1. Analysis for the number of followers on Instagram (N = 262)

Summary statistics were provided (refer to “all\_program\_Instagram 02.23.22.docx”). The multivariate linear regression model was used to evaluate the association of factors with the number of followers.

Table 1 displayed the results on Instagram. Overall, the number of followers were significantly associated with program size, duration in months on Instagram since the first post, number of followings, number of posts, FREIDA, doximity ranking, highlight reel, and diversity post. Specifically, the number of followers was increased by 5.38 (SE=1.64, p=0.001) with 1 number increase in program size. With one more month on Instagram, program had 4.88 (SE=1.34, p<0.001) more followers. The more followings were associated with more followers (Est=0.53, SE=0.06, p<0.001). The more posts resulted in more followers (Est=1.00, SE=0.17, p<0.001). Besides, more followers were observed in academic program than community (DIFF=109.20, SE=39.22, p=0.006) or both (DIFF=125.92, SE=29.37, p<0.001). The program in the <25% Q doximity ranking had more followers than those in the higher rankings (25%~50% Q: DIFF=109.87, SE=33.63, p=0.001; 50%~75% Q: DIFF=120.21, SE=36.71, p=0.001; and >75% Q: DIFF=140.49, SE=40.93, p=0.001). The program with highlight heel (DIFF=146.46, SE=36.56, p<0.001) and diversity post (DIFF=87.30, SE=27.85, p=0.002) had more followers.

Table 1.1 Multivariate linear regression model for the number of followers on Instagram

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Factor | Estimate (SE) | Test Statistic | P value | Type 3 Overall Test |
| Intercept | 204.41 (82.79) | 2.47 | 0.014 |  |
| Program Size | 5.38 (1.64) | 3.28 | 0.001 | 0.001 |
| Duration in months from 1st Post | 4.88 (1.34) | 3.65 | <0.001 | <0.001 |
| # Following | 0.53 (0.06) | 8.54 | <0.001 | <0.001 |
| # Posts | 1.00 (0.17) | 6.03 | <0.001 | <0.001 |
| # Posts per Month | -0.92 (2.58) | -0.36 | 0.721 | 0.721 |
| City Size |  |  |  | 0.587 |
| Small Urban (ref) |  |  |  |  |
| Large Metropolitan | 30.73 (54.74) | 0.56 | 0.575 |  |
| Metropolitan | 16.81 (56.45) | 0.30 | 0.766 |  |
| Medium-size Urban | -22.34 (60.38) | -0.37 | 0.712 |  |
| FREIDA |  |  |  | <0.001 |
| Community (ref) |  |  |  |  |
| Academic | 109.20 (39.22) | 2.78 | 0.006 |  |
| Both | -16.72 (35.14) | -0.48 | 0.635 |  |
| Doximity Ranking |  |  |  | 0.002 |
| <25% Q (ref) |  |  |  |  |
| 25%~50% Q | -109.87 (33.63) | -3.27 | 0.001 |  |
| 50%~75% Q | -120.21 (36.71) | -3.27 | 0.001 |  |
| >75% Q | -140.49 (40.93) | -3.43 | 0.001 |  |
| Highlight Reel |  |  |  | <0.001 |
| No (ref) |  |  |  |  |
| Yes | 146.46 (36.56) | 4.01 | <0.001 |  |
| Diversity Post |  |  |  | 0.002 |
| No (ref) |  |  |  |  |
| Yes | 87.30 (27.85) | 3.13 | 0.002 |  |

Note: Degree freedoms are all 246.

