



Gender Inequities in Household Labor Predict Lower Sexual Desire in Women Partnered with Men

Emily A. Harris¹ · Aki M. Gormezano² · Sari M. van Anders^{2,3}

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Abstract

Low sexual desire in women is usually studied as a problem, one that is located within women. However, other possibilities exist, including known gender inequities related to heteronormative gender roles. In this study, we provide the first test of the theory that heteronormativity is related to low sexual desire in women partnered with men, focusing specifically on inequities in the division of household labor. In two studies with women who were partnered with men and had children (Study 1, $N = 677$; Study 2, $N = 396$), performing a large proportion of household labor was associated with significantly lower sexual desire for a partner. Together, the results suggest that this association was mediated by both perceiving the partner as a dependent and perceiving the division of labor as unfair. These results support the heteronormativity theory of low sexual desire in women partnered with men, and show that gender inequities are important, though understudied, contributors to low desire in women partnered with men.

Keywords Desire · Heteronormativity · Gender inequity · Household labor

Introduction

Low sexual desire is one of the most widely discussed sexual problems, in part because it is the most prevalent. Approximately one-third of women report low desire (Fugl-Meyer & Fugl-Meyer, 2002), with more common reports among women than men (Dawson & Chivers, 2014; but see also Mark, 2012). So far, research on low desire in women tends to frame it as a problem or dysfunction, in that women's desire is lower than it should be, reflecting a medicalization and pathologization of desire (e.g., for reviews, see Mark & Lasslo, 2018; Tiefer, 2001; van Anders et al., 2021).

Research has examined the potential causes of low desire to develop treatments and interventions targeting low desire. In a recent review, Mark and Lasslo (2018) outline individual (e.g., cognitive focus, stress), interpersonal (e.g.,

relationship length and relationship satisfaction), and societal (e.g., restrictive sexual attitudes and egalitarianism) factors associated with low desire. They note that "...the research to specifically examine the societal influences into maintaining sexual desire in long-term relationships has been limited... This is an area with ample future research opportunities, and we encourage researchers to explore this as a priority" (p. 575). In the current research, we seek to address this gap in the literature by considering broader structural factors that may be contributing to low desire. We use a new theory, the heteronormativity theory of low desire in women partnered with men (van Anders et al., 2021), to test questions of societal level impact on low desire, namely gender inequities in household labor.

Below, we briefly review some of the existing literature examining individual and interpersonal factors associated with low desire. We then outline the heteronormativity theory of low desire as a theoretical framework that expands on previous research by considering societal influences on desire.

Individual Factors Associated with Low Desire

A common assumption is that low desire is caused by biological factors, such as low testosterone. This assumption is reflected in the pharmaceutical treatments targeting low

✉ Sari M. van Anders
sva5@queensu.ca

¹ Melbourne School of Psychological Sciences, University of Melbourne, Melbourne, VIC, Australia

² Department of Psychology, Queen's University, 62 Arch Street, Kingston, ON K7L 3N6, Canada

³ Department of Gender Studies, Centre for Neuroscience Studies, Queen's University, Kingston, ON, Canada

desire, which take the form of testosterone treatments or pills that impact women's serotonin (for reviews, see Hartley & Tiefer, 2003; van Anders et al., 2021). However, there is limited empirical support for biological explanations of low desire. Testosterone is not the cause of low desire in women with complaints of low desire, and drugs that regulate serotonin have a negligible effect on desire (e.g., see Jaspers et al., 2016; Raisanen et al., 2018; van Anders, 2012). Thus, while these treatment options implicitly assume that low desire is situated, at least in part, in women's bodies, the data do not bear this out.

Psychological explanations for low desire in women have identified common problems that might be contributing to women's low desire, such as tiredness and stress, among others (e.g., Bodenmann et al., 2006; Hamilton & Meston, 2013; Morokoff & Gilliland, 1993). In qualitative studies examining factors that may promote or decrease desire, participants frequently cite stress as a factor contributing to their low desire, and fatigue related to having children was an especially prominent factor for women (Ferreira et al., 2016; Murray & Milhausen, 2012). Stress may have negative implications for desire for several reasons—it may be associated with feeling distracted and preoccupied, it may have physiological implications that diminish desire, such as hypoactive adrenal responsiveness, and it may lead to reduced sensitivity to sexual cues (for review, see van Anders et al., 2021).

In addition to chronic stress, relationship stress has been consistently associated with low desire, and so a number of treatments for low desire aim to address these factors as well as distraction and fatigue as primary causes of low desire (e.g., Stephenson & Kerth, 2017). Treatment options, such as mindfulness, are effective in increasing desire in women (e.g., Brotto & Basson, 2014; Stephenson & Kerth, 2017). However, there are open questions related to *why* women may be experiencing stress, tiredness, and cognitive distractions, and subsequent low desire. One body of literature that examines external factors that may be contributing to low desire is the study of *interpersonal* factors.

Interpersonal Factors Associated with Low Desire

Partnered sexual desire is an interpersonal experience about desire for another person. Accordingly, the quality of our romantic and intimate relationships likely contributes to sexual desire. Indeed, relationship satisfaction and desire for a partner are consistently strongly linked (e.g., Mark, 2012). When people feel satisfied with their relationships, emotionally connected to their partner, and heard by their partner, they unsurprisingly report higher levels of desire for their partner (for review, see Mark & Lasslo, 2018). Additionally, when people feel motivated to meet a partner's sexual needs, to invest in their relationship as a priority, and to spend time together doing activities directed toward self-expansion (i.e.,

engaging in novel, growth-oriented activities with a partner), they report higher desire (Ferreira et al., 2014; Muise & Impett, 2016; Raposo et al., 2020). Relationship factors are clearly relevant to people's experiences of low desire. However, what factors might operate within and outside of a relationship that motivate and facilitate people to attend to, invest in, and spend time with a partner?

Heteronormativity, Household Labor, and Desire

The heteronormativity theory of low desire in women partnered with men proposes a complementary, systemic explanation for low desire in women partnered with men within a Western context: gender inequity (van Anders et al., 2021). Heteronormativity describes the tendency to view people as heterosexual by default (Warner, 1991). Heteronormativity elevates sexual relationships between women and men, with everything outside of that rendered unnatural, undesirable, or atypical (Rich, 1980). Heteronormative frameworks prescribe complementary roles for men and women in relationships, such that women are assigned mother and carer, and men provider and protector (Rich, 1980).

The heteronormativity theory of low sexual desire in women partnered with men outlines several reasons why these gender roles might suppress women's desire (van Anders et al., 2021). Four key factors that the heteronormativity theory proposes include the inequitable division of household labor, a blurring of mother and partner roles, the objectification of women, and gender norms related to sexual initiation (van Anders et al., 2021). Here, we focus on the first two factors: *the gendered division of household labor* and relatedly, *the blurring of mother and partner roles*.

A Note on Terminology: Why Use the Term “Heteronormativity”?

The term “heteronormativity” is typically used in reference to the oppression of sexual minority groups based on the presumption that heterosexuality is preferred, natural, normative, and even universal (e.g., see Rich, 1980; Rubin, 1984; Warner, 1991). In the heteronormativity theory of low desire in women partnered with men, heteronormativity is used to discuss gender inequities in heterosexual relationships (for a full discussion, see van Anders et al., 2021). This is because heteronormativity is a useful term that encompasses the assumption that women and men will partner with each other and adopt complementary and hierarchical socially sanctioned gender roles. This is an important use of heteronormativity, but also de-centers gender/sexual minorities and related oppressions, for whom and which the term was created.

The term heteronormativity overlaps with other terms such as sexism and heterosexuality. Both of these are applied to gender inequities and low desire in women partnered with men. However, we consider heteronormativity the most appropriate term in this context. The term “sexism” refers to the privileging of masculinity, men, and maleness but, unlike heteronormativity, is not directly tied to the privileging of heterosexuality or the complementarity of genders, though these certainly can be tied up with it. The term “heterosexuality” describes a mixed-gender/sex romantic and/or sexual orientation and/or relationship configuration. It operates descriptively, but does not encompass the social pressures and expectations to *be* heterosexual, as the term heteronormativity does. Heteronormativity is thus the most appropriate term for our purposes.

Gender Inequities in Household Labor and Low Desire

In mixed-gender/sex¹ relationships, women do a much larger share of household, emotional, and mental labor compared to men (Coltrane, 2000; Erickson, 2005; Hochschild, 1989; Moyser & Burlock, 2018; Robertson et al., 2019). While this division of labor has become more equal as women’s and men’s paid hours become more similar, the degree of change is not the same: women are taking on more hours of paid work than men are taking on hours of unpaid work (Bianchi et al., 2012). Women perform approximately 2.5 more hours per day of household labor relative to men (Moyser & Burlock, 2018). These inequities in labor are particularly apparent for mixed gender/sex couples with children (Bianchi et al., 2012) where gender roles can become especially demarcated. During the COVID-19 pandemic, these inequities became especially pronounced. According to the OECD Risks that Matter survey (2020), mothers were three times as likely to take on the majority of childcare and other care work compared to fathers, and were more likely to become unemployed. Thus, data are clear that heteronormative roles prescribed to women and men are supported—women are performing a larger proportion of household labor relative to men, and this may have implications for women’s desire.

We propose that gendered inequities in household labor will be associated with women’s decreased desire for their men partners. Keeping a household functioning necessitates performing required tasks, a heavy cognitive load, and providing emotional support for household members. While each of these tasks can be rewarding, they can also be taxing, especially when they are not valued, reciprocated, or

recognized as work, as tends to be the case in Western contexts (Luxton, 1997). Further, many women do not choose to take on the role of household manager. Heteronormative gender roles are *norms* and, often, women are expected to take on unpaid and undervalued labor. Thus, we theorize that performing a larger proportion of household labor will be associated with low desire in women partnered with men because it is inequitable—it is tiresome, under-valued, and largely involuntary.

Previous research on parenting, household labor, and sexual satisfaction provides support for the hypothesis that inequities in household labor will be associated with lower desire among women partnered with men (e.g., Johnson et al., 2016; Le et al., 2016; Maas et al., 2018). Sexual satisfaction reflects a person’s general rating of their sexual relationship which can reflect a number of factors, including perceptions of *partner* satisfaction (McClelland, 2011, 2014); and partnered sexual desire reflects the extent to which a person has an interest in being sexual with a partner. Sexual satisfaction and desire are not the same, but they are correlated when assessing a person’s sexual relationship with their partner (Mark, 2012).

A number of studies have found a negative association between inequities in various aspects of household labor and relationship and sexual satisfaction, including household chores (Johnson et al., 2016), emotion work (Horne & Johnson, 2019), and parenting (Leavitt et al., 2017). Interestingly, parenting stress predicts mother’s but not father’s lower sexual satisfaction (in studies of people in heterosexual relationships Leavitt et al., 2017; Maas et al., 2018). And, mothers who are less satisfied with the division of household labor in their relationships are more dissatisfied with the frequency of passion and cuddling in their relationship (Maas et al., 2018).

