Blocked 2 level models

Cluster 2 level

Blocked 3 level

Cluster 3 level

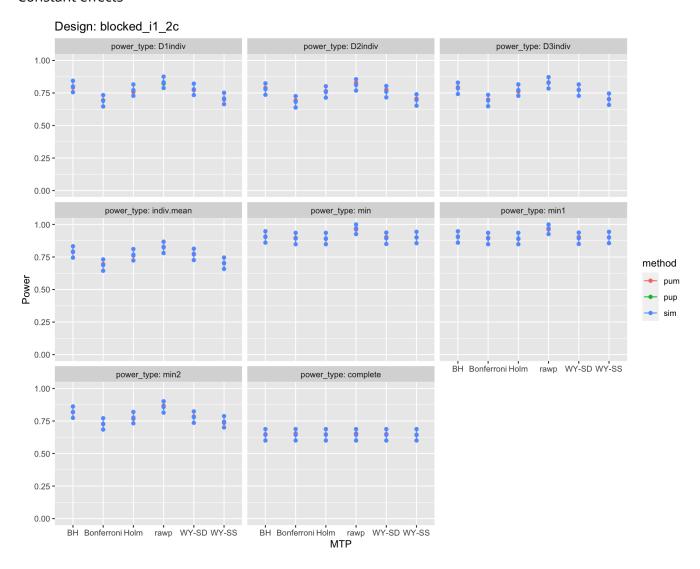
Blocked cluster

# Validate Power: Westfall-Young

Kristin Porter, Zarni Htet, Kristen Hunter June 15, 2021

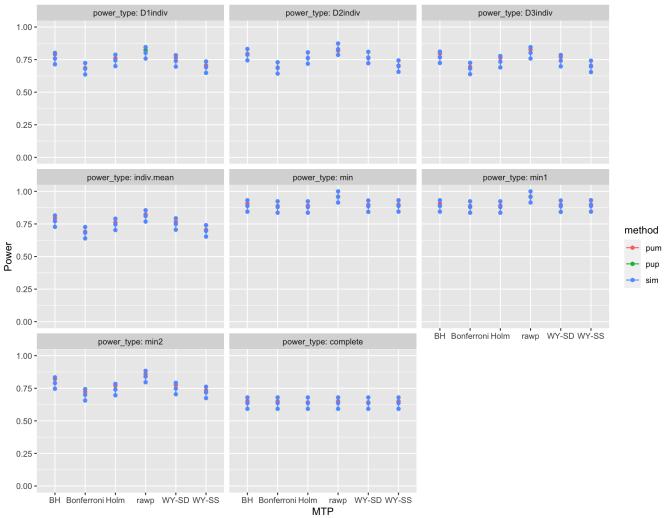
