

DAFTAR PUSTAKA

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Lampiran 1. Analisis Data

General Linear Model

Within-Subjects Factors

Measure: Motilitas

| Waktu | Dependent Variable |
|-------|--------------------|
| 1 | jam12 |
| 2 | jam24 |
| 3 | jam36 |
| 4 | jam48 |
| 5 | jam60 |
| 6 | jam72 |
| 7 | jam84 |
| 8 | jam96 |
| 9 | jam108 |
| 10 | jam120 |
| 11 | jam132 |
| 12 | jam144 |

Descriptive Statistics

| | mikronutrisi | Mean | Std. Deviation | N |
|--------|--------------|---------|----------------|---|
| jam12 | sebelum | 81.3925 | 6.28065 | 4 |
| | setelah | 82.8250 | 3.33107 | 4 |
| | Total | 82.1087 | 4.71672 | 8 |
| jam24 | sebelum | 79.9800 | 7.32313 | 4 |
| | setelah | 81.4275 | 3.94549 | 4 |
| | Total | 80.7037 | 5.50034 | 8 |
| jam36 | sebelum | 78.4050 | 8.08559 | 4 |
| | setelah | 80.0650 | 3.96314 | 4 |
| | Total | 79.2350 | 5.96132 | 8 |
| jam48 | sebelum | 77.2725 | 7.93299 | 4 |
| | setelah | 78.3675 | 3.65407 | 4 |
| | Total | 77.8200 | 5.74769 | 8 |
| jam60 | sebelum | 75.3475 | 6.75286 | 4 |
| | setelah | 76.7500 | 5.10997 | 4 |
| | Total | 76.0488 | 5.59429 | 8 |
| jam72 | sebelum | 72.3200 | 6.69253 | 4 |
| | setelah | 74.5950 | 6.47032 | 4 |
| | Total | 73.4575 | 6.21423 | 8 |
| jam84 | sebelum | 70.6475 | 6.70370 | 4 |
| | setelah | 72.8375 | 6.32941 | 4 |
| | Total | 71.7425 | 6.14812 | 8 |
| jam96 | sebelum | 68.6300 | 7.62704 | 4 |
| | setelah | 69.9725 | 6.65627 | 4 |
| | Total | 69.3013 | 6.66588 | 8 |
| jam108 | sebelum | 65.0600 | 6.62906 | 4 |
| | setelah | 65.6225 | 5.16623 | 4 |
| | Total | 65.3413 | 5.51020 | 8 |
| jam120 | sebelum | 60.5325 | 3.84074 | 4 |
| | setelah | 60.3200 | 3.73323 | 4 |

| | | | | |
|--------|---------|---------|---------|---|
| | Total | 60.4263 | 3.50826 | 8 |
| jam132 | sebelum | 56.4000 | 3.30503 | 4 |
| | setelah | 57.8500 | 2.91961 | 4 |
| | Total | 57.1250 | 2.98919 | 8 |
| jam144 | sebelum | 48.9225 | 3.34187 | 4 |
| | setelah | 47.1750 | 3.46473 | 4 |
| | Total | 48.0488 | 3.28688 | 8 |

Estimated Marginal Means

1. mikronutrisi

Estimates

Measure: Motilitas

| mikronutrisi | Mean | Std. Error | 95% Confidence Interval | |
|--------------|--------|------------|-------------------------|-------------|
| | | | Lower Bound | Upper Bound |
| sebelum | 69.576 | 2.428 | 63.634 | 75.517 |
| setelah | 70.651 | 2.428 | 64.709 | 76.592 |

Pairwise Comparisons

Measure: Motilitas

| (I) mikronutrisi | (J) mikronutrisi | Mean Difference (I-J) | Std. Error | Sig. ^a | 95% Confidence Interval for Difference ^a | |
|------------------|------------------|-----------------------|------------|-------------------|---|-------------|
| | | | | | Lower Bound | Upper Bound |
| Sebelum | setelah | -1.075 | 3.434 | .765 | -9.477 | 7.328 |
| Setelah | sebelum | 1.075 | 3.434 | .765 | -7.328 | 9.477 |

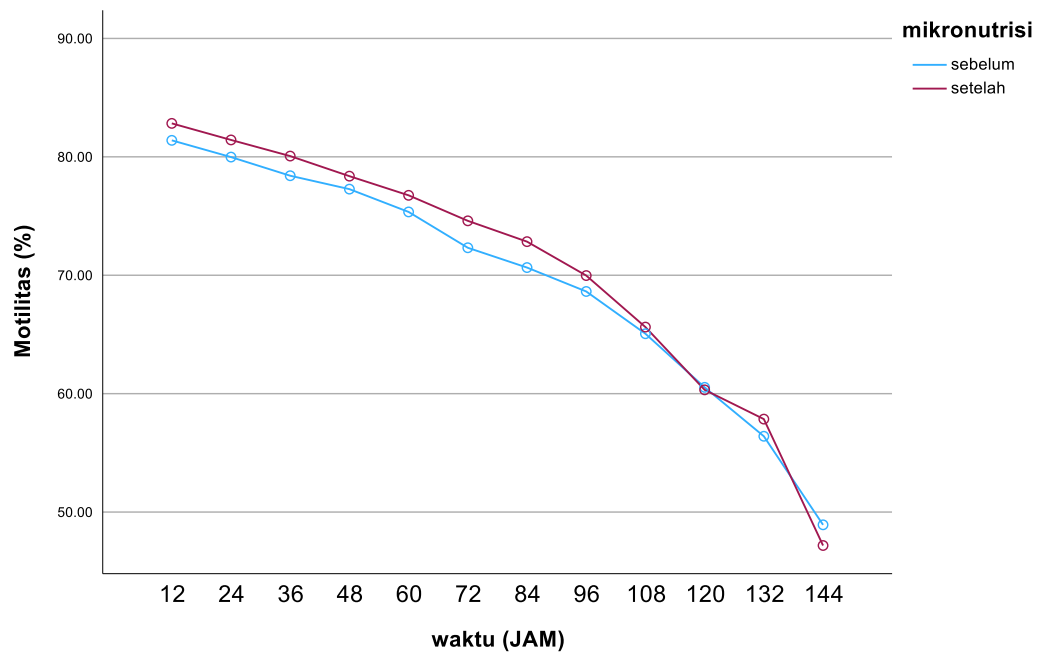
3. mikronutrisi * waktu

Measure: Motilitas

| mikronutrisi | waktu | Mean | Std. Error | 95% Confidence Interval | |
|--------------|-------|--------|------------|-------------------------|-------------|
| | | | | Lower Bound | Upper Bound |
| sebelum | 1 | 81.393 | 2.514 | 75.242 | 87.543 |
| | 2 | 79.980 | 2.941 | 72.784 | 87.176 |
| | 3 | 78.405 | 3.184 | 70.615 | 86.195 |
| | 4 | 77.273 | 3.088 | 69.717 | 84.828 |
| | 5 | 75.348 | 2.994 | 68.021 | 82.674 |
| | 6 | 72.320 | 3.291 | 64.267 | 80.373 |
| | 7 | 70.648 | 3.260 | 62.671 | 78.624 |
| | 8 | 68.630 | 3.579 | 59.872 | 77.388 |
| | 9 | 65.060 | 2.971 | 57.789 | 72.331 |
| | 10 | 60.533 | 1.894 | 55.899 | 65.166 |
| | 11 | 56.400 | 1.559 | 52.585 | 60.215 |
| | 12 | 48.923 | 1.702 | 44.758 | 53.087 |
| setelah | 1 | 82.825 | 2.514 | 76.675 | 88.975 |

