How do substance use and mental health work for me?

Towards personalized communication in the treatment of addiction and common mental health problems with ecological momentary assessment and network models

Mansueto, A.C.

Publication date
2025

Appendix A: Supplementary Materials Chapter 2

Please note: Supplementary materials for this study that could not be included in this book (analyses code, full descriptive tables) are available at https://osf.io/9jymv/, the data are shared at https://osf.io/mvdpe/. Other supplementary materials are presented in this appendix.

Simulation Results for the Temporal Networks Estimated from Data Generated According to the Parameters Estimated from Dataset 1.

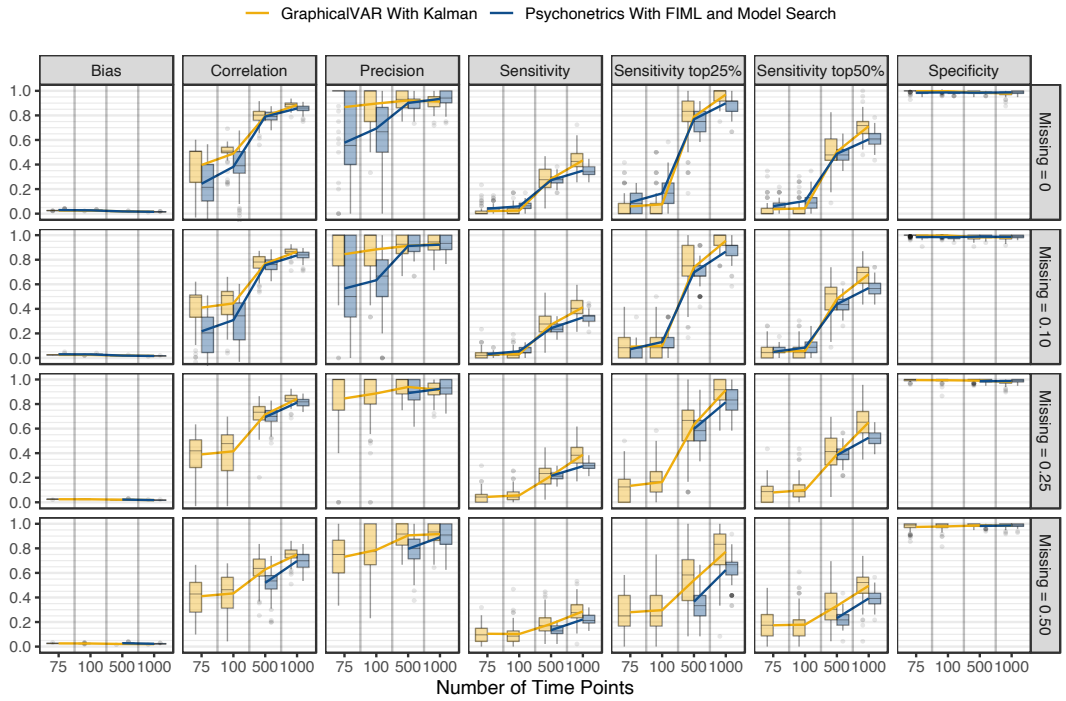

Figure 1 Temporal Network Simulation Results from Data Generated According to the Temporal Parameters Estimated from Dataset 1 with 12 Nodes

Note. The upper and lower bounds of the boxplot represent the 75th and 25th percentiles. The upper whisker reaches the maximum value within 1.5* the interquartile range (IQR) from the upper bound. The lower whisker reaches the minimum value within 1.5 * IQR from the lower bound. Outliers that exceed the whiskers are represented as points. The lines plot the means in each different condition.[21]

21 24 outlier correlations between the data-generating and estimated networks ranging from r = -0.069 to r = -0.005 were not plotted, but they were included in the summary statistics. These were found with N = 75 and N = 100, and proportion of missing data = 0, 0.10, 0.25.

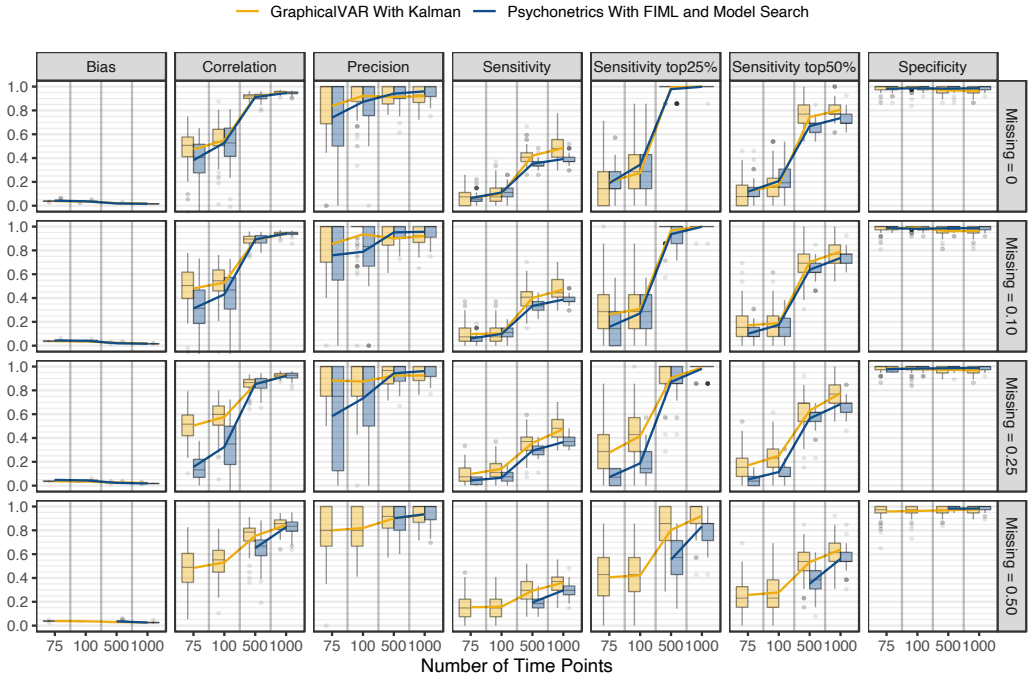

Figure 2 Temporal Network Simulation Results from Data Generated According to the Temporal Parameters Estimated from Dataset 1 with 8 Nodes

Note. The upper and lower bounds of the boxplot represent the 75th and 25th percentiles. The upper whisker reaches the maximum value within 1.5* the interquartile range (IQR) from the upper bound. The lower whisker reaches the minimum value within 1.5 * IQR from the lower bound. Outliers that exceed the whiskers are represented as points. The lines plot the means in each different condition.[22]

