

## DAFTAR PUSTAKA

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## LAMPIRAN

## Lampiran 1. 1 Surat Izin Penelitian



**PEMERINTAH PROVINSI SULAWESI SELATAN**  
**DINAS PENANAMAN MODAL DAN PELAYANAN TERPADU SATU PINTU**  
 Jl. Bougainville No.5 Telp. (0411) 441077 Fax. (0411) 448936  
 Website : <http://simap-new.sulselprov.go.id> Email : [ptsp@sulselprov.go.id](mailto:ptsp@sulselprov.go.id)  
 Makassar 90231

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Nomor	: <b>12467/S.01/PTSP/2023</b>	Kepada Yth.
Lampiran	: -	Walikota Makassar
Perihal	: <u><b>Izin penelitian</b></u>	

di-  
**Tempat**

Berdasarkan surat Dekan Fak. Keperawatan Univ. Hasanuddin Makassar Nomor : 825/UN4.18.1/PT.01.04/2023 tanggal 01 Maret 2023 perihal tersebut diatas, mahasiswa/peneliti dibawah ini:

N a m a	: <b>CHRISTINE MILENIA SARIRA</b>	
Nomor Pokok	: R021191052	
Program Studi	: Fisioterapi	
Pekerjaan/Lembaga	: Mahasiswa (S1)	
Alamat	: Jl. P. Kemerdekaan Km, 10 Makassar	

PROVINSI SULAWESI SELATAN

Bermaksud untuk melakukan penelitian di daerah/kantor saudara dalam rangka menyusun SKRIPSI, dengan judul :

**\* HUBUNGAN ANTARA INDEKS MASSA TUBUH DENGAN RISIKO SARKOPENIA PADA LANJUT USIA DI KELURAHAN UNTIA KOTA MAKASSAR \***

Yang akan dilaksanakan dari : Tgl. **13 Maret s/d 30 April 2023**

Sehubungan dengan hal tersebut diatas, pada prinsipnya kami *menyetujui* kegiatan dimaksud dengan ketentuan yang tertera di belakang surat izin penelitian.

Demikian Surat Keterangan ini diberikan agar dipergunakan sebagaimana mestinya.

Diterbitkan di Makassar  
Pada Tanggal 02 Maret 2023

**A.n. GUBERNUR SULAWESI SELATAN**  
**KEPALA DINAS PENANAMAN MODAL DAN PELAYANAN TERPADU**  
**SATU PINTU PROVINSI SULAWESI SELATAN**



**Ir. H. SULKAF S LATIEF, M.M.**  
 Pangkat : PEMBINA UTAMA MADYA  
 Nip : 19630424 198903 1 010

Tembusan Yth

1. Dekan Fak. Keperawatan Univ. Hasanuddin Makassar di Makassar;
2. *Pertinggal*.

## Lampiran 1. 2 Surat Telah Menyelesaikan Penelitian



PEMERINTAH KOTA MAKASSAR  
**KELURAHAN UNTIA**  
 KECAMATAN BIRINGKANAYA



Sekretariat : Jl Singapura Salodong No1 Tlp.

Kode Pos 90243 Makassar

**SURAT KETERANGAN**

Nomor : 148 / / KU / V / 2023

Yang bertanda tangan di bawah ini Lurah Untia Kecamatan Biringkanaya Kota Makassar menerangkan bahwa:


Nama : CHRISTINE MILENIA SARIRA  
 NIM / Jurusan : R021191052/ Fisioterapi  
 Pekerjaan : Mahasiswa ( S1 ) / UNHAS  
 Alamat Kampus : Jl.Perintis Kemerdekaan KM.10 Makassar  
 Alamat Rumah : Buntui Buda RT 1/RW 1 Kecamatan Mamasa  
 Judul Penelitian : **"Hubungan Antara Indeks Massa Tubuh dengan Risiko Sarkopenia pada Lanjut Usia di Kelurahan Untia Kota Makassar"**

Benar nama tersebut di atas telah Melakukan Kegiatan Penelitian di Kampung Nelayan Kelurahan Untia Kecamatan Biringkanaya Kota Makassar, yang telah terhitung Mulai Tanggal 15 Maret 2023 s/d 30 April 2023

Demikian surat keterangan ini di buat untuk dipergunakan sebagaimana mestinya.

