

DAFTAR PUSTAKA

1. Adam A, Dixon AK, Gillard JH, Schaefer-Prokop C, Grainger RG, Allison DJ. Grainger & Allison's Diagnostic Radiology E-Book: Elsevier Health Sciences; 2014.
2. Al Amin M. Klasifikasi kelompok umur manusia berdasarkan analisis dimensi fraktal box counting dari citra wajah dengan deteksi tepi canny. MATHunesa: Jurnal Ilmiah Matematika. 2017;2(6).
3. Amin RM, Andrade NS, Neuman BJ. Lumbar disc herniation. Current reviews in musculoskeletal medicine. 2017;10(4):507-16.
4. Benzakour T, Igoumenou V, Mavrogenis AF, Benzakour A. Current concepts for lumbar disc herniation. Int Orthopaed. 2019;43(4):841–51.
5. Bogduk N. clinical Anatomy of the Lumbar Spine and Sacrum Fourth Edition. 2005. Elsevier: Churchill Livingstone
6. Boos N, Weissbach S, Rohrbach H, Weiler C, Spratt KF, Nerlich AG. Classification of age-related changes in lumbar intervertebral discs: 2002Volvo Award in basic science. Spine. 2012;27(23):2631-44.
7. Cheung KM, Karppinen J, Chan D, Ho DW, Song YQ, Sham P, et al. Prevalence and pattern of lumbar magnetic resonance imaging changes in a population study of one thousand forty-three individuals. Spine. 2009; 34(9): 934-940.
8. Chua, M., Hochberg, U., Regev, G., Ophir, D., Salame, K., Lidar, Z. and Khashan, M., 2022. Gender differences in multifidus fatty infiltration, sarcopenia and association with preoperative pain and functional disability inpatients with lumbar spinal stenosis. *The Spine Journal*, 22(1), pp.58-63.
9. Cosmin F, Jenel M, Horia H, Bogdan A. Correlation between multifidus fatty atrophy and lumbar disc degeneration in low back pain. BMC musculoskeletal disorders. 2019; 2-3
10. Crawford, R.J., Filli, L., Elliott, J.M., Nanz, D., Fischer, M.A., Marcon, M. and Ulbrich, E.J., 2016. Age-and level-dependence of fatty infiltration in lumbar paravertebral muscles of healthy volunteers. *American Journal of radiology*, 37(4), pp.742-748.



æ R, Cagnie B, Crombez G, Vanderstraeten G, Dolphens M, Danneels ased intramuscular fatty infiltration without differences in lumbar muscle ectional area during remission of unilateral recurrent low back pain. Man

- Ther. 2012;17(6):584–8.
12. Emrah Sayit. The Relationship of Lumbar Multifidus Muscle Change to Disc Hernia and Low Back Pain : A Magnetic Resonance Imaging Study. 2018. University of Health Science, Samsun Training and Research Hospital, Clinic and Orthopaedics of Traumatology, Samsun, Turkey. Med J
 13. Fardon DF, Williams AL, Dohring EJ, Murtagh FR, Rothman SLG, Sze GK. Lumbar disc nomenclature: version 2.0: Recommendations of the combined task forces of the North American Spine Society, the American Society of Spine Radiology and the American Society of Neuroradiology. *The Spine Journal*. 2014;14(11):2525-45.
 14. Faur C, Patrascu JM, Haragus H, Anglitous B. Correlation between multifidus fatty atrophy and lumbar disc generation in low back pain. *BMC Musculoskeletal Disorders*. 2019;20:414
 15. Flippo M, Corina N, Yuancheng Z, Florian H, Stefan S, Annegret M, Cordula N. Assessing fatty infiltration of paraspinal muscles in patient with lumbar spinal stenosis: Goutallier classification and quantitative MRI measurements. *Frontiers in Neurology*. 2021;1-2
 16. Fortin, M., Lazáry, À., Varga, P.P., McCall, I. and Battié, M.C., 2016. Paraspinal muscle asymmetry and fat infiltration in patients with symptomatic disc herniation. *European Spine Journal*, 25, pp.1452-1459.
 17. Fortin M, Lazáry À, Varga PP, Battié MC. Association between paraspinal muscle morphology, clinical symptoms and functional status in patients with lumbar spinal stenosis. *Eur Spine J*. 2017;26(10):2543- 2551.
 18. Fraser, W.N., 2006. The operative treatment of prolapsed discs in the lumbar region. *The New Zealand Medical Journal*, 65(407), pp.437-443.
 19. Gengyu H, Yu Jiang, Bo Zhang, Chunjie G, Weishi Li. Imaging evaluation of fat infiltration in paraspinal muscles on MRI : A systematic review with a focus on methodology. Chinese Orthopaedic Association and John Wiley & Sons Australia, Ltd. 2021;1
 20. Guillaume B, Stephane K, Frauke K, Maher AE, Adriana B, Jean LD. Disorders of paravertebral lumbar muscle : From pathology to cross-sectional imaging. *Skeletal Radiol*. 2008; 37:967-977



