

Feeling Appreciated Buffers Against the Negative Effects of Unequal Division of Household Labor on Relationship Satisfaction



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Abstract

Decades of research from across the globe highlight unequal and unfair division of household labor as a key factor that leads to relationship distress and demise. But does it have to? Testing a priori predictions across three samples of individuals cohabiting with a romantic partner during the COVID-19 pandemic ($N = 2,193$, including 476 couples), we found an important exception to this rule. People who reported doing more of the household labor and who perceived the division as more unfair were less satisfied across the early weeks and ensuing months of the pandemic, but these negative effects disappeared when people felt appreciated by their partners. Feeling appreciated also appeared to buffer against the negative effects of doing less, suggesting that feeling appreciated may offset the relational costs of unequal division of labor, regardless of who contributes more. These findings generalized across gender, employment status, age, socioeconomic status, and relationship length.

Keywords

interpersonal relationships, relationship satisfaction, gratitude, division of labor, open data, open materials

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The quality and stability of romantic relationships are among the strongest predictors of overall health and well-being (Holt-Lunstad et al., 2010; Kansky, 2018; van Eldik et al., 2020), making romantic relationships a critical focus across disciplines. Decades of studies from across the globe highlight unequal and unfair division of household labor as a key factor that leads to relationship distress and demise (e.g., Adams, 1965; Qian & Sayer, 2016; Shockley & Shen, 2016; Thielemans et al., 2021; Van Yperen & Buunk, 1990). Deciding who makes dinner or pays the bills is a top source of conflict for couples (Jackson et al., 2016) that has far-reaching consequences. For example, in a sample of over 3,000 Danish couples, Thielemans and colleagues (2021) found that couples with the most unequal division of labor were the most at risk for relationship dissolution. But are people always less satisfied when they do more

around the house than their partner? We propose an important exception to this rule: Doing more might not have the same negative effects when people generally feel appreciated by their partners.

Feeling appreciated—feeling recognized and valued rather than taken for granted—helps couples maintain high-quality relationships (e.g., Algoe, 2012; Gordon et al., 2012; ter Kuile et al., 2017), buffers against relationship insecurities (Park et al., 2019) and negative conflict patterns (Barton et al., 2015), and has been identified as an important factor in caregiving contexts (Amaro, 2017). Appreciation is also associated with how people feel about their household contributions.

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Feeling appreciated for doing chores can help people reframe the chores from a cost to a benefit (Berger & Janoff-Bulman, 2006), and people who perceive the division of labor as more equal and fair feel more recognized for their contributions (Blair & Johnson, 1992; Hawkins et al., 1995; Klumb et al., 2006; Mikula et al., 2009). Here, we approached the association between appreciation and division of labor from a new angle. We examined a priori predictions about the buffering effects of feeling appreciated on concurrent relationship satisfaction and changes in relationship satisfaction over time when people do not see household labor as equally divided. We also examined satisfaction with the division of labor itself, as well as expectations of future relationship satisfaction, which is a strong predictor of future relationship outcomes, such as divorce (Baker et al., 2017).

We gathered our data during the COVID-19 pandemic, a period when couples spent more time at home with less outside help, often caring for children, and experienced significant changes in employment, including working from home. These lifestyle changes resulted in increased domestic labor as well as shifts in how labor was divided between partners (Craig & Churchill, 2021; Shafer et al., 2020; Shockley et al., 2021; Waddell et al., 2021), making the pandemic an especially relevant context in which to examine division of labor and the potential buffering effects of feeling appreciated.

The Current Research

At the beginning of the pandemic, we assessed division of labor, appreciation, and relationship satisfaction in three different samples as part of larger pandemic-related projects. In two of the three samples, participants completed four follow-up assessments spanning 9 and 6 months (samples B and C).

In addition to testing our main prediction that feeling appreciated would buffer against the relationship costs of doing more of the household labor, we also tested several additional questions and alternative explanations. First, perceived unfairness plays an important role in how division of labor affects relationships (Adams, 1965; Shockley & Shen, 2016). Even when doing more household labor, people may perceive this as fair if their partner does more in other areas (e.g., paid labor) or if doing more aligns with their ideology (e.g., traditional gender-role beliefs; Lavee & Katz, 2002). Yet when the division is perceived as unfair, inequity is particularly detrimental, undermining individual and relationship well-being (Adams, 1965; Shockley & Shen, 2016). Thus, we tested whether feeling appreciated would attenuate the costs of contributing more even when those contributions were perceived as unfair.

Statement of Relevance

The quality and stability of romantic relationships are among the strongest predictors of individuals', couples', and families' overall health and well-being. Hence, romantic relationships are a critical focus of researchers across disciplines. Unequal and unfair division of household labor are key factors that predict relationship distress and demise, and household chores are a top-cited source of conflict in couples. Although an equal and fair distribution of labor between partners is ideal, inequality is common: More than half of our participants reported that their division of labor was uneven or unfair. Our findings from samples in the United States and Canada provide a new way of thinking about division of labor, revealing that the costs of bearing more of the household burden may exist only when people feel taken for granted by their partners. In contrast, people with more appreciative partners maintain satisfaction even when the division of household labor is unequal.

Second, evidence of the gendered nature of household labor is robust: Women do more in mixed-gender couples, even among dual-earning couples (Shockley & Shen, 2016). Indeed, work on division of labor frequently focuses on gender. Accordingly, we examined gender differences in our primarily mixed-gender samples, including whether any buffering effects of feeling appreciated differed by gender. On the basis of past work, we expected women to report doing more household labor. However, we did not expect that the benefits of feeling appreciated would differ by gender.

Third, household labor receives much of the attention in the literature on division of labor (Shockley & Shen, 2016), but couples must also divide up other types of labor, including paid labor and child care. We assessed these additional areas of labor in two of our samples (samples A and B) to test whether the predicted buffering effects of feeling appreciated were consistent across different domains or specific to household labor. We also considered the average across labor domains, given that people may contribute less to household labor if they are contributing more in other domains. Although the main effects of division of labor on relationship satisfaction might differ by domain (Shockley & Shen, 2016), we had no theoretical reason to expect differences in the buffering effect of feeling appreciated. Additionally, given that household contributions may differ depending on employment status, we included

employment status as a covariate and moderator in our analyses. Finally, we tested whether our results differed depending on several relevant factors, including socioeconomic status, age, and relationship duration, as well as whether the predicted effect held when we controlled for physical and mental health, critical variables likely to affect both division of labor and feelings about one's relationship during the pandemic.

Method

Sample A

Overview. Sample A included data from 1,195 participants (including 135 couples) in the United States and Canada who completed a single assessment between April 20, 2020, and February 12, 2021.

Participants. Participant demographics for all three samples are shown in Table S1 in the Supplemental Material available online. For sample A, we aimed for 1,000 participants and at least 100 couples on the basis of feasibility and a priori power analyses conducted for sample B (see the Method section for sample B). Data collection is ongoing, but we report here on analyses from 1,195 participants who met inclusion criteria (i.e., completed at least 60% of the surveys and reported paying attention); 925 participated in the survey individually, and 270 participated with a romantic partner (135 couples). Participants were recruited using ads on social media (Facebook, Twitter, Craigslist, Reddit). The study was open to individuals in the United States and Canada who were at least 18 years old, in a romantic relationship, and cohabiting with their partner during the pandemic. Although they were not required to do so, we encouraged participants to invite their partner to complete the survey as well. Those who were willing received a link and a dyad ID to share with their partner. Participants were volunteers and did not receive compensation for their participation. Participants were informed that initial results would be posted online at the end of the first month of data collection. The study was reviewed by the University of Michigan Institutional Review Board (IRB) and was found to be exempt from IRB approval.

