HEALTH PROBLEMS AND DISEASES ASSOCIATED WITH GERIATRIC AMONG ELDERLY SAUDI POPULATION: A CROSS-SECTIONAL STUDY

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Abstract:
Objective: To assess and understand the health problems and diseases associated with geriatric individuals in the Saudi Arabian elderly population.
Methods: This research will employ a cross-sectional study design. A cross-sectional approach is suitable for investigating the prevalence of health problems and diseases in the geriatric population of Saudi Arabia at a specific point in time, providing valuable insights into the current health status of this demographic.
Results: The study included 493 participants. The most frequent weight among them was 66-75 kg (n= 126, 25.6%) followed by 51-65 kg (n= 117, 23.7%). The most frequent height among study participants was 11.61-1.70 m (n= 176, 35.7%) followed by 1.51-1.60 m (n= 156, 31.6%). The most frequent body mass index value among study participants was 25-29.9 kg/m² (n= 190, 38.5%) followed by 18.5-24.9 kg/m² (n= 129, 26.2%). Participants were asked if they lived alone or with their children. The most frequent said with children (n= 350, 71%), followed by independent (n= 143, 29%). Participants were asked about a number of medications. The most frequent was don't take any medication (n=186,37.7%), followed by 2-3 times a week (n=106, 21.5%).
Conclusion: Study results showed that most of the study participants are overweight according to their BMI. They most commonly lived with their children. They are non-smokers. Their physical activity is low. In addition, most of the study participants had good social connections.

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INTRODUCTION:

Rising life expectancy is one of the most visible societal effects of rising incomes. There will be more adults 65 and over than there are children under 14 by the year 2050 [1]. Huge proportions of the world's elderly reside in poor nations where access to healthcare is uneven. Furthermore, health in old age is linked to health in younger years, from conception to death. Intrauterine growth retardation for example raises the risk of disorders of the cardiovascular system and diabetes in later life [1]. The increased risk of acquiring diabetes, cardiovascular disease, cancer, respiratory and musculoskeletal issues in childhood obesity persists throughout adulthood and into old age. Rapidly growing nations with galloping economies are encountering both extremes-child hunger among the impoverished and kid obesity among the nouveau riche. In the following decades, this trend will become apparent as an increased prevalence of noncommunicable illnesses among the elderly. The future difficulties in geriatric medicine may be estimated with the use of repeated cross-sectional surveys among the elderly population.

Several major problems have been highlighted by research on the industrialized world. Tomstad et al. [2], in their research of the elderly, found that those who live alone are more likely to be malnourished. However, only 35.1% of the 450 seniors they contacted participated in the research. Hearing, mobility, memory, chronic illness, exercise, gambling, and being single were all factors in a study of 325 Australian seniors living in the community that was conducted by Foottit and Anderson [3]. To better comprehend the requirements of the aged population, an ecological perspective has been proposed by Harris and Grootjans [4]. Therefore, research into the health and social issues of the elderly is required in each nation.

Recent research in India has shed light on some of the health and social issues faced by the elderly. Some studies, however, had restricted sample sizes and were focused on urban regions only [5-7]. Studies with bigger samples were often conducted in clinical settings [8].

In light of the growing number of elderly people in India and the attendant health and social issues, the World Health Organization (WHO) and the Government of India conducted a community-based cross-sectional study at 10 sites across the country. All participants were 60 or older [9-10], Each center researched 1,000 people, with an equal split between rural and urban residents. The enormous sample size in this research allowed for a high degree of accuracy, but it was not able to draw conclusions about any subset of the population in particular.

This study aimed to identify some of the health issues unique to these underprivileged groups, as well as to determine whether there is any rural-urban and gender difference in the health concerns of the elderly among these marginalized groups living in urban slum and rural areas.

The aging population is a global demographic challenge, and Saudi Arabia is no exception. The elderly population in Saudi Arabia is rapidly growing, and with it comes a surge in health-related issues and diseases among the elderly. This research problem aims to investigate the prevalence and nature of health problems and diseases in the geriatric population of Saudi Arabia through a cross-sectional study. Understanding the specific health challenges faced by the elderly in Saudi Arabia is essential for healthcare planning and resource allocation in the country. This study will shed light on the current status of geriatric health and provide valuable insights for policymakers and healthcare professionals.

Saudi Arabia is a unique cultural and social context, and the lifestyle, dietary habits, and healthcare systems in the country may contribute to distinct health challenges among the elderly population. Exploring the health problems and diseases in this demographic is vital for tailoring healthcare services to meet their specific needs. Furthermore, the study will assess the

accessibility and quality of healthcare services for the elderly in Saudi Arabia, and whether there are disparities in care among different regions or socio-economic groups. By identifying these problems, the research can serve as a foundation for developing targeted interventions and policies to improve the overall well-being of the elderly population in Saudi Arabia.

The findings of this cross-sectional study will contribute to the existing body of knowledge on geriatric health issues in Saudi Arabia and could have wider implications for other countries facing similar demographic challenges. Moreover, this research problem has the potential to inform and guide healthcare practitioners, policymakers, and researchers in designing effective strategies to enhance the quality of life for the elderly in Saudi Arabia, ultimately reducing the burden of geriatric health problems and diseases on individuals and the healthcare system.

METHODS:

Study design
This research will employ a cross-sectional study design. A cross-sectional approach is suitable for investigating the prevalence of health problems and diseases in the geriatric population of Saudi Arabia at a specific point in time, providing valuable insights into the current health status of this demographic.

Study approach
The study will be conducted in various regions of Saudi Arabia, including urban and rural areas. This diverse selection of settings will allow for a more comprehensive understanding of the health problems and diseases experienced by the elderly across different socio-cultural and environmental contexts.

