

**Answers Key Exercises blavaan**

**Note: Your results should be approximately the same as in this answer sheet. However, they don’t have to be exactly the same, because the results can vary because of the sampling from the posterior distribution in the Bayesian analysis.**

**Exercise 1: the WAMBS-checklist**

***Step 1: Do you understand the priors?***

**Table 1**. Do you understand the priors?

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Parameters** | **Distributional form of the priors**  (e.g., normal, inverse gamma, etc) | **Type of prior**  (non-, weakly, highly informative) | **Source of background information** | **Picture of Plot** | **Hyperparameters** |
| **Intercept Lag** |  |  |  |  |  |
| Lag on Age |  |  |  |  |  |
| Lag on Age\_sq |  |  |  |  |  |
| Res variance Lag |  |  |  |  |  |

***Step 2: Run the model and check for convergence***

**Table 2**.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Parameters** | **Trace plot** | **Histogram** | **Autocorrelation**  **Plots** | **Kernel density plot\*** |
| **Intercept**  **Lag**  **Alpha[1,1,1]** |  |  |  |  |
| **Lag on age**  **Beta[1,2,1]** |  |  |  |  |
| **Lag on age\_sq**  **Beta[1,3,1]** |  |  |  |  |
| **Res variance**  **Lag**  **Psi [1,1,1]** |  |  |  |  |

\*The second code of step 6 is used for the Kernel density plot. The first option is also possible, but shows two separate chains in one plot. The second option summarizes these chains in the plot.

**Step 3: Doubling the number of iterations and convergence diagnostics**

**Did the model reach convergence?**

**Step 4: Does the posterior distribution histogram have enough precision?**

**Step 5: Do the chains exhibit a strong degree of autocorrelation?**

**Step 6: Does the posterior distribution make substantive sense?**

**Step 7: Do different specifications of the multivariate variance priors influence the results?**

**Step 8: Is there a notable effect of the prior when compared with non-informative priors?**