

BAB 7

KESIMPULAN DAN SARAN

7.1 Kesimpulan

Dari hasil penelitian yang dilakukan di Griya Usia Lanjut Santo Yosef Surabaya pada tanggal 4 Juli 2018 – 12 Juli 2018 didapatkan hasil yaitu lansia perempuan lebih banyak daripada laki laki dengan status gizi lebih banyak risiko malnutrisi dan paling banyak memiliki kekuatan genggam tangan yang lemah.

Didapatkan adanya korelasi sangat lemah antara status gizi berdasarkan MNA dengan kekuatan genggam tangan yang diukur dengan *handgrip dynamometer* pada kedua jenis kelamin. Pada analisis statistik terpisah antara jenis kelamin laki-laki dan perempuan, tidak ada korelasi antara status gizi berdasarkan MNA dengan kekuatan genggam.

7.2 Saran

Untuk penelitian selanjutnya, gunakan sampel yang lebih besar agar bisa memperoleh hasil yang berbeda. Dan meneliti di tempat lain agar bisa membandingkan perbedaan antar tempat. Selain itu juga buat peneliti pendahuluan jika memilih topik gizi di Griya Usia Lanjut Santo Yosef Surabaya

Untuk Griya Usia Lanjut Santo Yosef Surabaya, diharapkan pengurus melakukan pengecekan kondisi medis atau non medis secara berkala pada lansia agar malnutrisi tidak semakin banyak. Asupan makanan lebih diperhatikan terkait kebutuhan konsumsi gizi lansia yang berbeda dengan dewasa umumnya. Diharapkan pihak panti bisa menyediakan dokter atau ahli gizi terkait keseimbangan gizi lansia. Dan lansia di Griya Usia Lanjut Santo Yosef Surabaya sebaiknya lebih belajar mandiri untuk hal-hal kecil agar tidak

meningkatkan angka morbiditas pada lansia dan diharapkan seluruh lansia bisa mengikuti senam atau melakukan aktivitas fisik yang ringan agar bisa memperlambat penurunan kekuatan otot

Daftar Pustaka

1. Adioetomo PSM, Mujahid DG. Indonesia on the threshold of population ageing [Internet]. UNFPA, editor. Vol. 1. Jakarta; 2014 (cited 2018 Feb 22) . 25-27 p. Available from: <http://indonesia.unfpa.org>
2. Kemenkes RI. Analisis lansia di Indonesia. Pusat data dan informasi [Internet]. 2017 (cited 2018 Feb 22);1–2. Available from: [www.depkes.go.id/download.php?file=download/.../infodatin lansia 2016.pdf%0A](http://www.depkes.go.id/download.php?file=download/.../infodatin%20lansia%202016.pdf%0A)
3. Pieterse S, Manandhar M, Ismail S. The association between nutritional status and handgrip strength in older Rwandan refugees. *Eur J Clin Nutr* [Internet]. 2002 (cited 2018 Feb 22);56(10):933–9. Available from: <https://www.ncbi.nlm.nih.gov/pubmed/12373611>
4. Chevalier S, Saoud F, Gray-Donald K, Morais J a. The physical functional capacity of frail elderly persons undergoing ambulatory rehabilitation is related to their nutritional status. *J Nutr Health Aging* [Internet]. 2008 (cited 2018 Feb 23);12(10):721–6. Available from: <https://www.ncbi.nlm.nih.gov/pubmed/19043647>
5. Lailiyah PI, Rohmawati N. Status gizi dan kualitas hidup lansia yang tinggal bersama keluarga dan Pelayanan Sosial Tresna Werdha (nutritional status and quality of life of elderly people who's lived with family and Tresna Werdha Social Service in Bondowoso). 2018 (cited 2018 Feb 25);6(1):60–7. Available from: <https://jurnal.unej.ac.id/index.php/JPK/article/view/6768>
6. Zuraida S, Dewi AP, Indriati G. Deskripsi gaya hidup lansia yang tinggal bersama keluarga dan di Pelayanan Sosial Tresna Werdha Khusnul Khotimah. 2014;1(2011) (cited 2018 Feb 28):1–9. Available from: <https://jom.unri.ac.id/index.php/JOMPSIK/article/download/3392/3289%0A>
7. Darmojo RB, Martono HH. Buku ajar Boedi-Darmojo geriatri (ilmu kesehatan lanjut). 4th ed. Martono HH, Pranaka K, editors. Jakarta: Balai penerbit Fakultas

Kedokteran Universitas Indonesia; 2010.