Study population
The population of interest for this research consists of geriatric individuals aged 65 years and older living in Saudi Arabia. A random sample will be drawn from this population to ensure representativeness and generalizability of the findings.

Study sample
A stratified random sampling technique will be employed to ensure that the sample represents the diversity of regions within Saudi Arabia. Stratification will be based on geographic locations, such as major cities, smaller towns, and rural areas, to obtain a balanced sample that reflects the population distribution.

Study tool
For the current study, a questionnaire was adopted for data collection, which was also categorized as a study tool.

Data collection
Data will be collected through structured interviews and medical examinations. Trained research personnel will administer questionnaires to the participants to gather information on their health conditions, lifestyle factors, and socio-demographic characteristics. Additionally, medical professionals will conduct physical examinations and health assessments to verify the presence of specific health problems and diseases.

Data analysis
Data analysis will involve descriptive statistics to summarize the prevalence of health problems and diseases. Inferential statistics, such as chi-squared tests and regression analysis, will be used to identify associations between risk factors and health issues. The statistical software package SPSS (Statistical Package for the Social Sciences) will be employed for data analysis.

Ethical considerations
This study will adhere to ethical guidelines and obtain ethical approval from relevant institutional review boards. Informed consent will be obtained from all participants, and their confidentiality and privacy will be strictly maintained throughout the research process. Participants will have the right to withdraw from the study at any point without consequences. Data will be anonymized and stored securely to protect the participants' identities and privacy.