Sexual frequency also shows associations with the division of household labor (e.g., Carlson et al., 2016, 2018; Horne & Johnson, 2019). For example, among 487 heterosexual couples, egalitarian couples had sex more frequently compared to non-egalitarian couples (Carlson et al., 2016). Similarly, another study showed sexual frequency and satisfaction for women and men increased over time when men reported making a fair contribution to housework (Johnson et al., 2016).

Previous studies have typically measured household labor using brief measures that assess broad categories of household labor such as cleaning and childcare (e.g., Greenstein, 2000; Horne et al., 2018; Wright et al., 1992). While these are helpful for estimating the division of common household duties, they do not capture the full extent of the division of labor, and possible inequity. For example, these measures do not include questions about who does the social planning (e.g., organizing birthdays and holidays, buying presents, etc.) or emotional and administrative components of

¹ We use the term gender/sex instead of ‘gender’ or ‘sex’ when referring to whole identities to recognize the complex entanglement of socially constructed gender and biological sex (van Anders, 2015; van Anders & Dunn, 2009).

childcare (e.g., listening to children’s worries, setting up children’s medical care). These are, of course, necessary and important tasks for keeping a household functioning. A more comprehensive measure of household labor is therefore needed to capture the range of tasks and subcomponents of household labor.

Divisions of household labor have implications for people’s sex lives. Specifically, inequalitarian divisions of labor are associated with sexual dissatisfaction, reduced frequency of sex, and, importantly, dissatisfaction with the frequency of sexual behavior. And this seems particularly marked for women. Women have a substantially larger proportion of household labor relative to men partners that they may not actively “opt in” to, and that is not valued to the same extent as other forms of labor. But, what are the mechanisms that might explain the association between sexual desire and heteronormative inequities in household labor? The heteronormativity theory of low desire poses a number of possibilities (van Anders et al., 2021) and we focus on two potential mechanisms in the present research.

Perceived Unfairness, Perceived Partner Dependence, and Low Desire

Performing a larger proportion of household labor relative to a partner can have a number of implications for how people perceive their relationship, and how they perceive their partner. One intuitive consequence of inequity in the division of household labor is *perceived unfairness*.

As noted above, we expect that performing a larger proportion of household labor relative to a partner will be associated with low desire *because* it is inequitable—it is a burden that has been placed on women partnered with men without their consent, and one that is maintained by their partner’s lack of participation in household labor. As such, household labor may be associated with low desire because it is perceived to be unfair. We tie this theorizing specifically to inequities in household labor, and not household labor itself. As such, we do not necessarily expect household labor to be inherently associated with lower desire (people who live alone, for example, may not experience lower desire as a function of doing household labor). Another possibility is that the link between inequities in the division of household labor and desire is only present (or is much stronger) for women who perceive it to be unfair. In relationships where women feel satisfied with the division of labor, and may have actively chosen to do a large proportion of labor, household labor may not be associated with low desire. We will assess both possibilities in the current study.

In addition to perceived unfairness, a second potential outcome of performing a large share of household labor relative to a partner is *perceived partner dependence*. Perceived partner dependence refers to feeling that a partner is reliant on you for caregiving and performing basic life tasks (that a partner would otherwise be capable of doing). This caregiving overlaps with childcare, such that taking care of household members, including doing their laundry, cooking for them, and cleaning for them, are tasks that we typically perform for children, and they are typically unidirectional (from carer to dependent). We do not expect children to reciprocate these duties or understand their value *because* they are children. However, when a partner does not reciprocate or value household labor, that relationship with a partner violates norms of reciprocity (Uehara, 1995) and relational interdependence (e.g., Aron & Aron, 1986), and more closely mirrors that of a mother and a child. Hence, “mothering” a partner via the performance of domestic duties may diminish desire (van Anders et al., 2021).

To our knowledge, there is no previous research linking the perception of a partner as dependent and low sexual desire. However, past qualitative work exploring women’s attributions for their low desire provides insights into linking motherhood and caregiving with low desire (Sims & Meana, 2010; Trice-Black, 2010). In a study of women who experienced low desire and who were married to men, a number of women attributed their low desire to a “desexualization of roles” that resulted from becoming a mother and wife (Sims & Meana, 2010). Some women described feeling too overwhelmed with daily life to experience desire and eroticism. For example, one participant noted that in relation to sex, “I have so much else to do... it’s like another chore added to my list... something I have to do to make my husband happy” (p. 373). Relatedly, women also described finding their roles of mother and wife to be in conflict. One participant stated, “I’m a mom, I’m not supposed to be sexy,” and another stated, “I feel like I’m 90% mom and 10% wife” (p. 373). In another qualitative study of working mothers, Ehrstein (2022) noted that one of the main themes to emerge was describing a man partner as like a “feckless manchild.” One participant stated, “... We are pregnant with our first child and I honestly have never been so stressed in my life. He has always been a “manchild” but I guess I thought he would grow up a little bit when he started getting so much responsibility ... By manchild I mean I do EVERYTHING! I cook, clean and work ...” (p. 11).

The findings from Sims and Meana (2010) about the mother–wife role and desexualization suggest that feeling overwhelmed by daily responsibilities and perceiving oneself almost solely as a mother and caregiver may contribute to

lower sexual desire. Of course, being a mother is not antithetical to desire or to being sexual. However, mothering is a non-sexual role in relation to those they mother. As reflected in the findings from Ehrstein (2022), taking on a large proportion of the household responsibility relative to a man partner can lead to feelings of frustration and exasperation. As such, the recipients of mothering and similar forms of caregiving may be perceived as non-sexual. Thus, the inequitable proportion of household labor may contribute to a burdensome blurring of mother and partner roles, whereby partners are perceived as recipients of caregiving, akin to dependent children. As a result, women may experience lower desire for partners who are perceived in dependent-like ways.

Because the heteronormativity theory considers socio-structural causes of low desire, it can account for low desire in women partnered with men in a way that other explanations largely fail to do. In this study, we present the first test of the heteronormativity theory of low desire in women partnered with men by assessing how heteronormative divisions of household labor might be related to levels of desire among women with children who are partnered with men. We sought to test the following three hypotheses:

H1 Women's proportion of household labor relative to that of their partners will be negatively associated with desire for partners.

H2 The association between women's household labor and desire will be mediated by perceived unfairness.

H3 The association between women's household labor and desire will be mediated by perceived partner dependence.

We focus on women partnered with men in the current study for two reasons. First, heteronormative gender roles dictate a gendered division of labor for people in heterosexual relationships. While heteronormative gender roles impact people across genders and sexualities, they may be particularly salient for people in heterosexual relationships where norms are clearly defined by gender/sex. Second, the literature on low desire has largely focused on women partnered with men. While low desire is experienced among other groups, the focus on women partnered with men suggests that it is primarily considered a *problem* for women partnered with men. Relatedly, treatments for low desire specifically target women partnered with men. In this study, we seek to conduct the first test of the theory that heteronormativity may offer an additional account of low desire in women partnered with men.

We preregistered our hypotheses and analysis plan on AsPredicted.org (available here: https://osf.io/2yg5r/?view_only=4be91317c0af44daa59c110bc326a3c5). below, we present two studies testing these hypotheses, and then discuss implications for women partnered with men, and directions for future research that examines the intersecting inequities including race, class, gender/sex, and sexuality.

Study 1

Method

Participants

We recruited participants via Prolific Academic, an online survey platform. Participants were eligible to participate if they: identified as women, were currently in a relationship with a person who identifies as a man, had been in their current relationship for at least six months, were living with their relationship partner, had at least one child/dependent under the age of 12, and lived with their child/children part-time or full-time. We recruited women cohabiting with men partners to assess the role of heteronormative divisions of labor in women's low desire. We specifically sampled women with young children because childcare makes up a substantial proportion of household labor and it is more likely to be performed by women than men (Bianchi et al., 2012). Recruitment occurred in April 2019, prior to the COVID-19 pandemic.

We expected a small effect of household labor on desire based on previous research that found a small to medium effect of household labor on sexual satisfaction (Carlson et al., 2018; Johnson et al., 2016). For simplicity, we calculated power for a linear model predicting desire rather than estimating power to detect the indirect effects of household labor on desire via perceived unfairness (H2) and perceived partner dependence (H3). An a priori power analysis estimated a sample size of 750 would be required to detect a small effect ($F^2 = 0.02$) with 80% power for a multiple regression model with household labor, perceived dependence, and perceived unfairness as independent variables and five control variables (see "Covariates and descriptive statistics" below for details). We aimed to recruit 800 participants to account for participant exclusions. Some participants provided partial responses to our survey, and were not included in Prolific Academic's participant count. We included these partial responses prior to applying our exclusionary criteria, so our initial sample was 815 participants after excluding duplicate responses ($n = 2$).

Exclusionary criteria were the following: a) not meeting inclusion criteria ($n = 98$), b) reported age and year of birth differed by $+/- 2$ years ($n = 10$) which suggested made-up or non-serious participation, and c) reported having answered some of the questions as a joke ($n = 1$). We also checked for clear pattern responding (e.g., $> 80\%$ of responses were the same and responses to reverse coded items were identical to responses to non-reverse coded items in a scale), and nonsense responses to open-ended questions, as indicators of poor data quality; however, no participants met these exclusionary criteria.

Table 1 Study 1 participant characteristics

Demographic	<i>n</i>
<i>Cisgender/transgender/allogender*</i>	
Cisgender	646
Allogender	17
Transgender	3
Missing/unspecified	20
<i>Race/ethnicity*</i>	
White	608
Black	29
Multiracial	23
Hispanic/Latinx/Mexican	20
Asian	13
South Asian	5
Middle Eastern	3
Eastern European/European	2
Native American	2
Other	1
<i>Country of residence*</i>	
UK	467
USA	169
Europe	43
Canada	15
Australia	6
Mexico	2
Chile	1
Israel	1
Japan	1
<i>Sexual orientation/identity*</i>	
Heterosexual	659
Bisexual/pansexual	40
Missing	5
Unsure	1
Multi-label	1
<i>Employment</i>	
Full-time	274
Part-time	252
Not employed	180
<i>Disability status</i>	
No disability	671
Disability	33
Missing	2
<i>Partner requires care due to illness or disability</i>	
No	688
Yes	16
Missing	2

*We used open-ended questions and coded responses into the above categories

After making these exclusions, our sample comprised of 706 participants. The mean age was 34.69 years ($SD = 6.45$), and relationship length was 11.35 years ($SD = 5.66$). See Table 1 for participant characteristics. We excluded participants who did not respond to items assessing inclusion criteria or who provided ambiguous responses (e.g., they identified as their gender/sex as “cisgender”) (but see the Supplemental Online Materials for details on a few exceptions).