| | | | | |
|----|--------|-------|--------|--------|
| 2 | 81.428 | 2.941 | 74.231 | 88.624 |
| 3 | 80.065 | 3.184 | 72.275 | 87.855 |
| 4 | 78.367 | 3.088 | 70.812 | 85.923 |
| 5 | 76.750 | 2.994 | 69.424 | 84.076 |
| 6 | 74.595 | 3.291 | 66.542 | 82.648 |
| 7 | 72.838 | 3.260 | 64.861 | 80.814 |
| 8 | 69.973 | 3.579 | 61.215 | 78.730 |
| 9 | 65.623 | 2.971 | 58.352 | 72.893 |
| 10 | 60.320 | 1.894 | 55.686 | 64.954 |
| 11 | 57.850 | 1.559 | 54.035 | 61.665 |
| 12 | 47.175 | 1.702 | 43.011 | 51.339 |

Profile Plots



Tests of Normality

| | Kolmogorov-Smirnov ^a | | | Shapiro-Wilk | | |
|----------------------------------|---------------------------------|----|-------|--------------|----|------|
| | Statistic | df | Sig. | Statistic | df | Sig. |
| Standardized Residual for jam12 | .209 | 8 | .200* | .944 | 8 | .649 |
| Standardized Residual for jam24 | .234 | 8 | .200* | .916 | 8 | .395 |
| Standardized Residual for jam36 | .267 | 8 | .097 | .935 | 8 | .562 |
| Standardized Residual for jam48 | .294 | 8 | .040 | .918 | 8 | .411 |
| Standardized Residual for jam60 | .345 | 8 | .006 | .834 | 8 | .065 |
| Standardized Residual for jam72 | .206 | 8 | .200* | .879 | 8 | .185 |
| Standardized Residual for jam84 | .211 | 8 | .200* | .875 | 8 | .169 |
| Standardized Residual for jam96 | .163 | 8 | .200* | .973 | 8 | .917 |
| Standardized Residual for jam108 | .135 | 8 | .200* | .946 | 8 | .670 |
| Standardized Residual for jam120 | .155 | 8 | .200* | .943 | 8 | .637 |
| Standardized Residual for jam132 | .253 | 8 | .142 | .867 | 8 | .140 |

| | | | | | | |
|----------------------------------|------|---|-------|------|---|------|
| Standardized Residual for jam144 | .147 | 8 | .200* | .980 | 8 | .963 |
|----------------------------------|------|---|-------|------|---|------|

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

a. Lilliefors Significance Correction

General Linear Model

Within-Subjects Factors

Measure: Viabilitas

| waktu | Dependent Variable |
|-------|--------------------|
| 1 | jam12 |
| 2 | jam24 |
| 3 | jam36 |
| 4 | jam48 |
| 5 | jam60 |
| 6 | jam72 |
| 7 | jam84 |
| 8 | jam96 |
| 9 | jam108 |
| 10 | jam120 |
| 11 | jam132 |
| 12 | jam144 |

Descriptive Statistics

| | mikronutrisi | Mean | Std. Deviation | N |
|-------|--------------|---------|----------------|---|
| jam12 | sebelum | 84.5000 | 2.08167 | 4 |
| | setelah | 85.7500 | .95743 | 4 |
| | Total | 85.1250 | 1.64208 | 8 |
| jam24 | sebelum | 77.2500 | 6.23832 | 4 |
| | setelah | 80.0000 | 4.69042 | 4 |
| | Total | 78.6250 | 5.31675 | 8 |
| jam36 | sebelum | 73.5000 | 5.74456 | 4 |
| | setelah | 78.7500 | 4.34933 | 4 |
| | Total | 76.1250 | 5.48862 | 8 |
| jam48 | sebelum | 71.0000 | 4.83046 | 4 |
| | setelah | 78.0000 | 4.32049 | 4 |
| | Total | 74.5000 | 5.65685 | 8 |
| jam60 | sebelum | 68.7500 | 4.27200 | 4 |
| | setelah | 75.5000 | 7.85281 | 4 |

| | | | | |
|--------|---------|---------|---------|---|
| | Total | 72.1250 | 6.87516 | 8 |
| jam72 | sebelum | 66.5000 | 5.19615 | 4 |
| | setelah | 74.5000 | 7.76745 | 4 |
| | Total | 70.5000 | 7.46420 | 8 |
| jam84 | sebelum | 65.7500 | 5.50000 | 4 |
| | setelah | 73.2500 | 7.04154 | 4 |
| | Total | 69.5000 | 7.09124 | 8 |
| jam96 | sebelum | 64.0000 | 5.88784 | 4 |
| | setelah | 71.2500 | 7.04154 | 4 |
| | Total | 67.6250 | 7.15017 | 8 |
| jam108 | sebelum | 59.0000 | 4.96655 | 4 |
| | setelah | 69.5000 | 5.68624 | 4 |
| | Total | 64.2500 | 7.47854 | 8 |
| jam120 | sebelum | 56.5000 | 5.91608 | 4 |
| | setelah | 68.5000 | 5.06623 | 4 |
| | Total | 62.5000 | 8.19407 | 8 |
| jam132 | sebelum | 53.5000 | 4.65475 | 4 |
| | setelah | 65.7500 | 5.31507 | 4 |
| | Total | 59.6250 | 8.01672 | 8 |
| jam144 | sebelum | 47.5000 | 3.00000 | 4 |
| | setelah | 59.2500 | 4.03113 | 4 |
| | Total | 53.3750 | 7.08998 | 8 |

Estimated Marginal Means

Mikronutrisi

Estimates

Measure: Viabilitas

| mikronutrisi | Mean | Std. Error | 95% Confidence Interval | |
|--------------|--------|------------|-------------------------|-------------|
| | | | Lower Bound | Upper Bound |
| sebelum | 65.646 | 2.098 | 60.513 | 70.778 |
| setelah | 73.333 | 2.098 | 68.201 | 78.466 |

Pairwise Comparisons

Measure: Viabilitas

| (I) mikronutrisi | (J) mikronutrisi | Mean Difference (I-J) | Std. Error | Sig. ^b | 95% Confidence Interval for Difference ^b | |
|------------------|------------------|-----------------------|------------|-------------------|---|-------------|
| | | | | | Lower Bound | Upper Bound |
| sebelum | setelah | -7.688 [*] | 2.966 | .041 | -14.946 | -.429 |
| setelah | sebelum | 7.688 [*] | 2.966 | .041 | .429 | 14.946 |

Based on estimated marginal means

*. The mean difference is significant at the .05 level.