RESULTS:
The study included 493 participants. The most frequent weight among them was 66-75 kg (n= 126, 25.6%) followed by 51-65 kg (n= 117, 23.7%). Figure 1 shows the weight distribution among study participants. The most frequent height among study participants was 11.61-1.70 m (n= 176, 35.7%) followed by 1.51-1.60 m (n= 156, 31.6%). Figure 2 shows the height distribution among study participants. The most frequent body mass index value among study participants was 25-29.9 kg/m^2 (n= 190, 38.5%) followed by 18.5-24.9 kg/m^2 (n= 129, 26.2%). Figure 3 shows the distribution of BMI among study participants.
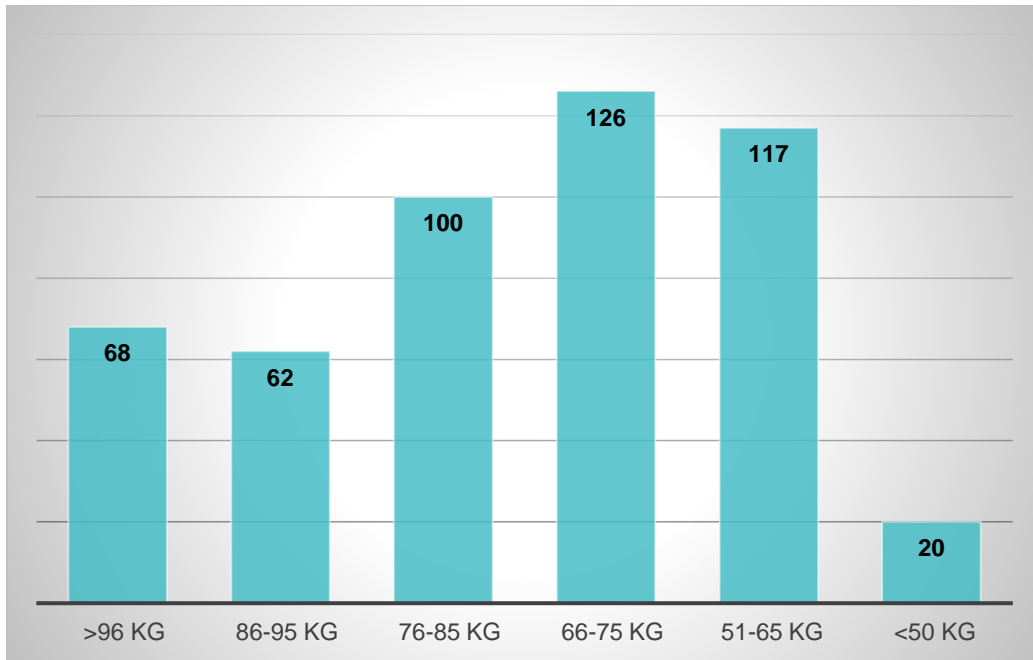
Figure 1: Weight distribution among study participants
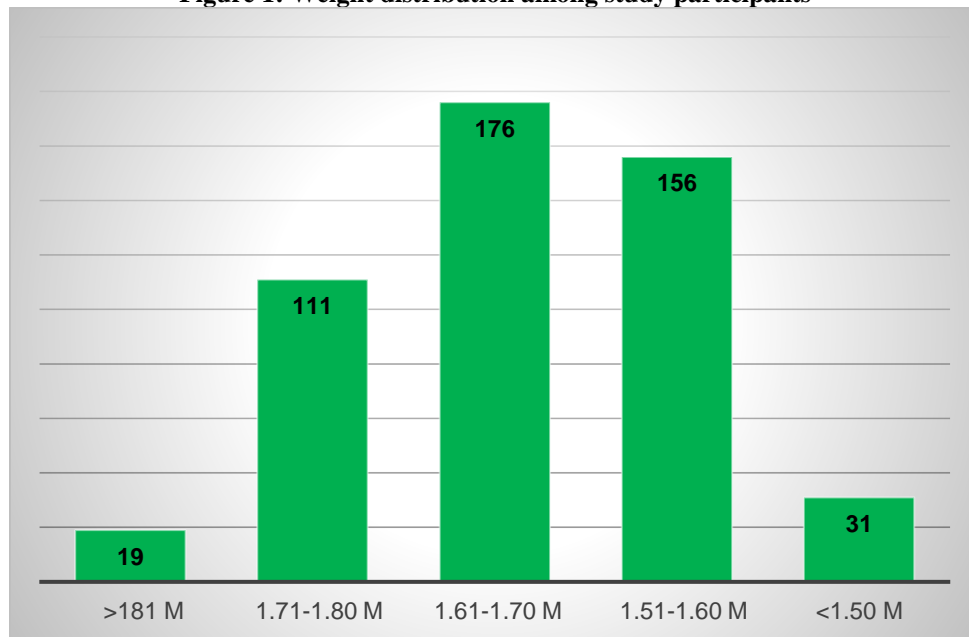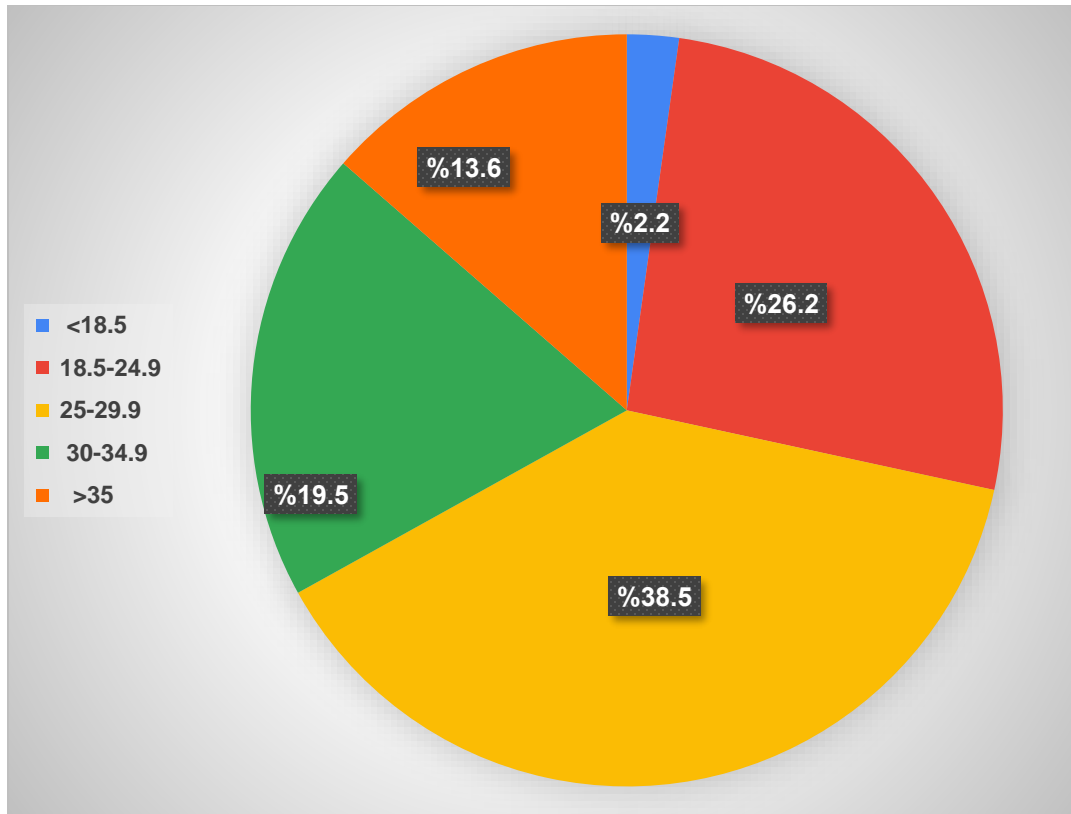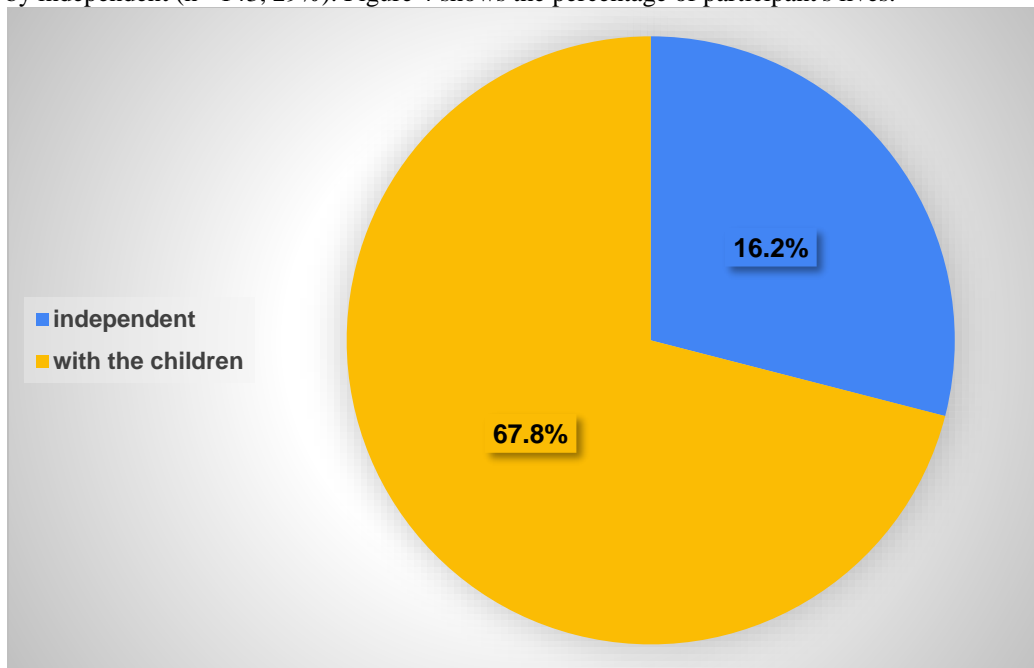

Figure 2: Height distribution among study participants

Figure 3: BMI distribution among study participants

Participants were asked if they lived alone or with their children. The most frequent said with children (n= 350, 71%), followed by independent (n= 143, 29%). Figure 4 shows the percentage of participant's lives.


