TABLE II: Absolute mean ± standard deviation of features derived from EDGE. Computed from pixel intensity of the indexed gray image for Global, Right, and Left EDGE. Amplitude Asymmetry (AA) and Phase Asymmetry (PA) along the anterior-posterior length of the glottis. Groups include Normal, Muscle Tension Dysphonia (MTD), Vocal Fold Nodules (VFNs), and Unilateral Vocal Fold Paralysis (UVFP). Codes: N for Normal, P for Pathological, F for Female, and M for Male.

| Group | Code | Global EDGE | Right EDGE | Left EDGE | AA (%) | PA (%) |
|---|---|---|---|---|---|---|
| Normal | FN01 | 11.6 ± 23.6 | 21.4 ± 28.5 | 20.7 ± 28.8 | 3.2 ± 1.9 | 2.3 ± 2.1 |
| | FN02 | 12.1 ± 22.8 | 21.4 ± 29.2 | 22.3 ± 23.2 | 1.9 ± 1.8 | 2.5 ± 2.0 |
| | FN09 | 12.2 ± 28.6 | 21.5 ± 32.6 | 22.9 ± 38.6 | 4.7 ± 2.8 | 3.8 ± 2.2 |
| | FN10 | 24.8 ± 47.5 | 42.5 ± 54.5 | 49.1 ± 63.6 | 5.8 ± 4.5 | 0.9 ± 1.3 |
| | FN11 | 39.6 ± 54.7 | 89.9 ± 60.4 | 84.0 ± 60.8 | 4.1 ± 3.8 | 0.9 ± 1.2 |
| | FN12 | 22.0 ± 31.2 | 45.7 ± 44.1 | 46.0 ± 39.8 | 4.8 ± 2.9 | 6.7 ± 2.7 |
| | FN13 | 24.4 ± 31.1 | 49.0 ± 43.0 | 46.0 ± 33.6 | 2.2 ± 2.5 | 1.3 ± 1.3 |
| | FN14 | 15.2 ± 32.2 | 33.1 ± 45.8 | 32.8 ± 44.7 | 5.0 ± 4.6 | 2.5 ± 2.8 |
| | FN15 | 19.0 ± 37.4 | 30.0 ± 44.2 | 35.2 ± 51.6 | 5.0 ± 3.1 | 1.5 ± 1.3 |
| | MN16 | 21.4 ± 32.6 | 42.5 ± 41.4 | 47.2 ± 43.2 | 4.0 ± 3.0 | 2.9 ± 2.5 |
| MTD | FP03 | 31.0 ± 24.6 | 34.3 ± 24.4 | 32.7 ± 24.4 | 12.5 ± 7.7 | 4.5 ± 4.3 |
| | FP04 | 40.4 ± 26.4 | 86.0 ± 40.8 | 81.4 ± 34.3 | 8.3 ± 4.8 | 8.2 ± 3.2 |
| | FP17 | 25.5 ± 41.1 | 67.0 ± 55.4 | 36.2 ± 47.8 | 28.3 ± 8.8 | 2.8 ± 1.7 |
| | FP18 | 20.6 ± 32.9 | 41.6 ± 45.0 | 47.8 ± 49.8 | 2.9 ± 2.7 | 2.2 ± 2.1 |
| | FP19 | 18.3 ± 29.0 | 36.3 ± 37.8 | 30.5 ± 37.6 | 17.9 ± 7.4 | 16.0 ± 4.6 |
| | FP20 | 20.7 ± 28.3 | 41.4 ± 36.3 | 37.3 ± 33.2 | 6.4 ± 6.7 | 4.5 ± 2.4 |
| | FP21 | 20.6 ± 38.7 | 37.8 ± 50.5 | 40.7 ± 49.0 | 10.3 ± 7.7 | 3.4 ± 2.5 |
| | MP22 | 21.7 ± 30.9 | 38.0 ± 36.3 | 38.1 ± 37.2 | 6.4 ± 5.7 | 20.2 ± 6.6 |
| | MP23 | 30.0 ± 47.5 | 70.0 ± 61.2 | 62.0 ± 54.8 | 11.0 ± 9.6 | 11.3 ± 2.9 |
| | MP24 | 26.2 ± 40.5 | 49.4 ± 48.2 | 48.2 ± 46.3 | 4.6 ± 3.2 | 2.9 ± 1.4 |
| VFNs | FP05 | 61.6 ± 41.5 | 79.6 ± 39.7 | 87.5 ± 40.3 | 20.5 ± 6.6 | 13.1 ± 6.9 |
| | FP06 | 41.6 ± 36.3 | 70.7 ± 41.8 | 61.8 ± 42.7 | 13.5 ± 5.3 | 9.3 ± 5.8 |
| | FP25 | 29.7 ± 41.8 | 52.0 ± 44.0 | 53.3 ± 51.1 | 8.6 ± 7.9 | 6.9 ± 4.5 |
| | FP26 | 46.1 ± 47.4 | 108.3 ± 51.7 | 118.3 ± 52.4 | 12.9 ± 7.9 | 12.4 ± 7.6 |
| | FP27 | 52.3 ± 45.9 | 84.0 ± 40.7 | 99.5 ± 45.8 | 16.2 ± 6.6 | 7.3 ± 3.4 |
| | FP28 | 46.0 ± 52.4 | 63.4 ± 48.7 | 52.6 ± 49.2 | 20.7 ± 10.3 | 14.9 ± 10.1 |
| | FP29 | 43.9 ± 41.1 | 47.9 ± 35.1 | 68.7 ± 43.7 | 8.5 ± 6.4 | 8.9 ± 7.7 |
| | FP30 | 45.8 ± 44.9 | 81.7 ± 46.1 | 68.5 ± 43.6 | 4.1 ± 4.6 | 15.6 ± 7.9 |
| | FP31 | 33.8 ± 38.9 | 54.7 ± 45.1 | 45.5 ± 37.5 | 7.9 ± 4.8 | 4.4 ± 3.4 |
| | MP32 | 39.1 ± 48.5 | 88.6 ± 53.3 | 66.2 ± 54.6 | 12.8 ± 9.5 | 10.5 ± 6.3 |
| UVFP | FP07 | 29.8 ± 30.5 | 65.1 ± 42.1 | 40.0 ± 27.3 | 38.5 ± 9.4 | 27.4 ± 9.4 |
| | FP08 | 48.1 ± 35.1 | 50.2 ± 25.3 | 61.4 ± 36.0 | 6.5 ± 4.8 | 26.4 ± 3.6 |