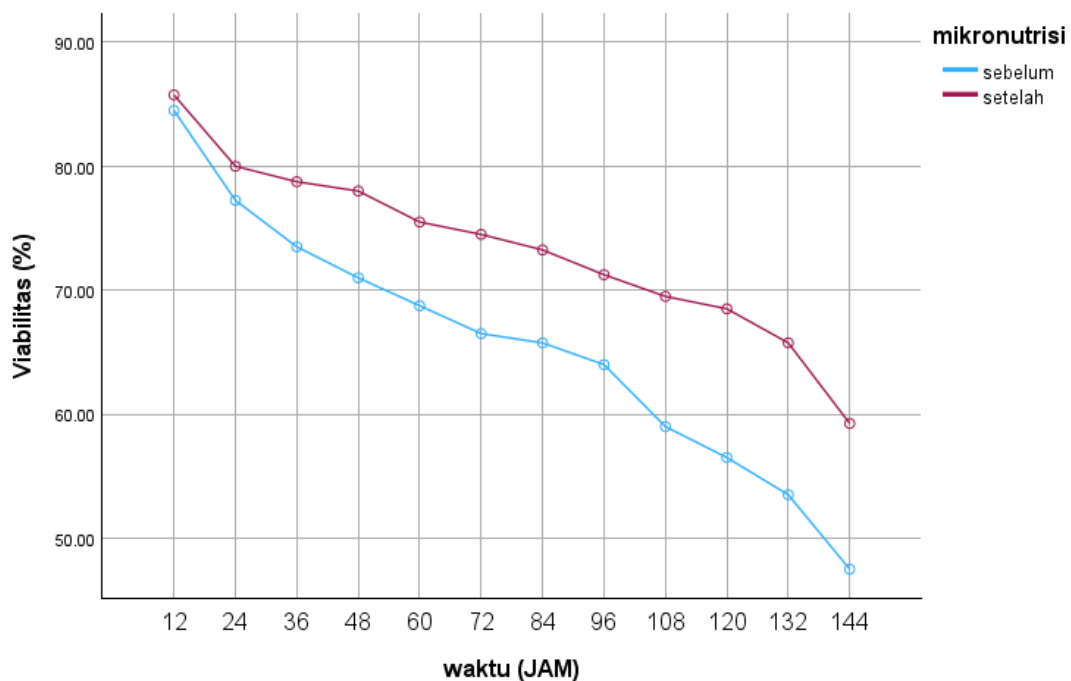
b. Adjustment for multiple comparisons: Bonferroni.

mikronutrisi * waktu

Measure: Viabilitas

| mikronutrisi | waktu | Mean | Std. Error | 95% Confidence Interval | |
|--------------|-------|--------|------------|-------------------------|-------------|
| | | | | Lower Bound | Upper Bound |
| sebelum | 1 | 84.500 | .810 | 82.518 | 86.482 |
| | 2 | 77.250 | 2.759 | 70.498 | 84.002 |
| | 3 | 73.500 | 2.547 | 67.267 | 79.733 |
| | 4 | 71.000 | 2.291 | 65.393 | 76.607 |
| | 5 | 68.750 | 3.161 | 61.016 | 76.484 |
| | 6 | 66.500 | 3.304 | 58.415 | 74.585 |
| | 7 | 65.750 | 3.159 | 58.020 | 73.480 |
| | 8 | 64.000 | 3.245 | 56.059 | 71.941 |
| | 9 | 59.000 | 2.669 | 52.469 | 65.531 |
| | 10 | 56.500 | 2.754 | 49.762 | 63.238 |
| | 11 | 53.500 | 2.498 | 47.388 | 59.612 |
| | 12 | 47.500 | 1.777 | 43.153 | 51.847 |
| setelah | 1 | 85.750 | .810 | 83.768 | 87.732 |
| | 2 | 80.000 | 2.759 | 73.248 | 86.752 |
| | 3 | 78.750 | 2.547 | 72.517 | 84.983 |
| | 4 | 78.000 | 2.291 | 72.393 | 83.607 |
| | 5 | 75.500 | 3.161 | 67.766 | 83.234 |
| | 6 | 74.500 | 3.304 | 66.415 | 82.585 |
| | 7 | 73.250 | 3.159 | 65.520 | 80.980 |
| | 8 | 71.250 | 3.245 | 63.309 | 79.191 |
| | 9 | 69.500 | 2.669 | 62.969 | 76.031 |
| | 10 | 68.500 | 2.754 | 61.762 | 75.238 |
| | 11 | 65.750 | 2.498 | 59.638 | 71.862 |
| | 12 | 59.250 | 1.777 | 54.903 | 63.597 |

Profile Plots



Tests of Normality

| | Kolmogorov-Smirnov ^a | | | Shapiro-Wilk | | |
|----------------------------------|---------------------------------|----|-------|--------------|----|------|
| | Statistic | df | Sig. | Statistic | df | Sig. |
| Standardized Residual for jam12 | .184 | 8 | .200* | .975 | 8 | .936 |
| Standardized Residual for jam24 | .172 | 8 | .200* | .953 | 8 | .736 |
| Standardized Residual for jam36 | .187 | 8 | .200* | .949 | 8 | .704 |
| Standardized Residual for jam48 | .250 | 8 | .150 | .830 | 8 | .059 |
| Standardized Residual for jam60 | .226 | 8 | .200* | .856 | 8 | .110 |
| Standardized Residual for jam72 | .284 | 8 | .057 | .832 | 8 | .062 |
| Standardized Residual for jam84 | .243 | 8 | .184 | .875 | 8 | .169 |
| Standardized Residual for jam96 | .240 | 8 | .197 | .891 | 8 | .239 |
| Standardized Residual for jam108 | .282 | 8 | .060 | .907 | 8 | .333 |
| Standardized Residual for jam120 | .129 | 8 | .200* | .983 | 8 | .976 |
| Standardized Residual for jam132 | .123 | 8 | .200* | .985 | 8 | .983 |
| Standardized Residual for jam144 | .253 | 8 | .141 | .909 | 8 | .349 |

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

a. Lilliefors Significance Correction

General Linear Model

Within-Subjects Factors

Measure: Abnormalitas

| waktu | Dependent Variable |
|-------|--------------------|
| 1 | jam12 |
| 2 | jam24 |
| 3 | jam36 |
| 4 | jam48 |
| 5 | jam60 |
| 6 | jam72 |
| 7 | jam84 |
| 8 | jam96 |
| 9 | jam108 |
| 10 | jam120 |
| 11 | jam132 |
| 12 | jam144 |

Descriptive Statistics

| | mikronutrisi | Mean | Std. Deviation | N |
|--------|--------------|---------|----------------|---|
| jam12 | sebelum | 16.7500 | 2.06155 | 4 |
| | setelah | 13.0000 | 1.41421 | 4 |
| | Total | 14.8750 | 2.58775 | 8 |
| jam24 | sebelum | 17.5000 | 4.65475 | 4 |
| | setelah | 14.2500 | 1.70783 | 4 |
| | Total | 15.8750 | 3.68152 | 8 |
| jam36 | sebelum | 19.0000 | 3.91578 | 4 |
| | setelah | 16.2500 | .95743 | 4 |
| | Total | 17.6250 | 3.02076 | 8 |
| jam48 | sebelum | 20.0000 | 3.91578 | 4 |
| | setelah | 18.0000 | 2.16025 | 4 |
| | Total | 19.0000 | 3.11677 | 8 |
| jam60 | sebelum | 21.5000 | 2.64575 | 4 |
| | setelah | 19.0000 | 3.16228 | 4 |
| | Total | 20.2500 | 3.01188 | 8 |
| jam72 | sebelum | 22.7500 | 2.87228 | 4 |
| | setelah | 20.0000 | 3.16228 | 4 |
| | Total | 21.3750 | 3.15945 | 8 |
| jam84 | sebelum | 25.0000 | 2.44949 | 4 |
| | setelah | 21.0000 | 3.16228 | 4 |
| | Total | 23.0000 | 3.38062 | 8 |
| jam96 | sebelum | 27.5000 | 1.73205 | 4 |
| | setelah | 21.7500 | 3.40343 | 4 |
| | Total | 24.6250 | 3.96187 | 8 |
| jam108 | sebelum | 29.5000 | 2.38048 | 4 |
| | setelah | 22.2500 | 3.30404 | 4 |
| | Total | 25.8750 | 4.70372 | 8 |