Figure 4: percentage of participant's lives.

Participants were asked about a number of medications. The most frequent were don't take any medication (n=186,37.7%), followed by 2-3 times a week (n=106, 21.5%).

Participants were asked to assess their lives. Their responses and results are presented in Table 1.

Table 1: lives among study participants		
survey item	Yes	No
Have you been hospitalized during the past year?	188	305
	38.1%	61.9%
Do you take medications for the diseases mentioned above?	265	228
	53.8%	46.2%
Do you smoke?	84	409
	17.0%	83.0%
Is there anyone taking care of you at home?	356	137
	72.2%	27.8%

Participants spent time doing exercises during the week. Figure 5 shows participants' exercise during the week.
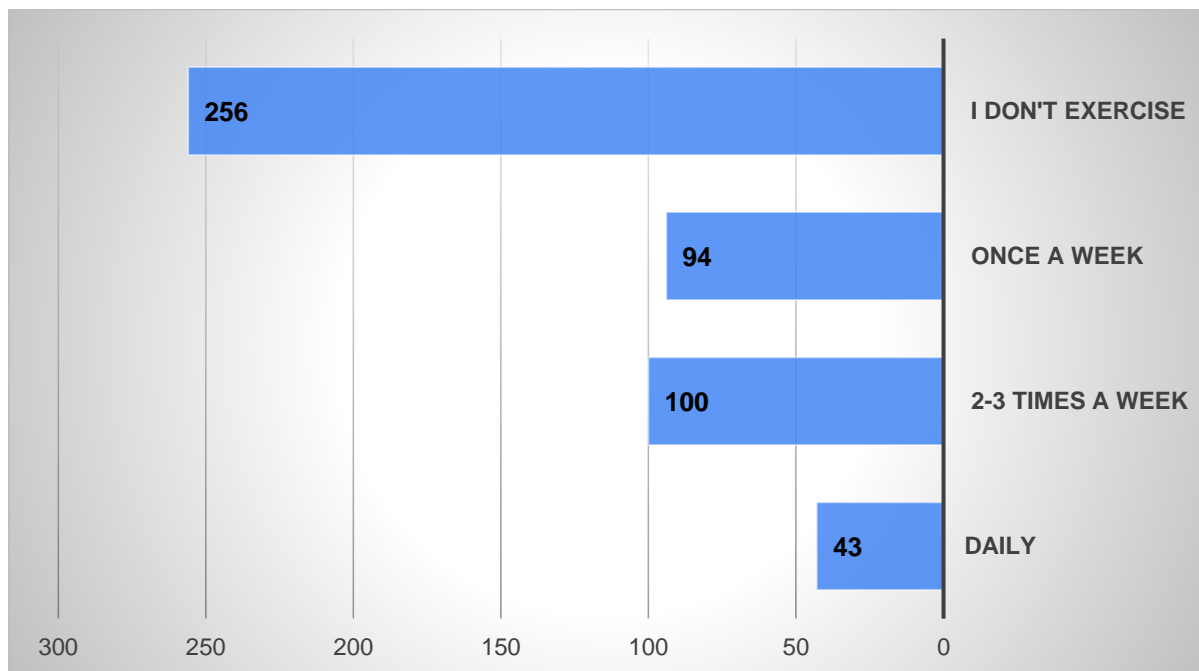
Figure 5: participants' exercise during the week.

DISCUSSION:

As a result of increased longevity and a post-World War II baby boom, the proportion of national populations over the age of 65 has been rising over the last decade and is expected to continue doing so for the next 20 years. The percentage of people over 85 years old is expected to increase rapidly beginning in 2030. The population of people over 80 years old is expected to quadruple between 2015 and 2050 [11]. Some countries are aging at an alarming rate. Now is the moment for the public health sector to prepare for the "older-older age wave." Many communities have started to study ways to make themselves more "elder-friendly." The home, community, and institutional care needs of the baby boom generation will increase significantly between the ages of 65 and 85.

Currently, the aging process spans over three decades, or more than one generation. The terms "young-old," "old," and "old-old" are often used to classify the various older adult groups. The "young-old" refers to the demographic of healthy and physically active seniors in their 60s and 70s. The "old" are those in their 70s and 80s who are slowing down and experiencing some annoying symptoms due to chronic diseases. It's very uncommon for the "old-old" or "oldest-old" [14] to be ill, crippled, or even on their deathbed.

Clinicians and caregivers of the elderly would do well to anticipate and prepare for the most probable aging trajectories for their patients. This research proposes a model for the clinical and public health demands of

senior population. Normal aging, frequent illnesses, and functional, cognitive/psychiatric, and social changes all contribute to the alterations that occur about the time a person reaches the chronological age of 85.

Normal Aging
Although changes can be described in every organ system, this review will address changes with public health and clinical decision-making implications.

Sensory Changes
Hearing Loss
Presbycusis, a gradual decline in hearing, and the increasing generation of cerumen that comes with age both contribute to diminished hearing. The incidence of hearing loss rises as a function of age and cumulative risk factors and has a substantial correlation with impaired quality of life [15]. About half of all persons over the age of 85 have some kind of hearing loss [16]. Even a little hearing loss may make it difficult to understand what is being said, especially in noisy environments with several speakers or when the speaker is speaking quickly. Therefore, places where many people congregate are particularly prone to problems with verbal communication. Increased isolation contributes to the downward spiral of depression, cognitive impairment, and quality of life that has been linked to hearing loss.

