**Appendix**

**Missing Data Pattern**

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| --- | --- | --- | --- | --- |
|  | Week 4 | Week 8 | Week 12 | Total Count for Pattern |
| Pattern of assessment attendance | **×** |  |  | 1036 |
| **×** |  | **×** | 920 |
| **×** | **×** |  | 488 |
| **×** | **×** | **×** | 396 |
|  | **×** |  | 66 |
|  | **×** | **×** | 44 |
|  |  | **×** | 37 |
| Total count for assessment visit | 2840 | 994 | 1397 |  |
| × = Underwent assessment | | | | |

| **Appendix Table 1: Clinical characteristics of patients who underwent and did not undergo Week-4 assessment.** | | | |
| --- | --- | --- | --- |
| **Variables** | **Underwent Assessment (N=2840)** | **No Assessment (N=147)** | ***P*-value** |
| Age (years) | 62.0 **67.2** 72.8 67.4 ±  7.4 | 63.0 **67.3** 73.1 67.7 ±  8.0 | 0.641 |
| Body weight (kg) | 59 **66** 74 67 ± 13 | 59 **66** 75 68 ± 14 | 0.761 |
| BMI (kg/m2) | 24.3 **26.9** 30.0 27.5 ±  4.5 | 24.7 **27.5** 30.4 27.8 ±  4.6 | 0.331 |
| Preop knee flexion (°) | 109 **121** 131 118 ±  18 | 106 **122** 130 118 ±  17 | 0.731 |
| Preop SF-36 bodily pain | 22 **32** 42 36 ± 19 | 22 **32** 44 36 ± 18 | 0.541 |
| Preop SF-36 physical function | 20 **35** 55 39 ± 23 | 20 **35** 55 37 ± 24 | 0.321 |
| Contralateral knee pain | 57% (1618) | 60% ( 88) | 0.492 |
| Preop walking aids |  |  | 0.223 |
| None | 2% ( 43) | 1% ( 2) |  |
| Stick | 2% ( 63) | 1% ( 2) |  |
| Quadstick | 74% (2113) | 71% ( 105) |  |
| Frame | 22% ( 621) | 26% ( 38) |  |
| Hypertension | 65% (1833) | 71% ( 105) | 0.0882 |
| Diabetes | 21% ( 591) | 20% ( 30) | 0.912 |
| Heart disease | 11% ( 313) | 16% ( 23) | 0.0842 |
| Length of stay (days) | 3.0 **4.0** 5.0 4.4 ± 2.4 | 3.0 **4.0** 5.5 5.1 ± 3.9 | 0.561 |
| Walk on day 1 post TKA | 78% (2217) | 73% ( 107) | 0.132 |
| Able to perform SLR on day of hospital discharge | 88% (2503) | 86% ( 126) | 0.382 |
| Continuous variables are summarized as 25th **50**th 75th percentiles and mean ± SD.  Categorical variables are summarized as percentages and frequencies (*n*).  Tests used: 1Wilcoxon test; 2Pearson test; 3Proportional odds likelihood ratio test.  SLR = Straight Leg Raise | | | |
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| **Appendix Table 2: Clinical characteristics of patients who underwent and did not undergo Week-8 assessment.** | | | |
| --- | --- | --- | --- |
| **Variables** | **Underwent Assessment (N=994)** | **No Assessment (N=1993)** | ***P*-value** |
| Age (years) | 62.2 **66.8** 72.4 67.2 ±  7.4 | 62.0 **67.4** 73.0 67.5 ±  7.4 | 0.161 |
| Body weight (kg) | 59 **66** 75 68 ± 13 | 59 **66** 74 67 ± 13 | 0.421 |
| BMI (kg/m2) | 24.3 **26.8** 29.9 27.5 ±  4.6 | 24.4 **27.0** 30.0 27.5 ±  4.5 | 0.551 |
| Preop knee flexion (°) | 109 **122** 131 119 ±  17 | 108 **121** 131 118 ±  18 | 0.781 |
| Preop SF-36 bodily pain | 22 **32** 42 36 ± 19 | 22 **32** 42 36 ± 19 | 11 |
| Preop SF-36 physical function | 20 **35** 55 39 ± 23 | 20 **35** 55 39 ± 22 | 0.81 |
| Contralateral knee pain | 58% ( 572) | 57% (1134) | 0.742 |
| Preop walking aids |  |  | 0.43 |
| None | 1% ( 14) | 2% ( 31) |  |
| Stick | 2% ( 16) | 2% ( 49) |  |
| Quadstick | 74% ( 740) | 74% (1478) |  |
| Frame | 23% ( 224) | 22% ( 435) |  |
| Hypertension | 66% ( 653) | 64% (1285) | 0.512 |
| Diabetes | 21% ( 205) | 21% ( 416) | 0.872 |
| Heart disease | 12% ( 116) | 11% ( 220) | 0.612 |
| Length of stay (days) | 3.0 **4.0** 5.0 4.6 ± 2.9 | 3.0 **4.0** 5.0 4.4 ± 2.3 | 0.391 |
| Walk on day 1 post TKA | 77% ( 765) | 78% (1559) | 0.432 |
| Able to perform SLR on day of hospital discharge | 87% ( 869) | 88% (1760) | 0.482 |
| Continuous variables are summarized as 25th **50**th 75th percentiles and mean ± SD.  Categorical variables are summarized as percentages and frequencies (*n*).  Tests used: 1Wilcoxon test; 2Pearson test; 3Proportional odds likelihood ratio test.  SLR = Straight Leg Raise | | | |
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| **Appendix Table 3: Clinical characteristics of patients who underwent and did not undergo Week-12 assessment.** | | | |
| --- | --- | --- | --- |
| **Variables** | **Underwent Assessment (N=1397)** | **No Assessment (N=1590)** | ***P*-value** |
| Age (years) | 61.9 **66.9** 71.9 67.1 ±  7.3 | 62.2 **67.5** 73.2 67.7 ±  7.6 | 0.0231 |
| Body weight (kg) | 59 **66** 74 67 ± 12 | 59 **66** 74 68 ± 13 | 0.441 |
| BMI (kg/m2) | 24.3 **26.7** 29.6 27.3 ±  4.4 | 24.4 **27.1** 30.3 27.7 ±  4.7 | 0.0221 |
| Preop knee flexion (°) | 110 **122** 131 119 ±  17 | 106 **120** 131 118 ±  18 | 0.041 |
| Preop SF-36 bodily pain | 22 **32** 51 36 ± 18 | 22 **32** 42 35 ± 20 | 0.51 |
| Preop SF-36 physical function | 20 **40** 55 40 ± 23 | 20 **35** 55 38 ± 23 | 0.0061 |
| Contralateral knee pain | 59% (826) | 55% (880) | 0.0372 |
| Preop walking aids |  |  | 0.863 |
| None | 2% ( 21) | 2% ( 24) |  |
| Stick | 1% ( 16) | 3% ( 49) |  |
| Quadstick | 76% (1061) | 73% (1157) |  |
| Frame | 21% ( 299) | 23% ( 360) |  |
| Hypertension | 63% ( 879) | 67% (1059) | 0.0352 |
| Diabetes | 21% ( 300) | 20% ( 321) | 0.392 |
| Heart disease | 11% ( 156) | 11% ( 180) | 0.892 |
| Length of stay (days) | 3.0 **4.0** 5.0 4.4 ± 2.6 | 3.0 **4.0** 5.0 4.5 ± 2.5 | 0.191 |
| Walk on day 1 post TKA | 80% (1115) | 76% (1209) | 0.0132 |
| Able to perform SLR on day of hospital discharge | 89% (1249) | 87% (1380) | 0.0282 |
| Continuous variables are summarized as 25th **50**th 75th percentiles and mean ± SD.  Categorical variables are summarized as percentages and frequencies (*n*).  Tests used: 1Wilcoxon test; 2Pearson test; 3Proportional odds likelihood ratio test.  SLR = Straight Leg Raise | | | |
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**Inverse Probability Weighting**