Measures and Procedure

After reading the study information sheet and providing consent, participants completed a measure of sexual desire followed by measures of the division of household labor, perceptions of unfairness regarding the division of labor, and perceptions of their partner as a dependent. Participants then completed measures of demographic and health information and sex and relationship history. Upon completion of the study, participants were debriefed and paid £2. For a full list of items, see the Supplemental Online Materials.

Sexual Desire We measured desire using 15 items adapted from the Hurlbert Index of Sexual Desire (Apt & Hurlbert, 1992). We excluded 10 items from the original 25-item measure to reduce repetition, focus on partner-specific desire, and focus on desire rather than sexual fantasy (e.g., “I enjoy using sexual fantasy with my partner”). For a full list of excluded items, see the Supplemental Online Materials. We also adapted two items from the original scale to focus specifically on partner desire by including “with my partner” (“It is difficult for me to get in a sexual mood with my partner,” and “It is easy for me to get in the mood for sex with my partner”). Additional example items included: “Just thinking about having sex with my partner excites me,” and “I try to avoid situations that will encourage my partner to want sex” (reverse-scored), $\alpha = 0.96$. Response options ranged from 1 = Strongly disagree to 7 = Strongly agree, with higher scores reflecting higher sexual desire.

Division of Household Labor We developed an initial pool of items assessing household labor after consulting previous literature (e.g., Bianchi et al., 2012; Carlson et al., 2016; Coltrane, 2000; Johnson et al., 2016), popular books (Rodsky, 2019), media articles (e.g., Hartley, 2017; Lockman, 2019), social media posts, and members of our research laboratory. The measure was then shared with community ($n = 9$) and academic ($n = 3$) experts who provided feedback. The final list of items measuring household labor comprised of 119 household tasks that we divided into the following categories: finance, social planning, cleaning, clothes, food, outdoor maintenance, pet care (if applicable), house and car maintenance, general decision making and management, childcare, initiating discussions, and contacting people. We randomized

the order in which these categories were presented to participants. We asked participants to “state how often you complete these tasks relative to your partner” with the following response options: 1 = My partner always does this, 2 = My partner mostly does this, 3 = My partner and I share this task equally, 4 = I mostly do this, 5 = I always do this, 6 = Someone else does this task, and 7 = N/A/not relevant. Responses 6 and 7 were coded as N/A. Higher scores on the division of household labor measure indicate that participants completed more household tasks relative to their partners. We created a composite score of household labor using factor scores calculated after conducting an Exploratory Factor Analysis (details in the “Data Analysis” section).

Perceived Unfairness Previous literature has typically measured perceived unfairness regarding the division of household tasks using single-item measures (e.g., Carlson et al., 2016; Milkie & Peltola, 1999) or items addressing unfairness in relation to two distinct aspects of household labor (household chores and childcare, Voydanoff & Donnelly, 1999). We sought to develop a multi-item measure of perceived unfairness assessing general perceptions of unfairness of the division of household labor across multiple domains of household labor. We followed the same practices for scale development used for the measure of household labor—consulting academic and non-academic literature and consulting with academic and community experts. The final scale comprised five items. We asked participants to reflect on the household tasks they had just reported on and rate their level of agreement with five statements assessing perceptions of unfairness, for example: “Too many of the daily tasks in our household are my responsibility,” and “I should contribute more to the household” (reverse-scored), $\alpha = 0.84$. Response options ranged from 1 = Strongly disagree to 7 = Strongly agree, with higher scores reflecting more perceived unfairness.

Perceived Partner Dependence We are unaware of any existing measures of perceived partner dependence. We therefore developed an original measure, following the same practices for scale development outlined above for our measures of household labor and perceived unfairness. We measured the perception of a partner as a dependent, that is, women’s perception that their men partners relied on them for everyday tasks required to keep the household functioning, using a seven-item scale. Example items included “Sometimes I feel as though my partner is like an extra child I need to look after,” and “I never feel burdened by my partner” (reverse-scored), $\alpha = 0.87$. Response options ranged from 1 = Strongly disagree to 7 = Strongly agree, with higher scores reflecting greater perceived partner dependence.

Demographics, Health, Sex, and Relationships Questionnaire We asked participants to provide their demographic information, partner gender/sex, sexual orientation/identity, disability status and partner disability status, relationship length, cohabitation status, partner care responsibilities, partner care needs, relationship status, number of children, children’s ages, employment status, and hours of paid work.

Data Analysis

We conducted data analyses in R Studio and Mplus. Analysis code and results are available on OSF, https://osf.io/2yg5r/?view_only=4be91317c0af44daa59c110bc326a3c5.

Exploratory Factor Analysis for Household Labor We conducted an Exploratory Factor Analysis (EFA) of the items measuring household labor to identify the sub-factors of household labor and how these might be associated with desire. We conducted an EFA since we did not have a clear a priori theory related to the factor structure of items measuring the division of household labor.

Missing Data Analysis We excluded variables with at least 40% missing data ($n = 7$), and participants with at least 20% missing data ($n = 29$). Our final N for analysis was 677, with 7% missing data across 112 items. We discuss our procedures for handling missing data in detail in the Supplemental Online Material.

Exploratory Factor Analysis We conducted an EFA using Mplus, version 8.1. We used an oblimin rotation because we hypothesized that our measure of household labor would capture underlying latent constructs and that these constructs would be correlated. We used Full Information Maximum Likelihood (FIML) to generate missing data and to calculate factor scores. Factor scores for the final factor solution were calculated using the standard regression method, and were used in all subsequent analyses. For details related to the EFA, see the analysis code and results file available on OSF https://osf.io/2yg5r/?view_only=4be91317c0af44daa59c110bc326a3c5.

Factor Extraction We examined multiple indicators of the number of factors to extract, including parallel analysis, Kaiser’s criterion, and scree plot. Based on these criteria, and observing the conceptual and statistical fit of plausible factor solutions, we selected an eight-factor solution (see Results (Factor Extraction) for details regarding factor extraction). We also calculated an average measure of household labor ($\alpha = 0.70$) using the factor scores for each factor such that each factor of household labor was equally weighted. We used a composite score to test whether, on balance, women were performing a disproportionately large amount of house-

hold labor across all relevant domains relative to a partner. Using a composite score also reduced the risk of Type I error resulting from multiple comparisons. To explore variation across factors, we inspected the correlations between household labor factors, mediating variables, and outcome variable. We also conduct exploratory sensitivity analyses using each factor of household labor as a predictor.

Confirmatory Factor Analysis for Perceived Unfairness and Perceived Partner Dependence

We conducted a Confirmatory Factor Analysis (CFA) of the items used to measure perceived unfairness and perceived partner dependence. We conducted a CFA because we theorized that these two measures were related but distinct constructs, and CFA is appropriate for testing theory-driven models (Sakaluk & Fisher, 2019). Both measures tap responses to potentially inequitable divisions of household labor. We developed the perceived unfairness scale to assess a sense of injustice and inequity related to the distribution of household labor, whereas we developed the perceived partner dependence scale to assess the extent to which the distribution of household labor may lead to feeling like a partner’s caregiver. The two may be correlated (as is the case in the present studies, see Table 2), but one does not necessarily lead to the other. For example, a person could perceive a partner as dependent, but not perceive unfairness, in a similar way that perceiving a child as dependent may not necessarily lead to feelings of unfairness. We therefore specified a model with two correlated but distinct underlying factors. We modeled the items used to measure perceived unfairness and partner dependence as indicator variables predicted by their respective latent factors.

We conducted the CFA with lavaan version 0.6–4 (Rosseel, 2012) in R, using maximum likelihood estimation. We used FIML to generate missing data ($n_{missing} = 5$). We used the default settings for model specification, whereby the factor loading of the first indicator of each latent variable was fixed to 1 and residual variances were modeled for each parameter and latent factor.

Covariates and Descriptive Statistics We collected data on age, relationship length, number of children, age of youngest child, and hours of paid work as possible covariates because they have been associated with desire and household labor (Brotto et al., 2010; Eplov et al., 2007; Ishii-Kuntz & Coltrane, 1992), consistent with previous work (Johnson et al., 2016). As per our pre-registered analysis plan, covariates that correlated significantly with desire at $r > |0.15|$ were included in follow-up analyses. Number of children, age of youngest child, and number of paid hours were not significantly correlated with desire, $r_s < |0.15|$, $p_s > 0.077$, so we did not include them as control variables. Desire significantly correlated with age, $r = -0.18$, $p < 0.001$, and relationship length, $r = -0.15$, $p < 0.001$, which were included in follow-up analy-

Table 2 Pearson correlations between household labor factors, average proportion of household labor, perceived dependence, perceived unfairness, and partner sexual desire for studies 1 (below the diagonal) and 2 (above the diagonal)

	1	2	3	4	5	6	7	8	9	10	11	12
1. Finance		.34***	.06	.18***	.20***	.15**	.35***	.72***	.69***	.19***	.22***	-.15**
2. Life and social planning	.42***		.24***	.16**	.34***	.29***	.51***	.48***	.67***	.29***	.28***	-.23***
3. Cleaning	.07*	.15***		.20***	.42***	.62***	.42***	.05	.52***	.59***	.57***	-.20***
4. House and car maintenance	.10*	.10*	.18***		.19***	.08	.31***	.31***	.41***	.31***	.23***	-.15**
5. Childcare and development	.19***	.27***	.39***	.23***		.42***	.60***	.18***	.61***	.49***	.51***	-.32***
6. Meal planning	.07*	.19***	.43***	.13**	.32***		.45***	.09	.56***	.41***	.41***	-.22***
7. Parenting logistics	.18***	.37***	.37***	.14**	.51***	.38***		.54***	.82***	.42***	.46***	-.34***
8. Household administration	.42***	.21***	-.03	.14***	.17***	.10**	.25***		.75***	.20***	.23***	-.19***
9. Average proportion of labor	.54***	.59***	.56***	.44***	.67***	.57***	.70***	.49***		.52***	.53***	-.34***
10. Perceived partner dependence	.27***	.39***	.44***	.32***	.50***	.35***	.36***	.16***	.61***		.75***	-.41***
11. Perceived unfairness	.24***	.36***	.47***	.23***	.46***	.40***	.46***	.17***	.61***	.73***		-.31***
12. Partner sexual desire	-.18***	-.26***	-.14***	-.17***	-.35***	-.07*	-.28***	-.10*	-.34***	-.34***	-.25***	

*Indicates $p < .05$. ** indicates $p < .01$, *** indicates $p < .001$

ses. The correlation between relationship length and desire just missed cutoff, and we included it to be more conservative. We re-estimated the sample size required to detect a small effect, $F^2 = 0.02$, with 80% power for a model with three independent variables and two control variables, which was 645 participants. As such, we were sufficiently powered to detect a small effect, with our final N for analysis of 677.