Measures. Table S2 in the Supplemental Material displays descriptive statistics for all primary measures, and Table S4 in the Supplemental Material displays correlations between key variables. We assessed feeling appreciated with three items from the Appreciation in Relationships (AIR) Scale (Gordon et al., 2012): "My partner often takes me for granted" (reverse scored), "My partner makes sure I feel appreciated," and "When I am with my partner, sometimes they will look at me excitedly

and tell me how much they appreciate me." These items were selected as the consistently highest-loading items in factor analyses from multiple data sets using the full scale. The items were rated from 1 (*completely disagree*) to 7 (*completely agree*) and were averaged to create a mean score; higher scores indicated feeling more appreciated ($\alpha = .86$).

Perceived division of labor was assessed with the question, "How has the division of labor been handled since the pandemic began?" This was asked for three separate domains: household tasks, child-related tasks (when relevant), and financial contributions ($-2 = all\ me$, $-1 = more\ me$, $0 = equal$, $1 = more\ my\ partner$, $2 = all\ my\ partner$). Analyses were conducted on the separate items as well as on their average (all three items were used if people reported child-related tasks; otherwise the average of household and financial contributions was used).

Relationship satisfaction was assessed in two ways. First, relationship satisfaction over the prior week was measured by asking, "In the past week, how satisfied have you been with . . . your relationship overall?" ($1 = not\ at\ all\ satisfied$, $5 = completely\ satisfied$). Second, expected changes in relationship satisfaction were measured by asking, "Assuming that the pandemic is not resolved quickly and your current situation continues, how do you expect your feelings and experiences will change in the weeks and months ahead relative to how you feel right now?" This question was asked in relation to several criteria, including our variable of interest, "Your overall relationship satisfaction" ($1 = less/lower$, $5 = no\ change$, $10 = more/higher$).

We also assessed satisfaction with division of labor for each domain by providing participants with the question, "How satisfied are you with the division of labor since the pandemic began?" Each domain was listed below the question with a separate Likert-type scale ($1 = not\ at\ all\ satisfied$, $5 = completely\ satisfied$).

Additional demographic moderators included gender (man, woman, another identity), employment status (not working, employed part time, employed full time), household income, education, age, and relationship length (see Table S1). People who selected "not sure" or "would rather not say" for income and "other" for education ($< 5\%$ of data) were not included in moderation analyses. Physical health was measured with a single item assessing people's sleep quality: "During the past week, how would you rate the overall quality of your sleep?" Ratings were made on a 4-point scale ($1 = very\ poor$, $2 = fairly\ poor$, $3 = fairly\ good$, $4 = very\ good$). The other physical health variable that was listed in our preregistered data-analysis plan for this article, exercise, was not associated with relationship satisfaction. Mental health was assessed with the four-item

Patient Health Questionnaire for Depression and Anxiety (PHQ-4; $\alpha = .87$; Kroenke et al., 2009; 1 = *not at all*, 4 = *nearly every day*), which includes the following four items: “feeling nervous, anxious, or on-edge,” “not being able to stop or control worrying,” “feeling down, depressed, or hopeless,” and “little interest or pleasure in doing things.” Items were reverse scored, so higher scores indicated greater mental health.

Sample B

Overview. Sample B included data from 618 participants (including 151 couples) who completed a baseline survey in April 2020 (Time 1) as well as follow-up surveys in May 2020 (Time 2; $n = 556$), August 2020 (Time 3; $n = 432$), November 2020 (Time 4; $n = 362$), and February 2021 (Time 5; $n = 292$).

Participants. Participant demographics are shown in Table S1. Sample size was based on a priori power analyses. To capture small to moderate effects with dyadic data using the actor-partner interdependence model, we aimed to collect data from 150 couples (on the basis of power analyses using the *APIMPowerR* Shiny app; Ackerman & Kenny, 2016). At Time 1, a total of 618 participants met inclusion criteria (i.e., met eligibility criteria, completed at least 60% of the survey, reported paying attention, and provided coherent answers to open-ended questions); 316 participants completed the study individually, and 151 completed it with a partner (i.e., 302 individuals). Using Prolific.co, we invited people who were at least 18 years old, living in the United States, and sheltering in place with their romantic partner at the time of recruitment (i.e., not working outside the home or leaving home except for essential business and exercise) to complete the study. Participants were paid \$3.00 for completing the Time 1 survey and \$1.50 to \$2.00 for each additional survey. Participants who completed the first four surveys received a \$1.50 bonus. Similar to our approach with sample A, we asked participants whether their partner would be willing to participate in the study as well, and if so, participants provided their partner's Prolific ID (if available) or received a link to share the survey with their partner. The study was reviewed by the University of Michigan IRB and was found to be exempt from IRB approval.

Measures.

Baseline. At Time 1, we used the same measures from sample A to assess feeling appreciated ($\alpha = .85$), perceived division of labor, relationship satisfaction over the prior week, expected changes in relationship satisfaction, and satisfaction with division of labor (see Table S2 for descriptive statistics and Table S4 for correlations for key variables). We also assessed demographic covariates and moderators

(gender, employment status, income, education, age, and relationship length) and physical and mental health ($\alpha = .87$) using the same variables as with sample A. Descriptive statistics for demographics are available in Table S1.

Follow-ups. Descriptive statistics for the key follow-up variables are available in Table S3 in the Supplemental Material. In the follow-up surveys at Times 2 through 5, we assessed the extent to which people felt appreciated by their partners over the prior week with the item, “In the past week, how much have you felt appreciated by your partner?” (1 = *not at all*, 5 = *extremely*). At Time 4 and Time 5, we also asked about the extent to which they felt appreciated for the contributions they made to their household with the item, “How appreciated do you feel by your partner for the contributions you made to your household in the past week (financial, household tasks, child-related tasks, planning, etc)?” (1 = *not at all*, 5 = *extremely*). Division of labor and satisfaction with division of labor were assessed with the same items as used for sample A but were reframed to address division of labor over the prior week. Relationship satisfaction over the prior week and expected changes in relationship satisfaction were assessed with the same items from the baseline survey.

Sample C

Overview. Sample C included data from 380 participants (190 couples) who completed a baseline survey (Time 1) between April and June 2020. Participants were invited to complete three weekly surveys (Week 1–Week 3; $n_s = 324$ – 345) beginning 1 week after their baseline survey and a follow-up survey in November 2020 (Time 2, 4–6 months after Time 1; $n = 293$).