8. Prijanto SA. Hubungan status gizi dengan kemampuan mobilitas fungsional pada lansia di Griya Usia Lanjut St. Yosef Surabaya [Internet]. Widya Mandala Catholic University Surabaya; 2015. Available from: <http://repository.wima.ac.id/id/eprint/4960>
9. Putri DAKTA, Purnawati S. Hubungan kekuatan otot genggam dan kemampuan fungsional pada lansia wanita di posyandu lansia Desa Dauh Puri Kelod Denpasar Barat. 2017 (cited 2018 Jun 1);6(4):20–7. Available from: <https://ojs.unud.ac.id/index.php/eum/article/view/29322/18165>
10. Manini TM, Clark BC. Dynapenia and aging: An update. *Journals Gerontol - Ser A Biol Sci Med Sci* [Internet]. 2012 (cited 2018 Feb 23);67 A(1):28–40. Available from: <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3260480/>
11. Atmajaya D, Doewes M. Panduan uji latihan jasmani dan peresapannya. 5th ed. Jakarta: Penerbit Buku Kedokteran EGC; 2004. 75 p.
12. Kilgour RD, Vigano a, Trutschnigg B, Lucar E, Borod M, Morais J a. Handgrip strength predicts survival and is associated with markers of clinical and functional outcomes in advanced cancer patients. *Support Care Cancer* [Internet]. 2013 (cited 2018 Mar 16) ;21(12):3261–70. Available from: <http://www.ncbi.nlm.nih.gov/pubmed/23872952>
13. Chilima DM, Ismail SJ. Nutrition and handgrip strength of older adults in rural Malawi. *Public Health Nutr* [Internet]. 2001 (cited 2018 Feb 22);4(1):11–7. Available from: <https://www.ncbi.nlm.nih.gov/pubmed/11255491>
14. Rosmalina Y, Permaesih D, Rustan E, Ernawati F, Moeloek D, Herman S. Faktor-faktor yang mempengaruhi muscle strength pada laki-laki lanjut usia. 2001 (cited 2018 Feb 21);29(4):184–201. Available from: <http://ejournal.litbang.depkes.go.id/index.php/BPK/article/view/2096>
15. Ryoto V. Hubungan antara kekuatan otot genggam dengan

- umur, tingkat kemandirian, dan aktivitas fisik pada lansia wanita klub geriatri terpilih Jakarta Utara tahun 2012 [Internet]. Skripsi Progam Studi Ilmu Gizi Universitas Indonesia. Universitas Indonesia; 2012 (cited 2018 Feb 21). Available from: <http://lib.ui.ac.id/file?file=digital/20318247-S-VergieRyoto.pdf>
16. Garcia MF, Meireles MS, Führ LM, Donini AB, Wazlawik E. Relationship between hand grip strength and nutritional assessment methods used of hospitalized patients. *Rev Nutr* [Internet]. 2013 (cited 2018 Feb 22);26(1):49–57. Available from: http://www.scielo.br/scielo.php?script=sci_arttext&pid=S1415-52732013000100005
 17. Putrawan BP, Kuswardhani RAT. Faktor-faktor yang menentukan kekuatan genggam tangan pada pasien lanjut usia di Panti Wredha Tangtu dan Poliklinik Geriatri RSUP Sanglah - Denpasar. 2011 (cited 2018 Feb 21);12:87–91. Available from: <https://ojs.unud.ac.id/index.php/jim/article/view/3928>
 18. Mitrushina M, Boone KB, Razani J, D’Ellia LF. Handbook of normative data for neuropsychological assessment [Internet]. 2nd ed. New York: Oxford University Press; 2005 (cited 2018 Mar 24). 444 p. Available from: <https://books.google.co.id/books?id=Ygndi8UlmxC&pg=PA444&dq=hand+dynamometer&hl=id&sa=X&ved=0ahUKEwiOmKXrkfvZAhWBypQKHbRCA-IQ6AEIMTAB#v=onepage&q=hand+dynamometer&f=false>
 19. Sheng ZX, Hua LY, Yong Z, Qing X, Ming YX, Yan YX, et al. Handgrip strength as a predictor of nutritional status in Chinese elderly inpatients at hospital admission. *Biomed Environ Sci* [Internet]. 2017 (cited 2018 Apr 7);30(11):802–10. Available from: http://www.besjournal.com/Articles/Archive/2017/No11/201712/t20171207_156215.html
 20. Riviati N, Setiati S, Laksmi PW, Abdullah M. Factors related with handgrip strength in elderly patients. *Acta Med Indones* [Internet]. 2017 (cited 2018 Feb

