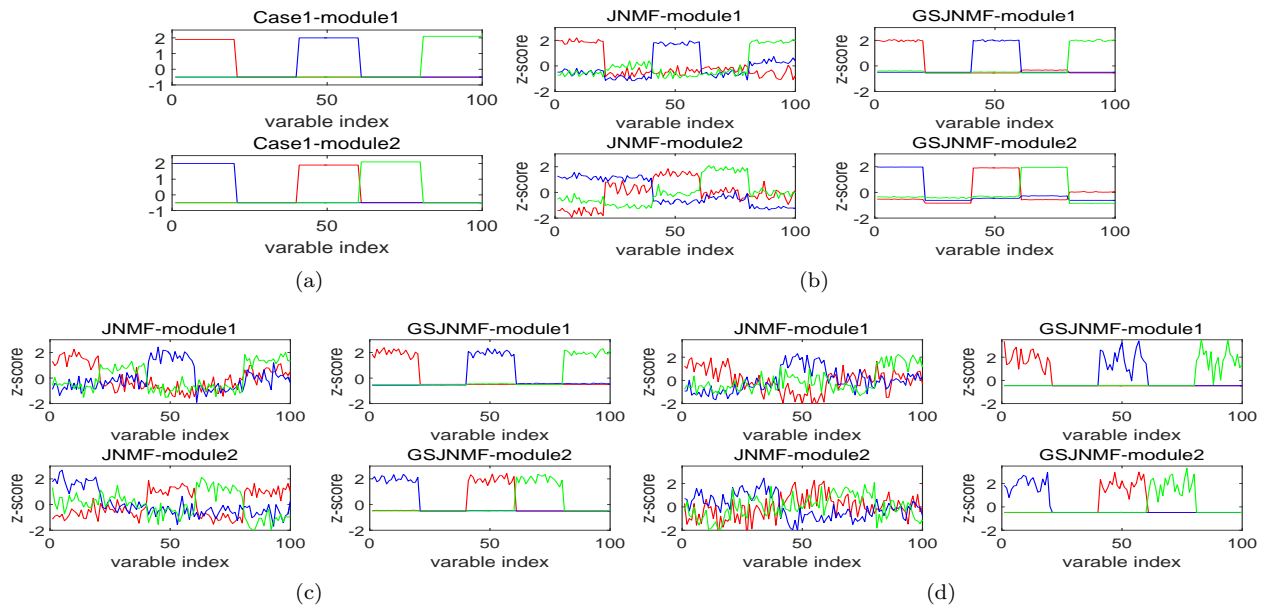# Appendix A

Figure A.1. The z-score of the variables from JNMF and GSJNMF model in Case 1. (a) The variable indices of the correlated module in Case 1. (b) The noise level $\sigma = 0.5$. (c) The noise level $\sigma = 1$. (d) The noise level $\sigma = 1.5$.
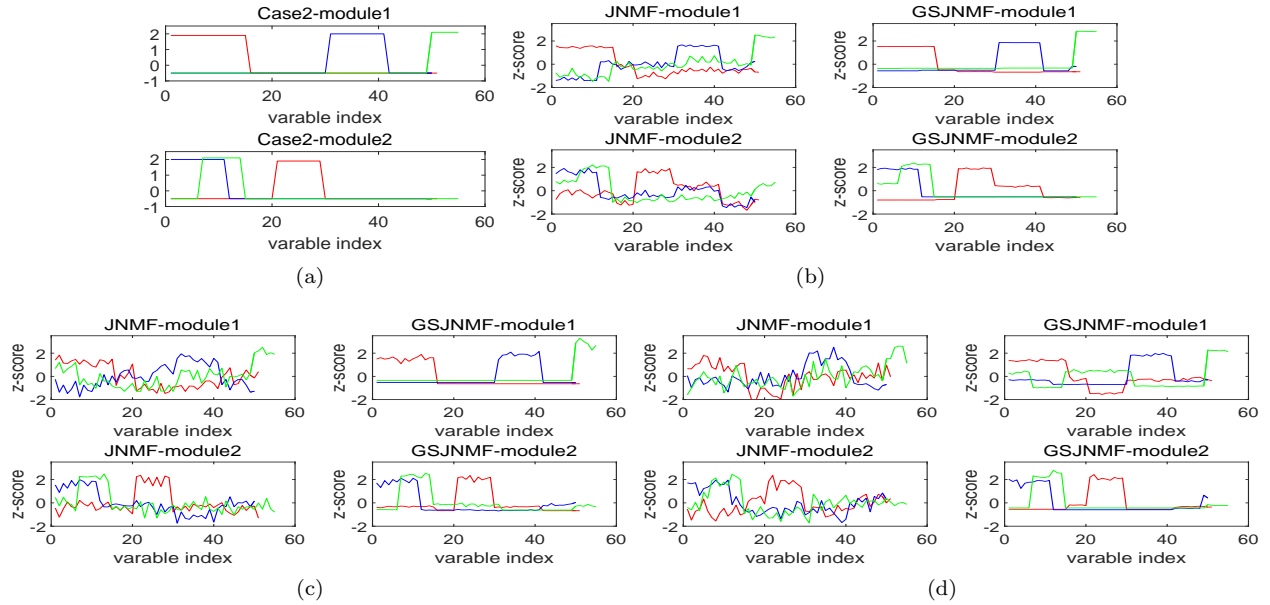
1