22 23 outlier correlations between the data-generating and estimated networks ranging from r = -0.077 to r = -0.011 were not plotted, but they were included in the summary statistics. These were found with N = 75 and N = 100, and proportion of missing data = 0, 0.10, 0.25

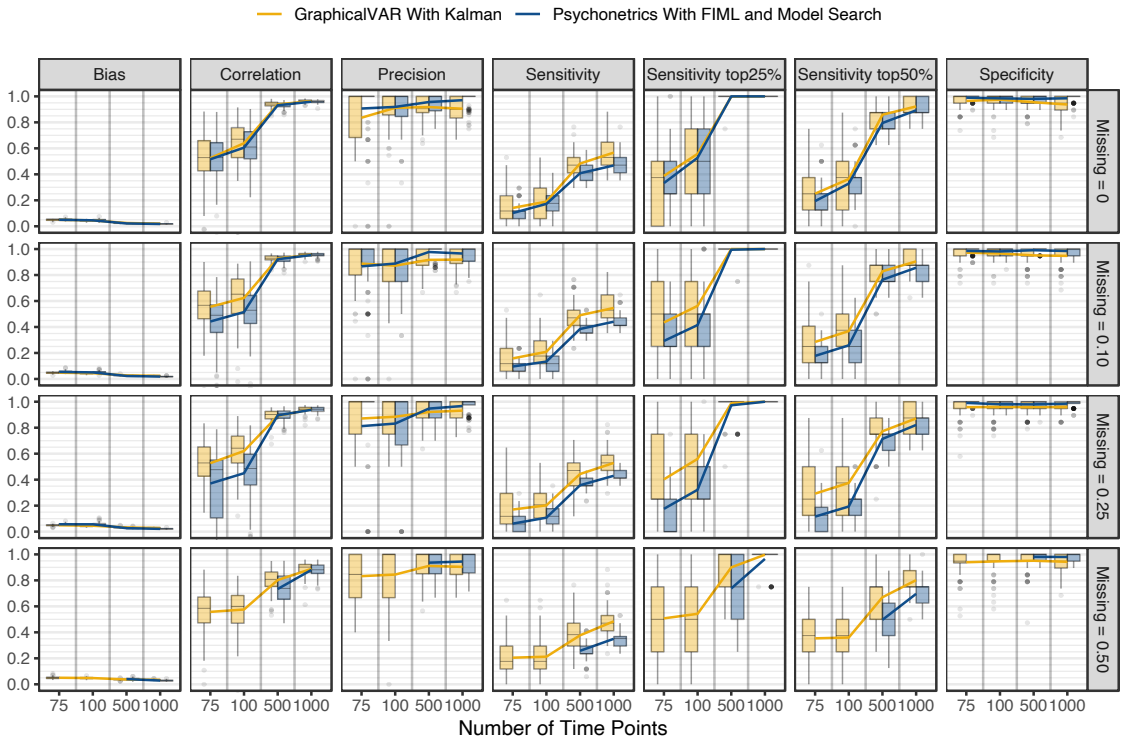

Figure 3 Temporal Network Simulation Results from Data Generated According to the Temporal Parameters Estimated from Dataset 1 with 6 Nodes

Note. The upper and lower bounds of the boxplot represent the 75th and 25th percentiles. The upper whisker reaches the maximum value within 1.5* the interquartile range (IQR) from the upper bound. The lower whisker reaches the minimum value within 1.5 * IQR from the lower bound. Outliers that exceed the whiskers are represented as points. The lines plot the means in each different condition.[23]

23 29 outlier correlations between the data-generating and estimated networks ranging from r = -0.164 to r = -0.0002 were not plotted, but they were included in the summary statistics. These were found with N = 75 and N = 100.

Simulation Results for the Contemporaneous Networks Estimated from Data Generated According to the Parameters Estimated from Dataset 1

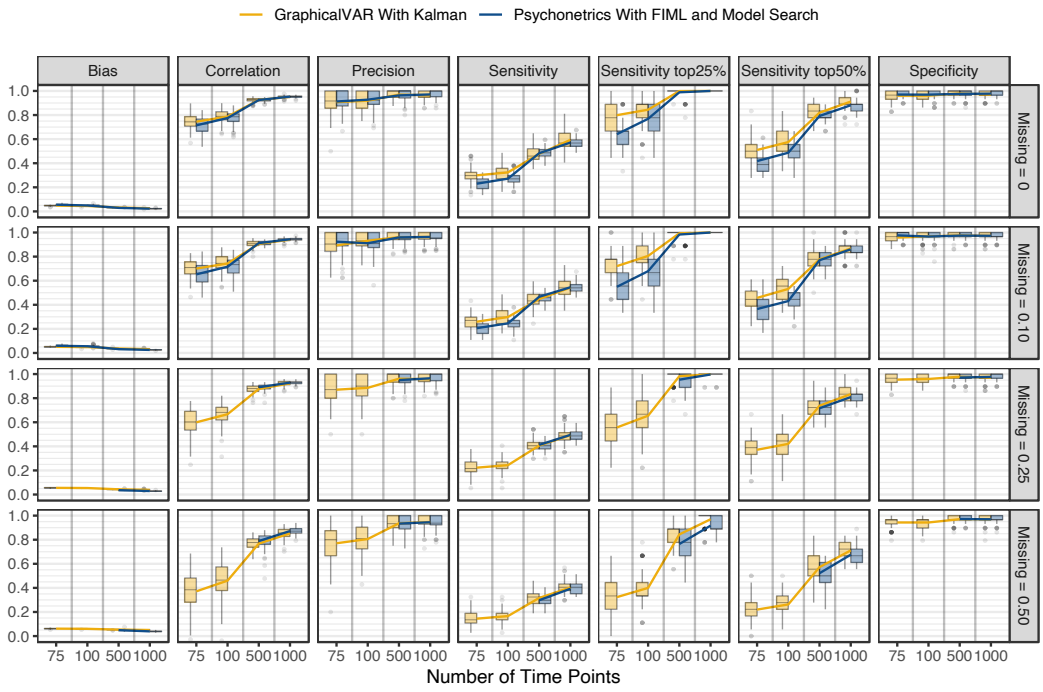

Figure 4 Contemporaneous Network Simulation Results from Data Generated According to the Contemporaneous Parameters Estimated from Dataset 1 with 12 Nodes

Note. The upper and lower bounds of the boxplot represent the 75th and 25th percentiles. The upper whisker reaches the maximum value within 1.5* the interquartile range (IQR) from the upper bound. The lower whisker reaches the minimum value within 1.5 * IQR from the lower bound. Outliers that exceed the whiskers are represented as points. The lines plot the means in each different condition.[24]

24 Two outlier correlations between the data-generating and estimated networks (r = -0.067, r = -0.028) were not plotted, but they were included in the summary statistics. These were found with N = 75 and N = 100, proportion of missing data = 0.50, and graphicalVAR.