Α, Konstantinou K, Lewis M, Oppong R, Ogollah R, Jowett S. aticReview of Decision Analytic Modelling in Economic Evaluations of Back Pain and Sciatica. *Appl Health Econ Health Policy*. 2019; 17(4): 467-

22. Hangai, M., Kaneoka, K., Kuno, S., Hinotsu, S., Sakane, M., Mamizuka, N., Sakai, S. and Ochiai, N., 2008. Factors associated with lumbar intervertebral disc degeneration in the elderly. *The spine journal*, 8(5), pp.732-740.
23. I Ketut Suyasa, A. Wiradewi L. *Penyakit Degenerasi Lumbal*. Udayana University Press. 2018;61
24. Jiang J, Wang H, Wang L, et al. Multifidus degeneration, a new risk factor for lumbar spinal stenosis: a case-control study. *World Neurosurg*. 2017;99:226-231
25. Jordan J, Morgan TS, Weinstein J, Konstantinou K. Herniated lumbar disk. *American Family Physician*. 2006;73(7):1240.
26. Kalichman L, Carmeli E, Been E. The association between Imaging parameters of the paraspinal muscles, spinal degeneration, and low back pain. *Biomed Res Int*. 2017;7:1–14.
27. Kalichman L, Klindukhov A, Li L, Linov L. Indices of paraspinal muscles degeneration. *Clin Spine Surg*. 2016;29(9):465-470.
28. Kalichman L, P. Hodges, L. Li, A. Guermazi, and D. J. Hunter, “Changes in paraspinal muscles and their association with low back pain and spinal degeneration: CT study,” *European Spine Journal*. 2010;9(7) : 1136–1144.
29. Kanayama, M., Togawa, D., Takahashi, C., Terai, T. and Hashimoto, T., 2009. Cross-sectional magnetic resonance imaging study of lumbar disc degeneration in 200 healthy individuals. *Journal of Neurosurgery: Spine*, 11(4), pp.501-507.
30. Kim JHS S.-H. Lee, and D. Y. Lee. Changes in the crosssectional area of multifidus and psoas in unilateral sciatica caused by lumbar disc herniation. *Journal of Korean Neurosurgical Society*. 2011(50);3:201–204.
31. Kos N, Gradisnik L, Velnar T. A Brief Review of the Degenerative Intervertebral Disc Disease. *MED ARCH*. 2019 DEC; 73(6): 421-424. doi: 10.5455/medarh.2019.73.421-424
32. Kushchayev SV, et al. ABCs of the degenerative spine. *Insights Imaging*. 2018;9(2):253-274
33. Luomajoki H, Kool J, de Bruin ED, Airaksinen O. Movement control tests of the back; evaluation of the difference between patients with low back pain and healthy controls. *BMC Musculoskelet Disord*. 2008;9(1):170.
- Luomajoki H, Moseley GL. Tactile acuity and lumbopelvic motor control in patients with back pain and healthy controls. *Br J Sports Med*. 2011;45(5): 437–