- 22);49(3):215–9. Available from: <http://ovidsp.ovid.com/ovidweb.cgi?T=JS&PAGE=reference&D=prem&NEWS=N&AN=29093231>
21. Sunaryo, Wijayanti R, Kuhu MM, Sumedi T, Widayanti ED, Sukrillah UA, et al. Asuhan keperawatan gerontorik. 1st ed. Christian P, editor. Yogyakarta: ANDI; 2016. 56 p.
 22. Flatt T. A new definition of aging? Front Genet [Internet]. 2012 (cited 2018 Apr 7);3(AUG):1–2. Available from: <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3425790/pdf/fgene-03-00148.pdf>
 23. Arisman. Gizi dalam daur kehidupan. Jakarta: Penerbit Buku Kedokteran EGC; 2004. 76,77.
 24. Fatmah. Gizi usia lanjut. Astikawati R, editor. Jakarta: Penerbit Erlangga; 2010. 46-50, 84-87 p.
 25. Muhith A, Siyoto S. Pendidikan keperawatan gerontik [Internet]. 1st ed. Christian P, editor. Yogyakarta: ANDI; 2016 (cited 2018 Apr 17). 19 p. Available from: https://books.google.co.id/books?id=U6ApDgAAQBAJ&printsec=frontcover&dq=hukum+1+%25+penuaan&hl=id&sa=X&ved=0ahUKEwjx2Lmtg7_aAhUcTY8KHVbUDEkQ6AEITzAJ#v=onepage&q&f=false
 26. Lewis MC. Physiologic changes in the elderly [Internet] (cited 2018 Apr 9). (1). (1). Available from: https://pogoe.org/sites/default/files/gsr/2_Physiologic_Changes_In_The_Elderly.pdf
 27. Pinto A, De Filippi R, Frigeri F, Corazzelli G, Normanno N. Aging and the hemopoietic system. Crit Rev Oncol Hematol [Internet]. 2003 (cited 2018 Apr 20);48(SUPPL.):10. Available from: [http://www.croh-online.com/article/S1040-8428\(03\)00196-3/fulltext](http://www.croh-online.com/article/S1040-8428(03)00196-3/fulltext)
 28. Park DC, Yeo SG. Aging. Korean J Audiol [Internet]. 2013 (cited 2018 Apr 9);17(2):39–44. Available from: <https://pdfs.semanticscholar.org/606b/84774bc4568ba25c581e4425cf2945bd4c3b.pdf>
 29. Navaratnarajah A, Jackson SH. The physiology of ageing. Anaesth Intensive Care Med [Internet]. 2017 (cited 2018

- Apr 9);18(1):52–4. Available from: [http://www.medicinejournal.co.uk/article/S1357-3039\(16\)30229-8/pdf](http://www.medicinejournal.co.uk/article/S1357-3039(16)30229-8/pdf)
30. Rughwani N. Normal anatomic and physiologic changes with aging and related disease outcomes: a refresher. *Mt Sinai J Med* [Internet]. 2011 (cited 2018 Apr 8);78(4):509–14. Available from: <https://onlinelibrary.wiley.com/doi/pdf/10.1002/msj.20271>
 31. Coin A, Sergi G, Inelmen EM, Enzi G. Pathophysiology of body composition changes in elderly people. *Cachexia Wasting A Mod Approach* [Internet]. 2006 (cited 2018 Apr 20);369–75. Available from: http://www.springerlink.com/index/10.1007/978-88-470-0552-5_36
 32. Newman AB, Cauley JA. The epidemiology of aging. *Epidemiol Aging* [Internet]. 2012 (cited 2018 Apr 20);1–610. Available from: <https://pdfs.semanticscholar.org/7ffd/3b424f7a2acfb5d0e43f4e6c92a65313e0b.pdf>
 33. Collins KJ, Clinical S, Pancras S. Fluid balance of elderly people in hot environments. 2009 (cited 2018 Apr 20);(July):385. Available from: <https://www.gmjournl.co.uk/media/21597/july2009p385.pdf>
 34. Bauer JM, Kaiser MJ, Anthony P, Guigoz Y, Sieber CC. The mini nutritional assessment®-its history, today's practice, and future perspectives. *Nutr Clin Pract* [Internet]. 2008 (cited 2018 Apr 7);23(4):388–96. Available from: <http://ncp.sagepub.com/content/23/4/388>
 35. Guigoz Y. The Mini Nutritional Assessment (MNA) review of the literature--What does it tell us? *J Nutr Health Aging* [Internet]. 2006 (cited 2018 Apr 17);10(6):466-485-487. Available from: https://www.researchgate.net/publication/6617787_The_Mini_Nutritional_Assessment_MNAR_Review_of_the_Literature-What_Does_It_Tell_Us
 36. Guenter PA. Mini nutritional assessment. 2008 (cited 2018