Participants. Participant demographics are shown in Table S1. Couples in sample C were recruited through online advertisements (Craigslis, Kijiji, Facebook, Instagram) and research platforms (Honeybee, Research Stream). We aimed to recruit at least 100 couples on the basis of feasibility and guidelines for dyadic analyses and recruited as many as possible through June 2020. Of the 196 couples ($N = 392$) who participated, six participants were removed for not passing attention checks or not completing the relevant measures. Our final sample included 190 couples ($N = 380$). Couple were eligible if both partners agreed to participate, were at least 18 years old, lived together, were in a relationship for at least 6 months, had access to a computer and Internet, and lived in the United States or Canada. Interested couples contacted the research team via email and were sent a brief eligibility survey, after which eligibility and interest were confirmed via voice mail or a phone call with both

partners. If both partners were eligible and agreed to participate, they were sent the link to complete a baseline survey. Then, each week for the next 3 weeks, participants were sent a survey. The weekly surveys did not include all baseline measures, and some measures were truncated to reduce participant fatigue, increase efficiency, and minimize participant attrition. Participants were compensated \$15 Canadian (\$12 U.S.) for completing the baseline survey, \$5 Canadian (\$4 U.S.) for each weekly survey, and \$10 Canadian (\$8 U.S.) for completing a follow-up survey 4 to 6 months after the baseline survey. The study was reviewed and approved by York University's Research Ethics Board (No. e2020-109).

Measures.

Baseline. At Time 1, we assessed feeling appreciated with two items from the AIR Scale (Gordon et al., 2012): "My partner appreciates me" and "At times my partner takes me for granted" (reverse scored). Each item was rated from 1 (*strongly disagree*) to 7 (*strongly agree*). Items were averaged ($r = .49, p < .001$) to create a mean score; higher scores indicated feeling more appreciated.

Perceived household division of labor was assessed by asking participants, "Since the COVID outbreak, how have you and your partner divided up household chores?" Ratings were made on a 5-point scale: 1 = *I have done all of the housework*, 2 = *I have done most of the housework*, 3 = *We have split up household chores equally*, 4 = *My partner has done most of the housework*, 5 = *My partner has done all of the housework*.

Perceived fairness of division of labor was assessed by asking participants, "Since the COVID outbreak, to what extent do you think you and your partner's division of household chores is fair?" Ratings were made on a 5-point scale: 1 = *My partner has done much more than their fair share*, 2 = *My partner has done a bit more than their fair share*, 3 = *It has been fair/evenly divided*, 4 = *I have done a bit more than my fair share*, 5 = *I have done a lot more than my fair share*. In order to match the direction of division of labor, items were reverse coded so that higher scores represented greater unfairness to the partner.

Relationship satisfaction was assessed with three items from the Investment Model Scale (Rusbult et al., 1998): "I feel satisfied with our relationship," "My relationship is much better than others' relationships," and "Our relationship makes me very happy" ($\alpha = .91$; 1 = *strongly disagree*, 7 = *strongly agree*). Items were averaged to create a mean score; higher scores indicated higher relationship satisfaction.

Physical health was captured via the item, "How would you rate your physical health?" (1 = *poor*, 5 = *excellent*). Mental health was assessed by adapting two items from the PHQ-4 (Kroenke et al., 2009): "Since the outbreak of COVID, I have been feeling down,

depressed, or hopeless" and "Since the outbreak of COVID, I have little interest or pleasure in doing things" (0 = *not at all*, 4 = *nearly every day*). Mental health items were averaged to create a mean score ($r = .71, p < .001$).

Weekly. Each week, perceived household division of labor was assessed by asking participants, "In the last week, how have you and your partner divided up household chores?" and fairness of division of labor was assessed by asking participants, "In the last week, to what extent do you think you and your partner's division of household chores is fair?" Responses were made using the same options as at baseline. Relationship satisfaction was assessed with one item: "In the last week, I feel satisfied with our relationship" (1 = *strongly disagree*, 7 = *strongly agree*).

Follow-up. At Time 2, participants completed the same measures as at baseline as well as the same item from sample B assessing feeling appreciated for household contributions.

Analytic strategy

Power considerations. Given that our sample sizes were based on feasibility constraints and power analyses for different effects (i.e., actor-partner interdependence model) and that our primary analyses included interactions, which tend to be smaller effects, we conducted sensitivity analyses using G*Power (Version 3.1; Faul et al., 2007) to determine the smallest effects our study was powered to detect at 80% power with a two-tailed test. To account for the nonindependence of our couple members, we calculated the effective size for each sample using the design-effect equation: $N_{\text{effective}} = N / (1 + (n_{\text{cluster}} - 1) \times \rho)$, where N represents the total sample, n_{cluster} represents the cluster size (in our case, two), and ρ represents the intraclass correlation coefficient (ICC; i.e., the measure of nonindependence between couple members). When we had multiple outcomes, we used the largest ICC to provide the most conservative estimate. We then added the number of individual participants to the effective sample size for our couples and used that total sample size to run sensitivity analyses. For sample A, our smallest effective sample size was 1,095, which provided sufficient power to detect effects (ρ s) as small as .08 (where ρ is the population correlation coefficient). For sample B, we focused on the baseline data, given that additional time points would increase power. Our smallest effective sample size was 527, which provided sufficient power to detect effects (ρ s) as small as .12. For sample C, we assessed sensitivity for both the baseline and 6-month follow-up surveys. Our effective sample sizes were 258 (baseline) and 200 (follow-up), which

provided power sufficient to detect effects (ρ s) as small as .17 and .20. Overall, these samples were sensitive enough to detect small effects.

Analytic models. Our predictions and analytic strategies, including linear and curvilinear associations between division of labor and relationship satisfaction, and several additional supplementary analyses were posted on OSF after data collection but prior to analysis (Sample B: <https://osf.io/dup4q/>, Sample C: <https://osf.io/vjgsz/>). Sample A was not part of the preregistration, but we used the same approach as described in our preregistration of sample B baseline data. Additional, nonpreregistered analyses were conducted on the basis of feedback (e.g., simple slopes in Table S12 in the Supplemental Material).

Given that all of our samples included participants nested within dyads, we used mixed-effects models to address the nonindependence in our data. Models were run in SPSS mixed models (Version 27.0) and the *nlme* package (Version 3.1-152; Pinheiro & Bates, 2017) in RStudio (Version 1.4; RStudio Team, 2021). This approach handles missing outcome data, so for samples with both individuals and dyads, participants who did not have a partner were included in the models.

For the dyadic longitudinal data (i.e., weekly and monthly across-time analyses) in samples B and C, we employed two-level models with crossed residuals to account for nonindependence of partners within dyads and within time points. In initial models of sample B in which all variables were measured at multiple time points, we looked at time as a predictor of our main variables and found small effects (changes of less than 0.05 from time to time) for concurrent relationship satisfaction (positive) and expected relationship satisfaction (negative). However, time was not a significant predictor of either division of labor or feeling appreciated ($ps > .3$), suggesting that time was not a confounding variable. We modeled separate random intercepts and slopes for each partner within the dyad but treated the partners as indistinguishable and utilized compound symmetry matrices for the residual and random effects (to constrain the two partners to have the same parameters). Random slopes were modeled for time-varying predictors, but covariances between random effects were not modeled. When models failed to converge or when random variances could not be computed, we removed those random slopes (final syntax for the main models is available at <https://osf.io/dnf2t/> [Samples A and B] and <https://osf.io/524en/> [Sample C]). The fixed-effects estimates changed negligibly between models with and without random slopes. The figures represent results from models using only random intercepts because of the inability to place equality constraints in the same way on the random effects in R.