- 40.
35. Markus H, Gabriela F, Andre M, Hannu L. Correlation between lumbar dysfunction and fat infiltration in lumbar multifidus muscles in patients with low back pain. *BMC Musculoskeletal Disorders*. 2017;1
 36. Meucci RD, Fassa AG, Faria NM. Prevalence of chronic low back pain: systematic review. *Rev Saude Publica*. 2015;49. Available from <https://doi.org/10.1590/S00348910.2015049005874>
 37. Modic, M.T. and Ross, J.S., 2007. Lumbar degenerative disk disease. *Radiology*, 245(1), pp.43-61.
 38. Noonan AM, Brown SHM. Paraspinal muscle pathophysiology associated with low back pain and spine degenerative disorders. *JOR Spine*. 2021;4:e1171. Available from <https://doi.org/10.1002/jsp2.1171>
 39. Obiajulu A, Andreas MI, He Zhang, Alekos AT, Xuhui L, Brian T, Jeannie FB. Intervertebral disc herniation effect on multifidus muscle composition and resident stem cell populations. *Muscle in Spine*. 2020; 2-10
 40. Ogon I, Takebayashi T, Takashima H, et al. Quantitative analysis concerning atrophy and fat infiltration of the multifidus muscle with magnetic resonance spectroscopy in chronic low back pain. *Spine Surg Relat Res*. 2019;3:163-170.
 41. Parenteau, C.S., Lau, E.C., Campbell, I.C. and Courtney, A., 2021. Prevalence of spine degeneration diagnosis by type, age, gender, and obesity using Medicare data. *Scientific Reports*, 11(1), pp.1-11.
 42. Peng, X., Li, X., Xu, Z., Wang, L., Cai, W., Yang, S., Liao, W. and Cheng, X., 2020. Age-related fatty infiltration of lumbar paraspinal muscles: a normativereference database study in 516 Chinese females. *Quantitative Imaging in Medicine and Surgery*, 10(8), p.1590.
 43. Postacchini F. *Lumbar Disc Herniation*: Springer Vienna; 2012.
 44. Ravindra Vijay, et al. 2018. Degenerative Lumbar spine disease: estimating global incidence and worldwide volume. *Global spine journal*
 45. Rim, D.C., 2016. Quantitative Pfirrmann disc degeneration grading system to overcome the limitation of Pfirrmann disc degeneration grade. *Korean Journal of Spine*, 13(1), p.1. Saleem, S., Aslam, H.M., Rehmani, M.A.K., Raees, A., Alvi, A.A. and Ashraf, J., 2013. Lumbar disc degenerative disease: generation symptoms and magnetic resonance image findings. *Asian Journal*, 7(4), p.322.
- der GD, Guyre CA, Vaccaro AR, editors. The epidemiology and physiology of lumbar disc herniations. *Seminars in Spine Surgery*;



2016: Elsevier.

47. Seul Ki Lee, Joon YJ, Yeo RY, Jin HJ, Je Y. Fat quantification of multifidus muscle using T2-weighted Dixon : Which measurements methods are best suited for revealing the relationship between fat infiltration and herniated nucleus pulposus. *Skeletal Radiol.* 2019;1-9
48. Shahidi B, Gibbons MC, Esparza M, et al. Cell populations and muscle fibre morphology associated with acute and chronic muscle degeneration in lumbar spine pathology. *JOR Spine.* 2020;3: e1087.
49. Shi, L., Yan, B., Jiao, Y., Chen, Z., Zheng, Y., Lin, Y. and Cao, P., 2022. Correlation between the fatty infiltration of paraspinal muscles and disc degeneration and the underlying mechanism. *BMC Musculoskeletal Disorders*, 23(1), pp.1-13.
50. Snell RS. *Clinical anatomy by regions*: Lippincott Williams & Wilkins; 2011
51. Spangfort, E.V., 2002. The lumbar disc herniation: a computer-aided analysis of 2,504 operations. *Acta Orthopaedica Scandinavica*, 43(sup142), pp.1-99.
52. Sun D, Liu P, Cheng J, Ma Z, Liu J, Qin T. Correlation between intervertebral disc degeneration, paraspinal muscle atrophy, and lumbar facet joints degeneration in patients with lumbar disc herniation. *BMC Musculoskelet Disord.* 2017;18(1):167. <https://doi.org/10.1186/s12891-017-1522-4>.
53. Sylvia, AP & Lorraine, MW 1995, *Patofisiologi Konsep Klinis Proses-Proses Penyakit*, Edisi 6, Penerbit Buku Kedokteran EGC, Jakarta.
54. Teichtahl AJ, D.M. Urquhart, Y. Wang et al., "Fat infiltration of paraspinal muscles is associated with low back pain, disability, and structural abnormalities in community-based adults. *Spine Journal.* 2015;15(7):1593–1601.
55. Teraguchi, M., Yoshimura, N., Hashizume, H., Muraki, S., Yamada, H., Minamide, A., Oka, H., Ishimoto, Y., Nagata, K., Kagotani, R. and Takiguchi, N., 2014. Prevalence and distribution of intervertebral disc degeneration over the entire spine in a population-based cohort: the Wakayama Spine Study. *Osteoarthritis and cartilage*, 22(1), pp.104-110.
56. Wand BM, Parkitny L, O'Connell NE, Luomajoki H, McAuley JH, Thacker M, et al. cortical changes in chronic low back pain: current state of the art implications for clinical practice. *Man Ther.* 2011;16(1):15–20.
- Y.X.J., Griffith, J.F., Zeng, X.J., Deng, M., Kwok, A.W., Leung, J.C., A.T., Kwok, T. and Leung, P.C., 2013. Prevalence and gender ce of lumbar disc space narrowing in elderly Chinese men and