- Mar 16);108(2). Available from: https://www.nursingcenter.com/pdfjournal?AID=770859&an=00000446-200802000-00030&Journal_ID=54030&Issue_ID=770792
37. Nestle. Nutrition screening a guide to completing the mini nutritional assessment. Nestle Nutr Inst [Internet]. 2011 (cited 2018 Mar 17);1–16. Available from: https://www.mna-elderly.com/forms/mna_guide_english_sf.pdf
 38. WHO. Body mass index - BMI [Internet]. World Health Organization Regional Office for Europe. 2018 [cited 2018 Apr 16]. Available from: <http://www.euro.who.int/en/health-topics/disease-prevention/nutrition/a-healthy-lifestyle/body-mass-index-bmi>
 39. Asmadi. Konsep dan aplikasi kebutuhan dasar klien. 1st ed. Haroen H, editor. Jakarta: Salemba Medika; 2008. 84 p.
 40. WHO. The Asia-Pacific perspective: Redefining obesity and its treatment [Internet]. Geneva, Switzerland: World Health Organization. Health Communications Australia; 2000 (cited 2018 Apr 17). p. 18. Available from: http://apps.who.int/iris/bitstream/handle/10665/206936/0957708211_eng.pdf?sequence=1
 41. Guidelines. Nutritional support strategy for protein energy malnutrition in the elderly [Internet]. Haute Autorite de Sante. 2007 (cited 2018 Mar 22). Available from: https://www.has-sante.fr/portail/upload/docs/application/pdf/malnutrition_elderly_guidelines.pdf
 42. Nestle. Malnutrition in the older adult [Internet]. Nestle Nutrition. 2000 [cited 2018 Mar 22]. p. 1–4. Available from: https://www.nestle.com/asset-library/documents/library/events/2010-malnutrition-in-older-people/factsheet_malnutrition_e_for-web.pdf
 43. Nestle Nutrition Institute. A guide to completing the Mini Nutritional Assessment – Short Form (MNA®-SF)

- [Internet]. Nestle Nutrition Institute; 2004 (cited 2018 Apr 7). p. 15. Available from: http://www.vnhsb.org/media/data/papers/pdf/502_21.ApdxH.2.pdf
44. Corbin CB, Lindsey R. Fitness for life [Internet]. 5th ed. United States of America: Human Kinetik; 2006 (cited 2018 Apr 24). 227 p. Available from: <https://books.google.co.id/books?id=uss82yI1s6UC&pg=PA226&lpg=PA226&dq=calf+of+skinfold&source=bl&ots=WnR3Lz99gX&sig=aLMlOcTclEujOnF4v1sVo8txk0c&hl=id&sa=X&ved=0ahUKEwjB74mn7MbaAhUIMo8KHdEqBVU4FBD0AQguMAE#v=onepage&q=calf+of+skinfold&f=false>
 45. Meydani M. Nutrition interventions in aging and age-Associated disease. Ann N Y Acad Sci [Internet]. 2006 (cited 2018 Apr 8) ;928(1):226–35. Available from: <https://nyaspubs.onlinelibrary.wiley.com/doi/abs/10.1111/j.1749-6632.2001.tb05652.x>
 46. Candraswari R. Kenapa kebutuhan kalori pria dan wanita berbeda ? [Internet]. Micosoft. 2017 [cited 2018 Apr 8]. Available from: <https://www.msn.com/id-id/kesehatan/nutrisi/kenapa-kebutuhan-kalori-pria-dan-wanita-berbeda/ar-AAu0LWz?li=AA4WXs>
 47. Wijaya R. Hubungan tingkat ekonomi dengan status [Internet]. Sekolah Tinggi Ilmu Kesehatan Aisyiyah Yogyakarta; 2011 (cited 2018 Apr 8). Available from: http://digilib.unisayogya.ac.id/1192/1/NASKAH_PUBLIKASI_Ratna W.pdf
 48. Wulandari PDA, Wirata G, Putri CWS. Hubungan antara asupan energi , asupan protein dan aktivitas fisik terhadap status gizi penduduk lanjut usia di wilayah kerja UPT Kesmas Blahbatuh II. Kecamatan Blahbatuh, Kabupaten Gianyar. 2013 (cited 2018 Apr 8);1–13. Available from: <https://ojs.unud.ac.id/index.php/eum/article/view/15085/10005>
 49. Hall JE. Guyton dan Hall buku ajar fisiologi kedokteran. 12th ed. Indonesia: Elsevier; 2014. 73 p.

