A summary of model selection is shown in Table 4. When, sex was considered as a covariate on $ψ\_{1}$ (Model-3), it caused massive drop (about 141 unit) in the AIC value compared to the base model (Model-2). Further, considering sex as a covariate on $ψ\_{2}$ (Model-4) significantly improved the model fit. However, considering sex on $ψ\_{3}$ (Model-5) did not further improve the model fit (as AIC was increased), thus keeping Model-4 as the current best choice. Since, the estimates of $ψ\_{1}$ in Model-4 were negligible, these were fixed to 0 (Model-6), which further lowered the AIC value by about 7 unit and produced similar estimates as compared to Model-4. Therefore, Model-6was considered as the final model.

**Table 4. Summary of model selection.** $∆AIC$ **represents the difference between the two consecutive models unless otherwise stated; the drop and gain in AIC values (compared to the previous model) is represented by negative and positive signs respectively.**

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **Model No.** | **Covariate on** $Ψ$ | **AIC** | $∆$**AIC** | $$ψ\_{1}$$ | $$ψ\_{2}$$ | $$ψ\_{3}$$ | $σ$ **(kg)** |
| 1 | - | 296.53 | - | 1 (FIXED) | 1 (FIXED) | 1 (FIXED) | 2.67 |
| 2 | - | 154.06 | -142.47 | 0.87 | 2.34 | 1.21 | 1.26 |
| 3 | Sex on $ψ\_{1}$ | 12.97 | -141.09 | 0.20 | 0.02 | 0.86 | 0.78 | 0.62 |
| 4 | Sex on $ψ\_{1}$ and $ψ\_{2}$ | -37.96 | -50.93 | 0.02 | 0.02 | 0.78 | 0.71 | 0.72 | 0.47 |
| 5 | Sex on $ψ\_{1}$, $ψ\_{2}$ and $ψ\_{3}$ | -37.77 | 0.19 | 0.01 (Male) | 0.01 (Female) | 0.780 (Male) | 0.69 (Female) | 0.72 (Male) | 0.72 (Female) | 0.47 |
| **6** | Sex on $ψ\_{2}$ | **-44.94** | **-6.98 a** | **0 (FIXED)** |  **0.77****(Male)** |  **0.70****(Female)** | **0.72** | **0.47** |
|  $FFM\_{Ext(Ind)}$ extended fat-free mass in Indians; $θ\_{1}$, $θ\_{1}$ and $θ\_{3}$ are Janmahasatian’s model parameters (fixed), $WT$total body weight; $BMI$ body mass index; $Ψ \left\{ψ\_{1}, ψ\_{2}, ψ\_{3}\right\}$ ethnicity specific body composition parameters; AIC Alaike Information Criteria;$σ$ standard deviation of additive error; a (Model 5 – Model 3) |