**Appendix 9.** KOOS JR logistic LASSO before-surgery, full-model parameters

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Intercept | 0.00 | | | |
| Feature | Imputed mean | Standardized mean | Standardized scale | Coefficient |
| BMI | 30.11 | 29.14 | 7.65 | -0.10 |
| Age | 66.89 | 67.00 | 13.00 | -0.10 |
| Years of education | 15.94 | 16.00 | 5.00 | -0.14 |
| Baseline SF-36 MCS | 51.48 | 52.59 | 16.35 | -0.01 |
| Baseline KOOS JR score | 49.24 | 50.01 | 14.86 | 1.13 |
| Baseline KOOS pain score | 47.90 | 47.22 | 22.22 | 0.18 |
| Baseline KOOS symptom score | 50.35 | 50.00 | 25.00 | 0.19 |
| Baseline KOOS ADL score | 53.37 | 52.94 | 22.81 | -0.14 |
| Baseline KOOS sports/rec score | 22.42 | 22.42 | 20.00 | 0.06 |
| Baseline KOOS QOL score | 24.33 | 25.00 | 25.00 | 0.17 |
| Baseline pain VAS (right) | 57.28 | 60.00 | 34.00 | -0.10 |
| Baseline pain VAS (left) | 59.53 | 59.53 | 1.00 | 0.01 |
| Baseline fatigue VAS | 38.87 | 38.00 | 56.00 | 0.17 |
| Baseline LEAS | 9.70 | 9.00 | 4.00 | -0.02 |
| Baseline WOMAC pain score | 54.13 | 55.00 | 20.00 | -0.05 |
| Baseline SF-36 physical functioning score | 28.87 | 27.57 | 10.52 | -0.12 |
| Baseline SF-36 role physical score | 34.65 | 34.65 | 14.69 | 0.01 |
| Baseline SF-36 bodily pain score | 37.17 | 37.18 | 8.87 | -0.06 |
| Baseline SF-36 general health score | 51.63 | 52.93 | 11.92 | -0.20 |
| Baseline SF-36 vitality score | 47.91 | 48.97 | 12.49 | -0.03 |
| Baseline SF-36 social functioning score | 42.42 | 45.94 | 16.36 | -0.02 |
| Baseline SF-36 role emotional score | 42.75 | 44.22 | 23.32 | 0.00 |
| Baseline SF-36 mental health score | 48.27 | 50.01 | 14.08 | -0.16 |
| Baseline EQ-5D score | 0.67 | 0.76 | 0.18 | -0.13 |
| Baseline expectations survey score | 78.50 | 78.50 | 15.86 | -0.08 |
| Race: white | - | - | - | -0.48 |
| Sex: male | - | - | - | 0.10 |
| Laterality: simultaneous bilateral | - | - | - | -0.31 |
| Unilateral revision | - | - | - | 1.13 |
| Primary payor: commercial | - | - | - | 0.64 |
| Secondary payor: Blue Cross | - | - | - | -0.03 |
| Secondary payor: commercial | - | - | - | -0.07 |
| Primary payor: other (not Blue Cross, commercial, Medicare, nor Medicaid) | - | - | - | 0.20 |
| Hispanic | - | - | - | 0.08 |
| Hispanic missing | - | - | - | 0.01 |
| Cohabitation: live with immediate family | - | - | - | -0.09 |
| Prior shoulder surgery (contralateral side) | - | - | - | 0.03 |
| Prior hip surgery (contralateral side) missing | - | - | - | 0.11 |
| Prior knee surgery (contralateral side) missing | - | - | - | 0.01 |
| Ever taken bisphosphonates: missing | - | - | - | 0.12 |
| Heart disease (self-reported health problem) | - | - | - | -0.10 |
| Heart disease (self-reported health problem) missing | - | - | - | 0.11 |
| Depression (self-reported health problem) | - | - | - | 0.01 |
| Back pain (self-reported health problem) | - | - | - | 0.19 |
| Rheumatoid arthritis (self-reported health problem) | - | - | - | 0.04 |
| Doctor #107 | - | - | - | -0.03 |
| Doctor #114 | - | - | - | 0.02 |
| Doctor #103 | - | - | - | -0.15 |
| Doctor #108 | - | - | - | 0.00 |
| Doctor #109 | - | - | - | -0.10 |
| Surgeon #107 | - | - | - | 0.00 |
| Surgeon #115 | - | - | - | -0.10 |
| Surgeon #108 | - | - | - | -0.05 |
| Surgeon #109 | - | - | - | -0.09 |
| Month of year of baseline survey: August | - | - | - | 0.14 |
| Month of year of baseline survey: September | - | - | - | 0.10 |
| Month of year of baseline survey: October | - | - | - | -0.17 |
| Month of year of baseline survey: November | - | - | - | 0.02 |
| Day of week of baseline survey: Monday | - | - | - | -0.06 |
| Day of week of baseline survey: Wednesday | - | - | - | 0.00 |
| Day of week of baseline survey: Thursday | - | - | - | 0.02 |
| Month of year of index surgery: July | - | - | - | -0.12 |
| Month of year of index surgery: August | - | - | - | 0.03 |
| Day of week of index surgery: Thursday | - | - | - | 0.01 |
| Day of week of index surgery: Friday | - | - | - | 0.07 |
| ASA score: 2 | - | - | - | -0.10 |

The outcome was coded so that 0 = (achieve MCID) and 1 = (did not achieve MCID); coefficients are the typical logistic coefficient estimates; all continuous features were imputed (if missing) and then standardized: first, if missing, the continuous variable was assigned the value in imputed mean; next, all continuous variables were standardized by subtracting the value in standardized mean and then dividing by the value in standardized scale; note that these values were derived from the original 80% training set; standardization scale was based on the 25th and 75th quantiles; LASSO = least absolute shrinkage and selection operator; MCID = minimally clinically important difference; ASA = American Society of Anesthesiologists; MCS = mental component score; KOOS = knee disability and osteoarthritis outcome score; KOOS JR = knee disability and osteoarthritis outcome score for joint replacement; ADL = activities of daily living; QOL = quality of life; LEAS = lower extremity activity scale; EQ-5D = 5-domain EuroQol quality of life survey.