50. Sherwood L. Fisiologi manusia dari sel ke sistem. 8th ed. Ong HO, Mahode AA, Ramadhani D, editors. Jakarta: Penerbit Buku Kedokteran EGC; 2014.
51. Tomchuk D. Companion guide to measurement and evaluation for kinesiology [Internet]. United States of America: Jones & Barlett; 2011 (cited 2018 Mar 23). 93-95 p. Available from: https://books.google.co.id/books?id=eHd_A2sYNfQC&printsec=frontcover&hl=id&source=gbs_ge_summary_r&cad=0#v=onepage&q&f=false
52. Fatmah. Persamaan (equation) tinggi badan manusia usia lanjut (manula) berdasarkan usia dan etnis pada 6 panti terpilih di DKI Jakarta dan Tangerang tahun 2005. Makara, Kesehat [Internet]. 2006 (cited 2018 Mar 16) ;10(1):7–16. Available from: <http://journal.ui.ac.id/index.php/health/article/viewFile/145/141>
53. Idris I. Fisiologi otot rangka [Internet] (cited 2018 Mar 24). Makassar; Available from: <https://med.unhas.ac.id/kedokteran/wp-content/uploads/2016/10/FISIOLOGI-OTOT-RANGKA.pdf>
54. Manoharan VS, Sundaram SG, Jason JJ. Factors affecting hand grip strength and its evaluation: a systemic review. Int J Physiother Res [Internet]. 2015 (cited 2018 Apr 29);3(6):1288–93. Available from: <http://www.ijmhr.org/ijpr.3.6/IJPR.2015.193.html>
55. Takkett C. Factors affecting muscular strength [Internet]. American Fitness Professionals & Associates. 2017 [cited 2018 Apr 8]. Available from: <https://www.afpafitness.com/research-articles/factors-affecting-muscular-strength>
56. Hale J. Size means strength? [Internet]. Bodybuilding.com. 2004 [cited 2018 Apr 8]. Available from: <https://www.bodybuilding.com/fun/hale6.htm>
57. Dewangga GI. Perbandingan kekuatan genggam tangan dengan latihan bola bergerigi dan tumpul pada stroke non