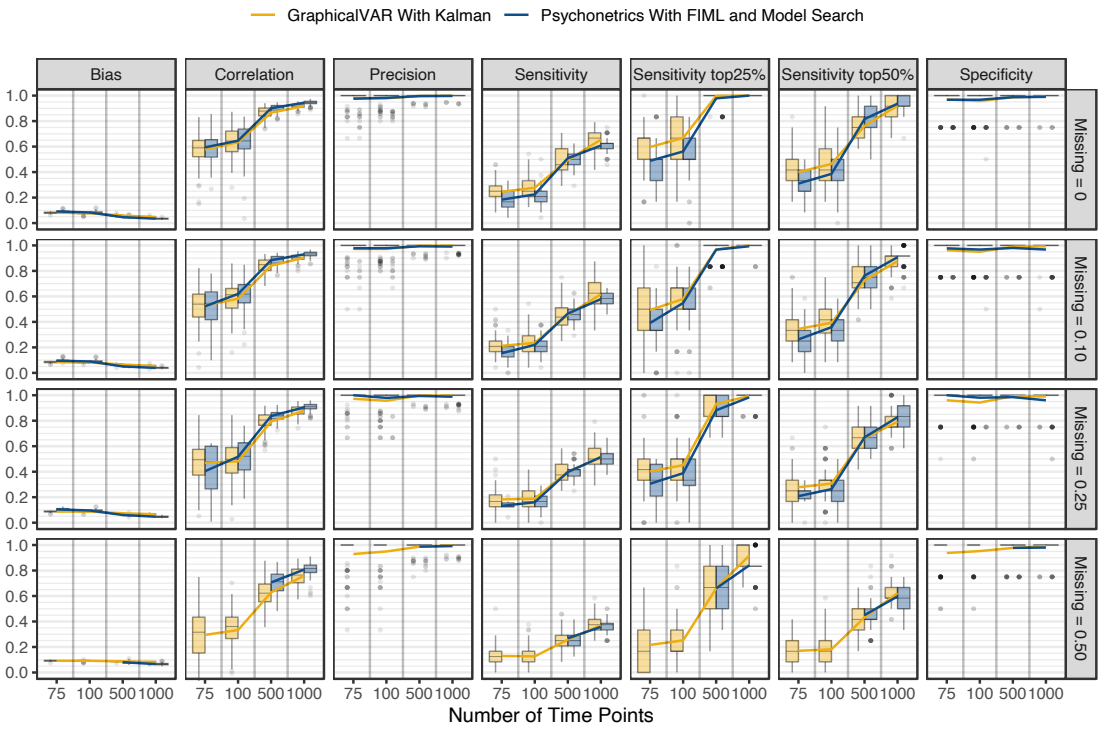

Figure 5 Contemporaneous Network Simulation Results from Data Generated According to the Contemporaneous Parameters Estimated from Dataset 1 with 8 Nodes

Note. The upper and lower bounds of the boxplot represent the 75th and 25th percentiles. The upper whisker reaches the maximum value within 1.5* the interquartile range (IQR) from the upper bound. The lower whisker reaches the minimum value within 1.5 * IQR from the lower bound. Outliers that exceed the whiskers are represented as points. The lines plot the means in each different condition.[25]

25 Seven outlier correlations between the data-generating and estimated networks ranging from r = -0.164 to r = -0.007 were not plotted, but they were included in the summary statistics. These were found with N = 75 and N = 100, proportion of missing data = 0.50, and graphicalVAR.

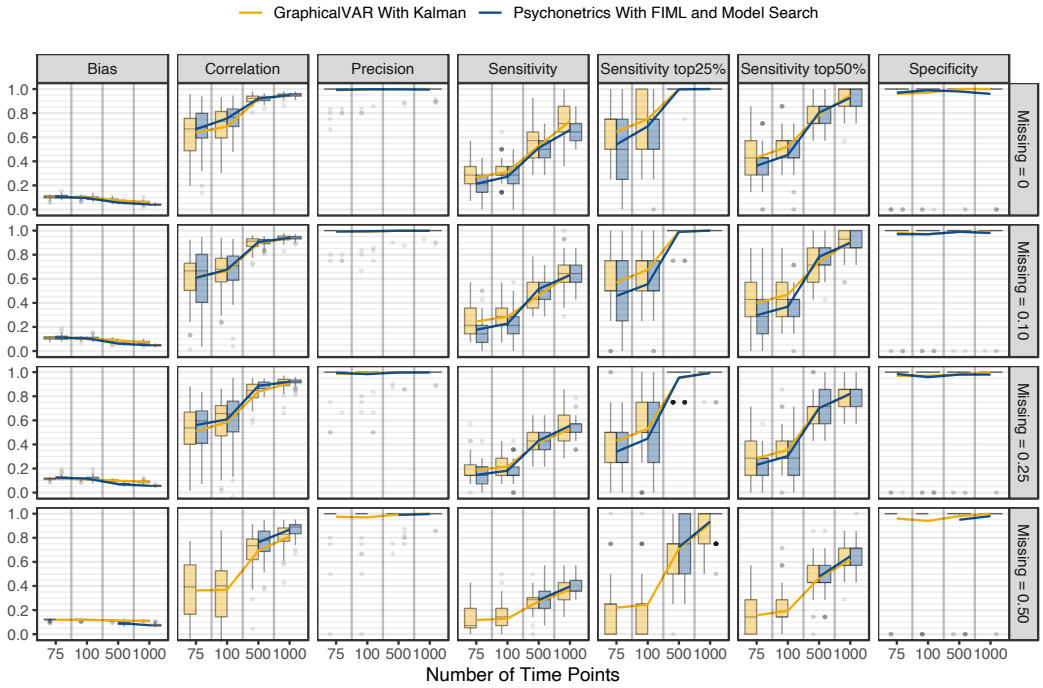

Figure 6 Contemporaneous Network Simulation Results from Data Generated According to the Contemporaneous Parameters Estimated from Dataset 1 with 6 Nodes

Note. The upper and lower bounds of the boxplot represent the 75th and 25th percentiles. The upper whisker reaches the maximum value within 1.5* the interquartile range (IQR) from the upper bound. The lower whisker reaches the minimum value within 1.5 * IQR from the lower bound. Outliers that exceed the whiskers are represented as points. The lines plot the means in each different condition.[26]

26 12 outlier correlations between the data-generating and estimated networks ranging from r = -0.164 to r = -0.007 were not plotted, but they were included in the summary statistics. These were found with N = 75 and N = 100, and proportion of missing data = 0.50 and 0.25.