In sensitivity analyses, we used inverse probability weighting to adjust for missing data(1). We computed inverse probability weights for each patient at each time point from pooled logistic regression models that were fitted to predict the probability of having a missing knee flexion range-of-motion, quadriceps strength, and gait speed value. Models were run separately for women and men. Covariates included age, body weight, diabetes, hypertension, coronary heart disease, the availability of caregiver support post TKA (yes vs. no), the type of gait aids used preoperatively (coded into 4 categories: (i) none, (ii) walking stick, (iii) quadstick, and (iv) walking frame), knee flexion range-of-motion measured at hospital discharge, and the ability to perform an active straight-leg-raise on the day of hospital discharge (able vs. unable). Inversed probability weights were truncated at the 99th percentile level and incorporated into the *weights* argument of the *rq* ***R*** function(2). **Appendix Figures 1 and 2** show that the inverse probability weighting estimates were similar to the unadjusted estimates.

**References**

1. Cole SR, Hernan MA. Constructing inverse probability weights for marginal structural models. Am J Epidemiol 2008;168(6):656-64.

2. Koenker R. quantreg: Quantile Regression. R package version 5.26. https://CRAN.R-project.org/package=quantreg. 2016.

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| --- | --- | --- |
| **A** | **B** | **C** |
|  |  |  |
| **Appendix Figure 1**: Median and interquartile range knee flexion range-of-motion (A), body-weight adjusted quadriceps strength (B), and fast gait speed (C) in women estimated using inverse probability weighting (IPW) to adjust for missing data (dot dashed lines) versus using observed data only (solid lines). Blue lines show the estimated medians; red and green lines show the estimated 25th and 75th percentiles, respectively. Age was set to 65 years. | | |

|  |  |  |
| --- | --- | --- |
| **A** | **B** | **C** |
|  |  |  |
| **Appendix Figure 2**: Median and interquartile range knee flexion range-of-motion (A), body-weight adjusted quadriceps strength (B), and fast gait speed (C) in men estimated using inverse probability weighting (IPW) to adjust for missing data (dot dashed lines) versus using observed data only (solid lines). Blue lines show the estimated medians; red and green lines show the estimated 25th and 75th percentiles, respectively. Age was set to 65 years. | | |