- hemoragik di RSUD Prof. Dr. Margono Soekarno Purwokerto [Internet]. Universitas Muhammadiyah Purwokerto; 2011(cited 2018 Mar 23) . Available from: <http://repository.ump.ac.id/876/>
58. Budoff JE. The prevalence of rotator cuff weakness in patients with injured hands. *J Hand Surg Am* [Internet]. 2004 (cited 2018 Mar 23);29(6):1154–9. Available from: <https://www.ncbi.nlm.nih.gov/pubmed/15576231>
 59. Kumar S. Muscle strength [Internet]. Edmonton AB: CRC Press; 2004 (cited 2018 Apr 8). 181 p. Available from: <https://books.google.co.id/books?id=IXRJ457fGp8C&printsec=frontcover&hl=id#v=onepage&q&f=false>
 60. Langius J, Visser W, Kruizenga H, Reijeven N. Nutritional assessment platform measuring handgrip strength. 2017 (cited 2018 Mar 18);2–6. Available from: <http://www.dieteticpocketguide.com/wp-content/uploads/2017/08/SOP-handgrip-strength.pdf>
 61. Electronic hand dynamometer; Intructions for use. Camry;
 62. Yorke AM, Curtis AB, Shoemaker M, Vangsnes E. Grip strength values stratified by age, gender, and chronic disease status in adults aged 50 years and older. *J Geriatr Phys Ther* [Internet]. 2015 (cited 2018 Mar 28);38(3):115–21. Available from: https://journals.lww.com/jgpt/Fulltext/2015/07000/Grip_Strength_Values_Stratified_by_Age,_Gender,.2.aspx
 63. Dewi SR. Buku ajar keperawatan gerontik [Internet]. 1st ed. Yogyakarta: Deepublish; 2014 (cited 2018 May 6). 45-46 p. Available from: https://books.google.co.id/books?id=3FmACAAAQBAJ&pg=PA45&lpg=PA45&dq=pengkajian+mmse&source=bl&ots=VGTrQPuJpO&sig=JhXExmV8Gle1SLYs2LKzwwsqoww&hl=id&sa=X&ved=0ahUKEWjl0OnQv_HaAhXLs_o8KHS6fCZ04ChDoAQhFMAQ#v=onepage&q=pengkajian mmse&f=false
 64. Mercer AET, Fleest JC, Craig BA, Carnell NS, Wayne W Campbell. Inadequate protein intake affects skeletal muscle transcript profiles in older humans. *J Magn Reson*

- [Internet]. 2013 (cited 2018 Apr 2) ;236(5):47–56. Available from: <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC2447912/pdf/nihms-56922.pdf>
65. Mercer AET. Nutrition for skeletal muscle health with aging the role of dairy protein [Internet]. 2012 (cited 2018 Apr 23). Available from: https://ecommons.cornell.edu/bitstream/handle/1813/44749/5Thalacker_Mercer_manuscript.pdf?sequence=1
 66. Robinson SM, Reginster JY, Rizzoli R, Shaw SC, Kanis JA, Bautmans I, et al. Does nutrition play a role in the prevention and management of sarcopenia? Clin Nutr [Internet]. 2017 (cited 2018 Apr 18);(September):1–12. Available from: <https://www.sciencedirect.com/science/article/pii/S0261561417302996>
 67. Sieber CC. Virtual clinical nutrition university: Nutrition in the elderly, pathophysiology - sarcopenia. e-SPEN. 2009 (cited 2018 Apr 8) ;4(2):e77–80.
 68. Rolland Y, Czerwinsky S, Kan GA Van, Morley JE, Cesati M, Onder G, et al. Sarcopenia : Its assessment, etiology, pathogenesis, consequences and future perspective. J Nutr Heal Aging [Internet]. 2016 (cited 2018 Apr 8);12(1):7–8. Available from: <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3988678/pdf/nihms565619.pdf>
 69. Dahlan MS. Besar sampel dalam penelitian kedokteran dan kesehatan. 4th ed. Jakarta: Epidemiologi Indonesia; 2016. 88-92 p.
 70. Sastroasmoro S, Ismael S. Dasar-dasar metodologi penelitian klinis. 5th ed. Jakarta: Sagung Seto; 2014. 345 p.
 71. Wood R. Handgrip strength test [Internet]. Topend sport network. 2008 [cited 2018 Mar 19]. Available from: <https://www.topendsports.com/testing/tests/handgrip.htm>
 72. Bleda MJ, Bolibar I, Parés R, Salvà A. Reliability of the mini nutritional assessment (MNA) in institutionalized