For analyses of concurrent and expected relationship satisfaction, we predicted relationship satisfaction at the same time point. To analyze change in relationship satisfaction over time, we created a change score (i.e., subtracting initial satisfaction from follow-up satisfaction). To account for the fact that initial levels of satisfaction may be related to changes in satisfaction, we also controlled for initial levels of satisfaction (i.e., relationship satisfaction measured at the same time point as our predictor variables). We predicted change in satisfaction across 3 months in Sample B using the four follow-up surveys, and we predicted change from baseline to the weekly surveys and the 6-month follow-up in Sample C.

We tested whether our effects held when models included a binary gender code (woman vs. man, given that this has been the focus in the literature) and employment status (working vs. not working), and we tested gender and employment status as moderators along with income, education, age, and relationship length. To ensure sufficient power, we assessed these additional moderators using the combined baseline data from samples A and B (which included the same measures). This provided us with a combined sample of 1,813 participants. Adjusting for the dependency between couple members left us with an effective N of 1,617, which was sufficient to detect effects (ρ s) as small as .07.

Given that prior research and theory (Adams, 1965; Thielemans et al., 2021; Van Willigen & Drentea, 2001) suggest that equality is ideal and inequality in either direction (doing more or less) can be problematic, we preregistered our intention to examine the data for curvilinear trends. For any curvilinear associations between household division of labor and relationship satisfaction, we tested whether there were differences in how inequality was associated with relationship satisfaction when people reported they were doing more as opposed to their partner was doing more. To do this, we ran piecewise regressions testing the simple linear slopes from “all me” to “equal” and from “equal” to “all my partner.”

Thus, for our main hypotheses, we tested up to four nested models with the following predictors: (a) linear division of labor, (b) curvilinear division of labor, (c) linear and curvilinear division of labor plus feeling appreciated moderating linear division of labor, and (d) linear and curvilinear division of labor plus feeling appreciated moderating both linear and curvilinear division of labor.

Results

The divisions of labor for each sample are shown in Figure 1. The most common response across samples was that both partners contributed equally to the division

of labor (37%–52% across samples), but a substantial number of participants reported unequal contributions, with many contributing more than their partners (28%–47%). Descriptive statistics and correlations for the key variables in each sample are available in Tables S2 to S5 in the Supplemental Material. Overall, consensus between partners in our dyadic subset was high regarding household division of labor ($r_s = .66-.72$).

Are people less satisfied when they feel they do more of the household labor?

Perceived household division of labor had both significant linear and curvilinear associations with relationship satisfaction. In line with equity theory (Adams, 1965), results showed that people were most satisfied with an equal division of labor (Fig. 2; see also Tables S6–S9 in the Supplemental Material). However, we found that the curvilinear effect was not symmetrical. Instead, whereas people tended to be less satisfied when they reported doing more labor, there were not consistent reductions in satisfaction when people reported their partner doing more (see Fig. 2). This pattern emerged for concurrent satisfaction (samples A–C) as well as expected (samples A and B) and actual (samples B and C) changes in relationship satisfaction over time. Similar effects emerged when models predicted satisfaction with household division of labor (see Table S10 in the Supplemental Material).

Does feeling appreciated buffer against the cost of doing more of the household labor?

In all three samples, feeling appreciated moderated the association between perceived household division of labor and concurrent relationship satisfaction. That is, people who felt more appreciated (+1 SD) tended to be equally satisfied regardless of their perceived household division of labor, whereas those who felt less appreciated (–1 SD) were significantly less satisfied when they reported contributing more (Fig. 3, top two rows; see Table 1 for simple slopes; for full models, see Tables S6 and S7). This buffering effect was often present for both the linear and curvilinear effects of division of labor.

The same effect emerged and was even stronger when models assessed changes in relationship satisfaction across the early weeks and ensuing months of the pandemic (samples B and C; see Table S9). When people reported doing more labor, those who felt less appreciated became less satisfied over time, whereas those who felt more appreciated maintained their levels of satisfaction (Fig. 3, bottom row). Effects for expected changes in satisfaction were less consistent (samples A and B; Fig. 3, third row from top; see also Table S8), which suggests that people may not realize how these factors affect their future satisfaction. We also found similar buffering effects when looking at satisfaction

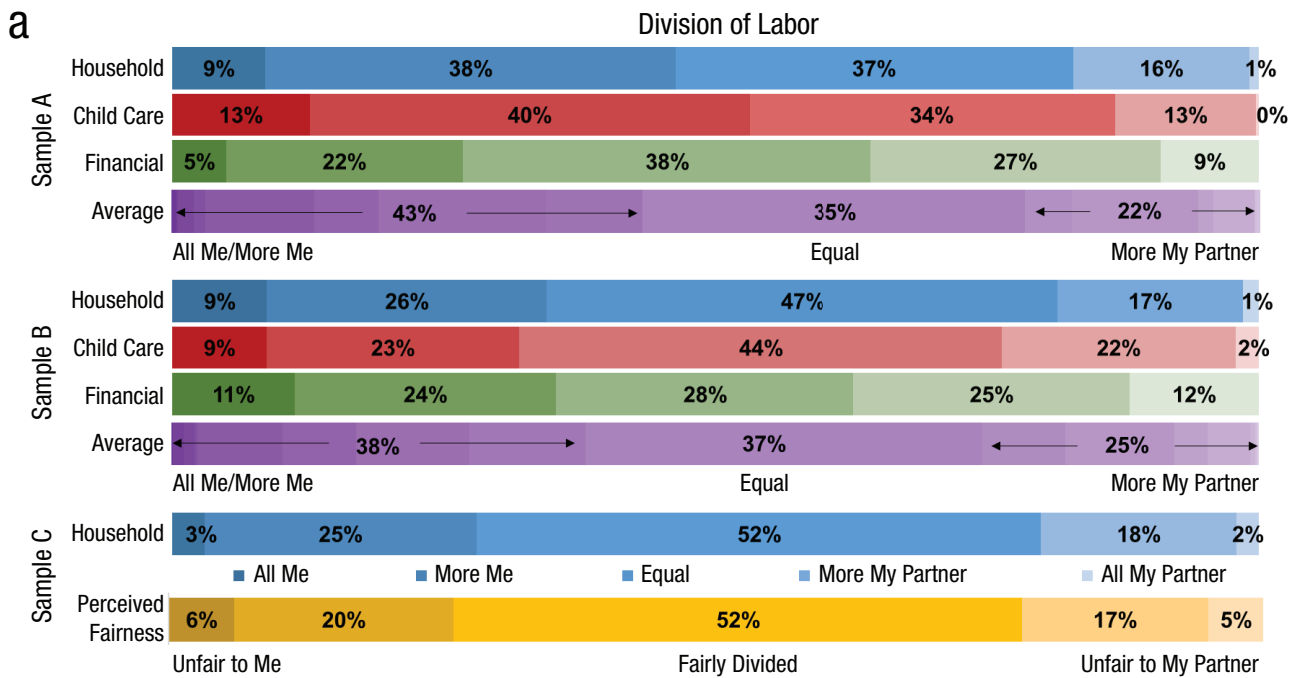


Fig. 1. (continued on next page)