Makassar, 25 Mei 2023

An. LURAH UNTJA  
 Sekretaris Lurah

  
**SETIAWAN HALAYB, S.Sos**  
 Pangkat : Penata Tk I  
 NIP. 19681217 199402 2 002



## Lampiran 1. 3 Surat Keterangan Lolos Kaji Etik



KEMENTERIAN PENDIDIKAN, KEBUDAYAAN  
RISET, DAN TEKNOLOGI  
UNIVERSITAS HASANUDDIN  
FAKULTAS KESEHATAN MASYARAKAT  
Jln. Perintis Kemerdekaan Km. 10 Makassar 90245, Telp. (0411) 585658,  
E-mail : [fkunhas@gmail.com](mailto:fkunhas@gmail.com), website: <https://fkunhas.ac.id/>

**REKOMENDASI PERSETUJUAN ETIK**

Nomor : 2884/UN4.14.1/TP.01.02/2023

Tanggal : 15 Maret 2023

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

No. Protokol	08323091039	No. Sponsor Protokol	
Peneliti Utama	Christine Milenia Sarira	Sponsor	Pribadi
Judul Peneliti	Hubungan Antara Indeks Massa Tubuh dengan Risiko Sarkopenia Pada Lanjut Usia di Kelurahan Untia Kota Makassar		
No. Versi Protokol	1	Tanggal Versi	08 Maret 2023
No. Versi PSP	1	Tanggal Versi	08 Maret 2023
Tempat Penelitian	Kota Makassar		
Judul Review	<input checked="" type="checkbox"/> Exempted <input type="checkbox"/> Expedited <input type="checkbox"/> Fullboard	Masa Berlaku 15 Maret 2023 Sampai 15 Maret 2024	Frekuensi review lanjutan
Ketua Komisi Etik Penelitian	Nama : Prof.dr.Veni Hadju,M.Sc,Ph.D	Tanda tangan 	Tanggal 15 Maret 2023 
Sekretaris Komisi Etik Penelitian	Nama : Dr. Wahiduddin, SKM.,M.Kes	Tanda tangan 	Tanggal 15 Maret 2023

## Kewajiban Peneliti Utama :

1. Menyerahkan Amandemen Protokol untuk persetujuan sebelum di implementasikan
2. 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
3. Menyerahkan Laporan Kemajuan (progress report) setiap 6 bulan untuk penelitian resiko tinggi dan setiap setahun untuk penelitian resiko rendah
4. Menyerahkan laporan akhir setelah Penelitian berakhir
5. Melaporkan penyimpangan dari protocol yang disetujui (protocol deviation/violation)
6. Mematuhi semua peraturan yang ditentukan



Lampiran 1. 4 Alat Ukur



Timbangan berat badan



*Microtoise*



Pita Pengukur

Lampiran 1.5 *Informed Consent***LEMBAR PERSETUJUAN**

Yang bertanda tangan dibawah ini:

Nama/Inisial : [REDACTED]  
 Tanggal lahir/ umur : [REDACTED] ( [REDACTED] th )  
 Jenis Kelamin : L  
 Pekerjaan : nelayan

Setelah mendapatkan penjelasan dari peneliti terkait pemeriksaan yang akan diberikan, saya bersedia menjadi responden penelitian yang berjudul "Hubungan Indeks Massa Tubuh dengan Risiko Sarkopenia pada Lanjut Usia di Kelurahan Untia Kota Makassar"

Saya menjadi responden bukan karena paksaan dari pihak lain, tetapi karena keinginan saya sendiri dan tidak ada biaya yang akan ditanggung kepada saya sesuai dengan penjelasan peneliti. Saya percaya bahwa keamanan dan kerahasiaan data akan terjamin dan dengan ini saya menyetujui semua informasi saya yang dihasilkan dalam penelitian ini dalam bentuk lisan maupun tulisan dengan tidak mencantumkan nama. Bila terjadi perbedaan pendapat di kemudian hari, kami akan menyelesaikannya secara kekeluargaan

Demikian lembar persetujuan ini dibuat dengan penuh kesadaran dan tanpa dipaksa dari pihak lain untuk dipergunakan sebagaimana mestinya.