Simulation Results for the Temporal Networks Estimated from Data Generated According to the Parameters Estimated from Dataset 2

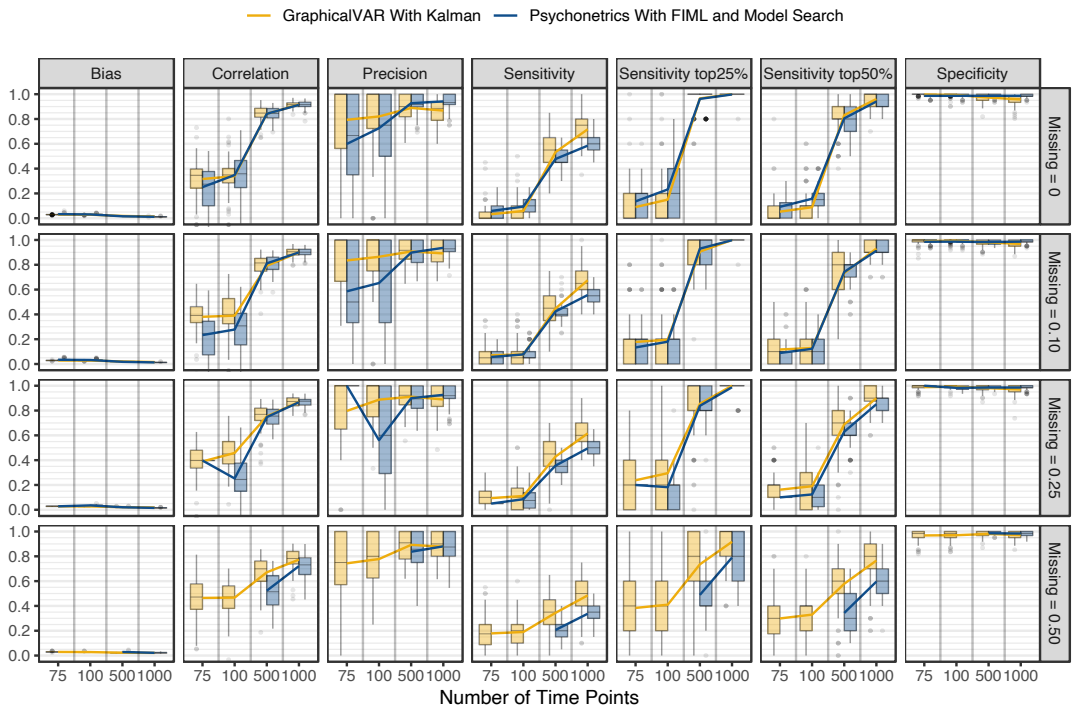

Figure 7 Temporal Network Simulation Results from Data Generated According to the Temporal Parameters Estimated from Dataset 2 with 9 Nodes

Note. The upper and lower bounds of the boxplot represent the 75th and 25th percentiles. The upper whisker reaches the maximum value within 1.5* the interquartile range (IQR) from the upper bound. The lower whisker reaches the minimum value within 1.5 * IQR from the lower bound. Outliers that exceed the whiskers are represented as points. The lines plot the means in each different condition.[27]

27 41 outlier correlations between the data-generating and estimated networks ranging from r = -0.092 to r = -0.001 were not plotted, but they were included in the summary statistics. These were found with N = 75 and N = 100.

Simulation Results for the Contemporaneous Networks Estimated from Data Generated According to the Parameters Estimated from Dataset 2

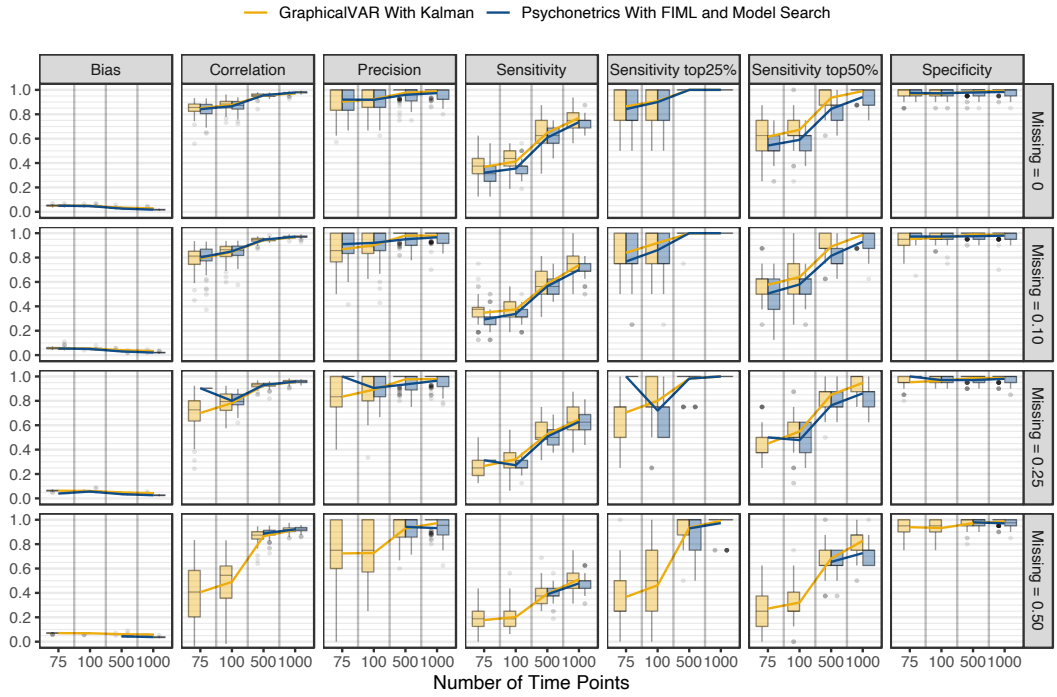

Figure 8 Contemporaneous Network Simulation Results from Data Generated According to the Contemporaneous Parameters Estimated from Dataset 2 with 9 Nodes

Note. The upper and lower bounds of the boxplot represent the 75th and 25th percentiles. The upper whisker reaches the maximum value within 1.5* the interquartile range (IQR) from the upper bound. The lower whisker reaches the minimum value within 1.5 * IQR from the lower bound. Outliers that exceed the whiskers are represented as points. The lines plot the means in each different condition.[28]

28 Five outlier correlations between the data-generating and estimated networks ranging from r = -0.040 to r = -0.018 were not plotted, but they were included in the summary statistics. These were found with N = 75 and N = 100, proportion of missing data = 0.50, and graphicalVAR.