| | | | | |
|--------|---------|---------|---------|---|
| jam120 | sebelum | 31.2500 | 2.21736 | 4 |
| | setelah | 23.7500 | 3.30404 | 4 |
| | Total | 27.5000 | 4.78091 | 8 |
| jam132 | sebelum | 33.5000 | 2.38048 | 4 |
| | setelah | 25.7500 | 5.56028 | 4 |
| | Total | 29.6250 | 5.73056 | 8 |
| jam144 | sebelum | 35.2500 | 2.98608 | 4 |
| | setelah | 28.0000 | 4.69042 | 4 |
| | Total | 31.6250 | 5.31675 | 8 |

Estimated Marginal Means mikronutrisi

Estimates

Measure: Abnormalitas

| mikronutrisi | Mean | Std. Error | 95% Confidence Interval | |
|--------------|--------|------------|-------------------------|-------------|
| | | | Lower Bound | Upper Bound |
| sebelum | 24.958 | 1.255 | 21.886 | 28.030 |
| setelah | 20.250 | 1.255 | 17.178 | 23.322 |

Pairwise Comparisons

Measure: Abnormalitas

| (I) mikronutrisi | (J) mikronutrisi | Mean Difference (I-J) | Std. Error | Sig. ^b | 95% Confidence Interval for Difference ^b Lower Bound |
|------------------|------------------|-----------------------|------------|-------------------|--|
| sebelum | setelah | 4.708* | 1.775 | .038 | .364 |
| setelah | sebelum | -4.708* | 1.775 | .038 | -9.053 |

Pairwise Comparisons

Measure: Abnormalitas

95% Confidence
Interval for Difference

| (I) mikronutrisi | (J) mikronutrisi | Upper Bound |
|------------------|------------------|-------------|
| sebelum | setelah | 9.053 |
| setelah | sebelum | -.364 |

Based on estimated marginal means

*. The mean difference is significant at the .05 level.

b. Adjustment for multiple comparisons: Bonferroni.

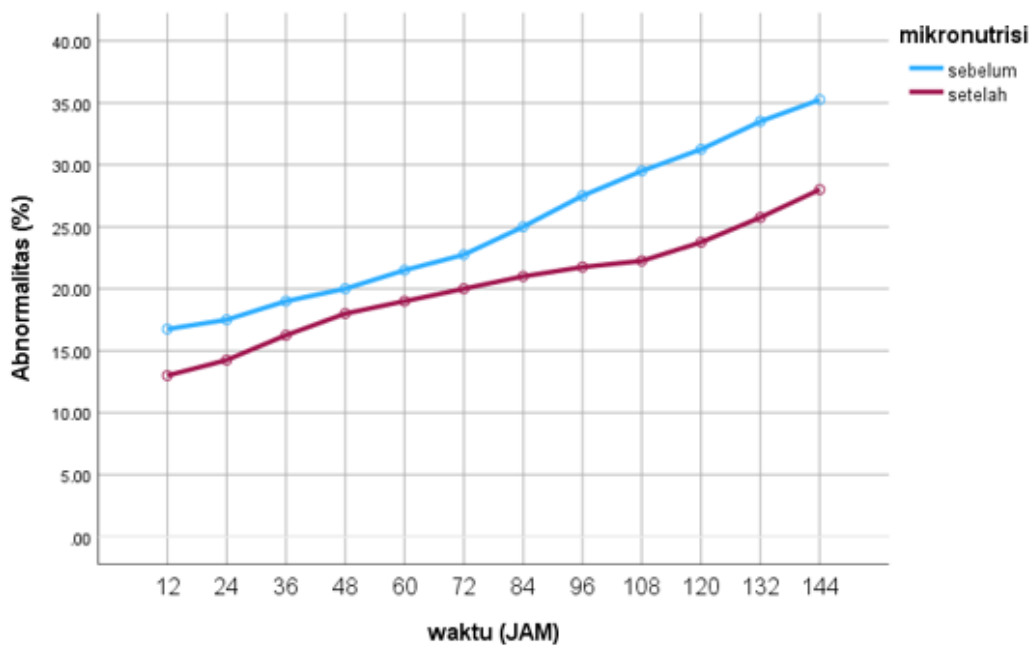
mikronutrisi * waktu

Measure: Abnormalitas

| mikronutrisi | waktu | Mean | Std. Error | 95% Confidence Interval |
|--------------|-------|------|------------|-------------------------|
|--------------|-------|------|------------|-------------------------|

| | | | | Lower Bound | Upper Bound |
|---------|----|--------|-------|-------------|-------------|
| sebelum | 1 | 16.750 | .884 | 14.587 | 18.913 |
| | 2 | 17.500 | 1.753 | 13.211 | 21.789 |
| | 3 | 19.000 | 1.425 | 15.513 | 22.487 |
| | 4 | 20.000 | 1.581 | 16.131 | 23.869 |
| | 5 | 21.500 | 1.458 | 17.933 | 25.067 |
| | 6 | 22.750 | 1.510 | 19.054 | 26.446 |
| | 7 | 25.000 | 1.414 | 21.540 | 28.460 |
| | 8 | 27.500 | 1.350 | 24.196 | 30.804 |
| | 9 | 29.500 | 1.440 | 25.977 | 33.023 |
| | 10 | 31.250 | 1.407 | 27.808 | 34.692 |
| | 11 | 33.500 | 2.138 | 28.267 | 38.733 |
| | 12 | 35.250 | 1.966 | 30.440 | 40.060 |
| setelah | 1 | 13.000 | .884 | 10.837 | 15.163 |
| | 2 | 14.250 | 1.753 | 9.961 | 18.539 |
| | 3 | 16.250 | 1.425 | 12.763 | 19.737 |
| | 4 | 18.000 | 1.581 | 14.131 | 21.869 |
| | 5 | 19.000 | 1.458 | 15.433 | 22.567 |
| | 6 | 20.000 | 1.510 | 16.304 | 23.696 |
| | 7 | 21.000 | 1.414 | 17.540 | 24.460 |
| | 8 | 21.750 | 1.350 | 18.446 | 25.054 |
| | 9 | 22.250 | 1.440 | 18.727 | 25.773 |
| | 10 | 23.750 | 1.407 | 20.308 | 27.192 |
| | 11 | 25.750 | 2.138 | 20.517 | 30.983 |
| | 12 | 28.000 | 1.966 | 23.190 | 32.810 |