Hearing aids have the potential to improve the lives of the elderly and boost their mental faculties [17]. One research found that only 14.6% of people with hearing loss were actually using a hearing aid at the time of the survey [18]. Most health plans do not pay for the cost of such equipment.

Visual Acuity
Presbyopia is the age-related decline in visual acuity. Glare is a common issue for the elderly, which makes night driving more hazardous. The prevalence of severe vision impairment was 23% at years 85–89 and climbed to 37% at age 90 and above, according to a (strike in) longitudinal study of the UK population aged 75 and older [19]. Age accelerates the decline in one's ability to see well. Cataract surgery has a high rate of success and is generally a safe procedure.

CONCLUSION:
Study results showed that most of the study participants are overweight according to their BMI. They most commonly lived with their children. They are non-smokers. Their physical activity is low. In addition, most of the study participants had good social connections.

REFERENCES:
1. WHO. World Health Day–toolkit for organizers. [Cited on November 2, 2023]. Available from: http://www.who.int/world.health.day/2012/toolkit/background/en/index.html .
2. Tomstad ST, Soderhamn U, Espenes GA, Soderhamn O. Living alone, receiving help, helplessness, and inactivity are strongly related to risk of undernutrition among older home-dwelling people. Int J Gen Med. 2012;5:231–40.
3. Foottit J, Anderson D. Association between perception of wellness and health-related quality of life, co-morbidities, modifiable lifestyle factors and demographics in older Australians. Australas J Ageing. 2012;31:22–7.
4. Harris N, Grootjans J. The application of ecological thinking to better understand the needs of communities of older people. Australas J Ageing. 2012;31:17–21.
5. Pandve HT, Deshmukh P. Health survey among elderly population residing in an urban slum of Pune city. [Cited on November 2, 2023];J Indian Acad Geriatr. 2010 6:5–8. Available from: http://www.jiag.org/march2010/1.pdf .
6. Bhatia SP, Swami HM, Thakur JS, Bhatia V. A study of health problems and loneliness among the elderly in Chandigarh. [Cited on November 2, 2023];Indian J Community Med. 2007 32:255–8. Available from: http://www.ijcm.org.in/text.asp?2007/32/4/255/37689 .
7. Prakash R, Choudhury SK, Singh US. A Study of morbidity pattern among geriatric populaton in an urban area of Udaipur Rajasthan. [Cited on November 2, 2023];Indian J Community Med. 2004 29:35–40. Available from: http://www.ijcm.org.in/temp/IndianJCommunityMed29135.1484378_040723.pdf .
8. Lena A, Ashok K, Padma M, Kamath V, Kamath A. Health and social problems of the elderly: A cross sectional study in Udupi taluk, Karnatka. Indian J Community Med. 2009;34:131–4.
9. World Health Organization Collaborative Programme supported by the Government of India. Multicentric study to establish epidemiological data on health problems in elderly. [Cited on November 2, 2023]. Available from: http://www.whoindia.org/LinkFiles/Health_Care_for_the_Elderly_Multicentric_study_healthcareelderly_exe.pdf .
10. Thakur RP, Banerjee A, Nikumb VB. Health problems among the elderly: a cross. Sectional study. Annals of medical and health sciences research. 2013 Apr 23;3(1):19-25.

11. United Nations, Department of Economic and Social Affairs, Population Division. World Population Ageing 2015. (ST/ESA/SER.A/390). New York: United Nations; (2015).

12. Snider EL. Young-old versus old-old and the use of health services. Does the difference make a difference? J Am Geriatr Soc (1981) 29:354–8.

13. Gavazzi G, Mallaret MR, Couturier P, Iffenecker A, Franco A. Bloodstream infection: differences between young-old, old, and old-old patients. J Am Geriatr Soc (2002) 50:1667–73.

14. Suzman R, Riley MW. Introducing the "oldest old". Milbank Mem Fund Q Health Soc (1985) 63:177–86.

15. Davis A, McMahon CM, Pichora-Fuller KM, Russ S, Lin F, Olusanya BO, et al. Aging and hearing health: the life-course approach. Gerontologist (2016) 56(Suppl 2):S256–67.

16. Desai M, Pratt LA, Lentzner H, Robinson KN. Trends in Vision and Hearing Among Older Americans. Aging Trends. Hyattsville, MD: National Center for Health Statistics; (2001).

17. Amieva H, Ouvrard C, Giulioli C, Meillon C, Rullier L, Dartigues JF. Self-reported hearing loss, hearing aids, and cognitive decline in elderly adults: a 25-year study. J Am Geriatr Soc (2015) 63:2099–104.   10.1111/jgs.13649 [PubMed] [CrossRef] [Google Scholar]

18. Popelka MM, Cruickshanks KJ, Wiley TL, Tweed TS, Klein BE, Klein R. Low prevalence of hearing aid use among older adults with hearing loss: the epidemiology of hearing loss study. J Am Geriatr Soc (1998) 46:1075–8.

19. Evans JR, Fletcher AE, Wormald RP, Ng ES, Stirling S, Smeeth L, et al. Prevalence of visual impairment in people aged 75 years and older in Britain: results from the MRC trial of assessment and management of older people in the community. Br J Ophthalmol (2002) 86:795–800.

20. Zalewski CK. Aging of the human vestibular system. Semin Hear (2015) 36:175–96.

21. Dodds RM, Granic A, Davies K, Kirkwood TB, Jagger C, Sayer AA. Prevalence and incidence of sarcopenia in the very old: findings from the Newcastle 85+ study. J Cachexia Sarcopenia Muscle (2017) 8:229–37.

22. Walston JD. Sarcopenia in older adults. Curr Opin Rheumatol (2012) 24:623–7.

23. Newman AB, Kupelian V, Visser M, Simonsick EM, Goodpaster BH, Kritchevsky SB, et al. Strength, but not muscle mass, is associated with mortality in the health, aging and body composition study cohort. J Gerontol A Biol Sci Med Sci (2006) 61:72–7.