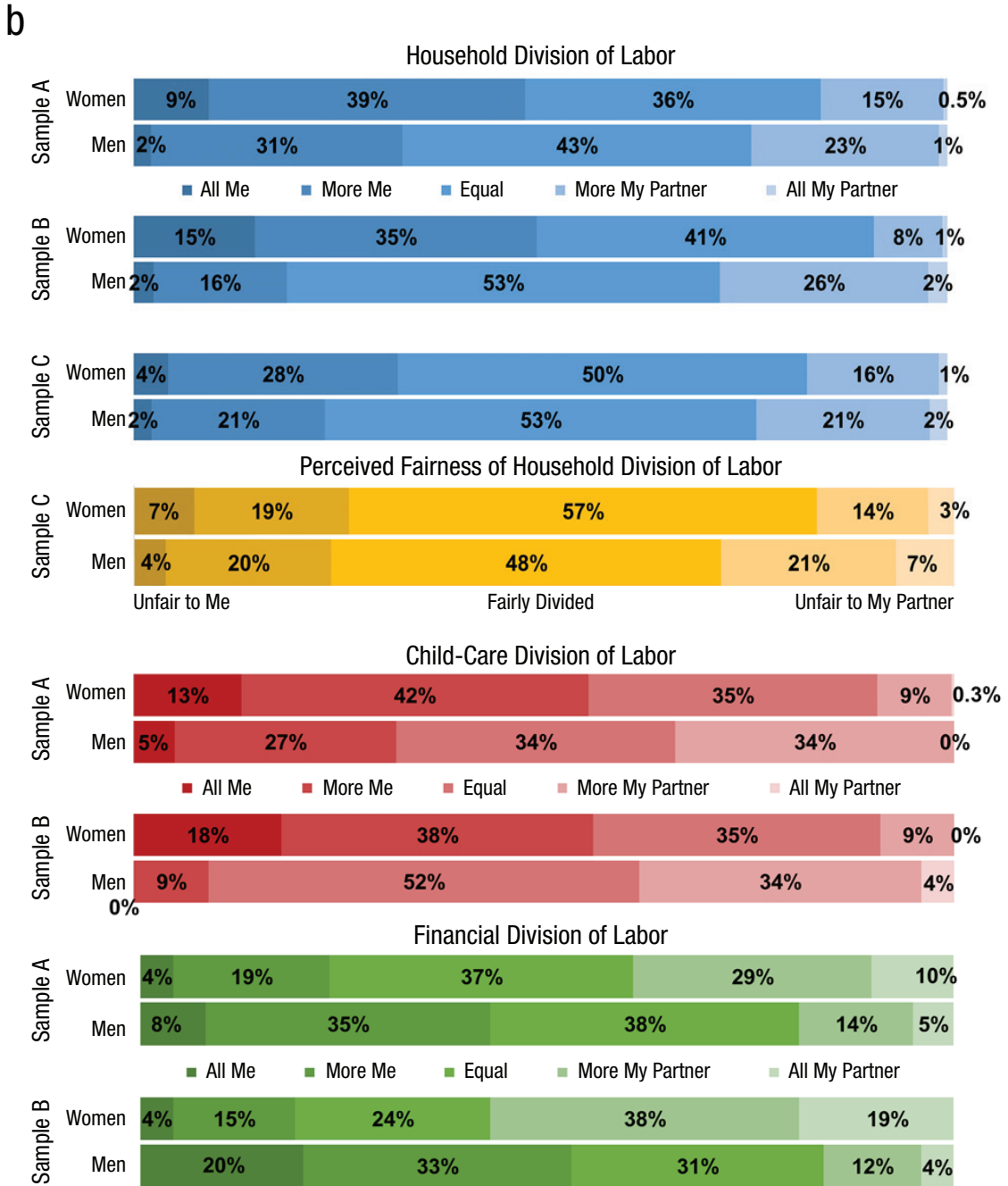


Fig. 1. Breakdown of participants' ratings of perceived division of labor between themselves and their partners at baseline. Panel (a) shows perceived division of labor since the pandemic began across three domains in samples A and B as well as overall perceived household division of labor and perceived fairness of household division of labor in sample C. For samples A and B, average division of labor is an aggregate of household, child-care (when relevant), and financial contributions (including fractional values). Purple bars are shaded on the basis of actual values; percentages represent "all me/more me" (-2 to -0.33), "equal" (0), and "more my partner" (0.33 to 1.67; no participants had average scores equal to "all my partner"). In (b), the percentage of men and women who selected each rating is shown separately for household division of labor, perceived fairness of household division of labor, child-care division of labor, and financial division of labor, separately for each sample in which those ratings were collected.