- women: Mr. OS (Hong Kong) and Ms. OS (Hong Kong) studies. *Arthritis and rheumatism*, 65(4), p.1004.
58. Woodham M, Woodham A, Skeate JG, Freeman M. Long-term lumbar multifidus muscle atrophy changes documented with magnetic resonance imaging: a case series. *J Radiol Case Rep*. 2014;8(5):27–34
59. Xianzheng W. Rui J, Jiaqi L, Yibo Z, Huanan L, Wijin L. Research progress on the mechanism of lumbar multifidus injury and degeneration. *Oxidative Medicine and Cellular Longevity* Volume 2021, Article ID 6629037: 3
60. Yanik, B. Keyik, and I. Conkbayir, “Fatty degeneration of multifidus muscle in patients with chronic low back pain and in asymptomatic volunteers: quantification with chemical shift magnetic resonance imaging. *Skeletal Radiology*. 2013;(42); 6:771–778.
61. Yüce I, Kahyaoğlu O, Mertan P, Çavuşoğlu H, Aydın Y. Analysis of clinical characteristics and surgical results of upper lumbar disc herniations. *Neurochirurgie*. 2019;65(4):158–63.
62. Zhang Y-g, Sun Z, Zhang Z, Liu J, Guo X. Risk factors for lumbar intervertebral disc herniation in Chinese population: a case-control study. *Spine*. 2009;34(25):E918-E22.
63. Zwambag DP, Ricketts TA, Brown SHM. Sarcomere length organization as a design for cooperative function amongst all lumbar spine muscles. *J Biomech*. 2014;47(12):3087-3093



LAMPIRAN 1



KEMENTERIAN PENDIDIKAN, KEBUDAYAAN, RISET DAN TEKNOLOGI
UNIVERSITAS HASANUDDIN FAKULTAS KEDOKTERAN
KOMITE ETIK PENELITIAN UNIVERSITAS HASANUDDIN
RSPTN UNIVERSITAS HASANUDDIN
RSUP Dr. WAHIDIN SUDIROHUSODO MAKASSAR
Sekretariat : Lantai 2 Gedung Laboratorium Terpadu
JL. PERINTIS KEMERDEKAAN KAMPUS TAMALANREA KM.10 MAKASSAR 90245.
Contact Person: dr. Agussalim Bukhari, MMed, PhD, SpGK TELP. 081241850858, 0411 5780103, Fax : 0411-581431



REKOMENDASI PERSETUJUAN ETIK

Nomor : 95/UN4.6.4.5.31/ PP36/ 2022

Tanggal: 7 Februari 2023

Dengan ini Menyatakan bahwa Protokol dan Dokumen yang Berhubungan Dengan Protokol berikut ini telah mendapatkan Persetujuan Etik :

No Protokol	UH23010054		No Sponsor	
Peneliti Utama	dr. Amalia		Sponsor	
Judul Peneliti	Korelasi derajat degeneratif dan herniasi diskus intervertebralis dengan derajat infiltrasi lemak musculus multifidus lumbalis pada pemeriksaan Magnetic Resonance Imaging pasien nyeri punggung bawah			
No Versi Protokol	1	Tanggal Versi	24 Januari 2023	
No Versi PSP		Tanggal Versi		
Tempat Penelitian	RSUP Dr. Wahidin Sudirohusodo Makassar			
Jenis Review	☒ Exempted ☐ Expedited ☐ Fullboard Tanggal		Masa Berlaku	Frekuensi review lanjutan
			7 Februari 2023 sampai 7 Februari 2024	
Ketua KEP Universitas Hasanuddin	Nama Prof.Dr.dr. Suryani As'ad, M.Sc.,Sp.GK (K)		Tanda tangan	
Sekretaris KEP Universitas Hasanuddin	Nama dr. Agussalim Bukhari, M.Med.,Ph.D.,Sp.GK (K)		Tanda tangan	