Proportion of Failed Estimations in the Simulations from Data Generated According to the Parameters Estimated from Dataset 1

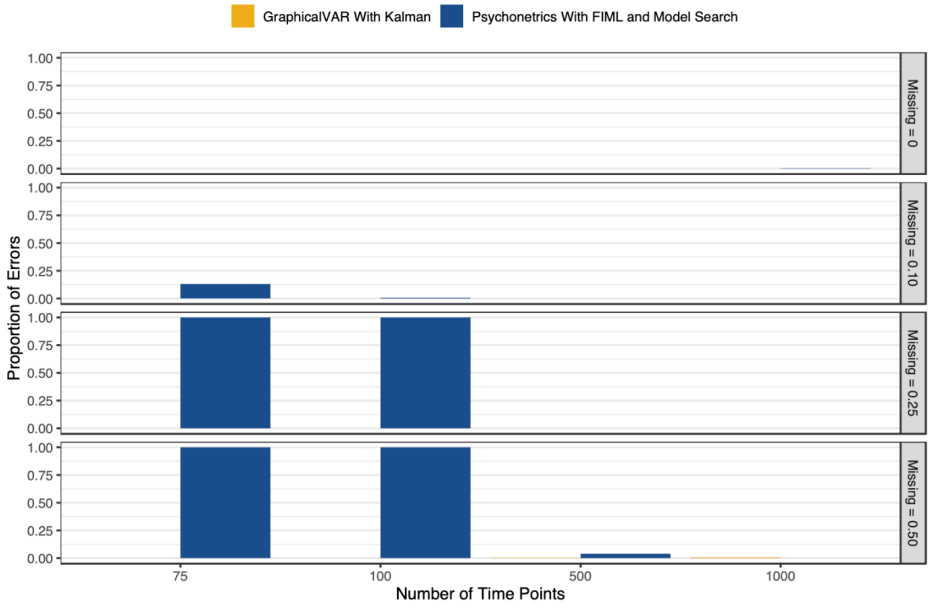

Figure 9 Proportion of Failed Estimations in the Simulations from Data Generated According to the Parameters Estimated from Dataset 1 With 12 Nodes

Note. Proportions for graphicalVAR are shown on the left of the specific number of time points, while proportions for psychonetrics on the right.

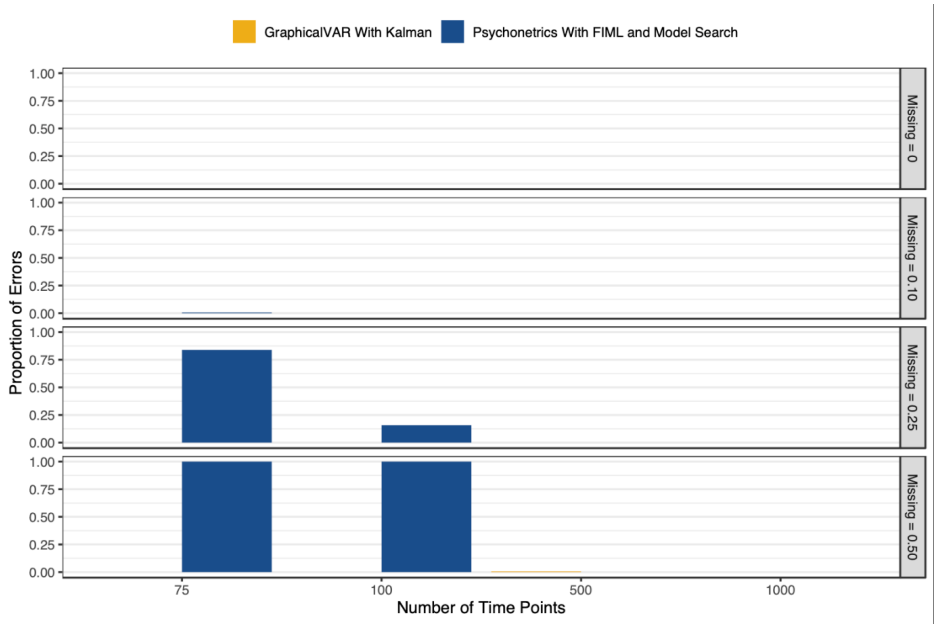

Figure 10 Proportion of Failed Estimations in the Simulations from Data Generated According to the Parameters Estimated from Dataset 1 With 8 Nodes

Note. Proportions for graphicalVAR are shown on the left of the specific number of time points, while proportions for psychonetrics on the right.

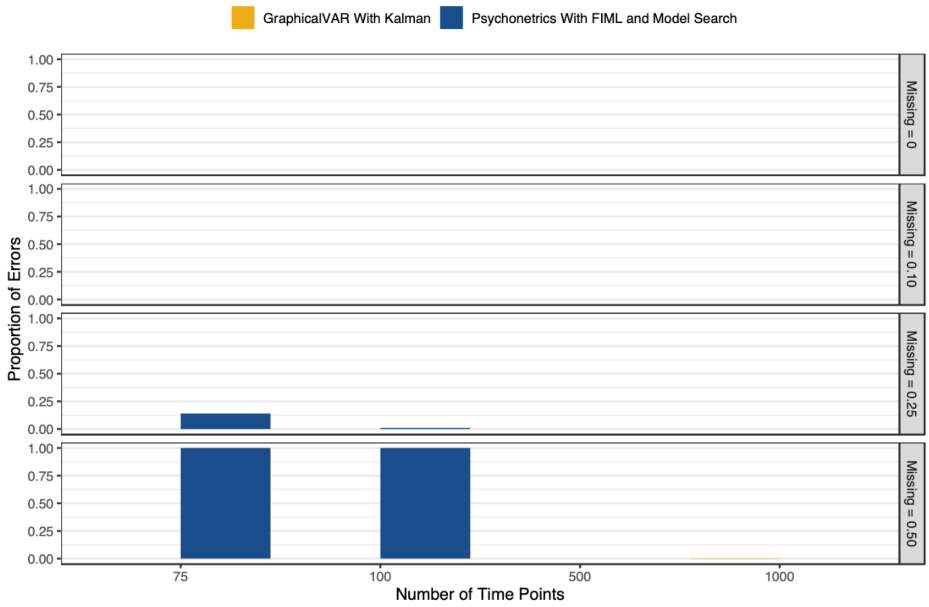

Figure 11 Proportion of Failed Estimations in the Simulations from Data Generated According to the Parameters Estimated from Dataset 1 With 6 Nodes

Note. Proportions for graphicalVAR are shown on the left of the specific number of time points, while proportions for psychonetrics on the right.