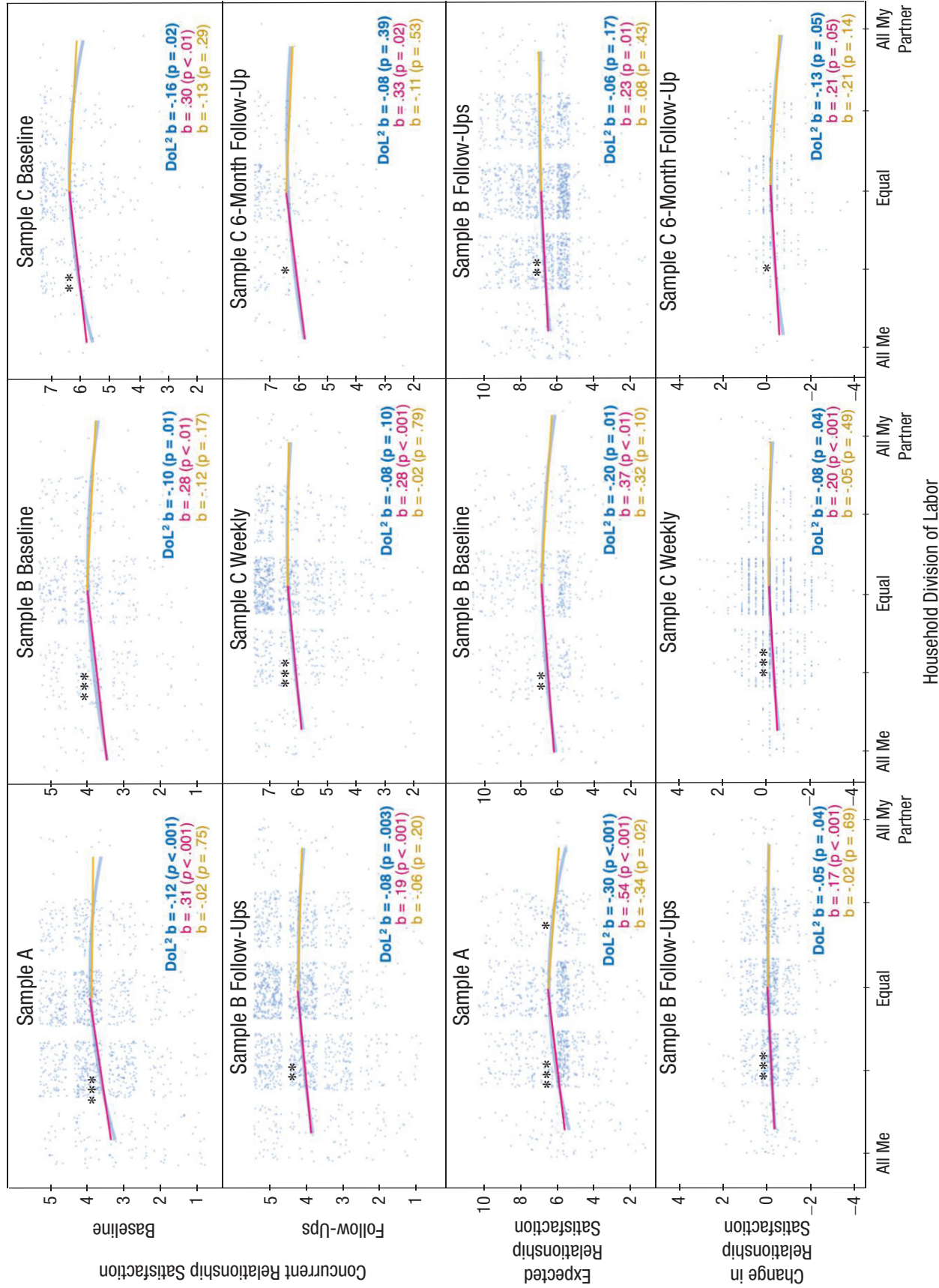


Fig. 2. Curvilinear associations between ratings of household division of labor (DoL) and relationship satisfaction across samples and measures of relationship satisfaction. Linear slopes from “all me” to “equal” are shown in pink, from “equal” to “all my partner” are shown in gold, and across the whole scale are shown in blue. Unstandardized regression coefficients for each slope are shown in the same colors. Dotted regions indicate individual data. Sample B had four follow-ups every 3 months; sample C had three weekly follow-ups. Asterisks indicate significant slopes ($p < .05$, $**p < .01$, $***p < .001$).

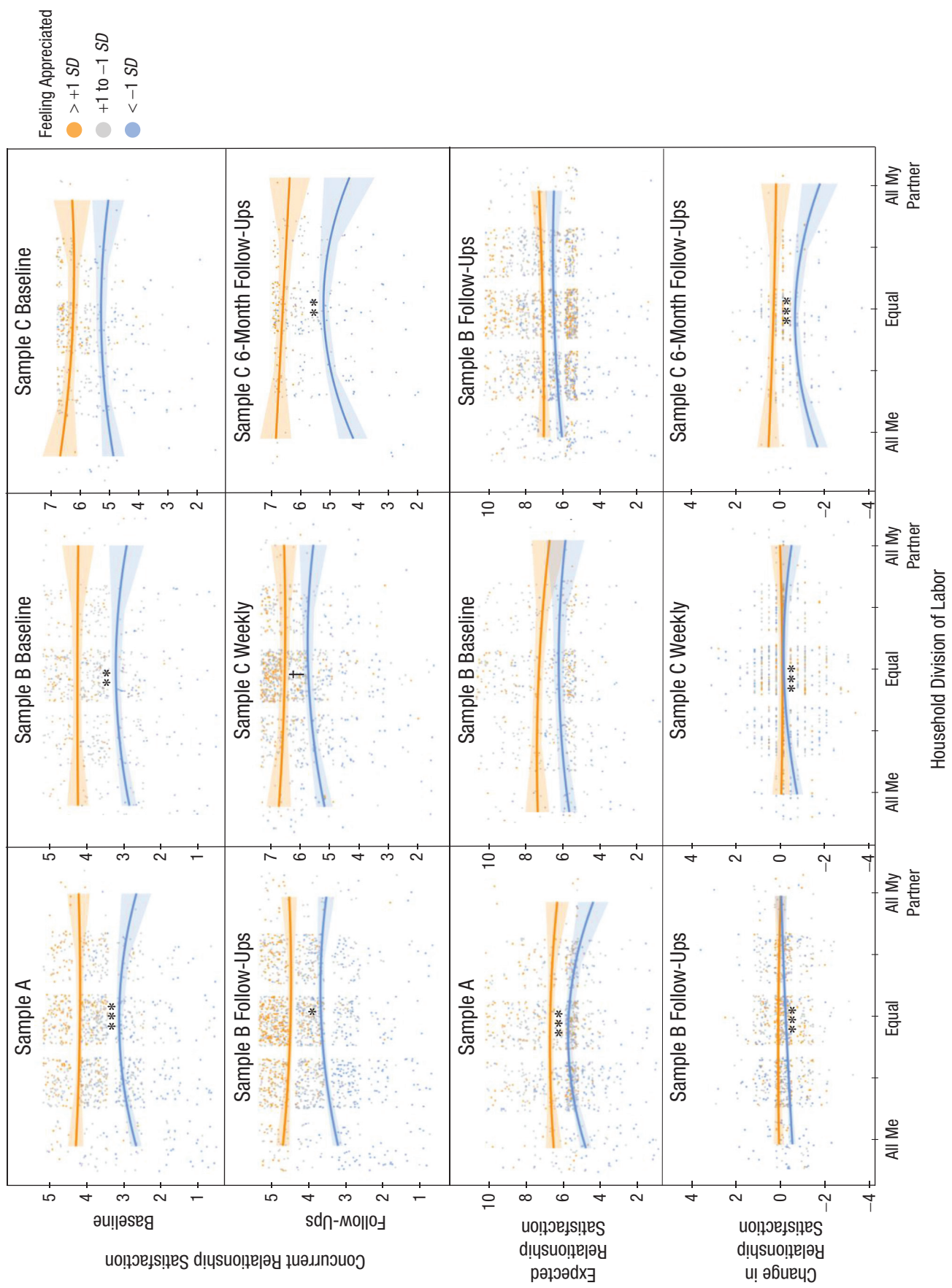


Fig. 3. Association between perceived household division of labor and relationship satisfaction across samples and measures of relationship satisfaction, separately for two levels of feeling appreciated. Dotted regions indicate individual data. Error bands indicate 95% confidence intervals. Asterisks indicate significant slopes ($p < .10$, $*p < .05$, $**p < .01$, $***p < .001$). For estimates for main effects and moderations, see Tables S6, S7, S8, and S9 in the Supplemental Material; for simple slopes for curvilinear moderations, see Table 1.

Table 1. Simple Slopes for Linear and Curvilinear Effects of Perceived Household Division of Labor on Concurrent Relationship Satisfaction, Expected Future Relationship Satisfaction, and Actual Changes in Relationship Satisfaction at Low (-1 *SD*) and High ($+1$ *SD*) Levels of Feeling Appreciated

