

1 Satisfying housework division? Gender role beliefs and religion as moderators of housework
2 division and satisfaction

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Satisfying housework division? Gender role beliefs and religion as moderators of housework division and satisfaction

Analysis Strategy

To test our hypotheses that gender role beliefs and religion moderate the relationship between housework distribution and satisfaction, we used multilevel modeling and the Actor-Partner Interdependence Model (APIM; Kenny, Kashy, & Cook, 2006). The APIM measures the effect of the explanatory variables for both members in a dyad at the same time. This way we get both the actor and partner effects. We will be able to see how one partner's housework distribution effects both their own satisfaction with the housework distribution and their partners satisfaction with the housework distribution. In terms of moderation, we will get an actor effect moderated by each members gender role beliefs and a partner effect moderated by each members gender role beliefs and religion. The APIM measures proportion of variance in satisfaction that occurs between dyads vs the total variation present. In other words, how much of the variation in satisfaction is caused by the dyad. This allows us to estimate satisfaction with the distribution of housework is a function of both housework distribution and the the random errors at both the individual and dyad level. This accounts for the non-independent data.

In order to calculate our APIM's we had to put our data into a paired data structure, where both the actor and the partner's data was all contained in one line. This way we could calculate the actor and partner effects for both the husbands and wives.

Main Results

Gender Role Beliefs. The summary table above is just of the actor partner effects with no moderation. The only relationship that is statistically significant is the one between the wife's satisfaction level and her average housework. We know this because the p-value for `as.factor(genderE_A)1:Cavg_housework_female_A` is 0.0041, which is less

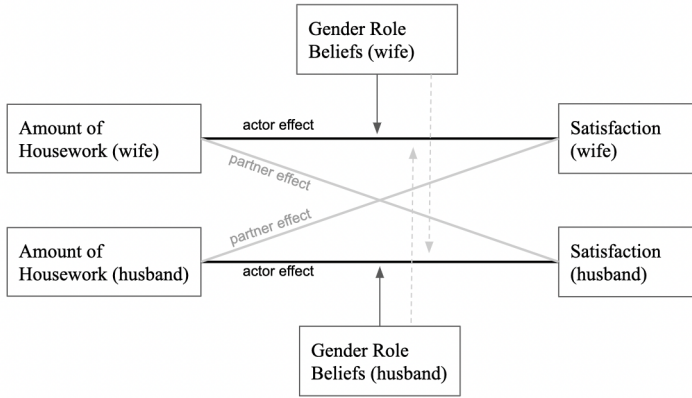


Figure 1. Actor Partner Effects in the APIM.

than 0.05. Since the value for this relationship is -0.029132, it signifies that as the wife's average housework increases, her satisfaction level decreases.

as.factor(genderE_A)0:Cavg_housework_female_A:Cavg_grbs_P = For men, keeping their average female-typed housework tasks constant, for every one unit increase in avg grbs, their housework satisfaction increases by 0.02.

For women, gender role beliefs significantly moderated the relationship between her own housework distribution and her satisfaction with the housework distribution. The moderation effect was 0.07 ($p = 0.00$, $se = 0.02$). For every one unit increase in her gender role beliefs, her satisfaction increases by 0.07 while keeping housework distribution constant. Again for women, her partners gender role beliefs significantly moderated the relationship between her own housework distribution and her satisfaction with the housework distribution. The moderation effect was -0.06 ($p = 0.01$, $se = 0.02$). For every one unit increase in her partners gender role beliefs, her own satisfaction increased by -0.06 while keeping housework distribution constant.

Looking at the summary table above, these are the relationships that are statistically significant: as.factor(genderE_A)1:Cavg_housework_female_A:Cavg_grbs_P, 8.742833e-03 as.factor(genderE_A)1:Cavg_housework_female_A:Cavg_grbs_A,