25  
Makassar, Maret 2023

Responden

*[Handwritten Signature]*

( )

**Penanggung Jawab Penelitian :**

Nama : Christine Milenia Sarira  
 Alamat : Jl. Biring Romang, no. 18, Kapasa, Makassar  
 WA/Email : 085209084866/christinesarira@gmail.com

## Lampiran 1. 6 Form Pengambilan Data

## FORM PENGUMPULAN DATA LANSIA

Petunjuk Pengisian :

Isilah dan beri tanda (√) pada jawaban pilihan :

1. Inisial nama : H
2. No. Telepon : -
3. Umur : 64 Th
4. Berat badan : 66,8
5. Tinggi badan : 164
6. Lingkar betis : Kiri = 33                      Kanan = 33
7. Jenis kelamin

Laki-laki                       Perempuan

8. Pekerjaan

- Pensiunan                       Ibu Rumah Tangga  
 Nelayan                       Lainnya : \_\_\_\_\_

9. Keluarga yang tinggal serumah

- Suami                       Istri  
 Anak                       Cucu  
 Tidak ada

10. Riwayat Penyakit

Apakah memiliki riwayat cedera ekstremitas bawah pada salah satu/kedua ekstremitas (patah tulang) selama 3 bulan terakhir?

Ya                       Tidak

Apakah memiliki riwayat lumpuh/mengalami lumpuh?

Ya                       Tidak

Apakah memiliki riwayat *bed rest* selama 1 minggu lebih selama 3 bulan terakhir

Ya                       Tidak

Apakah memiliki riwayat penyakit lain : Demam C. Panas - (diagn)

## Lampiran 1. 7 Hasil Uji SPSS

## 1. Data Karakteristik Responden

**Statistics**

		Pekerjaan_lansia	Jenis_Kelamin	Usia
N	Valid	67	67	67
	Missing	0	0	0

**Pekerjaan\_lansia**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Ibu Rumah Tangga (IRT)	38	56.7	56.7	56.7
	Nelayan	10	14.9	14.9	71.6
	Pedagang	6	9.0	9.0	80.6
	Pensiunan	2	3.0	3.0	83.6
	Imam Kelurahan	1	1.5	1.5	85.1
	Pengelola Sumber Daya Pesisir	1	1.5	1.5	86.6
	Penjahit Pakaian	1	1.5	1.5	88.1
	Tidak Ada	8	11.9	11.9	100.0
	Total	67	100.0	100.0	

**Jenis\_Kelamin**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Laki-laki	20	29.9	29.9	29.9
	Perempuan	47	70.1	70.1	100.0
Total		67	100.0	100.0	

**Usia**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Elderly	58	86.6	86.6	86.6
	Old Elderly	9	13.4	13.4	100.0
Total		67	100.0	100.0	

## 2. Distribusi Indeks Massa Tubuh (IMT)

		IMT			Cumulative
		Frequency	Percent	Valid Percent	Percent
Valid	Sever Thinnes	3	4.5	4.5	4.5
	Thin	5	7.5	7.5	11.9
	Normal	42	62.7	62.7	74.6
	Overweight	7	10.4	10.4	85.1
	Obesitas	10	14.9	14.9	100.0
	Total	67	100.0	100.0	

## IMT \* Usia Crosstabulation

		Usia			
		Elderly	Old Elderly	Total	
IMT	Sever Thinnes	Count	2	1	3
		% of Total	3.0%	1.5%	4.5%
	Thin	Count	3	2	5
		% of Total	4.5%	3.0%	7.5%
	Normal	Count	37	5	42
		% of Total	55.2%	7.5%	62.7%
	Overweight	Count	6	1	7
		% of Total	9.0%	1.5%	10.4%
	Obesitas	Count	10	0	10
		% of Total	14.9%	0.0%	14.9%
Total	Count	58	9	67	
	% of Total	86.6%	13.4%	100.0%	