- elderly people. *J Nutr Health Aging* [Internet]. 2002 (cited 2018 Mar 16);6(2):134–7. Available from: <http://www.ncbi.nlm.nih.gov/pubmed/12166368>
73. Mathiowetz V, Weber K, Volland G, Kashman N. Reliability and validity of grip and pinch strength evaluations. *J Hand Surg Am* [Internet]. 1984 (cited 2018 Mar 18);9(2):222–6. Available from: [http://dx.doi.org/10.1016/S0363-5023\(84\)80146-X](http://dx.doi.org/10.1016/S0363-5023(84)80146-X)
 74. Teasell R. Characteristics of the mini mental state examination [Internet]. ABIEBR. [cited 2018 May 6]. Available from: <http://abiebr.com/characteristics-mini-mental-state-examination>
 75. Lewa AF. Hubungan pola konsumsi makanan sumber protein, lemak dan aktifitas sedentary dengan status gizi lansia anggota binaan posyandu lansia di Kelurahan Talise wilayah kerja Puskesmas Talise. Promotif [Internet]. 2016 (cited 2018 Nov 7);6(2):80–7. Available from: <http://dp2m.umm.ac.id/files/file/INFORMASI PROGRAM INSENTIF RISTEK/NUTRISI LANSIA.pdf>
 76. Elvia N, Siregar MA, Siagian A. Gambaran pola konsumsi pangan dan pola penyakit pada usia lanjut di wilayah kerja Puskesmas Tapaktuan kecamatan Tapaktuan kabupaten Aceh Selatan tahun 2012. *Saudi Med J* [Internet]. 2012 (cited 2018 Nov 7);33:3–8. Available from: <http://dp2m.umm.ac.id/files/file/INFORMASI PROGRAM INSENTIF RISTEK/NUTRISI LANSIA.pdf>
 77. Khomsah A. Pangan dan gizi untuk kesehatan. 1st ed. Jakarta: RajaGrafindo Persada; 2010.
 78. Fajriyah N. Gambaran faktor-faktor yang mempengaruhi status gizi wanita lanjut usia di Rumah Susun Kelurahan Lette'e Kecamatan Mariso [Internet]. Universitas Islam Negeri Alauddin Makassar; 2012 (cited 2018 Nov 7). Available from: http://repositori.uin-alauddin.ac.id/2988/1/nur_fajriyah.pdf
 79. Nursilmi, Kusharto CM, Dwiriani CM. Relationship nutritional and health status with quality of life of elderly in two research areas. 2017 (cited 2018 Okt

- 28);13(4):369–79. Available from: https://www.researchgate.net/publication/322929039_HUBUNGAN_STATUS_GIZI_DAN_KESEHATAN_DENGAN_KUALITAS_HIDUP_LANSIA_DI_DUA_LOKASI_BERBEDA/download
80. Ibrahim Hs. Hubungan faktor-faktor yang mempengaruhi kebutuhan gizi dengan status gizi lanjut usia di UPTD Rumoh Seujahtera Geunaseh Sayang Banda Aceh. Idea Nurs J [Internet]. 2012 (cited 2018 Okt 28);III(2):51–62. Available from: www.rp2u.unsyiah.ac.id/index.php/welcome/prosesDownload/10591/4
 81. Khasanah N. Waspada beragam penyakit degeneratif akibat pola makan. Yogyakarta: Laksana; 2012.
 82. Oktariyani. Gambaran status gizi pada lanjut usia di Panti Sosial Tresna Werdha (PSTW) Budi Mulya 01 dan 03 Jakarta Timur [Internet]. Universitas Indonesia; 2012 (cited 2018 Okt 28);. Available from: <http://lontar.ui.ac.id/file?file=digital/20301303-S42017-Oktariyani.pdf>
 83. Bonnefoy M, Jauffret M, Kostka T, Jusot JF. Usefulness of calf circumference measurement in assessing the nutritional state of hospitalized elderly people. Gerontology [Internet]. 2002 (cited 2018 Okt 28);48(1):162–9. Available from: www.rp2u.unsyiah.ac.id/index.php/welcome/prosesDownload/10591/4
 84. Nutrition for older persons [Internet]. World Health Organization. 2018 [cited 2018 Sep 29]. Available from: <http://www.who.int/nutrition/topics/ageing/en/index1.html>
 85. Fávaro-moreira NC, Krausch-hofmann S, Matthys C, Vereecken C, Vanhauwaert E, Declercq A, et al. Risk factors for malnutrition in older adults: A systematic review of the literature based on longitudinal data. Am Soc Nutr [Internet]. 2016 (cited 2018 Okt 6);7(6):507–22. Available from: <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4863272/pdf/an011254.pdf>