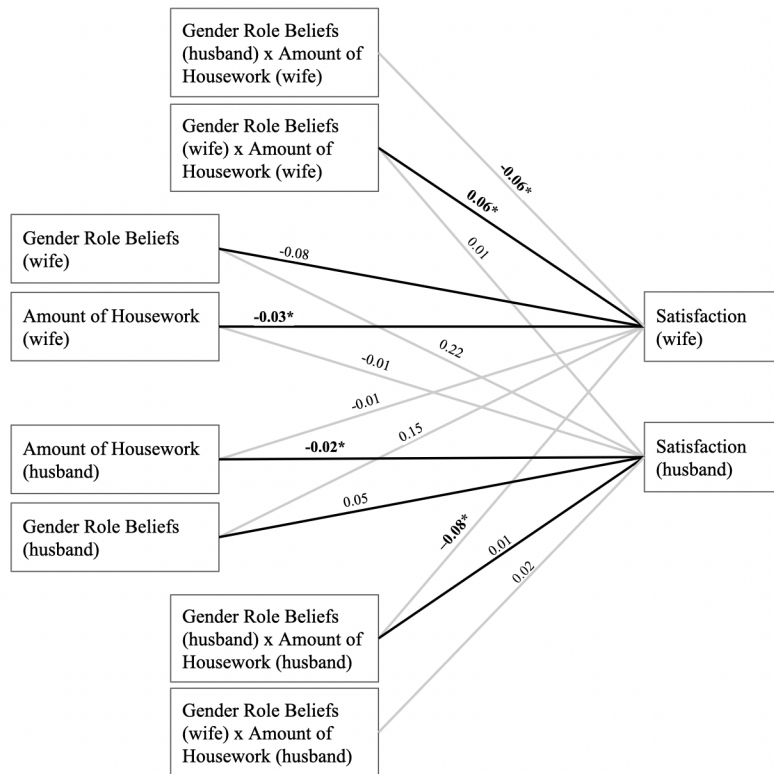


Figure 2. Moderation effects in the APIM.

47 8.408625e-04 as.factor(genderE_A)0:Cavg_housework_female_A, 2.259373e-02

48 Only looking at the three way interactions with gender we found two significant
 49 gender differences in the moderation effects. The interaction between actors housework
 50 distribution and their own gender role beliefs was significantly different for husbands and
 51 wives with an estimate of 0.06 ($p=0.03, se=0.03$). The moderation effect of ones own
 52 gender role beliefs was 0.06 units higher for women than men meaning the moderation
 53 effect of gender role beliefs had a significantly larger positive effect on satisfaction for wives
 54 than for husbands.

55 In addition the interaction between actors housework distribution and their partners
 56 gender role beliefs was significantly different for husbands and wives with an estimate of
 57 $-0.08(p=0.01, se = 0.03)$. The moderation effect of ones partners gender role beliefs was
 58 -0.08 units lower for women than men meaning the moderation effect of her husbands

gender role beliefs had a significantly larger negative effect on satisfaction compared to how her gender role beliefs effected the relationship between housework distribution and satisfaction for her husband.

```
wife_plot<- ggplot(wives,aes(
  x = avg_housework_female_A,
  y = housework_satisfied_A,
  color = grbs_hl_A, na.rm = TRUE)
)+
  geom_point(na.rm = TRUE)+
  geom_smooth(method = "lm")+
  labs(x = "Housework distribution", y = "Satisfaction", title ="Relationship of wife's

## $title
## [1] "Relationship of wife's housework distribution and gender role beliefs"
##
## attr(,"class")
## [1] "labels"
```

As the housework distribution increases for wives with low gender role beliefs, their satisfaction decreases. This makes sense because wives with low gender role beliefs would believe in an equal housework distribution where she wasn't doing majority of the housework tasks. As the housework distribution increases for wives with high gender role beliefs, their satisfaction has a very slight decrease, but it stays more or less the same.

As the housework distribution increases for wives whose husbands have low gender role beliefs, their satisfaction remains constant. As the housework distribution increases for wives whose husbands have high gender role beliefs, their satisfaction decreases.