### Blocked 2 level models

#### Constant effects

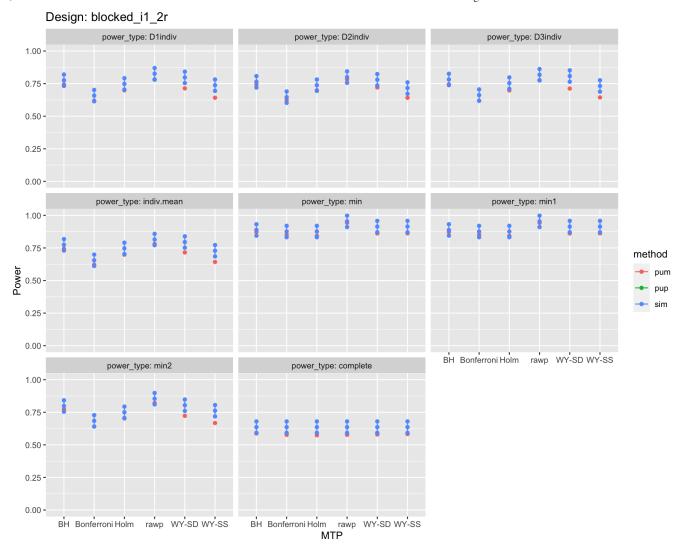


### Fixed effects





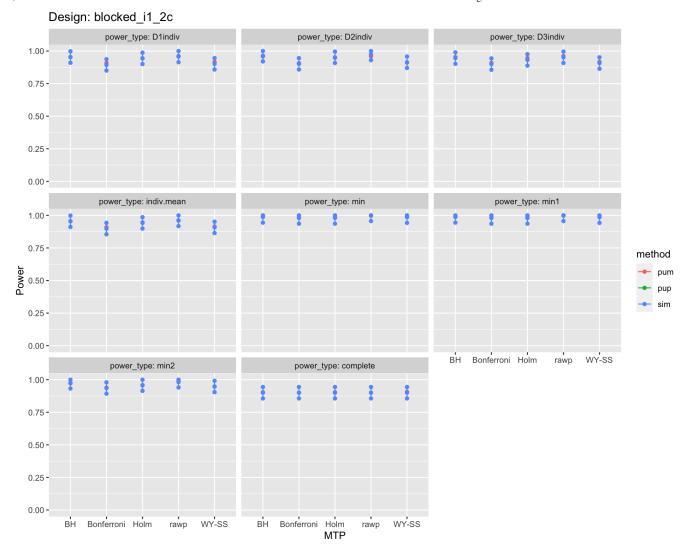
### Random effects



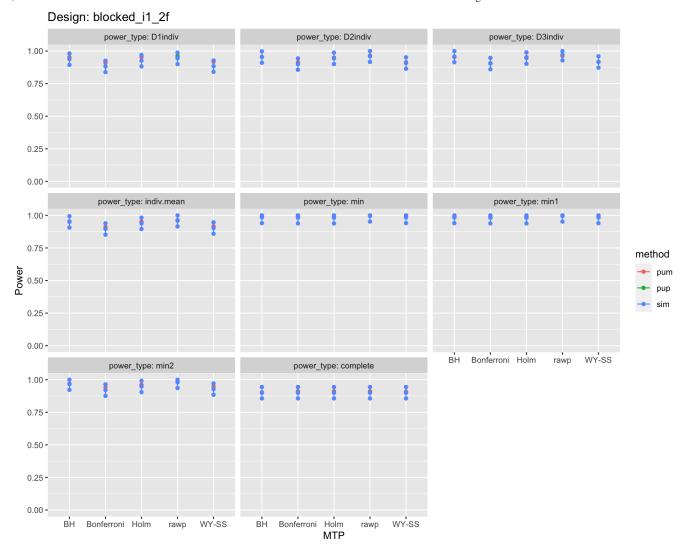
## No discrepancy

Large B=10000 and large J=100

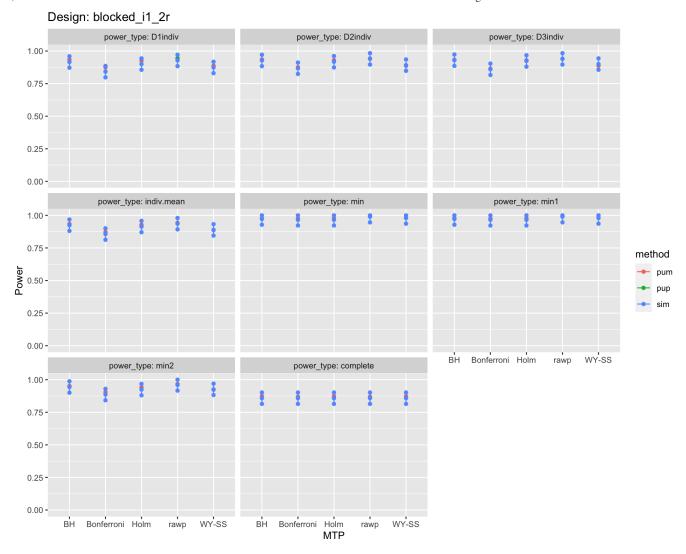