Skewness was $< \pm 0.5$ for variables included in our regression models, indicating that the variables were approximately normally distributed, and no outliers were detected based on a criteria of values greater than 131 standard deviations from the mean. We tested the effects controlling for whether a partner required care due to chronic illness or disability, and results were unchanged.

Testing Hypotheses 1–3 We planned to test our first hypothesis, that inequities in household labor would be negatively associated with desire for a partner, by regressing desire on household labor, including covariates identified above. To test our second hypothesis, that the association between household labor and desire would be mediated by perceived unfairness, we planned to test the indirect effect of household labor on desire via perceived unfairness in a mediation model, including covariates in the model. To test our third hypothesis, that perceived partner dependence would mediate the association between household labor and desire, we planned to test the indirect effect of household labor on desire via perceived partner dependence in a second mediation model, including covariates in the model.

For each of our hypotheses, we conducted tests where we averaged across the eight household labor factors to create an aggregate household labor variable (pre-registered) and tests where we assessed each of the household labor factors individually (not pre-registered). While not originally pre-registered, we also tested a parallel mediation model with household labor as the predictor, desire as the outcome, and both mediators included in the model, again including covariates. We tested a parallel mediation model to assess the unique associations between the predictor, mediators, and outcome.

Results

Exploratory Factor Analysis of Division of Labor

Factor Extraction We used a multi-method approach to select the number of factors to extract (as recommended by Morton & Altschul, 2019) since each method has strengths and weaknesses. We assessed Kaiser’s criterion, scree plot, and parallel analysis. Parallel analysis has been labeled the “gold standard” approach (Goretzko et al., 2021). Parallel analysis compares the factor structure of the observed data with the factor structure of randomly generated data of the same

dimensions. However, parallel analysis tends to over-extract factors (Crawford et al., 2010).

The parallel analysis suggested an 11-factor solution, the scree plot indicated an elbow at five- and eight-factors, and eigenvalues according to Kaiser’s criterion suggested a 22-factor solution. Since these methods produced varying results, we inspected factor structures 4 through 12. We considered the extent to which each solution produced interpretable and meaningful factors. As per convention, items were thought to load sufficiently onto a factor at $|.30|$ or greater (Fabrigar et al., 1999). The eight-factor solution provided the best conceptual fit for the data since it meaningfully captured sub-facets of household labor with no factors that had only a single item loading above $|.3|$ (i.e., each factor comprised more than one item and those items created a meaningful category).

We also assessed statistical indicators of model fit. As suggested by Fabrigar and colleagues (1999), we examined the changes in the model RMSEA to identify the point at which adding one additional factor no longer substantially improves model fit. The confidence intervals for the RMSEA for a seven-factor solution were non-overlapping with the RMSEA for the eight-factor solution (suggesting an improvement in model fit), and they were overlapping for solutions eight and nine (suggesting no significant improvement in model fit). These comparisons suggest that an eight-factor solution best captures the underlying structure of the items with the least number of factors. We therefore selected the eight-factor solution.

Division of Labor Model The final factor structure comprised 106 items that loaded onto eight factors: “finance,” “life and social planning,” “cleaning,” “house and car maintenance,” “childcare and development,” “meal planning,” “parenting logistics,” and “household administration.” All items loaded onto at least one factor at 0.30 or greater, with the exception of one item loading at 0.295. Items with cross-loadings were retained, following recommendations from Sakaluk and Fisher (2019), who note that items with cross-loadings contribute meaningfully to multiple factors and are not necessarily a threat to simple structure. Item loadings and factor scores are listed in the analysis code and results file on OSF, and item names and loadings are presented in the Supplemental Online Materials (see Table S1).

Confirmatory Factor Analysis of Perceived Unfairness and Perceived Partner Dependence

The fit indices for a two-factor model were $TLI = 0.91$, $CFI = 0.924$, $SRMR = 0.043$, and a $RMSEA = 0.097$, 90% CI [0.088, 0.106]. See the analysis code and output on OSF for all standardized and unstandardized factor loadings, variances, and covariances.

Assessing Model Fit We estimated model fit index cutoff values for our model using the Dynamic Model Fit (DMF) shiny app for multi-factor CFAs (McNeish & Wolf, 2020). We chose to estimate model-specific cutoff values, which involves conducting simulations based on our model specifications, rather than use Hu and Bentler's (1999) cutoff values, which may under or over-estimate model fit as a function of measurement quality (McNeish & Wolf, 2020).

The estimated cutoff values for 95% confidence of correct model specification were $SRMR \leq 0.044$ ($SRMR_{\text{actual}} = 0.043$), $RMSEA \leq 0.035$ ($RMSEA_{\text{actual}} = 0.097$), and $CFI \geq 0.989$ ($CFI_{\text{actual}} = .924$). Since one of the three recommended cutoff values was met, and the remaining two cutoff values were nearing the ideal cutoff values, we inferred that our model provided acceptable fit to the data. We also compared the proposed two-factor model to a one-factor model, and the two-factor model provided significantly better fit to the data, $\chi^2(1) = 224.28$, $p < 0.001$. We therefore modeled perceived unfairness and perceived partner dependence as two distinct constructs in our main analyses.

Descriptives On average, based on raw scores, participants reported doing more household labor relative to their partners ($M = 3.69$, $SD = 0.45$). Perceived unfairness ($M = 5.08$, $SD = 1.42$) and perceived partner dependence ($M = 4.23$, $SD = 1.43$) were above the midpoints of the scales and desire ($M = 4.26$, $SD = 1.48$) was slightly above the midpoint.

Main Analyses

In the following analyses, we controlled for age and relationship length. To test our first hypothesis (H1)—*Does the proportion of household labor predict lower desire among women*—we regressed average household labor on desire. The average proportion of household labor was a significant negative predictor of desire, such that performing a greater proportion of household labor was associated with significantly lower sexual desire, $\beta = -0.33$, $SE = 0.10$, $p < 0.001$, 95% CI [-0.40, -0.26]. Of the covariates in the model, age was a significant negative predictor of desire, such that older women reported lower desire, $\beta = -0.15$, $SE = 0.01$, $p < 0.001$, 95% CI [-0.24, -0.07], and relationship length was a nonsignificant predictor of desire, $p = 0.802$. Thus, while there was a significant bivariate correlation between desire and relationship length, after accounting for the effects of household labor and age on desire, relationship length was no longer a significant predictor. The results therefore support hypothesis 1: performing a higher proportion of household labor is associated with significantly lower desire for women partnered with men.

To test our second and third hypotheses, we used the PROCESS package in R, which estimates direct and indirect effects based on 5,000 bootstrapped samples (Hayes,

2017; see Fig. 1). For our second hypothesis (H2)—*Is the relationship between household labor and desire mediated by perceived unfairness*—we modeled the indirect effect of household labor on desire via perceived unfairness. The direct effect of household labor on desire was significant, $\beta = -0.28$, $p < 0.001$, 95% CI [-0.37, -0.19], such that, controlling for perceived unfairness, household labor was a significant negative predictor of desire. However, the indirect effect was nonsignificant, $\beta = -0.04$, $p = 0.092$, 95% CI [-0.10, 0.01], such that the effect of household labor on desire was not significantly mediated by perceived unfairness.

To test our third hypothesis (H3)—*Is the relationship between household labor and desire mediated by perceived partner dependence*—we modeled the indirect effect of household labor on desire via perceived dependence. The direct effect of household labor on desire was significant, $\beta = -0.19$, $p < 0.001$, 95% CI [-0.27, -0.10], such that, controlling for perceived dependence, household labor was a significant negative predictor of desire. The indirect effect of perceived dependence was also significant, $\beta = -0.14$, $p < 0.001$, 95% CI [-0.20, -0.08], such that perceived partner dependence partially mediated the effect of household labor on desire. The proportion of the effect of household labor on desire that was mediated by perceived partner dependence was 43%, $p < 0.001$.

In cases where there is an interaction between the predictor and mediator variable(s), the interaction should be included as a covariate in the mediation model. Hence, prior to running the mediations, we ran two models estimating the interactions between household labor and perceived unfairness, and household labor and perceived dependence, as predictors of desire. The interactions were nonsignificant, $ps > 0.092$, and were therefore not included as covariates when assessing mediation.

We then tested a parallel mediation model, simultaneously modeling the indirect effects of household labor on desire via perceived dependence and perceived unfairness. We did not preregister this analysis, but this model allows us to assess the effect of each mediator, independent of each other. The results were consistent with the independent mediation models reported above. The indirect effect via perceived dependence was a significant predictor of desire, $\beta = -0.17$, 95% CI [-0.24, -0.11], and the indirect effect of household labor on desire via perceived unfairness did not reach significance, $\beta = 0.05$, 95% CI [-0.02, 0.12], see Fig. 1. We calculated the Variance Inflation Factor (VIF) for each predictor in the model to assess multi-collinearity, since the two mediators were highly correlated, $r = 0.73$, $p < 0.001$. The VIFs were < 2.40 , below the threshold of 10 for diagnosing multi-collinearity (Alin, 2010). For a full discussion of our assessment of multi-collinearity, see the Supplemental Online Material.

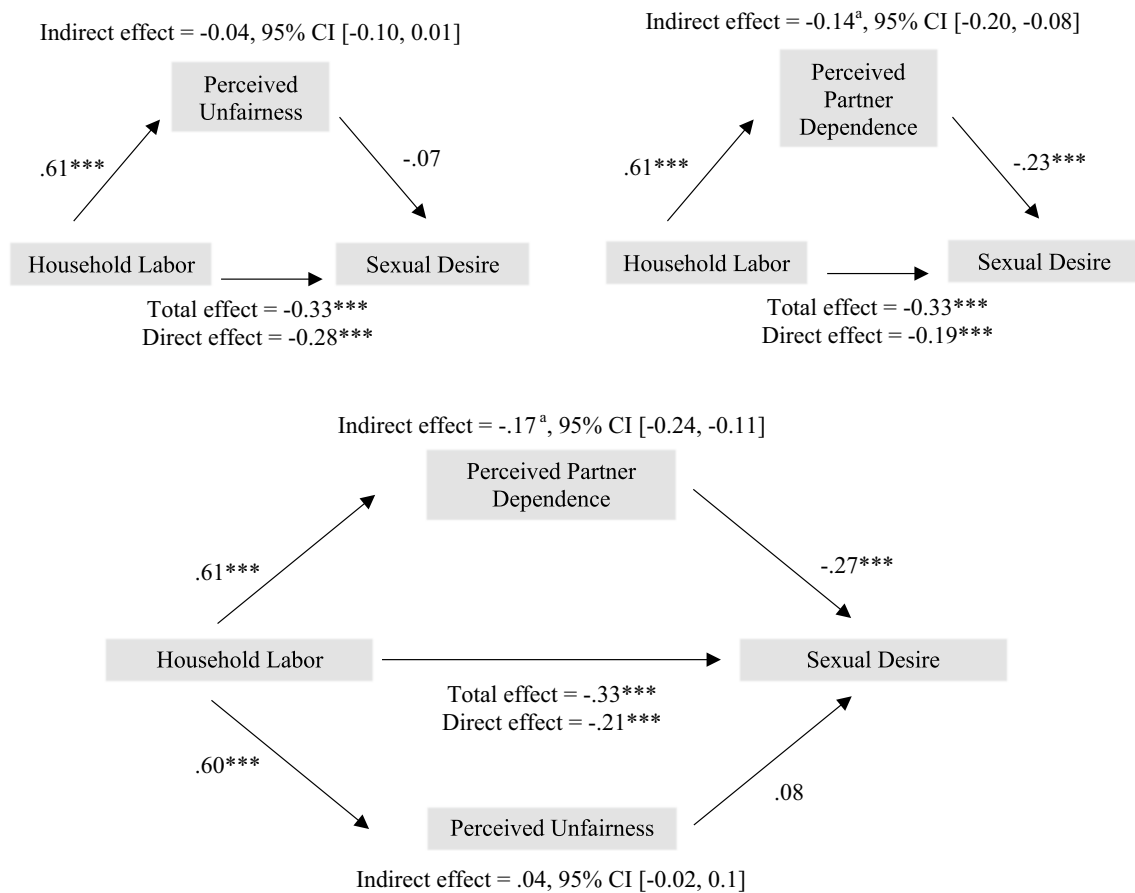


Fig. 1 Study 1 Standardized coefficients for the associations between household labor and sexual desire as mediated by perceived partner dependence and perceived unfairness. Note: $***p < .001$, a indicates a significant effect (confidence intervals do not cross zero)