Profile Plots



Tests of Normality

| | Kolmogorov-Smirnov ^a | | | Shapiro-Wilk | | |
|----------------------------------|---------------------------------|----|-------|--------------|----|------|
| | Statistic | df | Sig. | Statistic | df | Sig. |
| Standardized Residual for jam12 | .233 | 8 | .200* | .878 | 8 | .182 |
| Standardized Residual for jam24 | .170 | 8 | .200* | .941 | 8 | .617 |
| Standardized Residual for jam36 | .227 | 8 | .200* | .949 | 8 | .699 |
| Standardized Residual for jam48 | .134 | 8 | .200* | .965 | 8 | .855 |
| Standardized Residual for jam60 | .211 | 8 | .200* | .899 | 8 | .284 |
| Standardized Residual for jam72 | .161 | 8 | .200* | .945 | 8 | .657 |
| Standardized Residual for jam84 | .152 | 8 | .200* | .924 | 8 | .460 |
| Standardized Residual for jam96 | .204 | 8 | .200* | .930 | 8 | .513 |
| Standardized Residual for jam108 | .213 | 8 | .200* | .899 | 8 | .282 |
| Standardized Residual for jam120 | .184 | 8 | .200* | .926 | 8 | .476 |
| Standardized Residual for jam132 | .187 | 8 | .200* | .933 | 8 | .542 |
| Standardized Residual for jam144 | .207 | 8 | .200* | .885 | 8 | .212 |

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

a. Lilliefors Significance Correction

General Linear Model

Within-Subjects Factors

Measure: MPU

| waktu | Dependent Variable |
|-------|--------------------|
| 1 | jam12 |
| 2 | jam24 |
| 3 | jam36 |
| 4 | jam48 |
| 5 | jam60 |
| 6 | jam72 |
| 7 | jam84 |
| 8 | jam96 |
| 9 | jam108 |
| 10 | jam120 |
| 11 | jam132 |
| 12 | jam144 |

Descriptive Statistics

| | mikronutrisi | Mean | Std. Deviation | N |
|--------|--------------|---------|----------------|---|
| jam12 | sebelum | 79.0000 | 4.24264 | 4 |
| | setelah | 82.0000 | 3.91578 | 4 |
| | Total | 80.5000 | 4.10575 | 8 |
| jam24 | sebelum | 78.2500 | 4.11299 | 4 |
| | setelah | 78.5000 | 1.29099 | 4 |
| | Total | 78.3750 | 2.82527 | 8 |
| jam36 | sebelum | 74.7500 | 2.87228 | 4 |
| | setelah | 76.5000 | 1.29099 | 4 |
| | Total | 75.6250 | 2.26385 | 8 |
| jam48 | sebelum | 73.7500 | 2.98608 | 4 |
| | setelah | 75.5000 | 1.29099 | 4 |
| | Total | 74.6250 | 2.32609 | 8 |
| jam60 | sebelum | 72.7500 | 3.30404 | 4 |
| | setelah | 74.2500 | 1.70783 | 4 |
| | Total | 73.5000 | 2.56348 | 8 |
| jam72 | sebelum | 69.2500 | 4.42531 | 4 |
| | setelah | 73.0000 | 1.41421 | 4 |
| | Total | 71.1250 | 3.64251 | 8 |
| jam84 | sebelum | 67.7500 | 5.18813 | 4 |
| | setelah | 71.7500 | 1.25831 | 4 |
| | Total | 69.7500 | 4.09704 | 8 |
| jam96 | sebelum | 66.2500 | 6.84957 | 4 |
| | setelah | 69.7500 | 1.89297 | 4 |
| | Total | 68.0000 | 5.01427 | 8 |
| jam108 | sebelum | 62.7500 | 10.43631 | 4 |
| | setelah | 68.5000 | 2.38048 | 4 |
| | Total | 65.6250 | 7.65203 | 8 |
| jam120 | sebelum | 60.5000 | 9.67815 | 4 |
| | setelah | 65.7500 | 2.50000 | 4 |

| | | | | |
|--------|---------|---------|----------|---|
| | Total | 63.1250 | 7.12014 | 8 |
| jam132 | sebelum | 58.2500 | 10.40433 | 4 |
| | setelah | 62.7500 | 4.57347 | 4 |
| | Total | 60.5000 | 7.81939 | 8 |
| jam144 | sebelum | 52.5000 | 6.85565 | 4 |
| | setelah | 60.2500 | 4.99166 | 4 |
| | Total | 56.3750 | 6.92691 | 8 |

Estimated Marginal Means mikronutrisi

Estimates

Measure: MPU

| mikronutrisi | Mean | Std. Error | 95% Confidence Interval | |
|--------------|--------|------------|-------------------------|-------------|
| | | | Lower Bound | Upper Bound |
| sebelum | 67.979 | 2.015 | 63.049 | 72.909 |
| setelah | 71.542 | 2.015 | 66.612 | 76.471 |

Pairwise Comparisons

Measure: MPU

| (I) mikronutrisi | (J) mikronutrisi | Mean Difference (I-J) | Std. Error | Sig. ^a | 95% Confidence Interval for Difference ^a Lower Bound |
|------------------|------------------|-----------------------|------------|-------------------|--|
| sebelum | setelah | -3.563 | 2.849 | .258 | -10.534 |
| setelah | sebelum | 3.563 | 2.849 | .258 | -3.409 |

Pairwise Comparisons

Measure: MPU

| (I) mikronutrisi | (J) mikronutrisi | 95% Confidence Interval for Difference Upper Bound |
|------------------|------------------|---|
| sebelum | setelah | 3.409 |
| setelah | sebelum | 10.534 |

Based on estimated marginal means

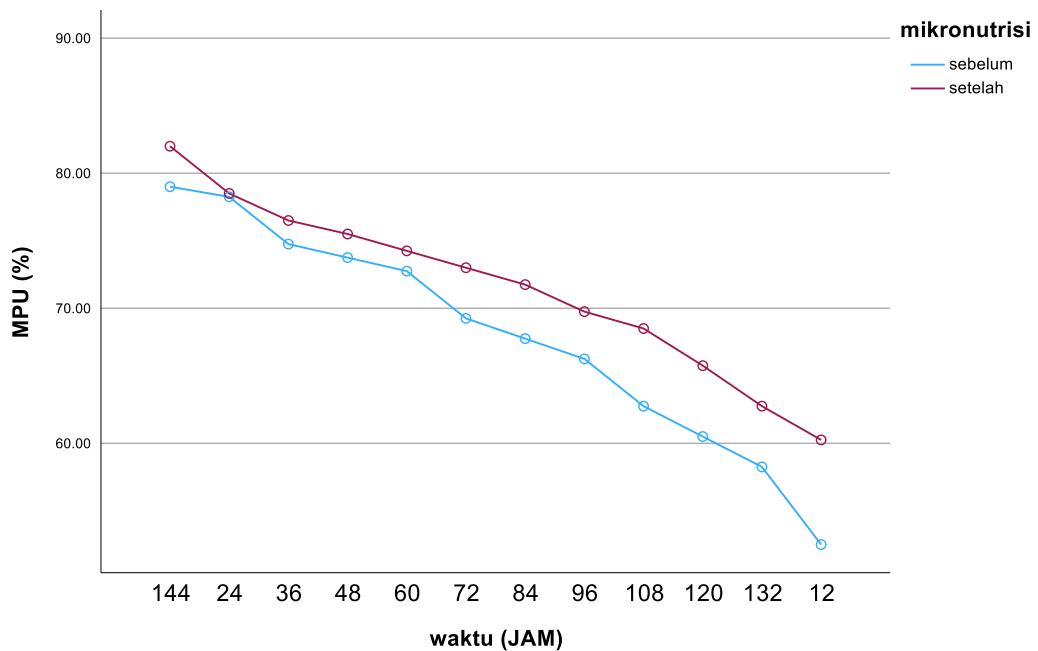
a. Adjustment for multiple comparisons: Bonferroni.