Constant effects



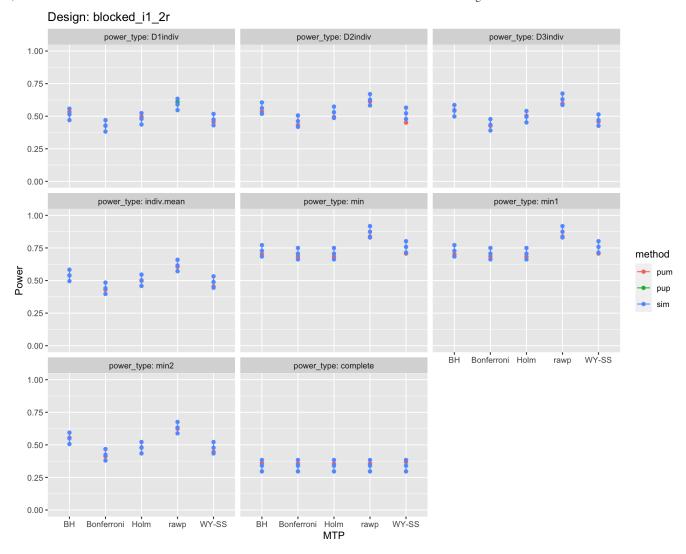
### Fixed effects



### Random effects

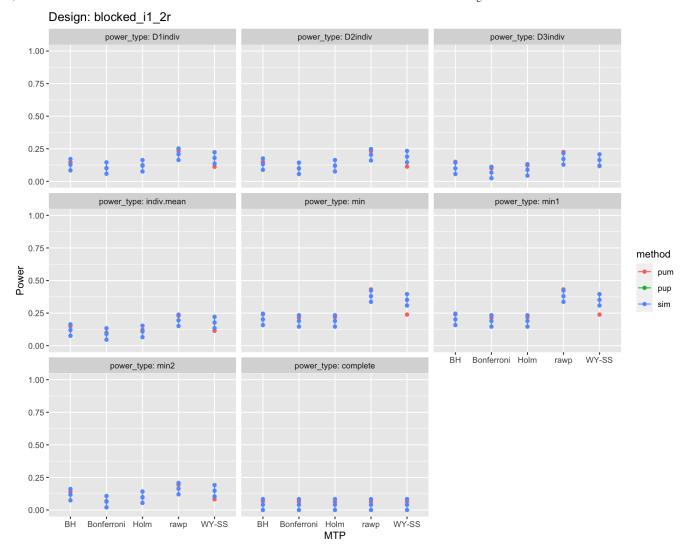


Random effects with large B=10000 and large J=100 with lower power

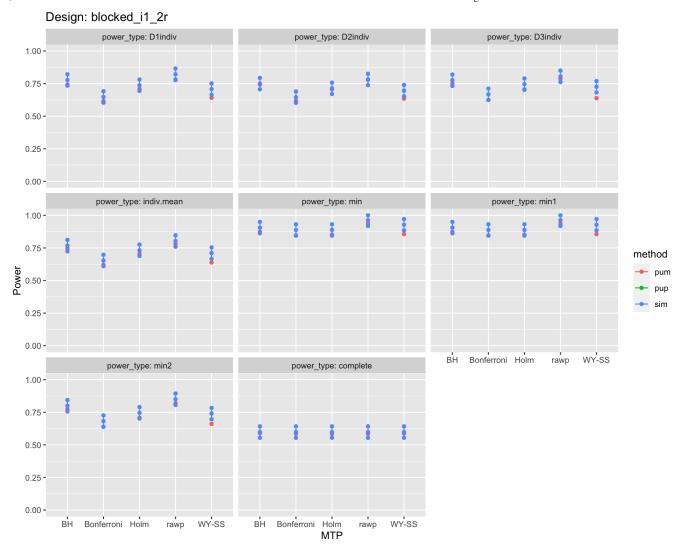