We conducted exploratory analyses (not included in our preregistration), to test the extent to which the effects of inequities in household labor on desire were driven by factors of household labor (e.g., childcare, life and social planning). Results were consistent with those reported above using a global score for household labor, with one exception. When testing single mediation models with perceived unfairness, perceived unfairness was a significant mediator of the effects of each household labor factor on desire. We report the results in detail in the Supplemental Online Material. We have focused on our analyses using a global household labor score since these analyses are consistent with our pre-registration and have lower risk of Type I errors.

We also conducted exploratory analyses, consistent with our preregistration, to test which types of household labor would be most strongly associated with desire. We inspected the correlations between each factor of household labor, perceived partner dependence, and desire (see Table 2). Desire was most strongly negatively correlated with childcare and development, $r = -0.35$, parenting logistics, $r = -0.28$, and life and social planning, $r = -0.26$. Perceived partner

dependence was most strongly positively correlated with childcare and development, $r = 0.50$, cleaning, $r = 0.44$, and life and social planning, $r = 0.39$. For a list of deviations from our pre-registration, see the Supplemental Online Materials.

Discussion

In Study 1, we developed a comprehensive measure of gender inequities in household labor and tested three hypotheses about low desire in a sample of women partnered with men. We found support for Hypothesis 1: gender inequities in household labor were associated with significantly lower desire. We found mixed support for Hypothesis 2: the association between inequities in household labor (when aggregated across factors) and desire was not significantly mediated by perceived unfairness, but the association between each factor of household labor and desire was significantly mediated by perceived unfairness when modeled independently from perceived dependence. We found support for Hypothesis 3: inequities in the division of household labor was significantly mediated by perceptions of a partner as

dependent. Results were consistent when testing each factor of household labor as predictor variables. Consistent with heteronormativity theory (van Anders et al., 2021), heteronorms that dictate inequitable gender divisions of household labor may contribute to experiences of low desire among women partnered with men. In Study 2, we expand on Study 1, further assessing the validity of our measures and the reliability of our findings.

Study 2

In Study 2, we further tested the validity and reliability of findings from Study 1. To do so, we tested the factor structures of our measures of gender inequities in household labor, perceived unfairness, and perceived partner dependence in a new sample. We also assessed the convergent and divergent validity of these measures. Finally, we again tested our hypothesized models. We conducted Study 2 partly in response to reviewer feedback and did not preregister this study.

Method

Participants

We followed the same recruitment procedure as in Study 1. For this study, however, recruitment occurred in October–November 2021, during the COVID-19 pandemic. We conducted a priori power analyses to estimate the N required to replicate the model presented in Study 1. We used the shiny app “Monte Carlo Power Analysis for Indirect Effects” (Schoemann et al., 2017). We estimated power to detect an indirect effect of household labor on desire via perceived unfairness in a single mediation model because the predictor and mediators are highly correlated and multicollinearity reduces power in mediation models (Fritz et al., 2012). We input the correlations from Study 1. We focused on perceived unfairness because it showed the weaker effects on desire compared to perceived partner dependence, and would therefore require a larger sample to obtain sufficient power to detect an effect. To detect an indirect effect via perceived unfairness with 80% power, the required N was 358–365. We aimed to recruit a final sample of at least 400 participants, and a total sample of at least 500 to account for participant exclusions. This sample size also satisfied power recommendations for required sample sizes for Confirmatory Factor Analysis (CFA; Noar, 2003; Kyriazos, 2018) with a large number of factors and some low loadings.

We screened out participants who had taken part in Study 1 and recruited 550 participants via Prolific Academic. We applied the same inclusion criteria as Study 1. We excluded participants who: a) did not consent to participate or stated

that they were ineligible ($n = 36$), b) provided a duplicate response (the most incomplete response was excluded, $n = 2$), c) did not meet inclusion criteria ($n = 87$), d) reported age and year of birth differed by ± 2 years ($n = 1$) which suggested made-up or non-serious participation, or e) reported having answered some of the questions as a joke ($n = 0$).

After making these exclusions, our sample comprised 424 participants. The mean age was 33.46 years old ($SD = 6.72$), and relationship length was 13.11 years ($SD = 1.29$). As in Study 1, we coded open-ended responses to questions assessing gender/sex, partner gender/sex, race/ethnicity, country of residence, and sexual orientation/identity (see Table 3). We excluded participants who did not respond to items assessing inclusion criteria or who provided ambiguous responses, with some exceptions (see the Supplemental Online Materials for details).

Measures and Procedure

We used the same procedure in Study 2 and the same measures of our outcome variable, sexual desire, $\alpha = 0.96$, and predictor variables, participants' estimated division of household labor, $\alpha = 0.96$, perceived partner dependence, $\alpha = 0.87$, and perceived unfairness, $\alpha = 0.80$. Additionally, in Study 2, we included measures to assess convergent and divergent validity of our predictor variables. See Supplemental Online Materials for a full list of items. Cronbach's alphas, means, and standard deviations were calculated after final exclusions (see “Confirmatory Factor Analysis of Household Labor”).

Convergent Validity Measures

Relative Time Spent on Household Labor Participants estimated the number of hours they and their partners spent preparing meals, washing dishes, cleaning the house, doing outdoor tasks, shopping, washing and ironing, paying bills, doing auto maintenance, and driving other household members to work and school (items drawn from NSFH, Wave 3; Bumpass & Sweet, 2018). We calculated the proportion of hours women spent each week on household labor relative to their men partners to create a single measure of relative hours spent doing household labor. We included the NSFH measure to assess convergent validity with our measure of the division of household labor. In addition, we assessed convergent validity between relative time spent on household labor and our measures of perceived unfairness and perceived partner dependence, which were highly correlated with the division of labor in Study 1, $r_s \geq 0.62$.

Relationship Equity/Inequity We measured the extent to which participants felt that their relationships were equitable using a single-item global measure designed to focus on day-to-day relational contributions (from Sprecher, 1986).

Table 3 Study 2 participant characteristics

Demographic	<i>n</i>
<i>Cisgender/transgender/allogender*</i>	
Cisgender	389
Allogender	4
Transgender	3
Missing/unspecified	20
<i>Binary/Nonbinary gender*</i>	
Binary	406
Nonbinary	7
Allobinary	2
Missing/unspecified	10
<i>Race/ethnicity*</i>	
White	242
Black (unspecified)	77
Black African/African	66
Multiracial/mixed	9
Latinx/Hispanic	6
Southeast Asian	6
Asian/Chinese	4
Indian	3
Colored South African/Colored	3
African American	3
South African	2
Black/Multiracial Caribbean	2
Asian Indian	1
<i>Region/country of residence*</i>	
UK	186
South Africa	156
USA	25
Eastern Europe	11
Northern Europe	11
Southern Europe	10
Western Europe	8
Mexico	4
New Zealand	4
Australia	2
Japan	2
Canada	2
Israel	2
South America	1
<i>Sexual orientation/identity*</i>	
Heterosexual	397
Bisexual	21
Pansexual/Omnisexual	4
Heterosexual/bicurious	1
Missing	1
<i>Employment</i>	
Full-time	204
Part-time	139
Not employed	81

Table 3 (continued)

Demographic	<i>n</i>
<i>Disability status</i>	
No disability	398
Disability	6
Missing	20
<i>Partner requires care due to illness or disability</i>	
No	415
Yes	8
Missing	1

*We used open-ended questions and coded responses into the above categories

We asked participants, "... When your relationship becomes unbalanced, which of you is more likely to be the one who contributes more?" Response options ranged from 1 = "My partner is much more likely to be the one to contribute more," to 7 = "I am much more likely to be the one to contribute more." We expected at least moderate associations between relationship equity/inequity and our measures of the division of household labor, perceived unfairness, and perceived partner dependence, since these measures all assess the perception that there is an imbalance in the extent to which partners contribute to a relationship.

Beliefs about Household Labor and Motherhood We measured beliefs about household labor and motherhood using an adapted version of the Maternal Gatekeeping Scale (Allen & Hawkins, 1999). The original scale uses the terms "husband" and "wife," which we replaced with "partner." Example items include, "It's too hard to teach family members the skills necessary to do the jobs right, so I'd rather do them myself" and "If visitors dropped in unexpectedly and my house was a mess, I would be embarrassed." Response options range from 1 = "Not at all like me," and 4 = "Very much like me," $\alpha = 0.81$. Since this measure reflects an endorsement of an inequitable division of labor, we expected at least a small to moderate association between maternal gatekeeping and our measure of household labor. This measure also describes men as somewhat incapable, and reliant on women to perform daily tasks. We therefore also expected at least a small to moderate association between household labor and perceived partner dependence.

Divergent Validity Measures

Relationship Quality We measured relationship quality using the 7-item Relationship Assessment Scale (RAS, Hendrick, 1988). Example items include, "In general, how satisfied are you with your relationship?" and "How often do you wish you had NOT gotten into this relationship?" (reverse-scored).

Items were rated on a 0 to 4 scale, $\alpha = 0.94$. We expected an equitable division of household labor would be one component of relationship quality for women partnered with men since it is an indicator of mutual support and interdependence. However, since global evaluations of a relationship may be influenced by a number of factors in addition to the division of household labor, including relationship expectations, endorsement of traditional gender roles, a couple's social interactions, etc., we expected that these two variables would not be so highly correlated as to be interchangeable.