Proportion of Failed Estimations in the Simulations from Data Generated According to the Parameters Estimated from Dataset 2

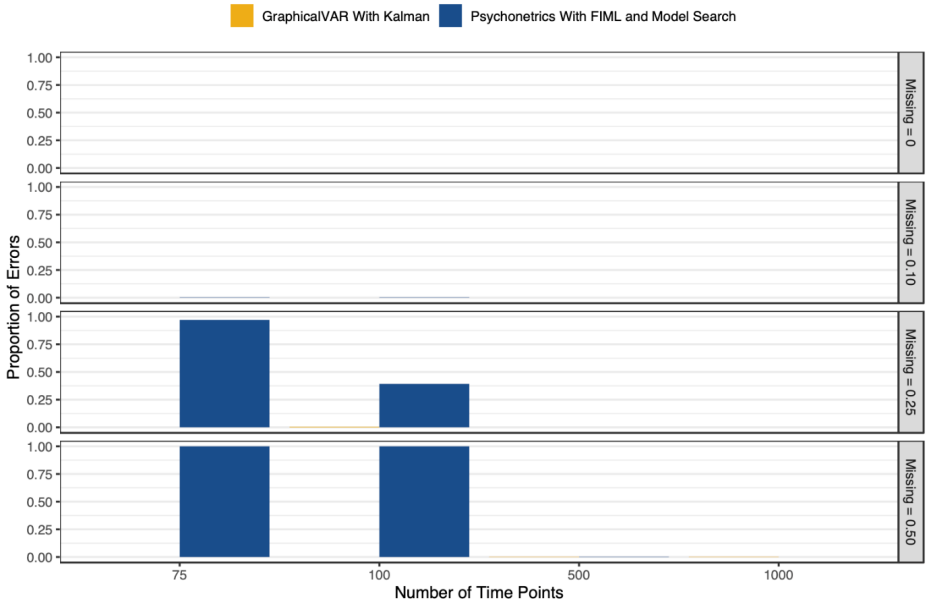

Figure 12 Proportion of Failed Estimations in the Simulations from Data Generated According to the Parameters Estimated from Dataset 2 With 9 Nodes

Note. Proportions for graphicalVAR are shown on the left of the specific number of time points, while proportions for psychonetrics on the right.

Proportion of Estimated Empty Temporal Networks in the Simulations from Data Generated According to the Parameters Estimated from Dataset 1

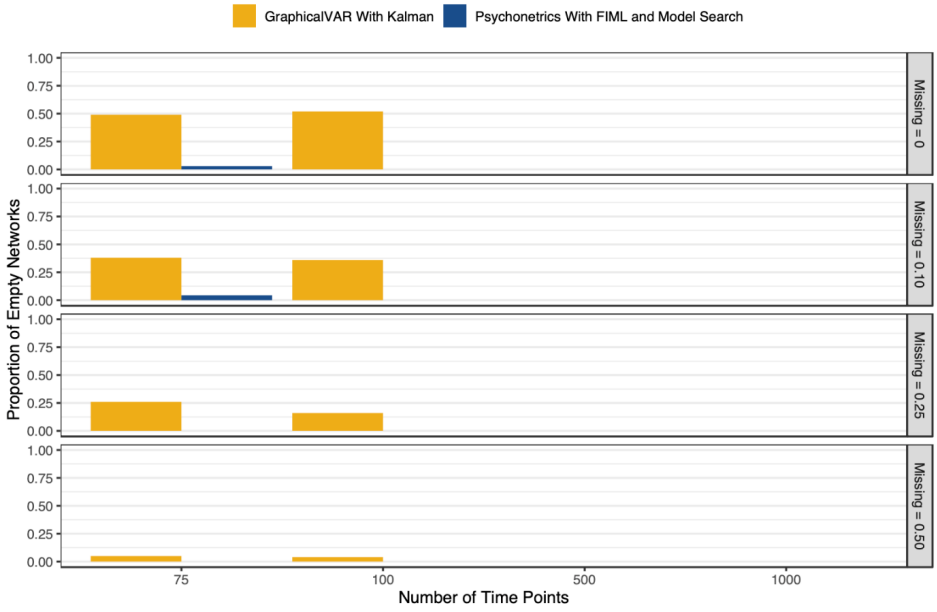

Figure 13 Proportion of Estimated Empty Temporal Networks in the Simulations from Data Generated According to the Parameters Estimated from Dataset 1 With 12 Nodes

Note. Proportions for graphicalVAR are shown on the left of the specific number of time points, while proportions for psychonetrics on the right.

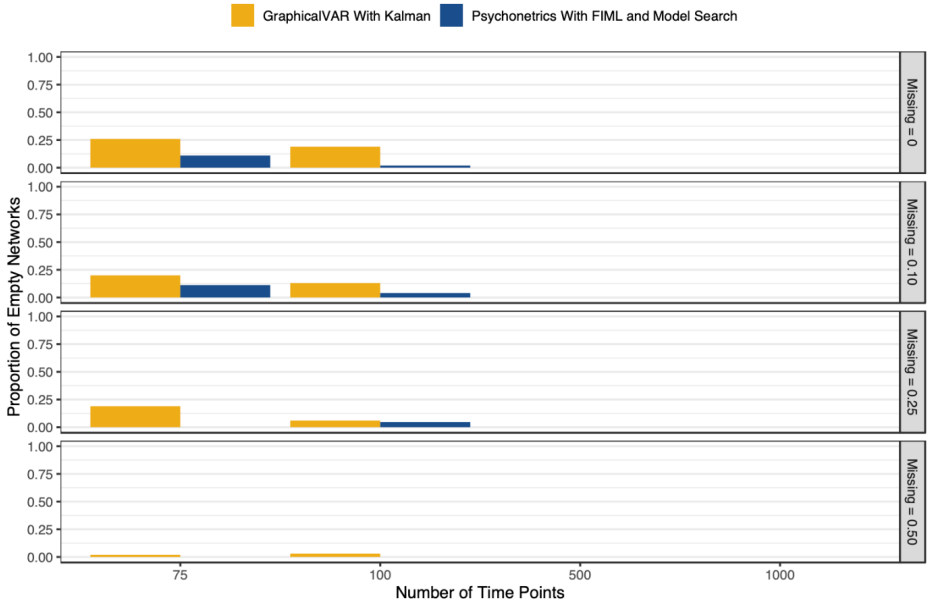

Figure 14 Proportion of Estimated Empty Temporal Networks in the Simulations from Data Generated According to the Parameters Estimated from Dataset 1 With 8 Nodes

Note. Proportions for graphicalVAR are shown on the left of the specific number of time points, while proportions for psychonetrics on the right.