Table 1.2 Least square means of the number of followers

| **Effect** | **Estimate** | **Standard Error** | **Test**  **Statistic** | **P Value** |
| --- | --- | --- | --- | --- |
| **City Size** |  |  |  |  |
| Large Metropolitan | 754.46 | 20.3579 | 37.06 | <0.001 |
| Medium-size urban | 701.39 | 39.4185 | 17.79 | <0.001 |
| Metropolitan | 740.54 | 28.9705 | 25.56 | <0.001 |
| Small urban | 723.73 | 55.8042 | 12.97 | <0.001 |
| **FREIDA** |  |  |  |  |
| Academic | 808.40 | 25.1941 | 32.09 | <0.001 |
| Both | 682.48 | 28.7672 | 23.72 | <0.001 |
| Community | 699.20 | 39.7226 | 17.60 | <0.001 |
| **Doximity Ranking** |  |  |  |  |
| 25%~50% Q | 712.80 | 34.2635 | 20.80 | <0.001 |
| 50%~75% Q | 702.46 | 31.7080 | 22.15 | <0.001 |
| >75% Q | 682.18 | 30.6649 | 22.25 | <0.001 |
| <25% Q | 822.67 | 35.1691 | 23.39 | <0.001 |
| **Highlight Reel** |  |  |  |  |
| Yes | 803.26 | 19.8629 | 40.44 | <0.001 |
| No | 656.80 | 38.6380 | 17.00 | <0.001 |
| **Diversity Post** |  |  |  |  |
| Yes | 773.68 | 28.3996 | 27.24 | <0.001 |
| No | 686.38 | 28.2886 | 24.26 | <0.001 |

Table 1.3 Differences in least square means of the number of followers

| **Effect** |  | **Ref** | **Estimate** | **SE** | **Test**  **Statistic** | **P Value** |
| --- | --- | --- | --- | --- | --- | --- |
| **City Size** | Large Metropolitan | Medium-size urban | 53.0758 | 39.1316 | 1.36 | 0.1762 |
|  | Large Metropolitan | Metropolitan | 13.9236 | 28.3930 | 0.49 | 0.6243 |
|  | Large Metropolitan | Small urban | 30.7328 | 54.7395 | 0.56 | 0.5750 |
|  | Medium-size urban | Metropolitan | -39.1522 | 42.0508 | -0.93 | 0.3527 |
|  | Medium-size urban | Small urban | -22.3430 | 60.3833 | -0.37 | 0.7117 |
|  | Metropolitan | Small urban | 16.8092 | 56.4482 | 0.30 | 0.7661 |
| **FREIDA** | Academic | Both | 125.92 | 29.3669 | 4.29 | <.0001 |
|  | Academic | Community | 109.20 | 39.2167 | 2.78 | 0.0058 |
|  | Both | Community | -16.7188 | 35.1382 | -0.48 | 0.6346 |
| **Doximity Ranking** | 25%~50% Q | 50%~75% Q | 10.3425 | 33.1488 | 0.31 | 0.7553 |
|  | 25%~50% Q | >75% Q | 30.6165 | 36.4701 | 0.84 | 0.4020 |
|  | 25%~50% Q | <25% Q | -109.87 | 33.6278 | -3.27 | 0.0012 |
|  | 50%~75% Q | >75% Q | 20.2740 | 33.0287 | 0.61 | 0.5399 |
|  | 50%~75% Q | <25% Q | -120.21 | 36.7172 | -3.27 | 0.0012 |
|  | >75% Q | <25% Q | -140.49 | 40.9337 | -3.43 | 0.0007 |
| **Highlight Reel** | Yes | No | 146.46 | 36.5633 | 4.01 | <.0001 |
| **Diversity Post** | Yes | No | 87.3044 | 27.8489 | 3.13 | 0.0019 |

1. Analysis for the number of followers on Twitter (N = 97)

Summary statistics were provided (refer to “all\_program\_Twitter 02.23.22.docx”). The multivariate linear regression model was used to evaluate the association of factors with the number of followers.

Table 2 displayed the results on Twitter. Overall, the number of followers were significantly associated with duration in months on Twitter since the first post, number of following, and doximity ranking. Specifically, With one more month on Twitter, program had 5.31 (SE=0.99, p<0.001) more followers. The more followings resulted in more followers (=1.55, SE=0.18, p<0.001). Besides, the program in the <25% Q doximity ranking had more followers than those in the higher rankings (50%~75% Q: DIFF=329.43, SE=97.12, p=0.001; and >75% Q: DIFF=275.05, SE=123.55, p=0.029).