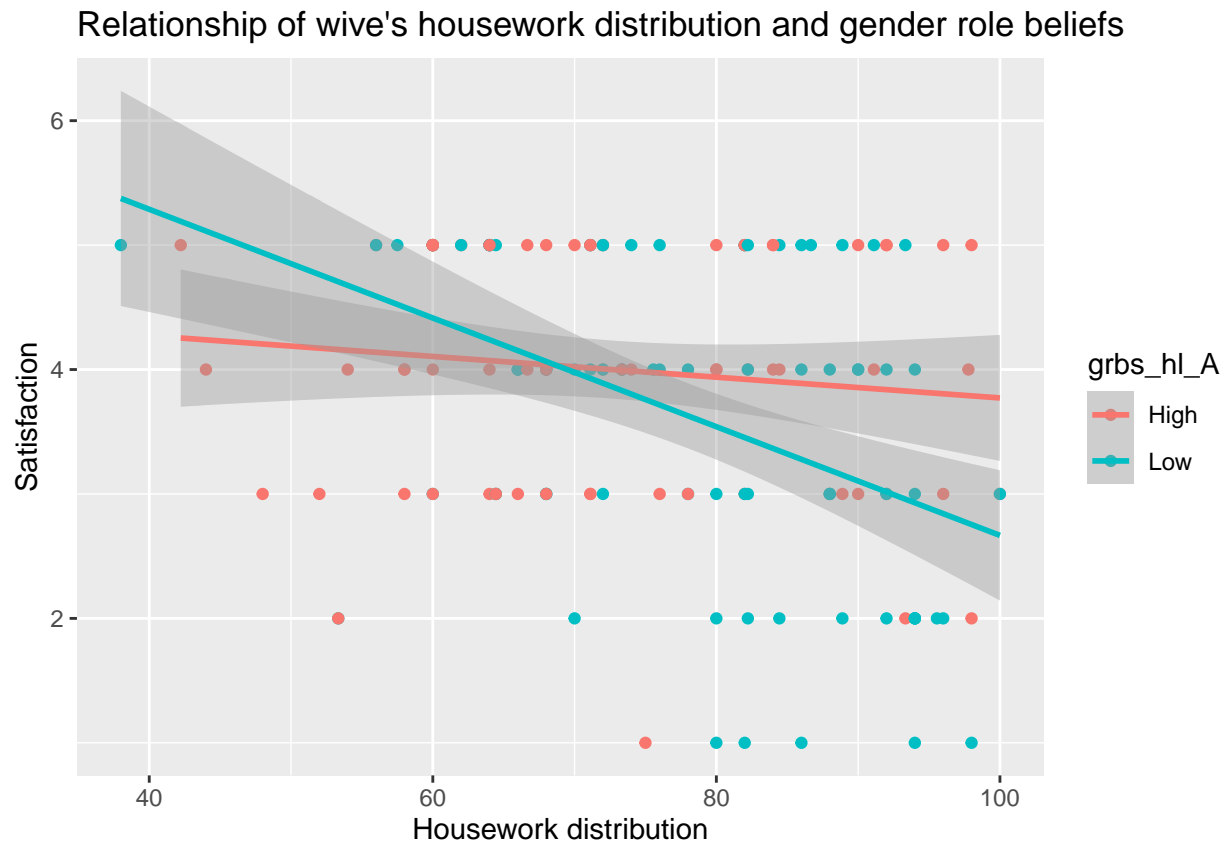


Figure 3. caption for graph

Religion. The two intercept model gives us the two coefficients for men and women.

None of the interactions between actors housework distribution and their religion was significantly different for husbands or wives. ($p \geq 0.19, se = 0.08$). None of the results illustrate that the average female-typed tasks completed by the actor or partner from the husband and wife's perspective was related to their religion.

Exploratory Results

Mediation is a way for researchers to explain the process of one variable affecting another variable. It is essentially a possible explanation for the relationship between the two variables. Mediation assesses whether the effects of the X variable (the independent variable) are significant on the Y variable (the dependent variable), through a third