## IMT \* Usia Crosstabulation

		Usia			
		Elderly	Old Elderly	Total	
IMT	Sever Thinnes	Count	2	1	3
		% of Total	3.0%	1.5%	4.5%
	Thin	Count	3	2	5
		% of Total	4.5%	3.0%	7.5%
	Normal	Count	37	5	42
		% of Total	55.2%	7.5%	62.7%

Overweight	Count	6	1	7
	% of Total	9.0%	1.5%	10.4%
Obesitas	Count	10	0	10
	% of Total	14.9%	0.0%	14.9%
Total	Count	58	9	67
	% of Total	86.6%	13.4%	100.0%

### 3. Risiko Sarkopenia

#### Risiko\_Sarkopenia

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Massa otot rendah	51	76.1	76.1	76.1
	Massa otot normal	16	23.9	23.9	100.0
Total		67	100.0	100.0	

#### Risiko\_Sarkopenia \* Usia Crosstabulation

		Usia		Total	
		Elderly	Old Elderly		
Risiko_Sarkopenia	Massa otot rendah	Count	43	8	51
		% of Total	64.2%	11.9%	76.1%
	Massa otot normal	Count	15	1	16
		% of Total	22.4%	1.5%	23.9%
Total		Count	58	9	67
		% of Total	86.6%	13.4%	100.0%

#### Risiko\_Sarkopenia \* Jenis\_Kelamin Crosstabulation

		Jenis_Kelamin		Total	
		Laki-laki	Perempuan		
Risiko_Sarkopenia	Massa otot rendah	Count	16	35	51
		% of Total	23.9%	52.2%	76.1%
	Massa otot normal	Count	4	12	16
		% of Total	6.0%	17.9%	23.9%
Total		Count	20	47	67
		% of Total	29.9%	70.1%	100.0%

### Tests of Normality

	Kolmogorov-Smirnov <sup>a</sup>			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
Nilai_IMT	.092	67	.200*	.986	67	.636
Nilai_Risiko_Sarkopenia	.080	67	.200*	.977	67	.240

\*. This is a lower bound of the true significance.

a. Lilliefors Significance Correction

### Correlations

		Nilai_IMT	Nilai_Risiko_Sarkopenia
Nilai_IMT	Pearson Correlation	1	.486**
	Sig. (2-tailed)		.000
	N	67	67
Nilai_Risiko_Sarkopenia	Pearson Correlation	.486**	1
	Sig. (2-tailed)	.000	
	N	67	67

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

### IMT \* Risiko\_Sarkopenia Crosstabulation

		Risiko_Sarkopenia		Total	
		Massa otot rendah	Massa otot normal		
IMT	Sever Thinnes	Count	3	0	3
		% of Total	4.5%	0.0%	4.5%
	Thin	Count	5	0	5
		% of Total	7.5%	0.0%	7.5%
	Normal	Count	33	9	42
		% of Total	49.3%	13.4%	62.7%
	Overweight	Count	4	3	7
		% of Total	6.0%	4.5%	10.4%
Obesitas	Count	6	4	10	
	% of Total	9.0%	6.0%	14.9%	
Total	Count	51	16	67	
	% of Total	76.1%	23.9%	100.0%	