mikronutrisi * waktu

Measure: MPU

| mikronutrisi | waktu | Mean | Std. Error | 95% Confidence Interval | |
|--------------|-------|--------|------------|-------------------------|-------------|
| | | | | Lower Bound | Upper Bound |
| sebelum | 1 | 79.000 | 2.041 | 74.005 | 83.995 |
| | 2 | 78.250 | 1.524 | 74.521 | 81.979 |
| | 3 | 74.750 | 1.113 | 72.026 | 77.474 |
| | 4 | 73.750 | 1.150 | 70.936 | 76.564 |
| | 5 | 72.750 | 1.315 | 69.532 | 75.968 |
| | 6 | 69.250 | 1.643 | 65.231 | 73.269 |
| | 7 | 67.750 | 1.887 | 63.132 | 72.368 |
| | 8 | 66.250 | 2.512 | 60.102 | 72.398 |
| | 9 | 62.750 | 3.785 | 53.490 | 72.010 |
| | 10 | 60.500 | 3.534 | 51.852 | 69.148 |
| | 11 | 58.250 | 4.018 | 48.418 | 68.082 |
| | 12 | 52.500 | 2.998 | 45.164 | 59.836 |
| setelah | 1 | 82.000 | 2.041 | 77.005 | 86.995 |
| | 2 | 78.500 | 1.524 | 74.771 | 82.229 |
| | 3 | 76.500 | 1.113 | 73.776 | 79.224 |
| | 4 | 75.500 | 1.150 | 72.686 | 78.314 |
| | 5 | 74.250 | 1.315 | 71.032 | 77.468 |
| | 6 | 73.000 | 1.643 | 68.981 | 77.019 |
| | 7 | 71.750 | 1.887 | 67.132 | 76.368 |
| | 8 | 69.750 | 2.512 | 63.602 | 75.898 |
| | 9 | 68.500 | 3.785 | 59.240 | 77.760 |
| | 10 | 65.750 | 3.534 | 57.102 | 74.398 |
| | 11 | 62.750 | 4.018 | 52.918 | 72.582 |
| | 12 | 60.250 | 2.998 | 52.914 | 67.586 |

Profile Plots



Tests of Normality

| | Kolmogorov-Smirnov ^a | | | Shapiro-Wilk | | |
|----------------------------------|---------------------------------|----|-------|--------------|----|-------|
| | Statistic | df | Sig. | Statistic | df | Sig. |
| Standardized Residual for jam12 | .229 | 8 | .200* | .943 | 8 | .642 |
| Standardized Residual for jam24 | .180 | 8 | .200* | .946 | 8 | .667 |
| Standardized Residual for jam36 | .173 | 8 | .200* | .966 | 8 | .861 |
| Standardized Residual for jam48 | .116 | 8 | .200* | .985 | 8 | .982 |
| Standardized Residual for jam60 | .139 | 8 | .200* | .965 | 8 | .856 |
| Standardized Residual for jam72 | .129 | 8 | .200* | .970 | 8 | .898 |
| Standardized Residual for jam84 | .154 | 8 | .200* | .964 | 8 | .848 |
| Standardized Residual for jam96 | .146 | 8 | .200* | .962 | 8 | .832 |
| Standardized Residual for jam108 | .111 | 8 | .200* | .992 | 8 | .998 |
| Standardized Residual for jam120 | .110 | 8 | .200* | .998 | 8 | 1.000 |
| Standardized Residual for jam132 | .144 | 8 | .200* | .948 | 8 | .693 |
| Standardized Residual for jam144 | .221 | 8 | .200* | .910 | 8 | .351 |

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

a. Lilliefors Significance Correction

General Linear Model

Within-Subjects Factors

Measure: TAU

waktu Dependent Variable

| | |
|----|--------|
| 1 | jam12 |
| 2 | jam24 |
| 3 | jam36 |
| 4 | jam48 |
| 5 | jam60 |
| 6 | jam72 |
| 7 | jam84 |
| 8 | jam96 |
| 9 | jam108 |
| 10 | jam120 |
| 11 | jam132 |
| 12 | jam144 |

Descriptive Statistics

| | mikronutrisi | Mean | Std. Deviation | N |
|--------|--------------|---------|----------------|---|
| jam12 | sebelum | 69.7500 | 7.27438 | 4 |
| | setelah | 64.7500 | 9.84463 | 4 |
| | Total | 67.2500 | 8.44732 | 8 |
| jam24 | sebelum | 64.5000 | 9.67815 | 4 |
| | setelah | 62.2500 | 10.07886 | 4 |
| | Total | 63.3750 | 9.22632 | 8 |
| jam36 | sebelum | 62.0000 | 9.59166 | 4 |
| | setelah | 60.7500 | 12.65899 | 4 |
| | Total | 61.3750 | 10.41890 | 8 |
| jam48 | sebelum | 60.2500 | 8.95824 | 4 |
| | setelah | 58.5000 | 11.44552 | 4 |
| | Total | 59.3750 | 9.56090 | 8 |
| jam60 | sebelum | 58.5000 | 7.54983 | 4 |
| | setelah | 54.7500 | 7.93200 | 4 |
| | Total | 56.6250 | 7.44384 | 8 |
| jam72 | sebelum | 57.2500 | 7.36546 | 4 |
| | setelah | 51.7500 | 5.56028 | 4 |
| | Total | 54.5000 | 6.71884 | 8 |
| jam84 | sebelum | 51.7500 | 5.43906 | 4 |
| | setelah | 48.2500 | 4.03113 | 4 |
| | Total | 50.0000 | 4.81070 | 8 |
| jam96 | sebelum | 45.7500 | 8.01561 | 4 |
| | setelah | 45.2500 | 3.30404 | 4 |
| | Total | 45.5000 | 5.68205 | 8 |
| jam108 | sebelum | 37.2500 | 2.21736 | 4 |
| | setelah | 42.7500 | 3.68556 | 4 |
| | Total | 40.0000 | 4.07080 | 8 |
| jam120 | sebelum | 35.0000 | 2.44949 | 4 |
| | setelah | 41.0000 | 5.41603 | 4 |
| | Total | 38.0000 | 5.04268 | 8 |

| | | | | |
|--------|---------|---------|---------|---|
| jam132 | sebelum | 32.5000 | 2.64575 | 4 |
| | setelah | 35.7500 | 8.13941 | 4 |
| | Total | 34.1250 | 5.86606 | 8 |
| jam144 | sebelum | 29.5000 | 2.51661 | 4 |
| | setelah | 33.5000 | 8.06226 | 4 |
| | Total | 31.5000 | 5.92814 | 8 |