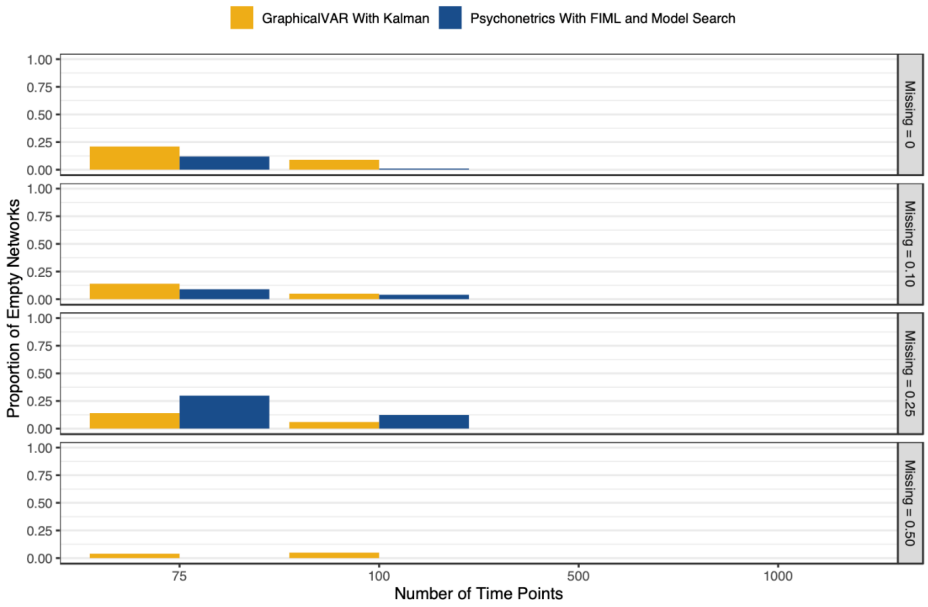

Figure 15 Proportion of Estimated Empty Temporal Networks in the Simulations from Data Generated According to the Parameters Estimated from Dataset 1 With 6 Nodes

Note. Proportions for graphicalVAR are shown on the left of the specific number of time points, while proportions for psychonetrics on the right.

Proportion of Estimated Empty Contemporaneous Networks in the Simulations from Data Generated According to the Parameters Estimated from Dataset 1

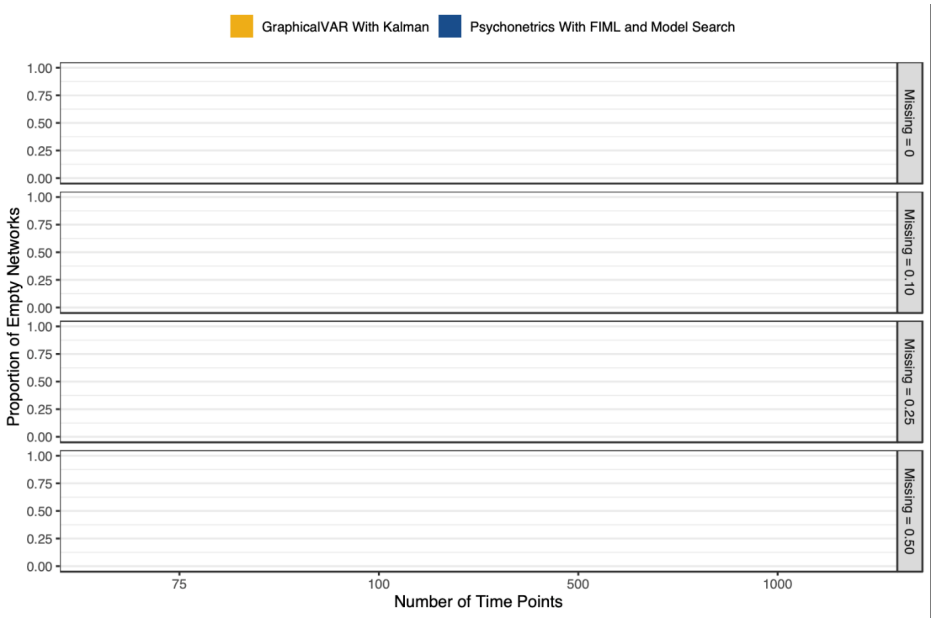

Figure 16 Proportion of Estimated Empty Contemporaneous Networks in the Simulations from Data Generated According to the Parameters Estimated from Dataset 1 With 12 Nodes

Note. Proportions for graphicalVAR are shown on the left of the specific number of time points, while proportions for psychonetrics on the right.

A

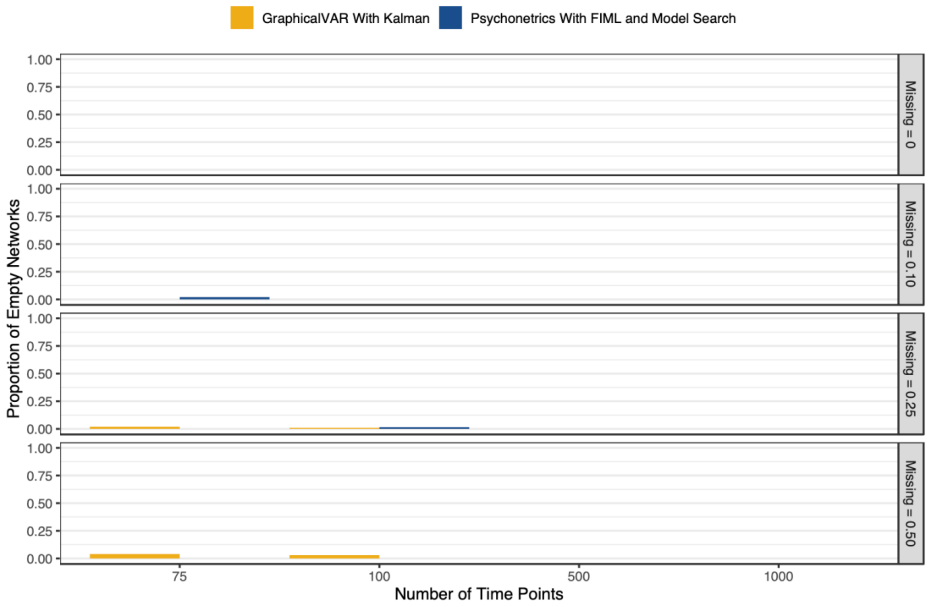

Figure 17 Proportion of Estimated Empty Contemporaneous Networks in the Simulations from Data Generated According to the Parameters Estimated from Dataset 1 With 8 Nodes

Note. Proportions for graphicalVAR are shown on the left of the specific number of time points, while proportions for psychonetrics on the right.