### Koding\_Usia \* Risiko\_Sarkopenia Crosstabulation

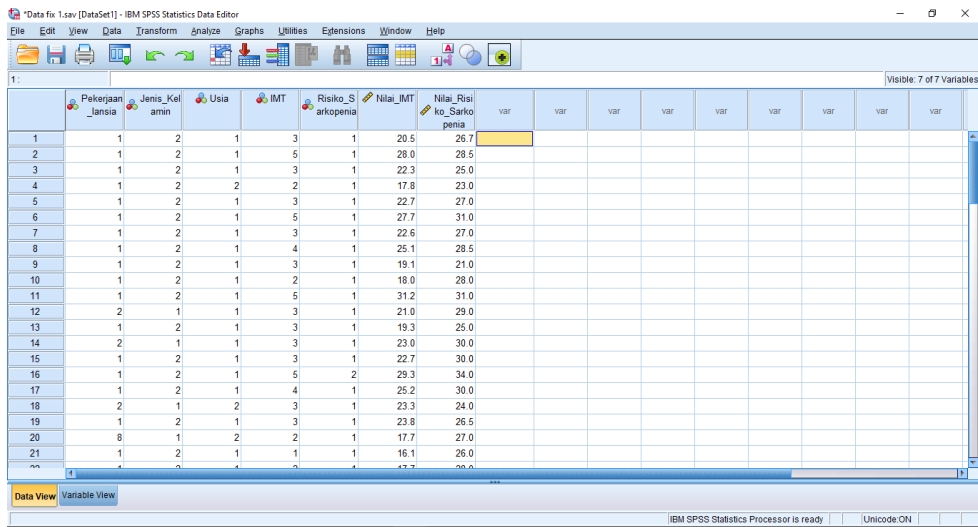
Count

		Risiko_Sarkopenia		Total
		Massa otot rendah	Massa otot normal	
Koding_Usia	60	6	3	9
	62	1	3	4
	63	2	2	4
	64	5	2	7
	65	3	0	3
	66	3	0	3
	67	5	1	6
	68	3	1	4
	69	2	0	2
	70	6	0	6
	71	1	2	3
	72	2	0	2
	73	3	1	4
	74	1	0	1
	76	3	0	3
	77	2	0	2
	80	1	1	2
84	2	0	2	
Total		51	16	67

### Koding\_Usia \* IMT Crosstabulation

Count

Koding_Usia		IMT					Total
		Sever Thinnes	Thin	Normal	Overweig ht	Obesit as	
60		0	3	4	0	2	9
62		0	0	2	1	1	4
63		0	0	3	1	0	4
64		0	0	5	0	2	7
65		0	0	3	0	0	3
66		0	0	2	1	0	3
67		0	0	6	0	0	6
68		1	0	1	0	2	4
69		0	0	1	0	1	2
70		1	0	4	1	0	6
71		0	0	3	0	0	3
72		0	0	1	1	0	2
73		0	0	2	0	2	4
74		0	0	0	1	0	1
76		0	0	3	0	0	3
77		1	0	1	0	0	2
80		0	0	1	1	0	2
84		0	2	0	0	0	2
<b>Total</b>		<b>3</b>	<b>5</b>	<b>42</b>	<b>7</b>	<b>10</b>	<b>67</b>



\*Data fix 1.sav [DataSet1] - IBM SPSS Statistics Data Editor

File Edit View Data Transform Analyze Graphs Utilities Extensions Window Help

Visible: 7 of 7 Variables

	Pekerjaan_Lansia	Jenis_Kelamin	Usia	IMT	Risiko_Sarkopenia	Nilai_IMT	Nilai_Risiko_Sarkopenia	var	var	var	var	var	var	var	var
47	2	1	1	3	1	22.0	31.0								
48	3	1	1	3	1	21.2	31.0								
49	4	1	1	3	1	24.3	32.0								
50	2	1	2	3	1	20.5	30.0								
51	5	1	1	5	2	27.4	33.0								
52	2	1	2	3	1	23.4	30.0								
53	6	1	1	3	1	21.0	31.0								
54	8	2	1	3	1	23.4	27.0								
55	8	2	2	1	1	14.5	23.0								
56	3	2	1	4	2	26.2	31.0								
57	2	2	1	3	1	23.6	32.0								
58	2	2	2	4	2	26.4	34.0								
59	2	2	1	5	2	32.3	33.0								
60	8	2	1	3	2	23.9	35.0								
61	8	1	1	3	2	22.3	35.0								
62	1	2	1	4	2	25.2	34.0								
63	2	1	1	3	2	24.1	36.0								
64	7	2	1	3	2	24.4	34.0								
65	2	2	1	3	2	19.4	35.0								
66	2	2	1	5	2	30.7	35.0								
67	2	2	1	2	1	18.3	26.0								