Figure A.2. The z-score of the variables from JNMF and GSJNMF model in Case 2. (a) The variable indices of the correlated module in Case 2. (b) The noise level $\sigma = 0.5$. (c) The noise level $\sigma = 1$. (d) The noise level $\sigma = 1.5$.
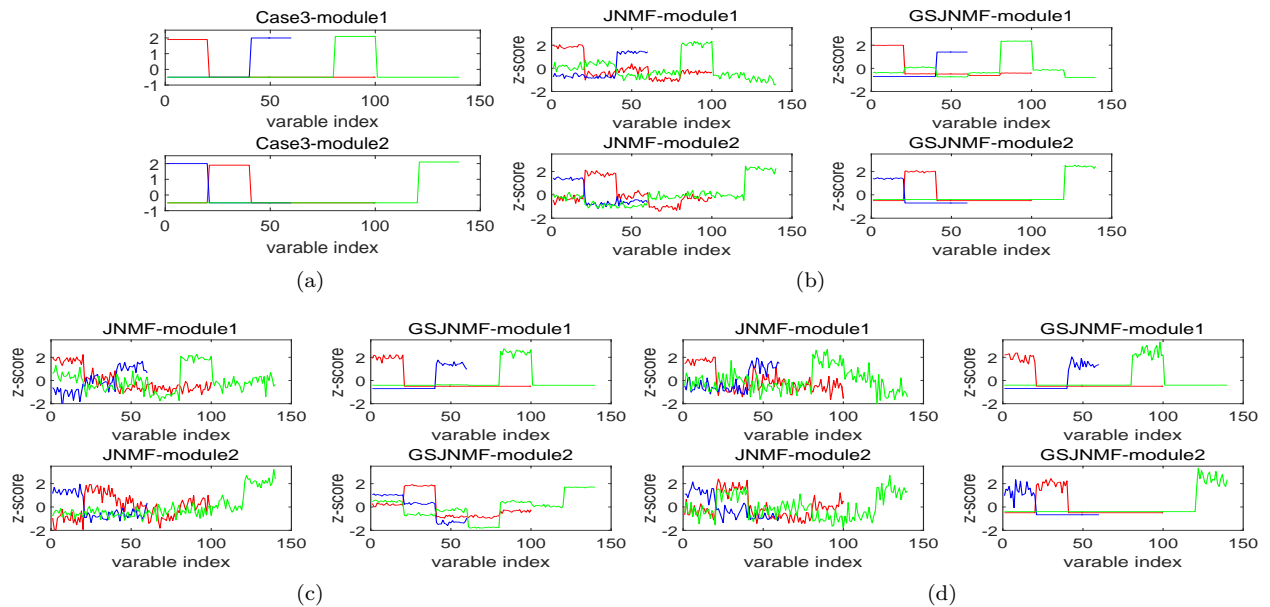

Figure A.3. The z-score of the variables from JNMF and GSJNMF model in Case 3. (a) The variable indices of the correlated module in Case 3. (b) The noise level $\sigma = 0.5$. (c) The noise level $\sigma = 1$. (d) The noise level $\sigma = 1.5$.
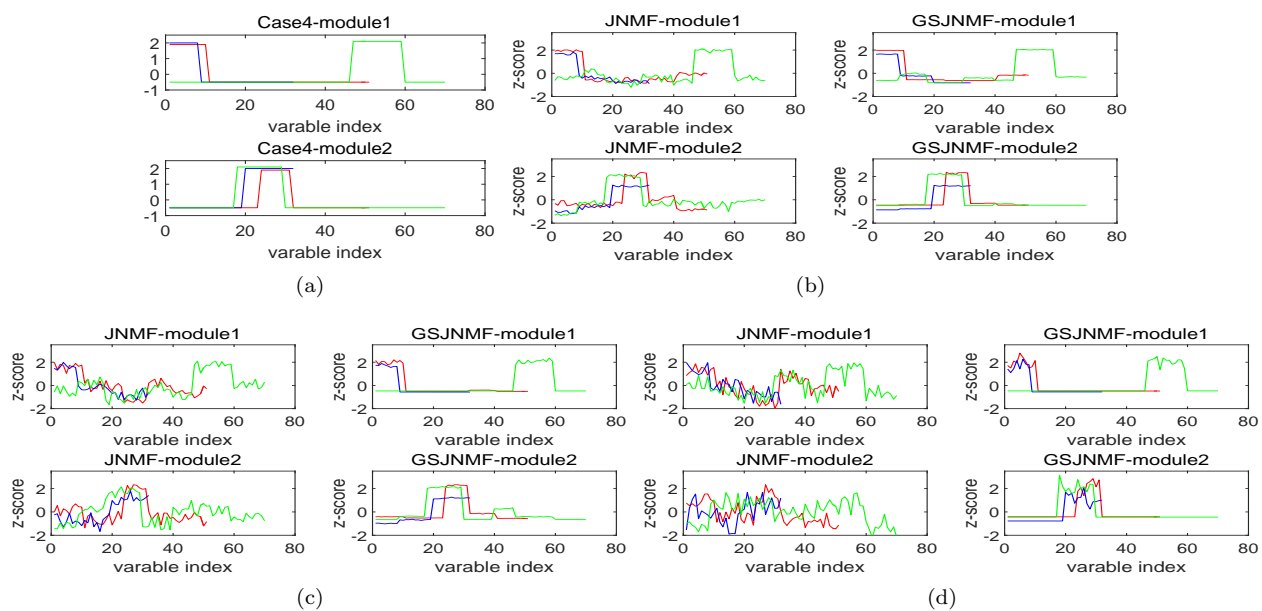
Figure A.4. The z-score of the variables from JNMF and GSJNMF model in Case 4. (a) The variable indices of the correlated module in Case 4. (b) The noise level $\sigma = 0.5$. (c) The noise level $\sigma = 1$. (d) The noise level $\sigma = 1.5$.