**dagitty model code:**

BMI 1 @-0.407,1.000

Biological\_mother's\_education 1 @-1.280,1.258

Citizenship 1 @-0.456,1.314

Drug%20use O @0.542,0.901

Learning\_disability 1 @-0.465,1.183

Not\_living\_with\_both\_bio\_parents 1 @0.527,1.227

Race 1 @-1.253,0.487

Sex 1 @0.368,0.498

Sexual\_orientation 1 @-0.381,0.781

Victim%20of%20bullying E @-1.540,0.909

BMI Drug%20use Victim%20of%20bullying

Biological\_mother's\_education BMI Drug%20use Learning\_disability Not\_living\_with\_both\_bio\_parents Victim%20of%20bullying

Citizenship Biological\_mother's\_education Drug%20use Not\_living\_with\_both\_bio\_parents Victim%20of%20bullying

Learning\_disability Drug%20use Victim%20of%20bullying

Not\_living\_with\_both\_bio\_parents Drug%20use Learning\_disability Victim%20of%20bullying

Race BMI Biological\_mother's\_education Drug%20use Victim%20of%20bullying

Sex BMI Drug%20use Victim%20of%20bullying

Sexual\_orientation Drug%20use Victim%20of%20bullying

Victim%20of%20bullying Drug%20use

**dagitty model (reduced) code:**

BMI 1 @-0.407,1.000

Biological\_mother's\_education 1 @-1.280,1.258

Drug%20use O @0.542,0.901

Not\_living\_with\_both\_bio\_parents 1 @0.527,1.227

Race 1 @-1.253,0.487

Sex 1 @0.368,0.498

Victim%20of%20bullying E @-1.540,0.909

BMI Drug%20use Victim%20of%20bullying

Biological\_mother's\_education BMI Drug%20use Not\_living\_with\_both\_bio\_parents Victim%20of%20bullying

Not\_living\_with\_both\_bio\_parents Drug%20use Victim%20of%20bullying

Race BMI Biological\_mother's\_education Drug%20use Victim%20of%20bullying

Sex BMI Drug%20use Victim%20of%20bullying

Victim%20of%20bullying Drug%20use

**R code:**

testImplications <- function( covariance.matrix, sample.size ){

library(ggm)

tst <- function(i){ pcor.test( pcor(i,covariance.matrix), length(i)-2, sample.size )$pvalue }

tos <- function(i){ paste(i,collapse=" ") }

implications <- list(c("Race","Sex"),

c("Race","Sexual\_orientation"),

c("Race","Learning\_disability","Biological\_mother's\_education","Not\_living\_with\_both\_bio\_parents"),

c("Race","Learning\_disability","Biological\_mother's\_education","Citizenship"),

c("Race","Citizenship"),

c("Race","Not\_living\_with\_both\_bio\_parents","Citizenship","Biological\_mother's\_education"),

c("Sex","Sexual\_orientation"),

c("Sex","Learning\_disability"),

c("Sex","Citizenship"),

c("Sex","Biological\_mother's\_education"),

c("Sex","Not\_living\_with\_both\_bio\_parents"),

c("Sexual\_orientation","BMI"),

c("Sexual\_orientation","Learning\_disability"),

c("Sexual\_orientation","Citizenship"),

c("Sexual\_orientation","Biological\_mother's\_education"),

c("Sexual\_orientation","Not\_living\_with\_both\_bio\_parents"),

c("BMI","Learning\_disability","Biological\_mother's\_education","Not\_living\_with\_both\_bio\_parents"),

c("BMI","Learning\_disability","Biological\_mother's\_education","Citizenship"),

c("BMI","Learning\_disability","Biological\_mother's\_education","Race"),

c("BMI","Citizenship","Race","Biological\_mother's\_education"),

c("BMI","Not\_living\_with\_both\_bio\_parents","Citizenship","Biological\_mother's\_education"),

c("BMI","Not\_living\_with\_both\_bio\_parents","Biological\_mother's\_education","Race"),

c("Learning\_disability","Citizenship","Biological\_mother's\_education","Not\_living\_with\_both\_bio\_parents"))

data.frame( implication=unlist(lapply(implications,tos)),

pvalue=unlist( lapply( implications, tst ) ) )

}