24. Xue QL, Beamer BA, Chaves PH, Guralnik JM, Fried LP. Heterogeneity in rate of decline in grip, hip, and knee strength and the risk of all-cause mortality: the women's health and aging study II. J Am Geriatr Soc (2010) 58:2076–84.

25. Bandaranayake T, Shaw AC. Host resistance and immune aging. Clin Geriatr Med (2016) 32:415–32.

26. Raviotta JM, Smith KJ, DePasse J, Brown ST, Shim E, Nowalk MP, et al. Cost-effectiveness and public health effect of influenza vaccine strategies for U.S. elderly adults. J Am Geriatr Soc (2016) 64:2126–31.

27. Gould L, Abadir P, Brem H, Carter M, Conner-Kerr T, Davidson J, et al. Chronic wound repair and healing in older adults: current status and future research. J Am Geriatr Soc (2015) 63:427–38.

28. Ariathianto Y. Asymptomatic bacteriuria – prevalence in the elderly population. Aust Fam Physician (2011) 40:805–9.

29. Zalmanovici Trestioreanu A, Lador A, Sauerbrun-Cutler MT, Leibovici L. Antibiotics for asymptomatic bacteriuria. Cochrane Database Syst Rev (2015) 4:CD009534.

30. Collerton J, Davies K, Jagger C, Kingston A, Bond J, Eccles MP, et al. Health and disease in 85 year olds: baseline findings from the Newcastle 85+ cohort study. BMJ (2009) 339:b4904.

31. Wang JC, Bennett M. Aging and atherosclerosis mechanisms, functional consequences, and potential therapeutics for cellular senescence. Circ Res (2012) 111:245–59.

32. Alexander RW. Hypertension and the pathogenesis of atherosclerosis. Hypertension (1995) 25:155–61.

33. Federal Interagency Forum on Aging-related Statistics. Older Americans 2016: Key Indicators of Well-Being. (2016). Available from: https://agingstats.gov/docs/LatestReport/Older-Americans-2016-Key-Indicators-of-WellBeing.pdf

34. SPRINT Research Group. Wright JT, Jr, Williamson JD, Whelton PK, Snyder JK, Sink KM, et al. A randomized trial of intensive versus standard blood-pressure control. N Engl J Med (2015) 373:2103–16.

35. Gorina Y, Hoyert D, Lentzner H, Goulding M. Trends in Causes of Death among Older Persons in the United States. Aging Trends. Hyattsville, MD: National Center for Health Statistics; (2006).

36. Siu AL, U.S. Preventive Services Task Force . Screening for breast cancer: U.S. Preventive

Services Task Force recommendation statement. Ann Intern Med (2016) 164:279–96.

37. Lee SJ, Boscardin WJ, Stijacic-Cenzer I, Conell-Price J, O'Brien S, Walter LC. Time lag to benefit after screening for breast and colorectal cancer: meta-analysis of survival data from the United States, Sweden, United Kingdom, and Denmark. BMJ (2013) 346:e8441.

38. Lin JS, Piper MA, Perdue LA, Rutter C, Webber EM, O'Connor E, et al. Screening for colorectal cancer: updated evidence report and systematic review for the US Preventive Services Task Force. JAMA (2016) 315:2576–94.

39. Walter LC, Covinsky KE. Cancer screening in elderly patients: a framework for individualized decision making. JAMA (2001) 285:2750–6.

40. Moyer VA, U.S. Preventive Services Task Force . Screening for prostate cancer: U.S. Preventive Services Task Force recommendation statement. Ann Intern Med (2012) 157:120–34.

41. Kirkman MS, Briscoe VJ, Clark N, Florez H, Haas LB, Halter JB, et al. Diabetes in older adults. Diabetes Care (2012) 35:2650–64.

42. Odden MC, Shlipak MG, Whitson HE, Katz R, Kearney PM, defilippi C, et al. Risk factors for cardiovascular disease across the spectrum of older age: the cardiovascular health study. Atherosclerosis (2014) 237:336–42.

43. Evidence Summary: Osteoporosis: Screening. U.S. Preventive Services Task Force; (2014). Available from: https://www.uspreventiveservicestaskforce.org/Page/Document/evidence-summary6/osteoporosis-screening

44. Ward BW, Schiller JS. Prevalence of multiple chronic conditions among US adults: estimates from the National Health Interview Survey 2010. Prev Chronic Dis (2013) 10:E65.

45. Hayek S, Ifrah A, Enav T, Shohat T. Presence correlates and time trends of multiple chronic conditions among Israeli adults: estimates from the Israeli National Health Interview Survey. Prev Chronic Dis (2017) 14:E64.

46. Gerteis J, Izrael D, Deitz D, LeRoy L, Ricciardi R, Miller T, et al. Multiple Chronic Conditions Chartbook. Rockville, MD: Agency for Healthcare Research and Quality; (2014). AHRQ Publications No, Q14-0038.

47. Guralnik JM, Ferrucci L, Pieper CF, Leveille SG, Markides KS, Ostir GV, et al. Lower extremity function and subsequent disability: consistency across studies, predictive models, and value of gait speed alone compared with the short physical performance battery. J Gerontol A Biol Sci Med Sci (2000) 55:M221–31.

48. Middleton A, Fritz SL, Lusardi M. Walking speed: the functional vital sign. J Aging Phys Act (2015) 23:314–22.

49. Butler AA, Menant JC, Tiedemann AC, Lord SR. Age and gender differences in seven tests of functional mobility. J Neuroeng Rehabil (2009) 6:31.