Data View Variable View

IBM SPSS Statistics Processor is ready Unicode ON

Lampiran 1. 8 Dokumentasi Penelitian





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## HUBUNGAN ANTARA INDEKS MASSA TUBUH DENGAN RISIKO SARKOPENIA PADA LANJUT USIA DI KELURAHAN UNTIA KOTA MAKASSAR

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### ABSTRAK

**Tujuan:** Penelitian ini bertujuan untuk mengetahui hubungan antara indeks massa tubuh dengan risiko sarkopenia pada lanjut usia di Kelurahan Untia Kota Makassar. **Metode:** Penelitian ini merupakan penelitian kuantitatif dengan desain penelitian *cross-sectional*. Sampel dipilih menggunakan metode *purposive sampling* dan didapatkan 67 sampel memenuhi kriteria inklusi. Indeks Massa Tubuh (IMT) dihitung berdasarkan rumus berat badan dibagi kuadrat tinggi badan dalam satuan meter, sedangkan risiko sarkopenia diketahui menggunakan lingkaran betis sebagai indikator massa otot. **Hasil:** Dalam penelitian ini didapatkan IMT dengan kategori normal mendominasi (62.7%), diikuti lansia obesitas (14.9%), gemuk (10.4%), kurus (7.5%), dan sangat kurus (4.5%). Selanjutnya didapatkan lansia yang memiliki massa otot rendah sebanyak 76.1% yang merujuk pada kondisi risiko sarkopenia. Uji korelasi yang digunakan yaitu *pearson product moment* dan didapatkan hasil nilai p sebesar 0,000 ( $p < 0.05$ ) yang berarti terdapat hubungan antara indeks massa tubuh dengan risiko sarkopenia pada lanjut usia di Kelurahan Untia Kota Makassar. Nilai *correlational coefficient* bernilai positif sebesar 0,486 dengan tingkat hubungan yang moderat/ sedang. **Kesimpulan:** Terdapat hubungan yang signifikan antara indeks massa tubuh dengan risiko sarkopenia pada lanjut usia di Kelurahan Untia Kota Makassar.

**Kata kunci:** Geriatri; Fisioterapi; Indeks Massa Tubuh (IMT); Lansia; Penuaan; Sarkopenia

### ABSTRACT

**Objective:** This study aims to determine the relationship between body mass index and the risk of sarcopenia in the elderly in Untia Village, Makassar City. **Methods:** This research is a quantitative study with a cross-sectional research design. The sample was selected using a purposive sampling method and 67 samples were obtained that met the criteria. Body Mass Index (BMI) is calculated based on the formula of body weight divided by the square of height in meters, while the risk of sarcopenia is known using calf circumference as an indicator of muscle mass. **Results:** In this study, BMI in the normal category dominated (62.7%), followed by obese elderly (14.9%), obese (10.4%), thin (7.5%), and very thin (4.5%). Furthermore, it was obtained that the elderly had low muscle mass as much as 76.1% which referred to the condition of the risk of sarcopenia. The correlation test used was the Pearson product moment and the results obtained were a p value of 0.000 ( $p < 0.05$ ) which means there is a relationship between body mass index and risk sarcopenia in the elderly in Untia Village, Makassar City. The correlation coefficient value is positive at 0.486 with a medium/moderate relationship level. **Conclusion:** There is a significant relationship between body mass index and the risk of sarcopenia in the elderly in Untia Village, Makassar City.

**Keywords:** Aging; Body Massa Indeks (BMI); Elderly; Geriatric; Physiotherapy; Sarkopenia

## Lampiran 1. 10 Riwayat Peneliti

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SMA Kristen Barana'	Tahun 2015-2018
SMPN 1 Mamasa	Tahun 2012-2015
SDN 1 Mamasa	Tahun 2006-2012
TK Kristen YPK	Tahun 2004-2006

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Anggota DPO Badan Khusus PISIFORM HIMAFISIO F.KEP-UH	Periode 2022-2023
Pengurus BPH HIMAFISIO F.KEP- UH	Periode 2021-2022
Pengurus Badan Khusus PISIFORM HIMAFISIO F.KEP-UH	Periode 2021-2022
LK 1 HIMAFISIO F.KEP-UH	Tahun 2019