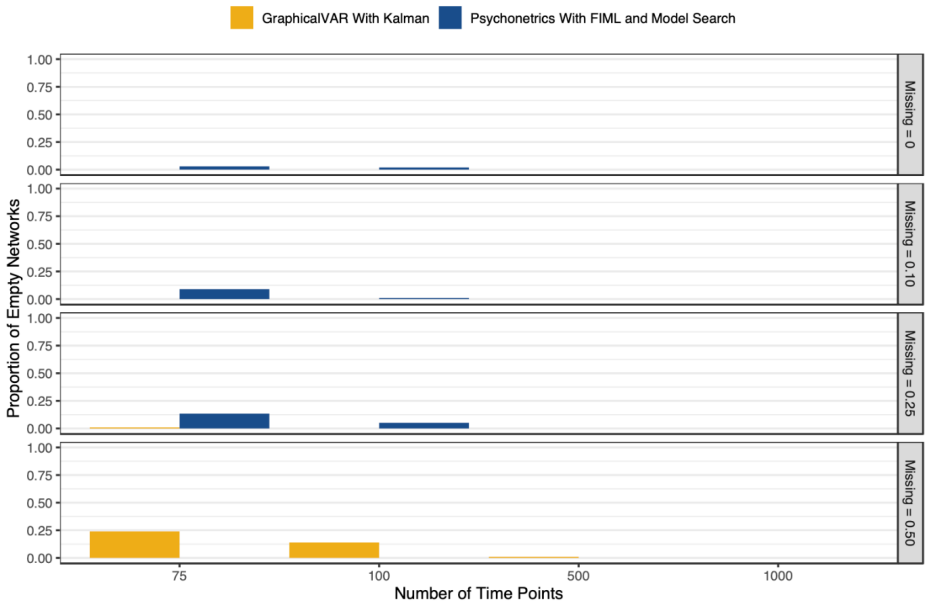

Figure 18 Proportion of Estimated Empty Contemporaneous Networks in the Simulations from Data Generated According to the Parameters Estimated from Dataset 1 With 6 Nodes

Note. Proportions for graphicalVAR are shown on the left of the specific number of time points, while proportions for psychonetrics on the right.

Proportion of Estimated Empty Temporal Networks in the Simulations from Data Generated According to the Parameters Estimated from Dataset 2

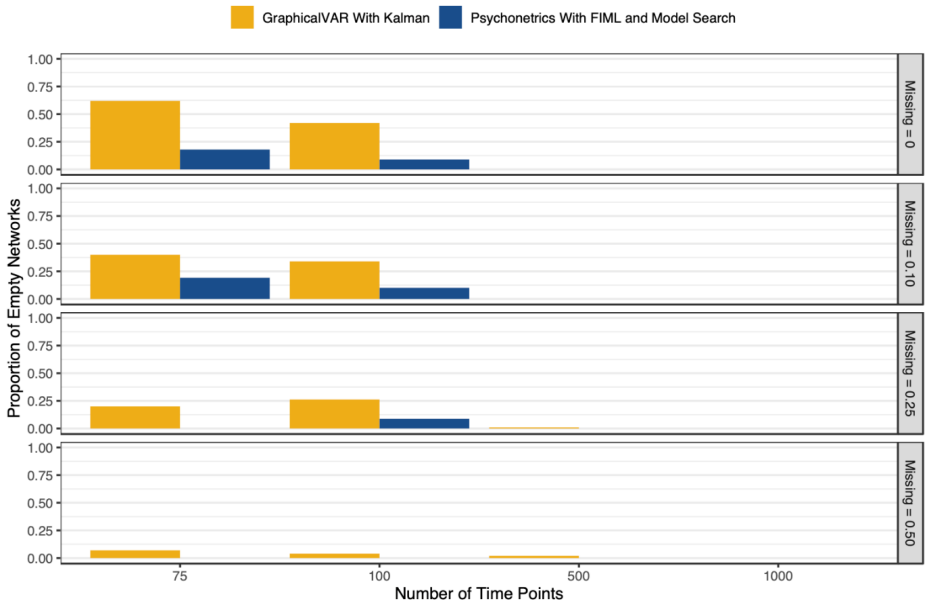

Figure 19 Proportion of Estimated Empty Temporal Networks in the Simulations from Data Generated According to the Parameters Estimated from Dataset 2 With 9 Nodes

Note. Proportions for graphicalVAR are shown on the left of the specific number of time points, while proportions for psychonetrics on the right.

Proportion of Estimated Empty Contemporaneous Networks in the Simulations from Data Generated According to the Parameters Estimated from Dataset 2

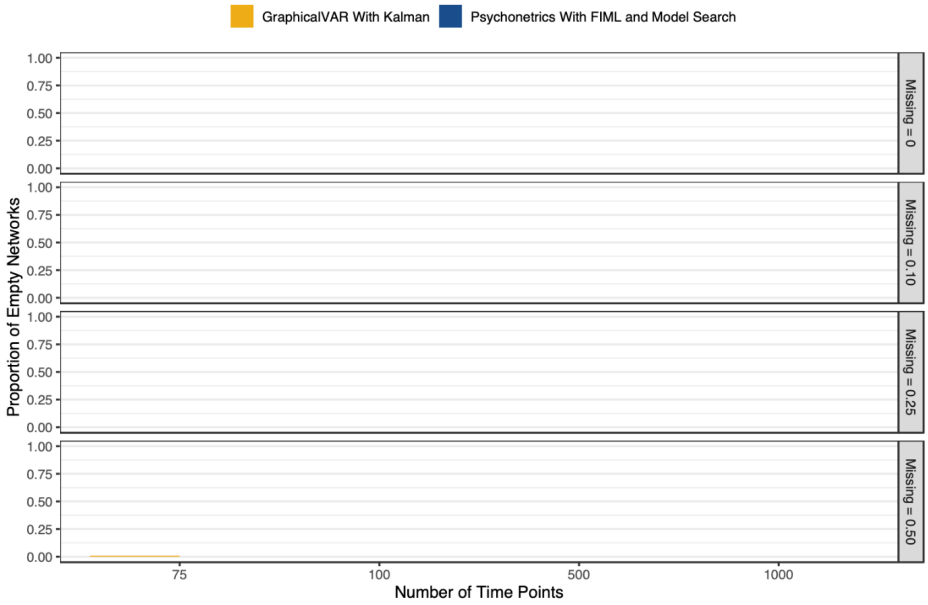

Figure 20 Proportion of Estimated Empty Contemporaneous Networks in the Simulations from Data Generated According to the Parameters Estimated from Dataset 2 With 9 Nodes

Note. Proportions for graphicalVAR are shown on the left of the specific number of time points, while proportions for psychonetrics on the right.