Empathic Concern We measured the extent to which participants were motivated by empathic concern using the 7-item Empathic Concern subscale from the Interpersonal Reactivity Index (Davis, 1983). Example items include, “When I see someone being taken advantage of, I feel kind of protective toward them,” and “I often have tender, concerned feelings for people less fortunate than me.” Response options range from 0 = “Does not describe me well” to 4 = “Describes me very well,” $\alpha = 0.79$. Empathic concern is associated with a tendency to engage in responsive caregiving in relationships (Feeney & Collins, 2001) and is gendered such that it is socially rewarded in women more so than men (Van der Graaff et al., 2014). Women high in empathic concern may therefore take on a large proportion of the household labor as an act of caregiving. However, we expected that performing a larger proportion of household labor would not be explained solely by empathic disposition, or an altruistic desire to care for others, because they may also be a function of heteronorms, as stated above.

Perceptions of a Partner's Feminist Identity We measured the extent to which participants perceived their partners to be feminists using a single item, “Does your partner identify as a feminist?” with response options, 3 = “Yes,” 2 = “No,” and 1 = “Unsure” (a similar measure used by Rudman & Phelan, 2007). We expected that the division of household labor, perceived unfairness and partner dependence would be negatively correlated with perceptions of a partner as feminist, whereby partners who endorsed feminist values would be more likely to strive for an egalitarian division of household labor. While we expected some overlap between these variables, we expected perceptions of a partner's feminism to be a distinct construct from our predictor variables, since relationships in which a man is perceived to be feminist do not necessarily lead to an equitable division of labor.

Data Analysis

We conducted analyses in R Studio. We followed a similar analysis procedure as Study 1. Below, we note any variations on the Study 1 procedure and pre-analysis statistics. Analysis code and results are available on OSF.

Confirmatory Factor Analysis of Household Labor We conducted a CFA to test whether the factor solution determined via EFA in Study 1 provided a good fit to the data from this study. We could not estimate dynamic fit indices for the model due to time-out errors which may be due to the complexity of the model. We, therefore, assessed model fit using traditional cutoff indices; Root Mean Square Error of Approximation (RMSEA) ≤ 0.06 , Standardized Root Mean Square Residual (SRMR) ≤ 0.08 , and Comparative Fit Index (CFI) ≥ 0.90 (Hu & Bentler, 1999).

As in Study 1, we inspected the correlations between household labor factors, mediating variables, and outcome variable. We also conducted an exploratory set of Williams *t* tests with a Benjamini–Hochberg correction to compare how strongly correlated each factor of household labor was with sexual desire (for results, please refer to our supplementary material).

Missing Data Analysis We excluded 5 items relating to pets that had 50% or more missing data (ranging from 50 to 63%). We excluded 28 participants with at least 20% missing data, as per Study 1. The final sample size for the CFA was 396, slightly below the planned minimum sample size of 400. Little's test was not significant, $p = 0.136$, indicating that the data were missing completely at random. We imputed missing data using FIML.

Confirmatory Factor Analysis of Perceived Unfairness and Perceived Partner Dependence As in Study 1, we conducted a CFA with items measuring perceived partner dependence loading onto one factor and items measuring perceived unfairness loading onto a second factor. We compared model fit with a single factor. Since the two scales were again highly correlated, $r = 0.75$, and are conceptually overlapping, we also tested a higher-order model (Byrne, 2005).

Covariates and Descriptive Statistics We assessed the same possible covariates as Study 1. Age was the only variable to significantly correlate with partner desire at $r > |0.15|$ and was therefore included in subsequent regression models. Skewness was $< +/ - 0.5$ for household labor, perceived dependence, and desire, indicating that these variables were approximately normally distributed. Perceived unfairness was slightly negatively skewed (-0.65) and age was slightly positively skewed (0.72). This indicated that participants in our sample tended to cluster at the higher end of the perceived unfairness distribution and at the younger end of the age distribution. Since we had a sufficiently large sample size for estimating stable estimates, we did not transform these variables. We detected one outlier for the global measure of household labor, with values greater than 3.10 standard deviations above the mean. We inspected these responses and noted that one participant selected 5, “I always do this” for

the majority of tasks listed. Since this was a plausible set of responses, this participant was retained.

Testing Hypotheses 1–3 We followed the same procedure as in Study 1 to test Hypotheses 1–3. We conducted additional exploratory analyses to examine the unique effects of perceived partner dependence and perceived unfairness on desire.

Results

Confirmatory Factor Analysis of Household Labor

We specified an eight-factor model based on the results of the Study 1 EFA. Specifically, we included all items from Study 1 that had a primary factor loading ≥ 0.31 . And, we allowed cross-loadings for Study 1 items that had EFA loadings ≥ 0.31 for more than one factor ($n = 16$), rather than constraining their non-primary factor loadings to zero, as per recommendations from Sakaluk and Fisher (2019). The model RMSEA (0.06) indicated acceptable fit; however, the SRMR (0.09) and CFI (0.66) indicated poor fit. Applying modification indices did not sufficiently improve model fit (see Supplemental Online Materials for details).

To improve model fit, we followed the procedure outlined in Schudson & van Anders (2022) to further refine our model. Based on the Study 1 EFA, we included items that fulfilled three criteria: (1) high factor loadings (> 0.50), (2) loaded strongly onto a single factor (at least 0.15 difference between the highest factor loading and the second highest), and (3) measured unique facets of household labor. We reran the CFA once after excluding six items with low loadings (≤ 0.50). Model fit for the final model was substantially improved, RMSEA = 0.06, SRMR = 0.07, CFI = 0.79 ($n_{items} = 59$). See Table 4 for the final factor structure and item loadings. See Table 2 for correlations between household labor factors. See Table S3 in the Supplementary Online Materials for a comparison of the size of the correlations between desire and each of the household labor factors.

Confirmatory Factor Analysis of Perceived Unfairness and Perceived Partner Dependence

We tested a two-factor model, as in Study 1. We excluded one item with a low loading (0.24) from the perceived unfairness scale and reran the model. Model fit was satisfactory, RMSEA = 0.09, SRMR = 0.04, CFI = 0.95. We also tested a model with items loading onto a single factor. As in Study 1, the single-factor solution had poorer fit, RMSEA = 0.11, SRMR = 0.05, CFI = 0.89. The two-factor model provided statistically better fit than the single-factor model, $\chi^2(1) = 110.48, p < 0.001$. Since the two factors were highly correlated, we also tested a higher-order model. However, the

fit of the higher-order factor was comparable to the single-order factor and required additional constraints (see Supplemental Online Materials). Therefore, as in Study 1, we created two scales, one each for perceived partner dependence and perceived unfairness.

Convergent and Divergent Validity

We assessed the convergent validity of our original measures: inequities in household labor, perceived unfairness, and perceived partner dependence, by inspecting their correlations with number of hours participants reported they and their partner each spent on household labor, relationship equity/inequity, and beliefs about household labor and motherhood. We calculated the relative number of hours participants ($M = 37.85, SD = 21.81$) and their partners ($M = 18.17, SD = 21.88$) spent on household labor, which significantly differed, $t(374) = 18.35, p < 0.001$. As expected, our measures were significantly and positively correlated with relative hours of household labor, $r_s > 0.53, p_s < 0.001$, relationship equity/inequity, $r_s > 0.36, p_s < 0.001$, and beliefs about household labor and motherhood, $r_s > 0.10, p_s < 0.048$; see Table 5.

We assessed the divergent validity of our measures by inspecting their correlations with relationship quality, empathic concern, and a partner's identification as a feminist. As expected, there was some overlap between the measures, but not to the extent that they were interchangeable. Relationship quality was significantly correlated with our measures of inequities in household labor, perceived unfairness, and perceived partner dependence, $r_s < 0.60, p_s < 0.001$. As a point of distinction between our two mediators, the size of the negative correlation between perceived partner dependence and relationship quality, $r = 0.60$, was significantly larger than the correlation between perceived unfairness and relationship quality, $r = 0.45$; $t(393) = 4.92, p < 0.001$. Partner identification as a feminist was significantly associated with perceived partner dependence, $r = 0.11, p = 0.028$ and household labor, $r = 0.15, p < 0.001$ but not perceived unfairness, $r = 0.09, p = 0.077$. Empathic concern was not significantly correlated with our measures, $r_s < | -0.09 |, p_s > 0.072$; see Table 5.

Testing Hypotheses 1–3

We conducted the same analyses as those reported in Study 1, including age as a covariate in all analyses. To test our first hypothesis (H1)—*Does the proportion of household labor predict lower desire among women*—we regressed average household labor on desire. Inequities in household labor were significantly negatively associated with desire, $\beta = -0.33, SE = 0.17, p < 0.001, 95\% CI [-0.42, -0.24]$, as was age, $\beta = -0.12, SE = 0.01, p = 0.014, 95\% CI [-0.21, -0.02]$.

Table 4 Study 2 items and factor loadings for the division of household labor scale

	Household labor item	Factor loading
Finance	Create a budget	0.87
	Track spending	0.82
	Pay household bills	0.72
	Set up and manage bank accounts, (e.g., joint accounts)	0.70
	Make budgeting decisions (i.e., decide how much money is spent on groceries/daycare/phone plans/clothing, etc.)	0.87
	Initiate discussions about—Finances	0.62
Life and social planning	Organize celebrations and holidays (e.g., birthday parties, celebrations for religious holidays)	0.75
	Plan social events with friends/family	0.69
	Plan date nights	0.76
	Book restaurants/movie tickets/event tickets	0.72
	Organize travel to visit family/friends	0.76
	Plan vacations	0.78
Cleaning	Wiping surfaces, e.g., bench tops and tables	0.65
	Dusting	0.77
	Vacuuming floors	0.66
	Mopping floors	0.70
	Tidying/organizing objects in the house	0.65
	Cleaning the bathroom(s)	0.66
	Making the bed for you and your partner	0.64
	Making your child/children's beds	0.73
	Changing the bed sheets for you and your partner	0.72
	Changing the bed sheets for your child/children	0.72
	Noticing when laundry needs to be done	0.64
	Washing and drying clothes	0.67
	Folding and putting away clothes	0.66
House and car maintenance	Mowing the lawn	0.60
	Seasonal maintenance (e.g., raking leaves, clearing snow from driveway)	0.74
	Tree/bush trimming	0.73
	Watering	0.86
	Planting	0.82
	Weeding	0.82
Childcare and development	Listening to/provide counsel for child/children's problems from school/social contexts	0.61
	Encourage and praise them	0.63
	Teaching/helping them with homework	0.62
	Teaching life skills (e.g., tying shoelaces) and monitoring progress	0.57
	Playing with/entertaining them	0.60
	Breaking up fights between children	0.54
	Comforting them	0.74
	Reassuring them when concerned/anxious	0.83
Meal planning	Listening to/talking to child/children about everyday life	0.73
	Meal planning	0.66
	Cooking dinner	0.68
	Preparing breakfast	0.67
	Preparing lunch	0.82
	Preparing snacks	0.74
	Organizing food to bring to social events	0.64

