

## GWAS characteristics

- 1) Number of exposures  
`number_of_exposures`
- 2) GWAS sample sizes  
`sample_size_Xs`  
`sample_size_Y`
- 3) GWAS sample overlap  
`prop_gwas_overlap_Xs_and_Y`

## Conditional variances of phenotypes

- 1) Variance in Y explained by **x**, **U**;  
**x** explained by **U**  
`Y_variance_explained_by_Xs`  
`Y_variance_explained_by_U`  
`Xs_variance_explained_by_U`  
`signs_of_causal_effects`
- 2) Phenotypic, genetic correlation  
between **x**  
`phenotypic_correlation_Xs`  
`genetic_correlation_Xs`

## Causal exposure SNP characteristics

- 1) Number, MAF of causal **x** SNPs  
`number_of_causal_SNPs`
- 2) Variance in **x** explained by **g**  
- Partitioned by UHP, CHP, valid SNPs  
`number_of_UHP_causal_SNPs`  
`number_of_CHP_causal_SNPs`  
`Xs_variance_explained_by_g`  
`Y_variance_explained_by_UHP`  
`U_variance_explained_by_CHP`
- 3) LD between SNPs in **g**  
`LD_causal_SNPs`

## IV selection and simulation scenario

IV LD  $r^2$  pruning  
threshold  
`LD_pruning_r2`  
Size of LD panel  
`N_of_LD_ref`

IV P-value threshold  
`IV_Pvalue_threshold`  
MVMR IV selection method  
`MVMR_IV_selection_type`

*Winner's curse*

Simulation type  
(weak IV or winner's curse)  
`simtype`  
Standardization type  
`MR_standardization`

*Weak instruments*

Fix F-statistic for  
instrument strength  
`fix_Fstatistic_at`