Kewajiban Peneliti Utama:

- Menyerahkan Amandemen Protokol untuk persetujuan sebelum di implementasikan
- Menyerahkan Laporan SAE ke Komisi Etik dalam 24 Jam dan dilengkapi dalam 7 hari dan Laporan SUSAR dalam 72 Jam setelah Peneliti Utama menerima laporan
- Menyerahkan Laporan Kemajuan (progress report) setiap 6 bulan untuk penelitian resiko tinggi dan setiap setahun untuk penelitian resiko rendah
- Menyerahkan laporan akhir setelah Penelitian berakhir
- Melaporkan penyimpangan dari protokol yang disetujui (protocol deviation / violation)
- Mematuhi semua peraturan yang ditentukan



LAMPIRAN 2

Case Processing Summary

	Valid		Cases Missing		Total	
	N	Percent	N	Percent	N	Percent
Jenis Kelamin * Derajat Degeneratif Discus	284	100.0%	0	0.0%	284	100.0%
Jenis Kelamin * Derajat Herniasi Discus	284	100.0%	0	0.0%	284	100.0%
Kelompok Usia * Derajat Degeneratif Discus	284	100.0%	0	0.0%	284	100.0%
Kelompok Usia * Derajat Herniasi Discus	284	100.0%	0	0.0%	284	100.0%

Jenis Kelamin * Derajat Degeneratif Discus

Crosstab

			Derajat Degeneratif Discus					
			Grade 1	Grade 2	Grade 3	Grade 4	Grade 5	Total
 Jenis Kelamin	Laki-laki	Count	1	26	58	25	30	140
		% within Jenis Kelamin	0.7%	18.6%	41.4%	17.9%	21.4%	100.0%
	Perempuan	Count	0	20	44	61	19	144
		% within Jenis Kelamin	0.0%	13.9%	30.6%	42.4%	13.2%	100.0%
Total		Count	1	46	102	86	49	284
		% within Jenis Kelamin	0.4%	16.2%	35.9%	30.3%	17.3%	100.0%



Chi-Square Tests

	Value	df	Asymptotic Significance (2- sided)
Pearson Chi-Square	21.191 ^a	4	.000
Likelihood Ratio	22.077	4	.000
Linear-by-Linear Association	1.507	1	.220
N of Valid Cases	284		

a. 2 cells (20.0%) have expected count less than 5. The minimum expected count is .49.

Jenis Kelamin * Derajat Herniasi Discus

Crosstab

			Derajat Herniasi Discus				
			Bulgin g	Protrusi o	Ekstrus io	Sekuestr asi	Total
Jenis Kelami n	Laki-laki	Count	38	47	48	7	140
		% within Jenis Kelamin	27.1%	33.6%	34.3%	5.0%	100.0%
	Perempu an	Count	53	53	34	4	144
		% within Jenis Kelamin	36.8%	36.8%	23.6%	2.8%	100.0%
Total		Count	91	100	82	11	284
		% within Jenis Kelamin	32.0%	35.2%	28.9%	3.9%	100.0%



Chi-Square Tests

	Value	df	Asymptotic Significance (2- sided)
Pearson Chi-Square	5.986 ^a	3	.112
Likelihood Ratio	6.018	3	.111
Linear-by-Linear Association	5.701	1	.017
N of Valid Cases	284		

a. 0 cells (0.0%) have expected count less than 5. The minimum expected count is 5.42.