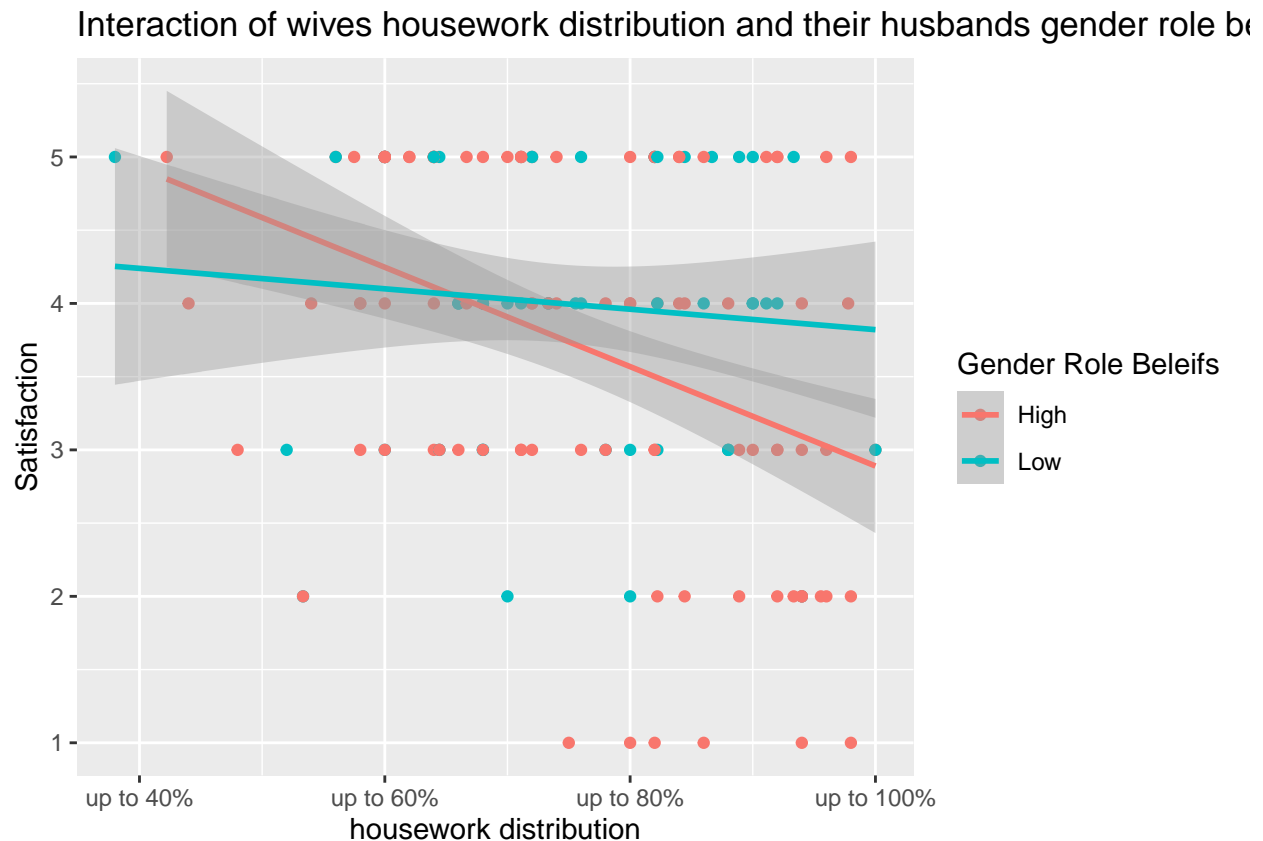


Figure 4. caption for graph

variable called M (the mediator).

Based on our primary analysis so far, we are interested in further exploring how to concept of gatekeeping fits into our research. We want to explore whether gatekeeping is a mediator variable in our relationship between the partners' gender role beliefs and housework tasks. Are women with higher gender role beliefs more likely to gatekeep housework tasks?

Interpretation: All four paths are positive and statistically significant: Seeing your partner positively leads you and your partner to be more satisfied. All four of these paths could potentially be mediated.

###Step 2: Testing the effects of the grbs (X) on the mediators of Wife and Husband gatekeeping (M).

Interpretation: All four paths of the “a” paths are negative and statistically significant: Seeing your partner positively leads you and your partner to have lower levels of tension.

Steps 3 and 4: Testing the effects of the Tension (M) and Other Positivity (X) on the Satisfaction (Y)..

I didn't change anything from here on yet!

Interpretation: Step 3: All four “b” paths from Tension to Satisfaction are negative and three are statistically significant: Seeing more tension in the relationship leads to less satisfaction for you and your partner, even after controlling for how positively you and your partner see each other. The one effect that is not statistically significant is the effect of male's level of tension on his wife's level of satisfaction.