TABLE III: Results of the post-hoc Tukey's Honest Significant Difference (HSD) test and Cohen's d values between groups for EDGE image features.

| | Mean Global EDGE | | | STD Global EDGE | | | Mean Right Edge | | | STD Right Edge | | | Mean Left EDGE | | | STD Left EDGE | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Groups | *p*-val | H0 | d | *p*-val | H0 | d | *p*-val | H0 | d | *p*-val | H0 | d | *p*-val | H0 | d | *p*-val | H0 | d |
| MTD - VFNs | <0.001 | Yes | -2.32 | 0.02 | Yes | -1.56 | 0.03 | Yes | -1.25 | 0.97 | No | -0.12 | 0.013 | Yes | -1.36 | 0.55 | No | -0.60 |
| MTD - Normal | 0.33 | No | 0.69 | 0.99 | No | 0.02 | 0.45 | No | 0.55 | 0.95 | No | 0.12 | 0.84 | No | 0.28 | 0.95 | No | 0.12 |
| VFNs - Normal | <0.001 | Yes | 2.72 | 0.02 | Yes | 1.23 | 0.002 | Yes | 1.69 | 0.84 | No | 0.27 | 0.003 | Yes | 1.50 | 0.74 | No | 0.33 |

TABLE IV: Results of the post-hoc Tukey's Honest Significant Difference (HSD) test and Cohen's d values between groups for asymmetry features

| | Mean AA | | | STD AA | | | Mean PA | | | STD PA | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Groups | *p*-val | H0 | d | *p*-val | H0 | d | *p*-val | H0 | d | *p*-val | H0 | d |
| MTD - VFNs | 0.76 | No | -0.26 | 0.77 | No | -0.27 | 0.347 | No | -0.53 | <0.001 | Yes | -1.69 |
| MTD - Normal | 0.024 | Yes | 1.26 | <0.001 | Yes | 1.90 | 0.036 | Yes | 1.10 | 0.21 | No | 1.02 |
| VFNs - Normal | 0.004 | Yes | 2.14 | <0.001 | Yes | 2.58 | 0.001 | Yes | 2.73 | <0.001 | Yes | 2.80 |