Table 2.1 Multivariate linear regression model for the number of followers on Twitter

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Factor | Estimate (SE) | Test Statistic | P value | Type 3 Overall Test |
| Intercept | 167.66 (220.87) | 0.76 | 0.450 |  |
| Program Size | 2.52 (4.86) | 0.52 | 0.606 | 0.606 |
| Duration in months from 1st Post | 5.31 (0.99) | 5.34 | <0.001 | <0.001 |
| # Following | 1.55 (0.18) | 8.82 | <0.001 | <0.001 |
| City Size |  |  |  | 0.587 |
| Medium/small-size Urban (ref) |  |  |  |  |
| Large Metropolitan | -109.80 (115.31) | -0.95 | 0.344 |  |
| Metropolitan | -118.71 (120.04) | -0.99 | 0.326 |  |
| FREIDA |  |  |  | 0.394 |
| Community (ref) |  |  |  |  |
| Academic | 19.50 (136.29) | 0.14 | 0.887 |  |
| Both | -90.14 (132.16) | -0.68 | 0.497 |  |
| Doximity Ranking |  |  |  | 0.012 |
| <25% Q (ref) |  |  |  |  |
| 25%~50% Q | -174.29 (92.69) | -1.88 | 0.063 |  |
| 50%~75% Q | -329.43 (97.12) | -3.39 | 0.001 |  |
| >75% Q | -275.06 (123.55) | -2.23 | 0.029 |  |

Note: Degree freedoms are all 86.

Table 2.2 Least square means of the number of followers

| **Effect** | **Estimate (SE)** | **Test**  **Statistic** | **P Value** |
| --- | --- | --- | --- |
| **City Size** |  |  |  |
| Large Metropolitan | 443.46 (47.65) | 9.31 | <0.001 |
| Metropolitan | 434.55 (83.78) | 5.19 | <0.001 |
| Medium/small urban | 553.27 (115.73) | 4.78 | <0.001 |
| **FREIDA** | 520.14 (46.63) | 11.15 | <0.001 |
| Academic | 410.50 (74.24) | 5.53 | <0.001 |
| Both | 500.64 (133.67) | 3.75 | <0.001 |
| Community |  |  |  |
| **Doximity Ranking** |  |  |  |
| 25%~50% Q | 497.50 (96.29) | 5.17 | <0.001 |
| 50%~75% Q | 342.36 (81.53) | 4.20 | <0.001 |
| >75% Q | 396.73 (81.55) | 4.86 | <0.001 |
| <25% Q | 671.79 (93.38) | 7.19 | <0.001 |

Table 2.3 Differences in least square means of the number of followers

| **Effect** |  | **Ref** | **Estimate (SE)** | **Test**  **Statistic** | **P Value** |
| --- | --- | --- | --- | --- | --- |
| **City Size** | Large Metropolitan | Metropolitan | 8.91 (80.93) | 0.11 | 0.9126 |
|  | Large Metropolitan | Medium/small urban | -109.80 (115.31) | -0.95 | 0.3437 |
|  | Metropolitan | Medium/small urban | -118.71 (120.04) | -0.99 | 0.3255 |
| **FREIDA** | Academic | Both | 109.64 (82.58) | 1.33 | 0.1878 |
|  | Academic | Community | 19.50 (136.29) | 0.14 | 0.8866 |
|  | Both | Community | -90.14 (132.16) | -0.68 | 0.4971 |
| **Doximity Ranking** | 25%~50% Q | 50%~75% Q | 155.14 (92.27) | 1.68 | 0.0963 |
|  | 25%~50% Q | >75% Q | 100.77 (114.52) | 0.88 | 0.3813 |
|  | 25%~50% Q | <25% Q | -174.29 (92.69) | -1.88 | 0.0634 |
|  | 50%~75% Q | >75% Q | -54.3645 (100.80) | -0.54 | 0.5910 |
|  | 50%~75% Q | <25% Q | -329.43 (97.12) | -3.39 | 0.0011 |
|  | >75% Q | <25% Q | -275.06 (123.55) | -2.23 | 0.0286 |

1. Analysis for posts broken down

No post has more than one contents. We derived a categorical variable CONTENT with 12 categories. We run the linear mixed model to evaluate the association of contents of posts with the number of likes with random effect of program for the correlation within program. We also adjusted for the program size, city size, and FREIDA in the model. False discovery rate was used for the adjustment of multiple comparisons.