Step 4: All paths from Other Positivity to Satisfaction, the direct of c' , are positive and statistically significant: Seeing your partner positively leads you and your partner to have higher levels of satisfaction, even after controlling for yours and your partner's tension.

Testing Indirect Effects Using Multilevel Modeling

- Sobel Test
 - Save effect estimates and standard errors.
 - Compute Z test.
 - Low power.
- Separately Test a and b
 - Old fashioned.
 - But may be making a comeback.
- Bootstrapping
 - Difficult currently

- See Pituch & Stapleton (Multivariate Behavioral Research, 2008) for a discussion of how to bootstrap in MLM.
- Option available in some MLM programs. Only for effects but not indirect effects.
- Monte Carlo Method
 - Appears to be the method of choice for MLMeM

Sobel Test

MCMAM Selig & Preacher, 2008

```
# Function that returns mcmc CI.
# mcmamCI <- function(aval, bval, varA, varB, n){
# code (Selig & Preacher, 2008).
  #require(MASS)

  a=aval
  b=bval
  rep=n
  conf=95
  pest=c(a,b)
  acov <- matrix(c(varA, 0, 0, varB),2,2)

  mcmc <- mvrnorm(rep,pest,acov,empirical=FALSE)

  ab <- mcmc[,1]*mcmc[,2]
```

```

153   low=(1-conf/100)/2
154   upp=((1-conf/100)/2)+(conf/100)
155
156   LL=quantile(ab,low)
157   UL=quantile(ab,upp)
158   LL=format(LL,digits=3)
159   UL=format(UL,digits=3)
160
161   CI <- cbind.data.frame(LL, UL)
162   return(CI)
163

```

164 For example, we can find the MCMC 95% CI for the **Actor-Actor: Husband**
165 indirect effect like this.

```

166   act_H_a <- coef(summary(apim_stp2))[3,1] act_H_a_se <-
167   coef(summary(apim_stp2))[3,2] act_H_b <- coef(summary(apim_stp3))[7,1]
168   act_H_b_se <- coef(summary(apim_stp3))[7,2]
169
170   mcmamCI(act_H_a, act_H_b, act_H_a_se^2, act_H_b_se^2, 3000) #confidence
171   intervals > does it include 0?
172

```

172 Summary of Indirect Effects

Name	Indirect Effects	Estim.	p	95% CI ^a Lower	Upper
Actor-Actor: W	Xw -> Mw -> Yw	0.165	<.001	0.086	0.257
Actor-Actor: H	Xh -> Mh -> Yh	0.099	<.001	0.042	0.172
Partner-Partner: W	Xw -> Mh -> Yw	0.027	.090	-0.003	0.070

Name	Indirect Effects	Estim.	p	95% CI ^a Lower	Upper
Partner-Partner: H	Xh -> Mw -> Yh	0.034	.024	0.003	0.079
Actor-Partner: W	Xh -> Mh -> Yw	0.038	.086	-0.005	0.092
Actor-Partner: H	Xw -> Mw -> Yh	0.060	.004	0.017	0.115
Partner-Actor: W	Xh -> Mw -> Yw	0.094	.023	0.013	0.186
Partner-Actor: H	Xw -> Mh -> Yh	0.072	.003	0.023	0.134

^aBootstrapped CI using MCM (The above table was produced by an Excel spreadsheet: IndirectEffects.xls.)

Summary Direct and Total Effects

Name	Direct Effects	Direct	p	Total ^a	% Mediated
Actor: Wife	Xw -> Yw	0.185	.007	0.378	50.9
Actor: Husband	Xh -> Yh	0.291	<.001	0.424	31.5
Partner: Wife	Xh -> Yw	0.190	.010	0.321	40.9
Partner: Husband	Xw -> Yh	0.129	.028	0.262	50.8

^aComputed as $ab + c'$ and c with results agreeing.

Note that % Mediated equals ab/c or equivalently $1 - c'/c$. This value can be larger than one or negative. First, make sure that c is substantial. If it is, then if % Mediated is greater than 100 or negative, you have “inconsistent mediation”: the direct and indirect effects are of opposite signs.