Sample and independent variable	Low feelings of being appreciated (-1 <i>SD</i>)				High feelings of being appreciated ($+1$ <i>SD</i>)								
	<i>b</i>	<i>t</i>	<i>df</i>	<i>p</i>	95% CI	<i>r</i>	<i>b</i>	<i>t</i>	<i>df</i>	<i>p</i>	95% CI	<i>r</i>	
Dependent variable: concurrent relationship satisfaction at baseline													
Sample A baseline													
Division of labor	0.00	-0.02	1075.01	.98	[-0.10, 0.10]	.00	-0.02	-0.49	775.15	.62	[-0.10, 0.06]	.02	
Division of labor ²	-0.12	-3.42	1105.62	.001	[-0.19, -0.05]	.10	0.02	0.53	1105.88	.60	[-0.05, 0.08]	.02	
Sample B baseline													
Division of labor	0.02	0.32	500.89	.75	[-0.10, 0.13]	.01	0.00	-0.04	465.38	.97	[-0.11, 0.11]	.00	
Division of labor ²	-0.08	-1.96	598.92	.05	[-0.16, 0.00]	.08	-0.01	-0.12	588.63	.90	[-0.09, 0.08]	.01	
Sample C baseline													
Division of labor	0.05	0.70	262.99	.49	[-0.09, 0.18]	.04	-0.11	-1.41	255.32	.16	[-0.26, 0.04]	.09	
Division of labor ²	-0.09	-1.41	361.41	.16	[-0.22, 0.04]	.07	0.06	0.70	354.29	.48	[-0.11, 0.22]	.04	
Dependent variable: concurrent relationship satisfaction in weekly and follow-up assessments													
Sample B follow-ups (Time 2–Time 5)													
Division of labor	0.07	2.21	263.81	.03	[0.01, 0.14]	.14	-0.05	-1.57	307.43	.12	[-0.12, 0.01]	.09	
Division of labor ²	-0.06	-2.30	283.78	.02	[-0.11, -0.01]	.14	0.01	0.49	384.73	.63	[-0.04, 0.07]	.02	
Sample C weekly surveys (Week 1–Week 3)													
Division of labor	0.11	1.53	104.39	.13	[-0.03, 0.26]	.15	-0.06	-0.77	142.63	.44	[-0.21, 0.09]	.06	
Division of labor ²	-0.10	-1.79	169.78	.08	[-0.21, 0.01]	.14	0.02	0.38	129.55	.71	[-0.10, 0.15]	.03	
Sample C follow-ups (at 6 months)													
Division of labor	0.04	0.35	215.19	.73	[-0.17, 0.24]	.02	-0.13	-1.38	229.85	.17	[-0.32, 0.06]	.09	
Division of labor ²	-0.27	-2.82	270.60	.01	[-0.45, -0.08]	.17	0.00	0.01	279.96	1.00	[-0.17, 0.17]	.00	
Dependent variable: expected relationship satisfaction													
Sample A baseline													
Division of labor	-0.12	-1.01	1033.47	.31	[-0.34, 0.11]	.03	-0.05	-0.62	656.01	.54	[-0.23, 0.12]	.02	
Division of labor ²	-0.33	-4.10	1093.00	<.001	[-0.49, -0.17]	.12	-0.08	-1.06	1061.29	.29	[-0.24, 0.07]	.03	
Sample B baseline (Time 1)													
Division of labor	0.05	0.40	496.04	.69	[-0.21, 0.32]	.02	-0.17	-1.35	458.56	.18	[-0.42, 0.08]	.06	
Division of labor ²	-0.12	-1.24	611.29	.21	[-0.32, 0.07]	.05	-0.07	-0.70	608.71	.49	[-0.28, 0.13]	.03	
Sample B follow-ups (Time 2–Time 5)													
Division of labor	0.12	1.70	465.19	.09	[-0.02, 0.27]	.08	0.09	1.29	438.95	.20	[-0.05, 0.23]	.06	
Division of labor ²	-0.01	-0.17	238.01	.87	[-0.13, 0.11]	.01	0.01	0.09	282.54	.93	[-0.12, 0.13]	.01	
Dependent variable: change in relationship satisfaction across time													
Sample B follow-ups (Time 2–Time 5)													
Division of labor	0.13	3.53	392.88	<.001	[0.06, 0.20]	.18	-0.02	-0.58	526.44	.56	[-0.09, 0.05]	.03	
Division of labor ²	-0.02	-0.53	176.78	.59	[-0.08, 0.05]	.04	-0.01	-0.32	460.84	.75	[-0.08, 0.06]	.01	
Sample C weekly surveys (Week 1–Week 3)													
Division of labor	0.07	1.21	478.00	.23	[-0.04, 0.17]	.06	0.01	0.24	502.33	.81	[-0.10, 0.13]	.01	
Division of labor ²	-0.12	-2.92	824.99	.01	[-0.21, -0.04]	.10	0.02	0.40	851.32	.69	[-0.08, 0.12]	.01	
Sample C follow-ups (at 6 months)													
Division of labor	-0.03	-0.32	221.69	.75	[-0.21, 0.15]	.02	-0.09	-1.03	234.38	.30	[-0.25, 0.08]	.07	
Division of labor ²	-0.28	-3.37	261.46	.01	[-0.44, -0.12]	.20	0.01	0.18	274.64	.86	[-0.13, 0.16]	.01	

Note: Linear and curvilinear main effects of division of labor were included in all models. For main effects and interactions, see Tables S4, S5, S6, and S7 in the Supplemental Material. Degrees of freedom (*dfs*) were calculated using the Satterthwaite approximation. Effect sizes (*rs*) were calculated with the following equation: $r = \sqrt{f^2 / (f^2 + df)}$.

with division of labor specifically (samples A and B; Fig. S1 and Table S10 in the Supplemental Material) and feeling appreciated specifically for one's household contributions (samples B and C; Table S11 in the Supplemental Material).

Although our hypotheses focused on the role of people's feelings of appreciation when they reported doing more of the household labor, the interaction effects shown in Figure 3 and the simple slopes shown in Table 1 suggest that feeling appreciated may also play a buffering role when people report their partner doing more labor (see Table S12 for simple slopes of feeling appreciated predicting satisfaction at differing levels of household division of labor; i.e., "I do more," "equal," "partner does more"). Although feeling appreciated was generally a strong predictor of relationship satisfaction at all levels of division of labor, the slopes were steeper when division of labor was unequal. In other words, feeling appreciated may act as a buffer when division of labor is perceived to be unequal, regardless of who is perceived to be contributing more. We do note that we observed larger confidence intervals when looking at reports of partners doing more (a less frequent occurrence), leading us to interpret these findings more cautiously.

Is feeling appreciated by one's partner beneficial even when household division of labor is perceived as unfair?

Feeling appreciated by one's partner also buffered against the negative effects of perceived unfairness of division of labor on relationship satisfaction concurrently and over time (see Fig. S2 and Table S13 in the Supplemental Material). In other words, feeling appreciated helped reduce the relational costs of feeling that one is doing more than one's fair share of the household labor.

Do these effects differ by gender?

Consistent with prior work, results showed that across all of our samples, people tended to report women doing more of the household labor (Fig. 1). However, including gender in our models did not meaningfully change our key effects (Table S14–S16 in the Supplemental Material), nor did gender moderate the link between division of labor and concurrent relationship satisfaction (tested in the combined baseline sample; Table S17 in the Supplemental Material). Thus, although women did more of the household labor than men, we did not find evidence that gender differences meaningfully explained or changed the buffering effects of appreciation in our primarily mixed-gender couples.

Do the same patterns emerge for perceived child-care and financial division of labor?

Associations between perceived child-care and financial division of labor and relationship satisfaction were weak or nonexistent, and feeling appreciated did not moderate the effects ($ps > .29$; see Fig. S3 and Table S18 in the Supplemental Material). Instead, there was only a main effect for feeling appreciated. The pattern for average division of labor, which accounted for contributions across domains (e.g., doing less housework but more paid labor) appeared similar, albeit weaker, than household division of labor. These results suggest that household division of labor may function differently than other labor domains when it comes to influencing the quality of relationships.