Table 3 showed the model results for the number of likes. Overall, content was significantly associated with the number of likes after controlling for the other characteristics (p<0.001). With the FDR adjustment for the multiple comparisons, Advocacy post showed more likes than Info post (DIFF=27.11, SE=8.87, adj-p=0.007). More likes were observed for Awards or Match post than Advocacy (DIFF=68.33, SE=9.26, adj-p<0.001), Bio (DIFF=78.43, SE=6.34, adj-p<0.001), Class (DIFF=53.18, SE=6.68, adj-p<0.001), Diversity (DIFF=85.88, SE=8.67, adj-p<0.001), Info (DIFF=95.44, SE=6.63, adj-p<0.001), OR/Surgical (DIFF=59.63, SE=10.17, adj-p<0.001), Others (DIFF=67.51, SE=7.24, adj-p<0.001), Research (DIFF=79.37, SE=9.08, adj-p<0.001), Social (DIFF=61.12, SE=6.20, adj-p<0.001), Wellness (DIFF=69.98, SE=8.30, adj-p<0.001), and Educational (DIFF=83.06, SE=7.13, adj-p<0.001). Bio post had more likes than Info (DIFF=17.01, SE=5.54, adj-p=0.007) but less than Class (DIFF=-25.25, SE=5.65, adj-p<0.001) and Social (DIFF=-17.31, SE=5.09, adj-p=0.003). More likes were detected for Class post than Diversity (DIFF=32.70, SE=8.20, adj-p<0.001), Info (DIFF=42.26, SE=6.03, adj-p<0.001), Research (DIFF=26.20, SE=8.74, adj-p=0.008), and Educational (DIFF=29.89, SE=6.68, adj-p<0.001). Social post had more likes than Diversity (DIFF=24.76, SE=7.81, adj-p=0.005) and Educational (DIFF=21.94, SE=6.05, adj-p=0.001). Less likes were shown for Info post than OR/Surgical (DIFF=-35.81, SE=9.67, adj-p=0.001), Others (DIFF=-27.93, SE=6.63, adj-p<0.001), Social (DIFF=-34.32, SE=5.44, adj-p<0.001), and Wellness (DIFF=-25.46, SE=7.73, adj-p=0.004).

Table 3 Linear mixed model for the number of likes

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Factor | Estimate (SE) | Test Statistic | P value | Type 3 Overall Test |
| Intercept | 54.02 (30.96) | 1.74 | 0.094 |  |
| Program Size | 0.84 (0.47) | 1.79 | 0.074 | 0.074 |
| City Size |  |  |  | 0.590 |
| Medium-size Urban (ref) |  |  |  |  |
| Large Metropolitan | -18.36 (21.77) | -0.84 | 0.399 |  |
| Metropolitan | -24.06 (23.52) | -1.02 | 0.307 |  |
| FREIDA |  |  |  | 0.379 |
| Community (ref) |  |  |  |  |
| Academic | 22.23 (22.29) | 1.00 | 0.319 |  |
| Both | 36.59 (26.57) | 1.38 | 0.169 |  |
| Content |  |  |  | <0.001 |
| Educational (ref) |  |  |  |  |
| Advocacy | 14.74 (9.18) | 1.60 | 0.189 |  |
| Awards/Match | 83.06 (7.14) | 11.64 | <0.001 |  |
| Bio | 4.64 (6.20) | 0.75 | 0.455 |  |
| Class | 29.89 (6.68) | 4.48 | <0.001 |  |
| Diversity | -2.82 (8.66) | -0.33 | 0.745 |  |
| Info | -12.38 (6.54) | -1.89 | 0.059 |  |
| OR/Surgical | 23.43 (10.01) | 2.34 | 0.020 |  |
| Others | 15.55 (7.18) | 2.17 | 0.031 |  |
| Research | 3.69 (9.04) | 0.41 | 0.683 |  |
| Social | 21.95 (6.05) | 3.63 | <0.001 |  |
| Wellness | 13.09 (8.17) | 1.60 | 0.110 |  |

The DF for intercept is 24 and for all others is 812.