Estimated Marginal Means mikronutrisi

Estimates

Measure: TAU

| mikronutrisi | Mean | Std. Error | 95% Confidence Interval | |
|--------------|--------|------------|-------------------------|-------------|
| | | | Lower Bound | Upper Bound |
| sebelum | 50.333 | 3.022 | 42.940 | 57.727 |
| setelah | 49.937 | 3.022 | 42.544 | 57.331 |

Pairwise Comparisons

Measure: TAU

| (I) mikronutrisi | (J) mikronutrisi | Mean Difference (I-J) | Std. Error | Sig. ^a | 95% Confidence Interval for Difference ^a Lower Bound |
|------------------|------------------|-----------------------|------------|-------------------|--|
| sebelum | setelah | .396 | 4.273 | .929 | -10.060 |
| setelah | sebelum | -.396 | 4.273 | .929 | -10.852 |

Pairwise Comparisons

Measure: TAU

| (I) mikronutrisi | (J) mikronutrisi | 95% Confidence Interval for Difference Upper Bound |
|------------------|------------------|---|
| sebelum | setelah | 10.852 |
| setelah | sebelum | 10.060 |

Based on estimated marginal means

a. Adjustment for multiple comparisons: Bonferroni.

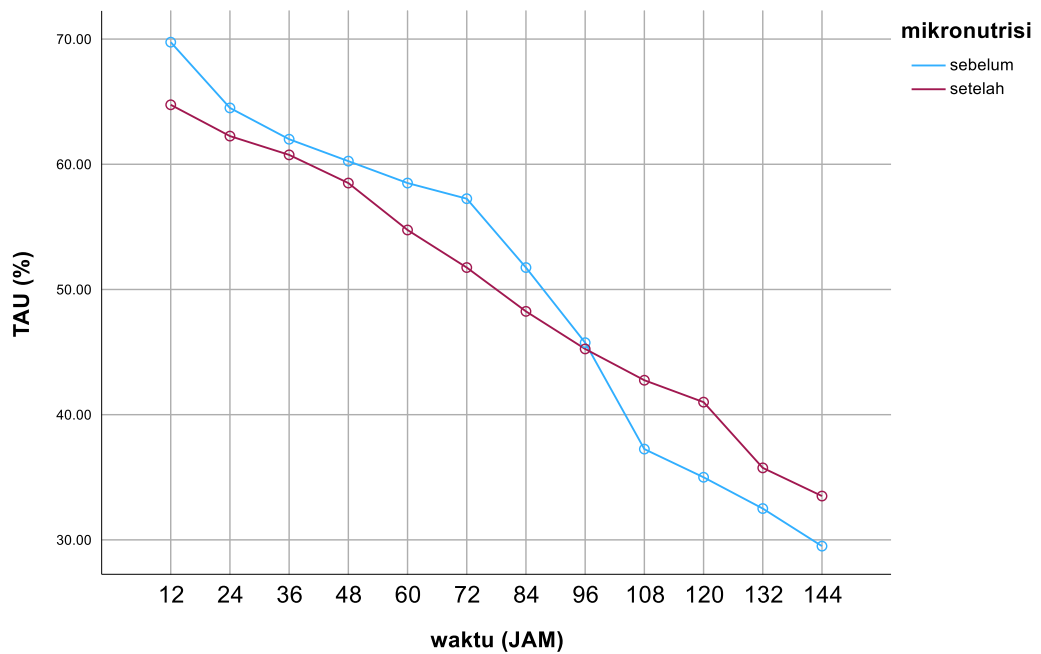
mikronutrisi * waktu

Measure: TAU

| mikronutrisi | waktu | Mean | Std. Error | 95% Confidence Interval | |
|--------------|-------|--------|------------|-------------------------|-------------|
| | | | | Lower Bound | Upper Bound |
| sebelum | 1 | 69.750 | 4.328 | 59.160 | 80.340 |
| | 2 | 64.500 | 4.940 | 52.412 | 76.588 |
| | 3 | 62.000 | 5.615 | 48.260 | 75.740 |
| | 4 | 60.250 | 5.139 | 47.676 | 72.824 |
| | 5 | 58.500 | 3.872 | 49.026 | 67.974 |

| | | | | | |
|---------|----|--------|-------|--------|--------|
| | 6 | 57.250 | 3.263 | 49.266 | 65.234 |
| | 7 | 51.750 | 2.394 | 45.893 | 57.607 |
| | 8 | 45.750 | 3.065 | 38.250 | 53.250 |
| | 9 | 37.250 | 1.521 | 33.529 | 40.971 |
| | 10 | 35.000 | 2.102 | 29.858 | 40.142 |
| | 11 | 32.500 | 3.026 | 25.096 | 39.904 |
| | 12 | 29.500 | 2.986 | 22.193 | 36.807 |
| setelah | 1 | 64.750 | 4.328 | 54.160 | 75.340 |
| | 2 | 62.250 | 4.940 | 50.162 | 74.338 |
| | 3 | 60.750 | 5.615 | 47.010 | 74.490 |
| | 4 | 58.500 | 5.139 | 45.926 | 71.074 |
| | 5 | 54.750 | 3.872 | 45.276 | 64.224 |
| | 6 | 51.750 | 3.263 | 43.766 | 59.734 |
| | 7 | 48.250 | 2.394 | 42.393 | 54.107 |
| | 8 | 45.250 | 3.065 | 37.750 | 52.750 |
| | 9 | 42.750 | 1.521 | 39.029 | 46.471 |
| | 10 | 41.000 | 2.102 | 35.858 | 46.142 |
| | 11 | 35.750 | 3.026 | 28.346 | 43.154 |
| | 12 | 33.500 | 2.986 | 26.193 | 40.807 |

Profile Plots



| | Tests of Normality | | | | | |
|----------------------------------|---------------------------------|----|-------|--------------|----|------|
| | Kolmogorov-Smirnov ^a | | | Shapiro-Wilk | | |
| | Statistic | df | Sig. | Statistic | df | Sig. |
| Standardized Residual for jam12 | .192 | 8 | .200* | .895 | 8 | .262 |
| Standardized Residual for jam24 | .294 | 8 | .051 | .814 | 8 | .052 |
| Standardized Residual for jam36 | .250 | 8 | .152 | .856 | 8 | .111 |
| Standardized Residual for jam48 | .216 | 8 | .200* | .868 | 8 | .143 |
| Standardized Residual for jam60 | .136 | 8 | .200* | .941 | 8 | .619 |
| Standardized Residual for jam72 | .145 | 8 | .200* | .962 | 8 | .825 |
| Standardized Residual for jam84 | .154 | 8 | .200* | .966 | 8 | .866 |
| Standardized Residual for jam96 | .154 | 8 | .200* | .971 | 8 | .905 |
| Standardized Residual for jam108 | .160 | 8 | .200* | .981 | 8 | .966 |
| Standardized Residual for jam120 | .321 | 8 | .015 | .828 | 8 | .056 |
| Standardized Residual for jam132 | .203 | 8 | .200* | .940 | 8 | .614 |
| Standardized Residual for jam144 | .161 | 8 | .200* | .979 | 8 | .956 |