50. He W, Larsen LJ. U.S. Census Bureau, American Community Survey Reports, ACS-29, Older Americans with a Disability: 2008–2012. Washington, DC: U.S. Government Printing Office; (2014).

51. Jagger C, Arthur AJ, Spiers NA, Clarke M. Patterns of onset of disability in activities of daily living with age. J Am Geriatr Soc (2001) 49:404–9.

52. Connolly D, Garvey J, McKee G. Factors associated with ADL/IADL disability in community dwelling older adults in the Irish longitudinal study on ageing (TILDA). Disabil Rehabil (2017) 39:809–16.

53. WHO Global Report on Falls Prevention in Old Age. Geneva, Switzerland: World Health Organization; (2007). Available from: http://apps.who.int/iris/handle/10665/43811

54. Panel on Prevention of Falls in Older Persons, American Geriatrics Society and British Geriatrics Society. Summary of the Updated American Geriatrics Society/British Geriatrics Society clinical practice guideline for prevention of falls in older persons. J Am Geriatr Soc (2011) 59:148–57.

55. NICE. The Assessment and Prevention of Falls in Older People. (2013). Available from: http://www.nice.org.uk/CG161

56. Fried LP, Tangen CM, Walston J, Newman AB, Hirsch C, Gottdiener J, et al. Frailty in older adults: evidence for a phenotype. J Gerontol A Biol Sci Med Sci (2001) 56:M146–56.

57. Bandeen-Roche K, Seplaki CL, Huang J, Buta B, Kalyani RR, Varadhan R, et al. Frailty in older adults: a nationally representative profile in the United States. J Gerontol A Biol Sci Med Sci (2015) 70:1427–34.

58. Puts MTE, Toubasi S, Andrew MK, Ashe MC, Ploeg J, Atkinson E, et al. Interventions to prevent or reduce the level of frailty in community-dwelling older adults: a scoping review of the literature and international policies. Age Ageing (2017) 46:383–92.

59. Shah D, Badlani G. Treatment of overactive bladder and incontinence in the elderly. Rev Urol (2002) 4(Suppl 4):S38–43.

60. Sims J, Browning C, Lundgren-Lindquist B, Kendig H. Urinary incontinence in a community sample of older adults: prevalence and impact on quality of life. Disabil Rehabil (2011) 33:1389–98.

61. Blazer DG, Yaffe K, Karlawish J. Cognitive aging: a report from the Institute of Medicine. JAMA (2015) 313:2121–2.

62. Rosen JB, Brand M, Kalbe E. Empathy mediates the effects of age and sex on altruistic moral decision making. Front Behav Neurosci (2016) 10:67.

63. ADI. World Alzheimer Report 2015: The Global Impact of Dementia. London: Alzheimer's Disease International (ADI) (2015).

64. Amjad H, Roth DL, Samus QM, Yasar S, Wolff JL. Potentially unsafe activities and living conditions of older adults with dementia. J Am Geriatr Soc (2016) 64:1223–32.

65. Kenny RA, Coen RF, Frewen J, Donoghue OA, Cronin H, Savva GM. Normative values of cognitive and physical function in older adults: findings from the Irish longitudinal study on ageing. J Am Geriatr Soc (2013) 61(Suppl 2):S279–90.

66. Stek ML, Vinkers DJ, Gussekloo J, van der Mast RC, Beekman AT, Westendorp RG. Natural history of depression in the oldest old: population-based prospective study. Br J Psychiatry (2006) 188:65–9.

67. Conwell Y, Thompson C. Suicidal behavior in elders. Psychiatr Clin North Am (2008) 31:333–56.

68. Steptoe A, Shankar A, Demakakos P, Wardle J. Social isolation, loneliness, and all-cause mortality in older men and women. Proc Natl Acad Sci U S A (2013) 110:5797–801.

69. Ornstein KA, Leff B, Covinsky KE, Ritchie CS, Federman AD, Roberts L, et al. Epidemiology of the homebound population in the United States. JAMA Intern Med (2015) 175:1180–6.

70. Dostal PJ. Vulnerability of urban homebound older adults in disasters: a survey of evacuation preparedness. Disaster Med Public Health Prep (2015) 9:301–6.

71. Joint Center for Housing Studies of Harvard University. Projections and Implications for Housing a Growing Population: Older Households 2015-2035. Cambridge, MA: Harvard University; (2016).

72. Pew Research Center. Smaller Share of Women Ages 65 and Over Are Living Alone. Pew Research Center Social and Demographic Trends; (2016). Available from: http://www.pewsocialtrends.org/2016/02/18/2-living-arrangements-of-older-americans-by-gender/

73. National Academies of Sciences, Engineering, and Medicine. Families Caring for an Aging America. Washington, DC: The National Academies Press; (2016).

74. Carmeli E. The invisibles: unpaid caregivers of the elderly. Front Public Health (2014) 2:91.

75. Schoenborn NL, Lee K, Pollack CE, Armacost K, Dy SM, Bridges JFP, et al. Older adults' views and communication preferences about cancer screening cessation. JAMA Intern Med (2017) 177:1121–8.

76. Wang R, Chen L, Fan L, Gao D, Liang Z, He J, et al. Incidence and effects of polypharmacy on clinical outcome among patients aged 80+: a five-year follow-up study. PLoS One (2015) 10:e0142123.

77. Holmes HM, Hayley DC, Alexander GC, Sachs GA. Reconsidering medication appropriateness for patients late in life. Arch Intern Med (2006) 166:605–9.

78. Levant S, Chari K, DeFrances CJ. Hospitalizations for Patients Aged 85 and over in the United States, 2000–2010. Hyattsville, MD: National Center for Health Statistics; (2015). NCHS Data Brief No. 182.