86. Yuniarti A, Said S, Saleh A. Nutritional status related to quality of life of elderly people in Rappokalling Makassar. Univ Hasanuddin [Internet]. 2013 (cited 2018 Okt 17);;4. Available from: [http://repository.unhas.ac.id/bitstream/handle/123456789/6590/Quality of life.pdf?sequence=1](http://repository.unhas.ac.id/bitstream/handle/123456789/6590/Quality%20of%20life.pdf?sequence=1)
87. Kusuma AD. Faktor-faktor yang berhubungan dengan kejadian malnutrisi pada lansia di posyandu Kawuri Sejahtera puskesmas Kedungmundu kota Semarang tahun 2016 [Internet]. Universitas Dian Nuswantoro; 2016 (cited 2018 Okt 6);. Available from: <http://eprints.dinus.ac.id/19147/>
88. Seene T, Kaasik P. Muscle weakness in the elderly: Role of sarcopenia, dynapenia, and possibilities for rehabilitation. Eur Rev Aging Phys Act [Internet]. 2012 (cited 2018 Okt 6);;9(2):109–17. Available from: <https://eurapa.biomedcentral.com/track/pdf/10.1007/s11556-012-0102-8>
89. Santos Borges L, Fernandes MH, Schettino L, Coqueiro R da S, Pereira R. Handgrip explosive force is correlated with mobility in the elderly women. Acta Bioeng Biomech [Internet]. 2015 (cited 2018 Okt 6); ;17(3):145–9. Available from: <https://pdfs.semanticscholar.org/a87a/cdc35c664fe7d1ba051738b9ab30f27fc410.pdf>
90. Norman K, Stobäus N, Gonzalez MC, Schulzke JD, Pirlich M. Hand grip strength: Outcome predictor and marker of nutritional status [Internet]. Vol. 30, Clinical Nutrition. 2011(cited 2018 Okt 7); . p. 135–42. Available from: <https://www.ncbi.nlm.nih.gov/pubmed/21035927>
91. Norman K, Stobäus N, Smoliner C, Zocher D, Scheufele R, Valentini L, et al. Determinants of hand grip strength, knee extension strength and functional status in cancer patients. Clin Nutr. 2010 (cited 2018 Okt 7);;29(5):586–91.
92. Rochmah W, Soedjono A. Tua dan Proses Menua. Berkala Ilmu Kedokteran [Internet]. 2001 (cited 2018 Okt 7);;33:221–7. Available from: i-

lib.ugm.ac.id/jurnal/detail.php?dataId=7883

93. Ariestya A. Hubungan status gizi dengan kekuatan otot pada lansia di Puskesmas Sekip Palembang [Internet]. Universitas Sriwijaya; 2017 (cited 2018 Okt 7);. Available from: <http://www.digilib.unsri.ac.id/index.php?p=fstream-pdf&fid=12500&bid=13595>
94. F A, S S. Correlation between hand grip strength and nutritional status in elderly patients. J Phys [Internet]. 2018 (cited 2018 Okt 7);. Available from: <http://iopscience.iop.org/article/10.1088/1742-6596/1073/4/042032/pdf>
95. Flood A, Chung A, Parker H, Kearns V, O'Sullivan TA. The use of hand grip strength as a predictor of nutrition status in hospital patients. Clin Nutr [Internet]. 2014 (cited 2018 Okt 17);;33(1):106–14. Available from: <https://www.ncbi.nlm.nih.gov/pubmed/23615623>
96. Hu CL, Yu M, Yuan KT, Yu HL, Shi YY, Yang JJ, et al. Determinants and nutritional assessment value of hand grip strength in patients hospitalized with cancer. Asia Pac J Clin Nutr [Internet]. 2018 (cited 2018 Nov 7);;27(4):777–84. Available from: <http://apjcn.nhri.org.tw/server/APJCN/27/4/777.pdf>
97. Al-Asadi JN. Handgrip strength in medical students: Correlation with body mass index and hand dimensions. Asian J Med Sci [Internet]. 2018 (cited 2018 Nov 7);9(1):21. Available from: <https://www.nepjol.info/index.php/AJMS/article/view/18577>
98. Chilima DM, Ismail SJ. Nutrition and handgrip strength of older adults in rural Malawi. Public Health Nutr. 2001 (cited 2018 Nov 7);4(1):11–7.
99. Bassi R, Sharma S, Kaur S, Sharma A. Handgrip dynamometry in elderly individuals and its relation with body mass index. Natl J Physiol Pharm Pharmacol [Internet]. 2016 (cited 2018 Okt 17);6(6):599. Available from: <http://www.scopemed.org/fulltextpdf.php?mno=23709>