Table 4 (continued)

	Household labor item	Factor loading
Parenting logistics	Transporting them to activities	0.80
	Transporting them to doctor’s appointments	0.75
	Setting up children’s medical care	0.62
	Setting up regular childcare	0.69
	Transporting them to childcare (e.g., daycare)	0.71
	Taking them to birthday parties	0.71
	Reminding children about scheduled activities (e.g., sport day at school)	0.62
	Getting them ready for special event days (e.g., preparing costumes)	0.56
	Filling out school or extracurricular related forms	0.64
Household administration	Contacting people—Schools	0.62
	Contacting people—Banks	0.79
	Contacting people—Billing companies (e.g., electricity, gas, water, cell phone, internet)	0.90
	Contacting people—Governmental agencies (e.g., access to benefits, immigration issues, etc.)	0.88

Table 5 Study 2 means, standard deviations, and pearson correlations between perceived unfairness, perceived partner dependence, inequities in household labor, and measures of convergent and divergent validity

	<i>M (SD)</i>	1	2	3	4	5	6	7	8
1. Perceived unfairness	5.11 (1.50)								
2. Perceived partner dependence	4.07 (1.46)	.75**							
3. Average proportion of labor	3.60 (0.42)	.53**	.52**						
4. Relative time spent on household labor	0.69 (0.14)	.53**	.57**	.61**					
5. Relationship equity/inequity	4.84 (1.79)	.36**	.37**	.41**	.35**				
6. Beliefs about household labor and motherhood	2.67 (0.60)	.40**	.43**	.10*	.19**	.00			
7. Relationship quality	3.94 (0.88)	-.45**	-.60**	-.30**	-.35**	-.38**	-.08		
8. Empathic concern	4.17 (0.64)	-.01	-.07	-.09	-.05	-.02	.18**	.12*	
9. Perceptions of a partner’s feminist identity	2.07 (0.56)	.09	.11*	.15**	.12*	.12*	-.02	-.10	-.11*

*Indicates $p < .05$. ** indicates $p < .01$, *** indicates $p < .001$. Mean and standard deviation for household labor is calculated using raw scores

To test our second hypothesis (H2)—*Is the relationship between household labor and desire mediated by perceived unfairness*—we modeled the indirect effect of household labor on desire via perceived unfairness. The direct effect of household labor on desire was significant, $\beta = -0.22$, $p < 0.001$, 95% CI [-0.33, -0.11], such that, controlling for perceived unfairness, household labor was a significant negative predictor of desire. In contrast to Study 1, the indirect effect was significant, $\beta = -0.11$, 95% CI [-0.17, -0.05], such that inequities in household labor were associated with significantly higher perceptions of unfairness, which in turn predicted significantly lower desire for a partner.

To test our third hypothesis (H3)—*Is the relationship between household labor and desire mediated by perceived*

partner dependence—we modeled the indirect effect of household labor on desire via perceived dependence. The direct effect of household labor on desire was significant, $\beta = -0.16$, $p < 0.001$, 95% CI [-0.26, -0.06], such that, controlling for perceived dependence, household labor was a significant negative predictor of desire. The indirect effect of perceived dependence was also significant, $\beta = -0.17$, 95% CI [-0.26, -0.05], such that inequities in household labor were associated with significantly higher perceptions of a partner as dependent, which in turn predicted significantly lower desire.

We also tested a parallel mediation model including both perceived unfairness and perceived partner dependence as mediators. The direct effect of household labor on desire was

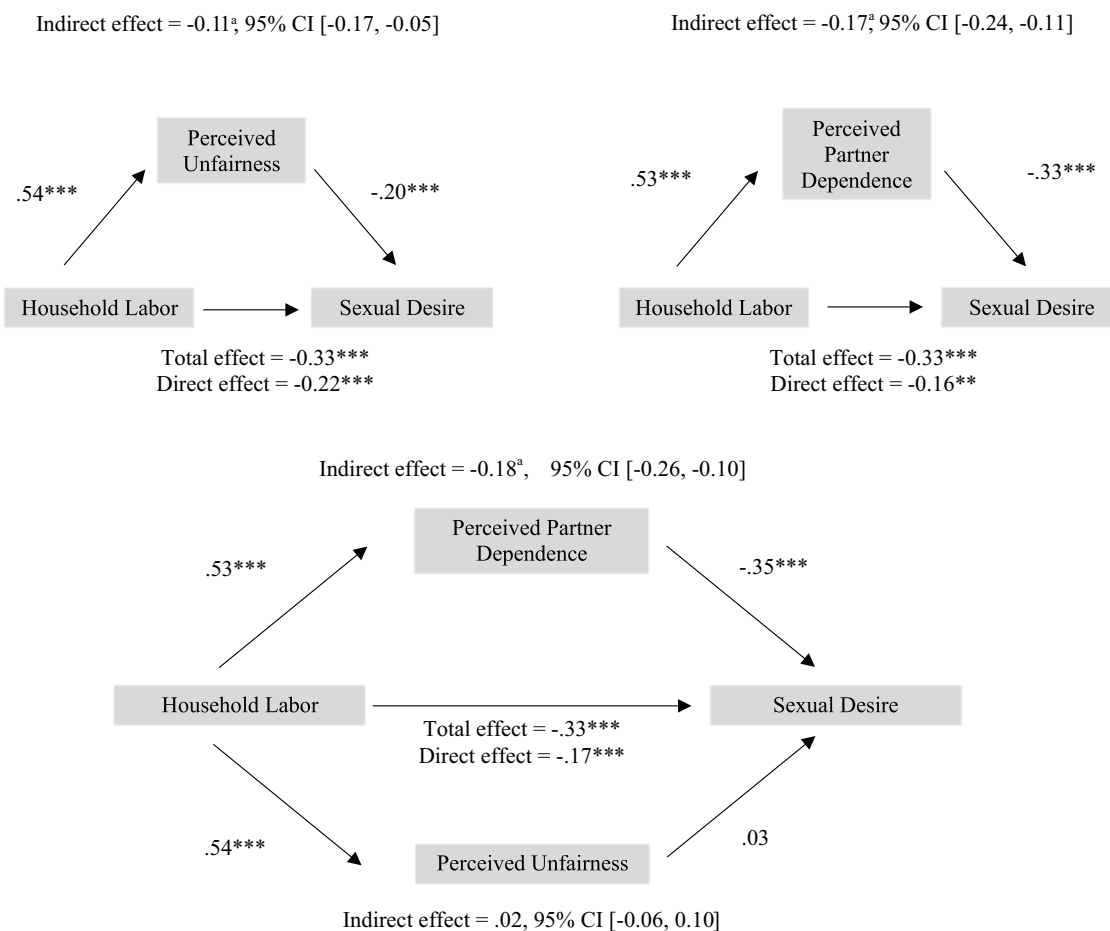


Fig. 2 Study 2 Standardized coefficients for the associations between household labor and sexual desire as mediated by perceived partner dependence and perceived unfairness. Note: ** $p < .01$, *** $p < .001$, *a* indicates a significant effect (confidence intervals do not cross zero)

significant, $\beta = -0.17$, $p = 0.003$, 95% CI $[-0.27, -0.06]$, such that, controlling for the two mediators, inequities in household labor were associated with significantly lower desire. The indirect effect of household labor on desire via perceived dependence was significant, $\beta = -0.18$, 95% CI $[-0.35, -0.05]$. However, the indirect effect via perceived unfairness was not significant, $\beta = -0.02$, 95% CI $[-0.06, 0.10]$. The results of the mediation models testing hypotheses 1 and 2 are reported in Fig. 2.

As in Study 1, we tested the above models using each household labor factor as the independent variable. Results were consistent with those reported above using a global household labor score. We also tested our parallel mediation model using adjusted scales for our mediators, to reduce their correlation; results were consistent with those reported above. Finally, we tested our models controlling for relationship quality, as requested by a reviewer, and our results were unchanged. For details, see the Supplemental Online Materials, Tables S2 and S4, and analysis code and output on OSF.

Discussion

Study 2 largely replicates and extends our findings from Study 1. As in Study 1, we found support for Hypotheses 1 and 3: inequities in household labor were significantly negatively associated with desire, and this effect was mediated by perceiving a partner as dependent. In Study 2, we also found support for Hypothesis 2. Perceived unfairness was a significant mediator of the association between household labor and desire in a single mediation model. As in Study 1, Hypotheses 1–3 were supported when testing each of the eight household labor factors. These additional analyses provide further support for our hypotheses and suggest that the effects are not driven by a subset of household labor factors.

In addition, Study 2 found evidence for the convergent and divergent validity of our measures of household labor, perceived partner dependence, and perceived unfairness. We also found support for the factor structures of each scale. We confirmed an eight-factor structure of our measure of

household labor including items with high factor loadings and no cross-loadings. We also confirmed a two-factor structure of our mediators, perceived unfairness and perceived partner dependence. We recommend future work utilize this shortened, parsimonious measure of household labor.

General Discussion

In two studies, we showed that low sexual desire in women is associated with experiences of gender inequity. In so doing, we have presented the first quantitative support for the heteronormativity theory of low desire in women partnered with men (van Anders et al., 2021). Performing a large proportion of household labor was associated with lower desire in women partnered with men. We tested two possible mechanisms of this effect: perceived partner dependence and perceived unfairness. In Studies 1 and 2, across eighteen models, the effect of household labor on desire was significantly mediated by perceived partner dependence. Women who reported that they performed a large proportion of household labor relative to their partner were significantly more likely to perceive their partners as dependent on them to keep the household functioning, and this in turn was associated with significantly lower desire for their partner. These findings support the heteronormativity theory, which states that inequities in household labor can lead to a blurring of mother and partner roles, and that feeling like a partner's mother is not conducive to desire.

We also found evidence for our second proposed mechanism for heteronormativity to impact sexual desire in women partnered with men: perceived unfairness. In Study 1, perceived unfairness did not significantly mediate the effect of the combined household labor variable on desire. In Studies 1 and 2, we took a conservative approach to estimating household labor by testing a global score, which reduced the risk of Type I errors. However, when we used a more liberal approach, assessing each factor of household labor as a predictor, perceived unfairness was a significant mediator across all eight models. In Study 2, perceived unfairness significantly mediated the effects of household labor, and the household labor factors, on desire. Yet, in mediation models that controlled for our other mediating pathway via perceived partner dependence, the indirect effects of perceived unfairness were no longer significant. This is likely due to the high correlation between perceived unfairness and perceived partner dependence.

Studies 1 and 2 therefore provide quantitative support for our hypothesized account of low desire in women partnered with men based on the heteronormativity theory (van Anders et al., 2021). Women who perform a large proportion of household labor relative to their partners are more likely to perceive their partners as dependent on them, and to perceive the division of labor to be unfair, which is associated with lower desire for their partners.