Table 3.2 Least square means of the number of likers

| **Effect** | **Estimate (SE)** | **Test**  **Statistic** | **P Value** |
| --- | --- | --- | --- |
| **Content** |  |  |  |
| Advocacy | 100.14 (14.33) | 6.99 | <0.001 |
| Awards/Match | 168.47 (13.17) | 12.80 | <0.001 |
| Bio | 90.04 (12.43) | 7.24 | <0.001 |
| Class | 115.29 (12.88) | 9.02 | <0.001 |
| Diversity | 82.59 (14.08) | 5.86 | <0.001 |
| Info | 73.03 (12.77) | 5.72 | <0.001 |
| OR/Surgical | 108.84 (14.76) | 7.37 | <0.001 |
| Other Posts | 100.96 (13.01) | 7.76 | <0.001 |
| Research | 89.09 (14.38) | 6.20 | <0.001 |
| Social | 107.35 (12.45) | 8.62 | <0.001 |
| Wellness | 98.49 (13.64) | 7.22 | <0.001 |
| Educational | 85.40 (12.98) | 6.58 | <0.001 |
| **City Size** |  |  |  |
| Large Metropolitan | 97.41 (8.84) | 11.02 | <0.001 |
| Metropolitan | 91.73 (14.28) | 6.42 | <0.001 |
| Medium-size urban | 115.78 (23.41) | 4.95 | <0.001 |
| **FREIDA** |  |  |  |
| Academic | 104.27 (8.17) | 12.76 | <0.001 |
| Both | 118.62 (17.03) | 6.97 | <0.001 |
| Community | 82.03 (23.81) | 3.45 | 0.001 |

Table 3.3 Significant differences in the number of likers after FDR adjustment for p value

| **Effect** | **content** | **Ref** | **Estimate** | **SE** | **Test Statistic** | **P value** | **FDR**  **Adjusted P** |
| --- | --- | --- | --- | --- | --- | --- | --- |
| content | Advocacy | Awards/Match | -68.3277 | 9.2639 | -7.38 | <.0001 | <.0001 |
| content | Advocacy | Info | 27.1112 | 8.8658 | 3.06 | 0.0023 | 0.0069 |
| content | Awards/Match | Bio | 78.4251 | 6.3402 | 12.37 | <.0001 | <.0001 |
| content | Awards/Match | Class | 53.1752 | 6.6796 | 7.96 | <.0001 | <.0001 |
| content | Awards/Match | Diversity | 85.8793 | 8.6668 | 9.91 | <.0001 | <.0001 |
| content | Awards/Match | Info | 95.4389 | 6.6291 | 14.40 | <.0001 | <.0001 |
| content | Awards/Match | OR/Surgical | 59.6287 | 10.1681 | 5.86 | <.0001 | <.0001 |
| content | Awards/Match | Other Posts | 67.5101 | 7.2434 | 9.32 | <.0001 | <.0001 |
| content | Awards/Match | Research | 79.3743 | 9.0808 | 8.74 | <.0001 | <.0001 |
| content | Awards/Match | Social | 61.1152 | 6.1995 | 9.86 | <.0001 | <.0001 |
| content | Awards/Match | Wellness | 69.9777 | 8.2979 | 8.43 | <.0001 | <.0001 |
| content | Awards/Match | Educational | 83.0631 | 7.1391 | 11.64 | <.0001 | <.0001 |
| content | Bio | Class | -25.2499 | 5.6454 | -4.47 | <.0001 | <.0001 |
| content | Bio | Info | 17.0138 | 5.5397 | 3.07 | 0.0022 | 0.0069 |
| content | Bio | Social | -17.3099 | 5.0904 | -3.40 | 0.0007 | 0.0025 |
| content | Class | Diversity | 32.7041 | 8.2022 | 3.99 | <.0001 | 0.0003 |
| content | Class | Info | 42.2637 | 6.0347 | 7.00 | <.0001 | <.0001 |
| content | Class | Research | 26.1992 | 8.7413 | 3.00 | 0.0028 | 0.0081 |
| content | Class | Educational | 29.8879 | 6.6773 | 4.48 | <.0001 | <.0001 |
| content | Diversity | Social | -24.7641 | 7.8107 | -3.17 | 0.0016 | 0.0052 |
| content | Info | OR/Surgical | -35.8102 | 9.6709 | -3.70 | 0.0002 | 0.0009 |
| content | Info | Other Posts | -27.9288 | 6.6299 | -4.21 | <.0001 | 0.0001 |
| content | Info | Social | -34.3237 | 5.4379 | -6.31 | <.0001 | <.0001 |
| content | Info | Wellness | -25.4611 | 7.7312 | -3.29 | 0.0010 | 0.0035 |
| content | Social | Educational | 21.9479 | 6.0541 | 3.63 | 0.0003 | 0.0012 |