Kelompok Usia * Derajat Degeneratif Discus

Crosstab

			Derajat Degeneratif Discus				
			Grade 1	Grade 2	Grade 3	Grade 4	Grade 5
Kelompok Usia	36-45 tahun	Count	1	22	33	12	10
		% within Kelompok Usia	1.3%	28.2%	42.3%	15.4%	12.8%
	46-55 tahun	Count	0	17	31	36	8
		% within Kelompok Usia	0.0%	18.5%	33.7%	39.1%	8.7%
	56-65 tahun	Count	0	6	28	22	19
		% within Kelompok Usia	0.0%	8.0%	37.3%	29.3%	25.3%
	> 65 tahun	Count	0	1	10	16	12
		% within Kelompok Usia	0.0%	2.6%	25.6%	41.0%	30.8%
	Total	Count	1	46	102	86	49
		% within Kelompok Usia	0.4%	16.2%	35.9%	30.3%	17.3%



Crosstab

			Total
Kelompok Usia	36-45 tahun	Count	78
		% within Kelompok Usia	100.0%
	46-55 tahun	Count	92
		% within Kelompok Usia	100.0%
	56-65 tahun	Count	75
		% within Kelompok Usia	100.0%
	> 65 tahun	Count	39
		% within Kelompok Usia	100.0%
Total	Count	284	
	% within Kelompok Usia	100.0%	

Chi-Square Tests

	Value	df	Asymptotic Significance (2- sided)
Pearson Chi-Square	41.034 ^a	12	.000
Likelihood Ratio	43.702	12	.000
Linear-by-Linear Association	28.451	1	.000
N of Valid Cases	284		

a. 4 cells (20.0%) have expected count less than 5. The minimum expected count is .14.



Optimized using
trial version
www.balesio.com

Kelompok Usia * Derajat Herniasi Discus

Crosstab

			Derajat Herniasi Discus				Total
			Bulging	Protrusion	Ekstusion	Sekuestasi	
Kelompok Usia	36-45 tahun	Count	30	24	21	3	78
		% within Kelompok Usia	38.5%	30.8%	26.9%	3.8%	100.0%
	46-55 tahun	Count	37	36	17	2	92
		% within Kelompok Usia	40.2%	39.1%	18.5%	2.2%	100.0%
	56-65 tahun	Count	18	25	31	1	75
		% within Kelompok Usia	24.0%	33.3%	41.3%	1.3%	100.0%
	> 65 tahun	Count	6	15	13	5	39
		% within Kelompok Usia	15.4%	38.5%	33.3%	12.8%	100.0%
	Total	Count	91	100	82	11	284
		% within Kelompok Usia	32.0%	35.2%	28.9%	3.9%	100.0%

Chi-Square Tests

	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	26.687 ^a	9	.002
Likelihood Ratio	24.948	9	.003
Linear-by-Linear Association	10.666	1	.001
N of Valid Cases	284		



0%) have expected count less than 5. The minimum expected count is 1.51.

Nonparametric Correlations

Correlations

			Usia	Derajat Degeneratif Discus	Derajat Herniasi Discus
Spearman's rho	Usia	Correlation Coefficient	1.000	.350**	.188**
		Sig. (2-tailed)	.	.000	.001
		N	284	284	284
	Derajat Degeneratif Discus	Correlation Coefficient	.350**	1.000	.513**
		Sig. (2-tailed)	.000	.	.000
		N	284	284	284
	Derajat Herniasi Discus	Correlation Coefficient	.188**	.513**	1.000
		Sig. (2-tailed)	.001	.000	.
		N	284	284	284

** . Correlation is significant at the 0.01 level (2-tailed).

Nonparametric Correlations

Correlations

			Derajat Degeneratif Discus	Derajat Herniasi Discus	Derajat Infiltrasi Lemak
Spearman's rho	Derajat Degeneratif Discus	Correlation Coefficient	1.000	.513**	.565**
		Sig. (2-tailed)	.	.000	.000
		N	284	284	284
	Derajat Herniasi Discus	Correlation Coefficient	.513**	1.000	.462**
		Sig. (2-tailed)	.000	.	.000
		N	284	284	284



Optimized using
trial version
www.balesio.com

	Derajat Infiltrasi Lemak	Correlation Coefficient	.565**	.462**	1.000
		Sig. (2-tailed)	.000	.000	.
		N	284	284	284

** . Correlation is significant at the 0.01 level (2-tailed).

Nonparametric Correlations

Correlations

			Derajat Degeneratif Discus	Derajat Herniasi Discus	Derajat Infiltrasi Lemak
Spearman's rho	Derajat Degeneratif Discus	Correlation Coefficient	1.000	.618**	.544**
		Sig. (2-tailed)	.	.000	.000
		N	140	140	140
	Derajat Herniasi Discus	Correlation Coefficient	.618**	1.000	.545**
		Sig. (2-tailed)	.000	.	.000
		N	140	140	140
	Derajat Infiltrasi Lemak	Correlation Coefficient	.544**	.545**	1.000
		Sig. (2-tailed)	.000	.000	.
		N	140	140	140