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

a. Lilliefors Significance Correction

MOTILITAS

t-Test: Paired Two Sample for Means

| | <i>sebelum</i> | <i>setelah</i> |
|------------------------------|----------------|----------------|
| Mean | 84,18 | 84,735 |
| Variance | 6,295733333 | 10,2527 |
| Observations | 4 | 4 |
| Pearson Correlation | -0,245733024 | |
| Hypothesized Mean Difference | 0 | |
| df | 3 | |
| t Stat | -0,245176128 | |
| P(T<=t) one-tail | 0,41106734 | |
| t Critical one-tail | 2,353363435 | |
| P(T<=t) two-tail | 0,822134681 | |
| t Critical two-tail | 3,182446305 | |

VIABILITAS

t-Test: Paired Two Sample for Means

| | <i>sebelum</i> | <i>Setelah</i> |
|------------------------------|----------------|----------------|
| Mean | 82,25 | 87,5 |
| Variance | 6,25 | 4,333333333 |
| Observations | 4 | 4 |
| Pearson Correlation | 0,032025631 | |
| Hypothesized Mean Difference | 0 | |
| df | 3 | |
| t Stat | -3,279649 | |
| P(T<=t) one-tail | 0,023219059 | |
| t Critical one-tail | 2,353363435 | |
| P(T<=t) two-tail | 0,046438119 | |
| t Critical two-tail | 3,182446305 | |

ABNORMALITAS

t-Test: Paired Two Sample for Means

| | <i>sebelum</i> | <i>setelah</i> |
|------------------------------|----------------|----------------|
| Mean | 13,75 | 10,5 |
| Variance | 4,916666667 | 9,666666667 |
| Observations | 4 | 4 |
| | - | |
| Pearson Correlation | 0,024175474 | |
| Hypothesized Mean Difference | 0 | |
| df | 3 | |
| t Stat | 1,682974223 | |
| P(T<=t) one-tail | 0,095484828 | |
| t Critical one-tail | 2,353363435 | |
| P(T<=t) two-tail | 0,190969656 | |
| t Critical two-tail | 3,182446305 | |

MPU

t-Test: Paired Two Sample for Means

| | <i>sebelum</i> | <i>setelah</i> |
|------------------------------|----------------|----------------|
| Mean | 81,25 | 83,25 |
| Variance | 39,58333 | 43,58333333 |
| Observations | 4 | 4 |
| Pearson Correlation | -0,60391 | |
| Hypothesized Mean Difference | 0 | |
| df | 3 | |
| t Stat | -0,34641 | |
| P(T<=t) one-tail | 0,375954 | |
| t Critical one-tail | 2,353363 | |
| P(T<=t) two-tail | 0,751907 | |
| t Critical two-tail | 3,182446 | |

TAU

t-Test: Paired Two Sample for Means

| | <i>sebelum</i> | <i>setelah</i> |
|------------------------------|----------------|----------------|
| Mean | 75,5 | 73,25 |
| Variance | 16,33333 | 30,25 |
| Observations | 4 | 4 |
| Pearson Correlation | -0,45738 | |
| Hypothesized Mean Difference | 0 | |
| df | 3 | |
| t Stat | 0,550105 | |
| P(T<=t) one-tail | 0,310278 | |
| t Critical one-tail | 2,353363 | |
| P(T<=t) two-tail | 0,620556 | |
| t Critical two-tail | 3,182446 | |

VIABILITAS (JAM KE-108)

t-Test: Paired Two Sample for Means

| | <i>SEBELUM</i> | <i>SETELAH</i> |
|------------------------------|----------------|----------------|
| Mean | 59 | 69,5 |
| Variance | 24,66666667 | 32,33333333 |
| Observations | 4 | 4 |
| Pearson Correlation | 0,330488464 | |
| Hypothesized Mean Difference | 0 | |
| df | 3 | |
| t Stat | -3,391805983 | |
| P(T<=t) one-tail | 0,021359013 | |
| t Critical one-tail | 2,353363435 | |
| P(T<=t) two-tail | 0,042718026 | |
| t Critical two-tail | 3,182446305 | |

ABNORMALITAS (JAM KE-96)

t-Test: Paired Two Sample for Means

| | SEBELUM | SETELAH |
|------------------------------|-------------|------------|
| Mean | 27,5 | 21,75 |
| Variance | 3 | 11,5833333 |
| Observations | 4 | 4 |
| Pearson Correlation | 0,367548536 | |
| Hypothesized Mean Difference | 0 | |
| df | 3 | |
| t Stat | 3,591996523 | |
| P(T<=t) one-tail | 0,018485418 | |
| t Critical one-tail | 2,353363435 | |
| P(T<=t) two-tail | 0,036970837 | |
| t Critical two-tail | 3,182446305 | |

Lampiran 2. Formulasi Mikronutrien (Se, Zn, Vit. A dan Vit. E)

| Mikronutrien | Standar kebutuhan | Bobot badan | DM Intake | Kebutuhan/ ekor/hari | Mineral mix/kg | Mineral/ ekor/hari /kg | Mineral/ ekor/hari /gr |
|--------------|-------------------|-------------|-----------|----------------------|----------------|------------------------|------------------------|
| Selenium | 100-300 ug/kg DM | 400 | 3% | 3.6 mg | 100 mg | 0,036 | 36 |
| Zinc Sulfate | 60 ppm/kg | | | 60 mg | 40.000 mg | 0,0015 | 0,15 |
| Vitamin E | 300-500 IU | | | 500 IU | 10.000 IU | 0,05 | 50 |
| Vitamin A | 3.900 IU/kg DM | 400 | 3% | 46.800 IU | | | |

Lampiran 3. Dokumentasi Penelitian



Ket. Pemberian mikronutrisi



Ket. Penampungan semen



Ket. Semen segar



Ket. Pengecekan pH semen segar



Ket. Pengecekan motilitas spermatozoa



Ket. Pengecekan konsentrasi spermatozoa



Ket. Pengecekan viabilitas dan abnormalitas spermatozoa



Ket. Pengenceran semen



Ket. Preservasi Semen Cair

BIODATA PENELITI



Nur Sila (I011191058) biasa dipanggil Sila. Lahir di Enrekang pada tanggal 10 Mei 2000. Penulis adalah anak keempat dari lima bersaudara dari pasangan bapak Abd. Lahi dan ibu Safina. Kedua orang tua penulis bertempat tinggal di Desa Mekkala, Kecamatan Curio, Kabupaten

Enrekang. Jenjang pendidikan formal yang pernah ditempuh penulis adalah SDN 99 Pekajo, kemudian melanjutkan sekolah di SMP Negeri 1 Alla, setelah lulus melanjutkan pendidikan di SMA Negeri 3 Enrekang. Pada tahun 2019, penulis diterima dan menempuh Pendidikan S-1 (Strata 1) di Perguruan Tinggi Negeri PTN) Fakultas Peternakan, Universitas Hasanuddin, Makassar melalui jalur SBMPTN. Penulis mengikuti beberapa organisasi yaitu Himpunan Mahasiswa Produksi ternak (HIMAPROTEK-UH), Forum Studi Ilmiah (FOSIL) dan UKM KPI (Keilmuan dan Penalaran Ilmiah) UNHAS. Penulis juga tergabung dalam Tim Asisten Ilmu Ternak Potong. Penulis berharap kedepannya bisa menyelesaikan studi S1 dengan baik, melanjutkan pendidikan ke jenjang S2 dan mendapatkan pekerjaan serta dapat membahagiakan kedua orang tua dan keluarga penulis.