## Different combinations of ${\it B}$ and ${\it J}$

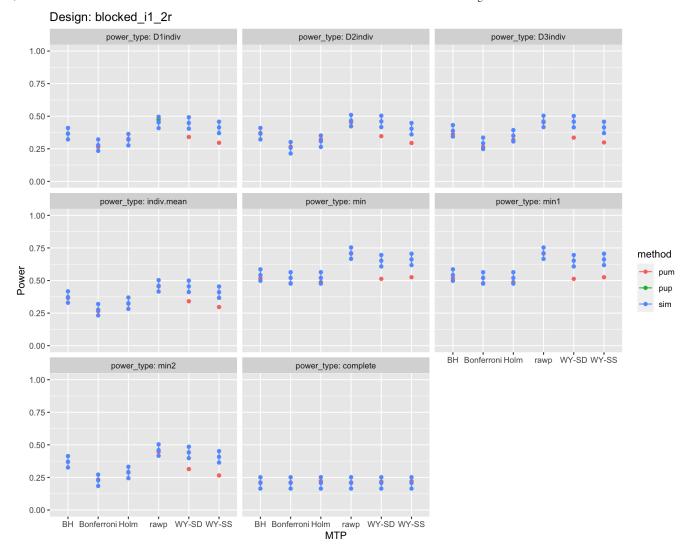
Random effects with small J=15 and medium B=3000



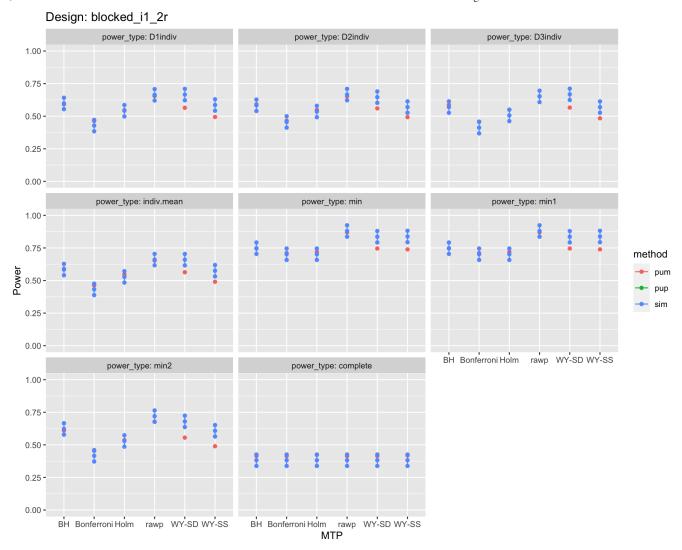
Random effects with small B=200 and large J=60



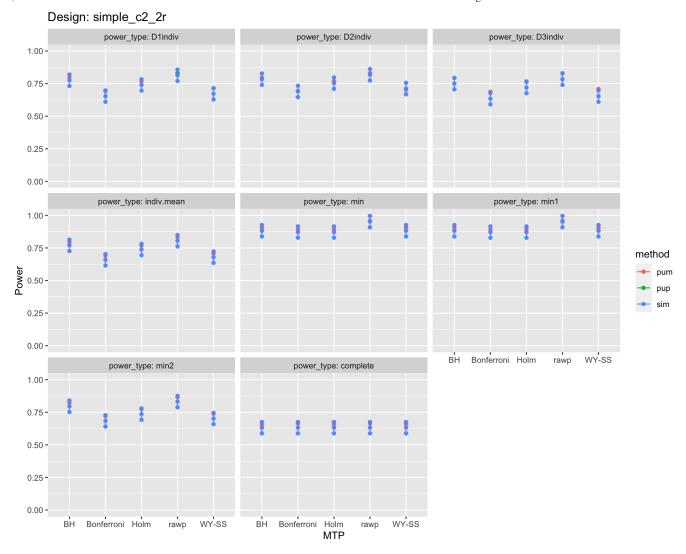
Random effects with large B=10000 and small J=20