** . Correlation is significant at the 0.01 level (2-tailed).



Crosstabs

Case Processing Summary

	Valid		Cases Missing		Total	
	N	Percent	N	Percent	N	Percent
Derajat Degeneratif Discus * Derajat Infiltrasi Lemak	140	100.0%	0	0.0%	140	100.0%
Derajat Herniasi Discus * Derajat Infiltrasi Lemak	140	100.0%	0	0.0%	140	100.0%

Derajat Degeneratif Discus * Derajat Infiltrasi Lemak

Crosstab

			Derajat Infiltrasi Lemak				Total
			Grade 1	Grade 2	Grade 3	Grade 4	
Derajat Degeneratif Discus	Grade 1	Count	1	0	0	0	1
		% within Derajat Degeneratif Discus	100.0%	0.0%	0.0%	0.0%	100.0%
	Grade 2	Count	13	11	2	0	26
		% within Derajat Degeneratif Discus	50.0%	42.3%	7.7%	0.0%	100.0%
	Grade 3	Count	7	37	12	2	58
		% within Derajat Degeneratif Discus	12.1%	63.8%	20.7%	3.4%	100.0%
	Grade 4	Count	1	10	9	5	25



	4	% within Derajat Degeneratif Discus	4.0%	40.0%	36.0%	20.0%	100.0%
	Grade	Count	3	4	16	7	30
	5	% within Derajat Degeneratif Discus	10.0%	13.3%	53.3%	23.3%	100.0%
Total		Count	25	62	39	14	140
		% within Derajat Degeneratif Discus	17.9%	44.3%	27.9%	10.0%	100.0%

Chi-Square Tests

	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	61.429 ^a	12	.000
Likelihood Ratio	60.272	12	.000
Linear-by-Linear Association	39.310	1	.000
N of Valid Cases	140		

a. 9 cells (45.0%) have expected count less than 5. The minimum expected count is .10.



Derajat Herniasi Discus * Derajat Infiltrasi Lemak

Crosstab

			Derajat Infiltrasi Lemak				Total
			Grade 1	Grade 2	Grade 3	Grade 4	
Derajat Herniasi Discus	Bulging	Count	15	20	2	1	38
		% within Derajat Herniasi Discus	39.5%	52.6%	5.3%	2.6%	100.0%
	Protrusio	Count	6	29	11	1	47
		% within Derajat Herniasi Discus	12.8%	61.7%	23.4%	2.1%	100.0%
	Ekstrusio	Count	4	11	25	8	48
		% within Derajat Herniasi Discus	8.3%	22.9%	52.1%	16.7%	100.0%
	Sekuesterasi	Count	0	2	1	4	7
		% within Derajat Herniasi Discus	0.0%	28.6%	14.3%	57.1%	100.0%
	Total	Count	25	62	39	14	140
		% within Derajat Herniasi Discus	17.9%	44.3%	27.9%	10.0%	100.0%

Chi-Square Tests

	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	64.011 ^a	9	.000
Likelihood Ratio	59.375	9	.000
Linear-by-Linear Association	40.722	1	.000
N of Valid Cases	140		



(43.8%) have expected count less than 5. The minimum expected count is .70.

Nonparametric Correlations

Correlations

			Derajat Degeneratif Discus	Derajat Herniasi Discus	Derajat Infiltrasi Lemak
Spearman's rho	Derajat Degeneratif Discus	Correlation Coefficient	1.000	.443**	.586**
		Sig. (2-tailed)	.	.000	.000
		N	144	144	144
	Derajat Herniasi Discus	Correlation Coefficient	.443**	1.000	.461**
		Sig. (2-tailed)	.000	.	.000
		N	144	144	144
	Derajat Infiltrasi Lemak	Correlation Coefficient	.586**	.461**	1.000
		Sig. (2-tailed)	.000	.000	.
		N	144	144	144

** . Correlation is significant at the 0.01 level (2-tailed).

Crosstabs

Case Processing Summary

	Cases					
	Valid		Missing		Total	
	N	Percent	N	Percent	N	Percent
Derajat Degeneratif Discus * Derajat Infiltrasi Lemak	144	100.0%	0	0.0%	144	100.0%
Derajat Herniasi Discus * Derajat Infiltrasi Lemak	144	100.0%	0	0.0%	144	100.0%