How robust are these effects?

Using the combined baseline sample to increase power, we examined whether the buffering effects of feeling appreciated differed depending on employment status, income, education, age, or relationship length. Although people who were employed reported doing less household labor ($rs = .21-.25$; Table S4), employment status did not explain or moderate our effects (see Tables S19 and S20 in the Supplemental Material). Effects also did not differ by income, education, age, or relationship duration (see Tables S21 and S22 in the Supplemental Material), and we found the same pattern of effects when accounting for mental and physical health at baseline (see Tables S23 and S24 in the Supplemental Material).

Discussion

Division of household labor is a leading source of conflict for couples, and an unequal or unfair division of labor between partners is associated with relationship dissatisfaction and dissolution. The COVID-19 pandemic and associated lockdowns made this salient, as many couples found themselves at home juggling work, child care, and household demands (e.g., Craig & Churchill, 2021; Shafer et al., 2020; Shockley et al., 2021; Waddell et al., 2021). In the current work, we tested whether feeling appreciated by one's partner buffered against the relationship costs associated with doing more of the household labor. Across three samples, we found that people who reported doing more labor were less satisfied with their relationships in the moment and over time and less satisfied with the division of labor itself, compared with people who reported doing less or equal amounts of work. However, bearing more of

the household burden was not associated with lower relationship satisfaction or declines in satisfaction over time when people felt more appreciated by their partners.

This work extends a small but growing body of research showing that feeling appreciated can offset problematic relationship dynamics that undermine satisfaction (Barton et al., 2015; Park et al., 2019) by focusing on division of labor, an issue that every cohabiting couple faces. This work also extends division-of-labor research. First, although research on household labor often focuses on equality versus inequality, our findings built on prior work suggesting that doing more labor may be more problematic than doing less (e.g., Van Willigen & Drentea, 2001). Second, aligning with recent findings (e.g., Waddell et al., 2021), our results showed that women contributed more labor, and doing more undermined relationship quality (although we did not measure traditional gender roles, which may moderate these effects). Yet critically, the beneficial effects of feeling appreciated were consistent for both women and men. Third, we extended past work showing that people feel more appreciated when contributions are more equal and fair (Klumb et al., 2006; Mikula et al., 2009) by demonstrating that feeling appreciated buffers against the relationship costs of doing more household labor even when those contributions are viewed as unequal and unfair. Fourth, we found evidence that feeling appreciated might also buffer people against being less satisfied when their partners do more. Future research should examine whether people who contribute less but feel appreciated by their partners are less prone to guilt or concerns about how their partners perceive them or whether they may contribute in other ways (e.g., managing familial relationships).

Is feeling satisfied despite an unequal and unfair division of labor necessarily a good thing? Feeling appreciated might help balance the egoistic tendency for people to overperceive their contributions (Press & Townsley, 1998; Reis et al., 2018) and might also help couples ride out short-term inequalities (e.g., unusually heavy work demands). However, the buffering effect of feeling appreciated might also disincentivize people from pushing for more equality when unfair division of labor is severe and chronic. Although gratitude does not promote complacency (Armenta et al., 2020), a certain level of dissatisfaction may be needed to propel change. Thus, when studying prosocial processes such as appreciation, it is important to consider both their benefits and potential costs.

Are the buffering effects of feeling appreciated simply due to more-satisfied people feeling more appreciated? Our correlational data cannot speak to questions of causality. However, our analyses examining changes in relationship satisfaction controlled for initial levels

of satisfaction. By doing so, we ruled out the possibility that these effects simply reflect preexisting differences between more and less satisfied couples. Instead, our results appear to demonstrate that feeling appreciated plays a unique buffering role beyond couples' initial levels of satisfaction.

Constraints on generality

Women and people who were not employed reported doing more of the household labor, but our key findings did not differ by gender, employment status, income, age, or relationship length. Nonetheless, there are potential constraints on the generality of our findings. Our samples were from two Western countries (the United States and Canada), limiting the generalizability of our findings to other countries that may not have the same gender and relationship expectations. Second, our samples primarily consisted of two-person, mixed-gender couples, hence we caution against interpreting findings across couples with different gender and relationship configurations (e.g., same-gender or polyamorous relationships). Although some research suggests that same-gender couples divide labor more equitably (Shockley & Shen, 2016) and polyamorous couples may divide tasks in different ways (Schippers, 2019), we expect the benefits of feeling appreciated to generalize across different relationship types. Third, we used a self-report measure of division of labor. Time-use surveys might reveal differences in how much people are actually contributing. However, we found high rates of agreement between partners. Moreover, perceptions often shape evaluations of relationships more strongly than reality (Pollmann & Finkenauer, 2009). Hence, people's perceptions of their contributions, rather than actual recordings, should more powerfully influence how satisfied people feel in their relationships. Finally, our data were gathered during the COVID-19 pandemic, raising the question of generalizability across time. We did see stability in how household labor was divided across the weeks and months that we tracked our longitudinal samples (see Table S3; see also Shafer et al., 2020). Although replication outside the pandemic is needed, we have no reason to expect that feeling appreciated would not be a buffer for people who contribute more labor in a different global context.

Conclusion

In sum, results from more than 2,000 people living with a romantic partner during the COVID-19 pandemic provide robust evidence that doing more of the household labor is associated with lower relationship satisfaction. Although an equal and fair distribution of labor between

partners is ideal, inequality is common: More than half of our participants reported that their division of labor was uneven or unfair. Our work reveals that feeling appreciated by one's partner may help people maintain relationship satisfaction over time despite feeling they contribute more labor than their partners do. Although we might imagine someone running themselves ragged doing all the household labor and growing more resentful and discontented by the moment, these results suggest that this may be the case only when people feel taken for granted. Instead, for people with more appreciative partners, doing more may provide them with more opportunities to feel valued and recognized.

Transparency

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Author Contributions

A. M. Gordon, E. Cross, and A. Muise developed the research questions and data-analysis plan. A. M. Gordon, E. Ascigil, R. Balzarini, A. Luerssen, and A. Muise designed the study. A. M. Gordon, E. Ascigil, R. Balzarini, A. Luerssen, and A. Muise performed testing and data collection. A. M. Gordon, E. Cross, and A. Muise analyzed the data and drafted the manuscript. E. Ascigil, R. Balzarini, and A. Luerssen provided critical revisions. All the author approved the final manuscript for submission.

Declaration of Conflicting Interests

The author(s) declared that there were no conflicts of interest with respect to the authorship or the publication of this article.

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Open Practices

All data, code, and materials necessary to replicate this study have been made publicly available via OSF and can be accessed at <https://osf.io/dnf2t/> (Samples A and B) and <https://osf.io/524en/> (Sample C). The design and analysis plans for samples B and C were preregistered at <https://osf.io/dup4q/> and <https://osf.io/vjgsz/>, respectively. This article has received the badges for Open Data and Open Materials. More information about the Open Practices badges can be found at <http://www.psychologicalscience.org/publications/badges>.



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Supplemental Material

Additional supporting information can be found at <http://journals.sagepub.com/doi/suppl/10.1177/09567976221081872>

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