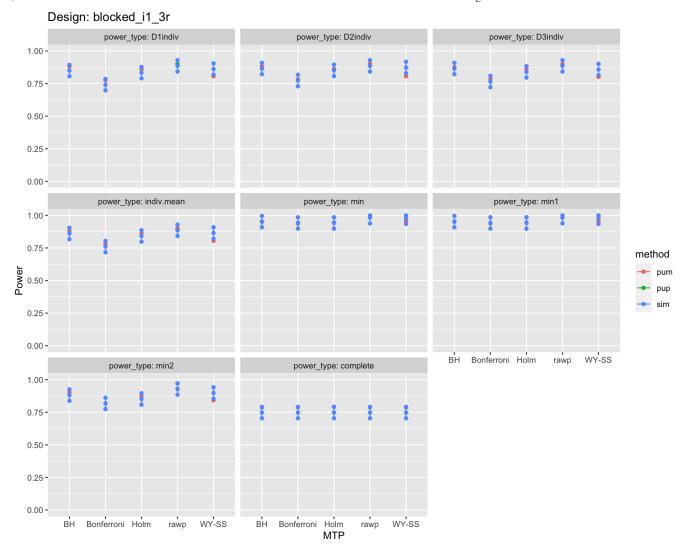
Random effects with large B=10000 and medium J=30



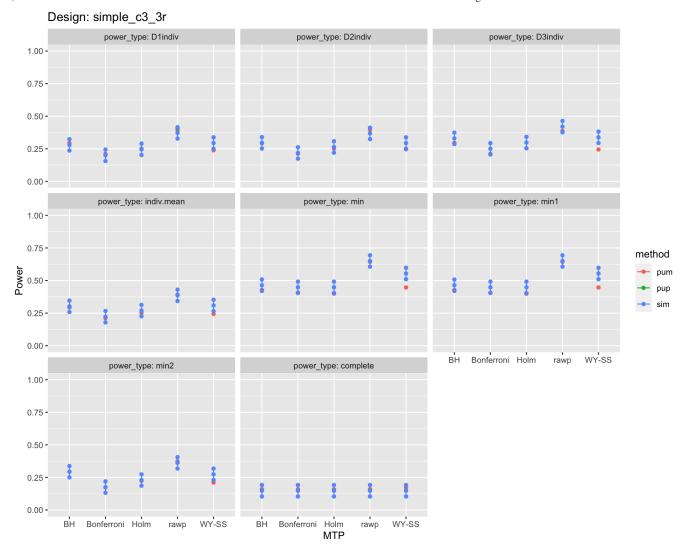
## Cluster 2 level



# Blocked 3 level

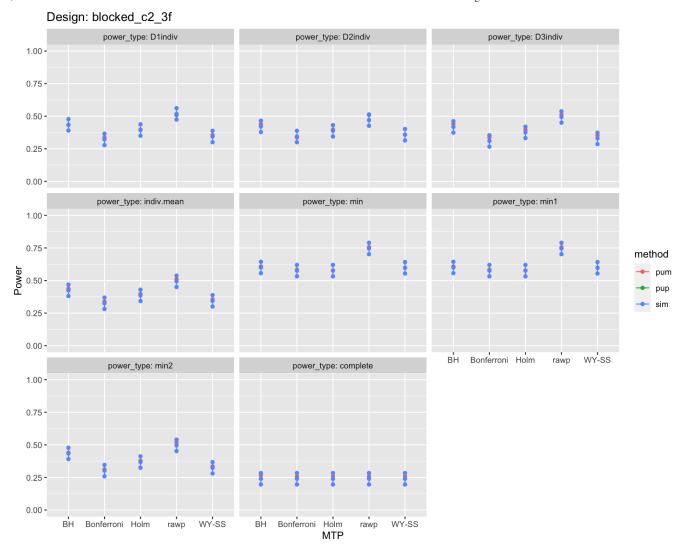


## Cluster 3 level



# Blocked cluster

Blocked cluster, fixed effects



Blocked cluster, random effects