79. Boyd CM, Xue QL, Guralnik JM, Fried LP. Hospitalization and development of dependence in activities of daily living in a cohort of disabled older women: the Women's Health and Aging Study I. J Gerontol A Biol Sci Med Sci (2005) 60:888–93.

80. Szanton SL, Wolff JL, Leff B, Roberts L, Thorpe RJ, Tanner EK, et al. Preliminary data from community aging in place, advancing better living for elders, a patient-directed, team-based intervention to improve physical function and decrease nursing home utilization: the first 100 individuals to complete a Centers for Medicare and Medicaid Services Innovation Project. J Am Geriatr Soc (2015) 63:371–4.

ANNEX 1: DATA COLLECTION TOOL

1. What is your gender?
   - Male
   - Female

2. How old are you?
   - 18-28
   - 29-39
   - 40-50
   - 51-61
   - 62 and above

3. What is your educational level?
   - Uneducated
   - The school
   - The university

4. How do you live?
   - independent
   - with the children

5. Do you suffer from the following diseases?
   - I do not suffer from diseases
   - Type 2 diabetes
   - Hypertension
   - Heart disease
   - Inflammatory joint diseases
   - Rheumatic diseases
   - Alzheimer's disease or dementia
   - Osteoporosis
   - Pulmonary embolism or respiratory crisis
   - cancer
   - Other than that
   - I don't suffer from anything

6. Have you been hospitalized during the past year?
   - Yes
   - No

7. Do you take medications for the diseases mentioned above?
   - Yes
   - No

8. How many medications you take?
   - One medicine
   - 2-3
   - 4-5
   - More than five drug brother
   - Other
   - Nothing

9. Do you smoke?
   - Yes
   - No

10. How many times do you exercise during the week?
    - Daily
    - 2-3 times a week
    - once a week
    - I don't exercise

11. Is there anyone taking care of you at home?
    - Yes
    - No

12. What is your height?
    - <150 cm
    - 151-160 cm
    - 161-170 cm
    - 171-180 cm
    - >181 cm

13. What is your weight?
    - <50 Kg
    - 51-65 Kg
    - 66-75 Kg
    - 76-85 Kg
    - 86-95 Kg
    - >96 Kg

14. What is your BMI value?
    - <18.5
    - 18.5-24.9
    - 25-29.9
    - 30-34.9
    - >35

APPENDIX 2: Participants responses to scale items

variable		Frequency	Percent
Age	65-70	326	66.1%
	71-76	87	17.6%
	77-82	38	7.7%
	83-88	21	4.3%
	89 and more	21	4.3%
Gender	male	281	57.0%
	female	212	43.0%
educational level	uneducated	81	16.4%
	the school	120	24.3%
	the university	292	59.2%
live	independent	143	29.0%
	with the children	350	71.0%
weight	<50 Kg	20	4.1%
	51-65 Kg	117	23.7%
	66-75 Kg	126	25.6%
	76-85 Kg	100	20.3%
	86-95 Kg	62	12.6%
	>96 Kg	68	13.8%
height	<1.50 m	31	6.3%
	1.51-1.60 m	156	31.6%
	1.61-1.70 m	176	35.7%
	1.71-1.80 m	111	22.5%
	>181 m	19	3.9%
BMI	<18.5	11	2.2%
	18.5-24.9	129	26.2%
	25-29.9	190	38.5%
	30-34.9	96	19.5%
	>35	67	13.6%

Table 1: diseases among study participants		
survey item	Yes	No
	188	305
Have you been hospitalized during the past year?	38.1%	61.9%
	265	228
Do you take medications for the diseases mentioned above?	53.8%	46.2%
	84	409
Do you smoke?	17.0%	83.0%
	356	137
Is there anyone taking care of you at home?	72.2%	27.8%

How many medications you take?		
	Frequency	Percent
One medicine	69	14.0%
2-3 times a week	106	21.5%
4-5	65	13.2%
More than five drug brother	63	12.8%
Other	4	0.8%
Nothing	186	37.7%

How many times do you exercise during the week?		
	Frequency	Percent
Daily	43	8.7%
2-3 times a week	100	20.3%
once a week	94	19.1%
I don't exercise	256	51.9%

Do you suffer from the following diseases? (more than one)		
	Frequency	**Percent**
I do not suffer from diseases	136	17.6%
Type 2 diabetes	143	18.5%
Hypertension	141	18.2%
Heart disease	49	6.3%
Inflammatory joint diseases	57	7.4%
Rheumatic diseases	25	3.2%
Alzheimer's disease or dementia	19	2.5%
Osteoporosis	39	5.0%
Pulmonary embolism or respiratory crisis	18	2.3%
cancer	10	1.3%
Other than that	46	5.9%
I don't suffer from anything	91	11.8%

Do you suffer from the following diseases?			
others			
cholesterol	Thyroid	kidney disease	urologist
11	11	9	7

Regression

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.445[a]	.198	.180	4.008

ANOVAᵃ

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	1908.178	11	173.471	10.799	.000ᵇ
	Residual	7726.479	481	16.063		
	Total	9634.657	492			

Coefficient

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	-1.307-	3.178		-.411-	.681
	gender	.891	.403	.100	2.209	.028
	age	-.005-	.030	-.007-	-.151-	.880
	Educational level	.342	.297	.059	1.149	.251
	live	.521	.411	.053	1.268	.206
	Hospital past year	.177	.391	.019	.451	.652
	medications	4.143	.548	.467	7.557	.000
	Number medic	-.556-	.132	-.243-	-4.210-	.000
	smoke	-1.057-	.511	-.090-	-2.069-	.039
	exercise	-.033-	.188	-.008-	-.178-	.859
	Taking care of you	.893	.446	.091	2.003	.046
	BMI	-.059-	.030	-.084-	-1.974-	.049

a. Dependent Variable: diseases