Derajat Degeneratif Discus * Derajat Infiltrasi Lemak

Crosstab

			Derajat Infiltrasi Lemak				Total
			Grade 1	Grade 2	Grade 3	Grade 4	
Derajat Degeneratif Discus	Grade 2	Count	2	17	0	1	20
	2	% within Derajat Degeneratif Discus	10.0%	85.0%	0.0%	5.0%	100.0%
	Grade 3	Count	2	30	8	4	44
	3	% within Derajat Degeneratif Discus	4.5%	68.2%	18.2%	9.1%	100.0%
	Grade 4	Count	0	21	26	14	61
	4	% within Derajat Degeneratif Discus	0.0%	34.4%	42.6%	23.0%	100.0%
	Grade 5	Count	0	0	8	11	19
	5	% within Derajat Degeneratif Discus	0.0%	0.0%	42.1%	57.9%	100.0%
	Total	Count	4	68	42	30	144
		% within Derajat Degeneratif Discus	2.8%	47.2%	29.2%	20.8%	100.0%



Chi-Square Tests

	Value	df	Asymptotic Significance (2- sided)
Pearson Chi-Square	58.206 ^a	9	.000
Likelihood Ratio	69.590	9	.000
Linear-by-Linear Association	45.969	1	.000
N of Valid Cases	144		

a. 6 cells (37.5%) have expected count less than 5. The minimum expected count is .53.

Derajat Herniasi Discus * Derajat Infiltrasi Lemak

Crosstab

			Derajat Infiltrasi Lemak				Total
			Grade 1	Grade 2	Grade 3	Grade 4	
Derajat Herniasi Discus	Bulging	Count	3	36	10	4	53
		% within Derajat Herniasi Discus	5.7%	67.9%	18.9%	7.5%	100.0 %
	Protrusio	Count	1	26	15	11	53
		% within Derajat Herniasi Discus	1.9%	49.1%	28.3%	20.8%	100.0 %
	Ekstrusio	Count	0	6	16	12	34
		% within Derajat Herniasi Discus	0.0%	17.6%	47.1%	35.3%	100.0 %
	Sekuestrasi	Count	0	0	1	3	4
		% within Derajat Herniasi Discus	0.0%	0.0%	25.0%	75.0%	100.0 %
	Total	Count	4	68	42	30	144
		% within Derajat Herniasi Discus	2.8%	47.2%	29.2%	20.8%	100.0 %



Chi-Square Tests

	Value	df	Asymptotic Significance (2- sided)
Pearson Chi-Square	35.061 ^a	9	.000
Likelihood Ratio	37.359	9	.000
Linear-by-Linear Association	30.460	1	.000
N of Valid Cases	144		

a. 7 cells (43.8%) have expected count less than 5. The minimum expected count is .11.



LAMPIRAN 3

CURRICULUM VITAE

A. Data Pribadi

- Nama : dr. Amalia
- Agama : Islam
- Tempat/Tgl Lahir : Ampa / 04 Februari 1990
- Alamat : Rusunawa 1 UNHAS
- Nama Ayah/Ibu : Hi. Moh. Sahil / Hj. Asma
- Suami : Muhammad Farhan, S.ST., M.IKom
- Anak : Alayya Kahlia Lova

B. Riwayat Pendidikan

- TK : TK Fajar Terang
- SD : SDN 3 Ampa Kota
- SMP : SMPN 1 Ampa Kota
- SMA : SMAN 1 Ampa Kota
- Perguruan Tinggi : Fakultas Kedokteran Universitas Yarsi Jakarta
- Profesi Dokter : Fakultas Kedokteran Universitas Yarsi Jakarta
- PPDS : Departemen Radiologi Fakultas Kedokteran Universitas Hasanuddin Periode Juli 2020

C. Riwayat Pekerjaan

1. Dokter Internship di RSUD Luwuk, Kab. Banggai tahun 2014-2015
2. Dokter Umum di RSUD Ampa tahun 2016-2020

D. Makalah pada Seminar/Konferensi Ilmiah Nasional :

“Saccular aneurysm of Left Anterior Descending Coronary Artery”,
awakan pada acara PIT PDSRKI 16th “Role of Radiology in emergency
ting : Current and Future Challenges” Manado, 11-12 Maret 2022