Measuring Inequities in the Division of Household Labor, Perceived Partner Dependence, and Perceived Unfairness

To test our hypotheses, we developed a novel measure of household labor that encapsulated a range of tasks and responsibilities required to keep a household functioning. This was based on households in Western industrialized nations, likely middle-class. Our data support a multifaceted account of the division of household labor. We tested exploratory and confirmatory models comprising eight factors, including tasks related to finance, life and social planning, cleaning, house and car maintenance, childcare and development, meal planning, parenting logistics, and household administration.

Our measure of household labor demonstrated convergent and divergent validity. For example, it was highly correlated with the proportion of hours participants spent performing nine household labor tasks relative to a partner. Strikingly, and consistent with previous research, women in Study 2 reported spending approximately 70% more time on household labor than their partners (Bianchi et al., 2012; Moyser & Burlock, 2018). Further, we found no significant association between the proportion of household labor that women performed and empathic concern. This finding is interesting for two reasons. First, it supports the divergent validity of our measure: the division of household labor is not a proxy for people's tendency to be intrinsically motivated by caregiving. Second, the fact that the division of labor was not associated with empathic concern challenges the myth that women who perform a large proportion of household labor do so because they want to, as part of a willing self-sacrifice in service of their family's wellbeing. As discussed by van Anders et al. (2021), the division of household labor reflects gendered *inequities* that result from heteronormativity.

Inequities across all eight factors of household labor were associated with significantly lower desire in Studies 1 and 2. Of these factors, childcare and development, parenting logistics, and life and social planning were most strongly negatively linked with desire. While inequities in all forms of labor were negatively associated with desire, the size of associations were significantly larger for factors such as childcare and development than they were for cleaning (as tested in Study 2, for detailed results, see Table S2). These forms of household labor are arguably less visible than tasks like cleaning, which also was strongly linked with desire, but have received less attention in the academic literature (Daminger, 2019; Robertson et al., 2019). However, popular media sources discuss tasks like social planning as major sources of ire for women because they require substantial amounts of energy, are almost entirely unvalued and unnoticed, and are assigned to women by default (Hartley, 2017; Lockman, 2019). A broader definition than just

cleaning, that is, one that encompasses the tasks required to keep a household functioning, reveals a more complete picture of household labor relevant to desire, and may also be relevant to other factors related to gender inequities.

We also developed novel measures of perceived partner dependence and perceived unfairness related to inequities in the division of household labor. Existing measures of perceived unfairness typically rely on single item measures (e.g., Lavee & Katz, 2002; Lennon & Rosenfield, 1994), or assess perceived unfairness relating to aspects of a relationship, such as childcare and working for pay (e.g., Bumpass & Sweet, 2018). We provide a validated multi-item measure of perceived unfairness relating to the general division of household labor. Perceived partner dependence measures an often-discussed phenomenon of perceiving women's men partners as overly dependent on them for everyday tasks. When asked how many children or dependents women have in common discourse, many jokingly include their men partners in their count (Edwards, 2018). While this discourse may be familiar to many women readers, to our knowledge, it has not been quantitatively measured and assessed in the psychological literature. These novel measures may thus be useful for research related to gender inequity and relationships as a result. In our results, as expected, perceived partner dependence was associated with increased perceptions of relationship inequity, and lower relationship quality.

In confirmatory measurement models, perceived partner dependence was distinct from perceived unfairness (though the two variables were highly correlated). Perceived partner dependence and perceived unfairness showed a similar pattern of correlations with other variables. One exception was relationship quality. Perceiving a partner as a dependent and perceiving the division of labor to be unfair were both significantly associated with lower relationship quality; however, the association was significantly stronger for perceived partner dependence. These correlations also suggest that perceived unfairness and perceived partner dependence are overlapping, but may also be tapping into distinct experiences.

Perceived unfairness taps into the experience of the division of labor as inequitable. It is possible to perform a large proportion of household labor without perceiving it to be unfair, for example, if someone actively chooses in unconstrained ways to do the majority of household tasks. Interestingly, average levels of perceived unfairness were high in Studies 1 and 2, approaching the upper bound of the scale. This suggested that most participants in our sample were both doing a large proportion of the household labor *and* perceived this division of labor to be unfair. Thus, both perceived unfairness and perceived partner dependence are common and important responses to inequities in household labor, and are both implicated in people's desire and relationships more broadly.

Our findings challenge the idea that low desire in women is a problem in and of itself (as have discussions from asexual movements, e.g., see Scherrer, 2008). Instead, we show that low desire in women is a symptom of a broader problem—heteronormativity—that creates inequities in the division of household labor, among other things, and that are related to desire (see van Anders et al., 2021). Furthermore, our findings challenge the assumption that low sexual desire in women is necessarily located in women, in their bodies or minds. Instead, we find support for a socio-structural explanation for at least some considerable portion of low desire in women, whereby the system of heteronormativity brings about gender inequities in household labor that are associated with lower desire.

Our study did *not* show that absolute levels of household labor, in and of itself, is associated with lower desire; instead, we found a strong negative association between women's sexual desire and performing a high *proportion* of household labor relative to men partners. As feminists have shown, there is nothing inherently negative about household labor, and its devaluation stems from structures that make phenomena tied to women and femininity inferior (e.g., Connell, 1987; Hoskin, 2019; Schippers, 2007).

Of course, since our study was cross-sectional, we do not know the direction of causality between the variables in our theoretical model. It may be, for example, that people who perceive their partners as dependents are more likely to perform additional household labor, and low desire for a partner may lead to the perception of a partner as dependent. Future research is required to test the direction of causality proposed in our model, and could do so via longitudinal approaches that test time-lagged effects or other approaches.

Heteronormativity, as well as the devaluation of household labor, has foundations in White, colonial history, or at least the versions of it we see in the West today (e.g., Ghavami & Peplau, 2013; Morgensen, 2010). As such, heteronormative gender roles may assume whiteness and class privilege, and function to regulate the norms of white, privileged people and further marginalize those who are seen to challenge these norms. Our sample of women was predominantly white and from Western countries (e.g., UK, USA; though there was more racial/ethnic diversity in Study 2) and we cannot know how these findings may be relevant beyond these limitations. Future research is required to assess how culture and various axes and intersections of oppression might co-construct whether and how household labor, sexual desire, and gender inequities are interconnected.

Many women of color, including women living in a Western context, have a longer history of working in *and* outside of the home (e.g., see Brewer, 2016; Wooten & Branch, 2012). Only recently have white middle- and upper-class women joined workplaces, especially those that have been dominated by men (Wooten, 2019). Prior to this shift in

gendered labor in the West, many middle to upper class white families could afford to have one person in a partnership (almost always the woman) take on full time unpaid labor in the home. For many women of color and/or women from low income families, this was not an option (Brewer, 2016). Being able to work within the home only, and focus on one's own household, can sometimes thus be a privilege that was withheld from minoritized and marginalized women (Glenn, 1992; Romero, 2016). Hence, it may be that the experience of heteronormativity for majoritized women is experienced differently from minoritized and marginalized women, and perhaps less deeply, because of fewer intersecting axes of racism and classism.

Another possibility is that, for people of color living in a Western context, social and economic oppression outside of the home is a, or the, primary stressor, and concerns around the division of labor inside the home may be less pertinent to the ways inequity and desire are linked. Sociologists have noted that social and economic disadvantage limits people's abilities to manage roles and responsibilities (Ray & Jackson, 2013). As such, if members of a partnership are overloaded with major structural inequities both inside and outside of the home, gender inequities inside the home may be a secondary influence on sexual desire for a partner relative to structural, relational, and personal experiences of other or intersecting forms of oppression.

Axes of gender/sex/uality are also important. On the one hand, it may be that heteronormativity specifically binds women partnered with men in a way that creates a blurring of mother and partner roles, which consequently suppresses desire. On the other hand, and related to larger gender inequities beyond gender/sex demographic category, it may be that performing the bulk of the household labor is associated with lower desire for anyone who is feminine and/or for anyone partnered with a masculine person (e.g., see Malmquist, 2015). These are empirical questions, and future research is needed to understand the link between household labor and desire among people of a diverse range of gender/sex/ualities.

There are also open questions related to how stress in general may be associated with performing a large proportion of household labor, and the implications of this for desire. Stress has been both positively and negatively associated with desire, with effects potentially depending on the kind of stress, its duration, and social location factors (Ferreira et al., 2014; Hamilton & Meston, 2013; Vowels et al., 2020). It may be that relationship-specific stress has particularly strong negative associations with partner-directed sexual desire. For example, stress that stems from inequities in household labor may be associated with lower desire for a partner because that partner may be the source of stress and the reason for reduced leisure time. Effects of non-partner related stresses—e.g., work, other life events—on desire may be weaker because these are not specifically tied to a sexual partner. And, stress

that stems from inequities in household labor may be less likely to be associated with lower sexual desire that is not directed toward a partner. Future work is needed to explore how inequities in household labor may be associated with stress and low desire, including in relation to other potential sources of stress and diverse forms and targets of desire.

A substantial amount of scientific theorizing and analysis has been devoted to answering the question of why low sexual desire is so prevalent among women, especially those partnered with men. The majority of the theory and research in mainstream psychology has focused on physiological, evolutionary, and behavioral/personality accounts of sexual desire or drive that locate low desire as a problem in women (for a review, see van Anders et al., 2021). Using a feminist and queer framework to consider gender inequities, our findings provide a novel explanation for low desire in women by attending to how heteronormative social structures create gender inequities that constrain sexual desire in women partnered with men.

Supplementary Information The online version contains supplementary material available at <https://doi.org/10.1007/s10508-022-02397-2>.

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Declarations

Conflict of interest The authors declare that they have no conflict of interest.

Ethical Approval All research activities were approved by the General Research Ethics Board at Queen's University (GPSYC-944-19).

Informed Consent All participants gave informed consent before entering the survey.

Availability of Data and Material Study materials are available in the online supplementary materials.

Code Availability Analysis code and output is available on OSF (https://osf.io/2yg5r/?view_only=4be91317c0af44daa59c110bc326a3c5).

References

- Alin, A. (2010). Multicollinearity. *Wiley Interdisciplinary Reviews: Computational Statistics*, 2(3), 370–374.
- Apt, C. V., & Hurlbert, D. F. (1992). Motherhood and female sexuality beyond one year postpartum: A study of military wives. *Journal of Sex Education and Therapy*, 18(2), 104–114.

- Aron, A., & Aron, E. N. (1986). *Love and the expansion of self: Understanding attraction and satisfaction*. Hemisphere Publishing Corp/Harper and Row Publishers.
- Bianchi, S. M., Sayer, L. C., Milkie, M. A., & Robinson, J. P. (2012). Housework: Who did, does or will do it, and how much does it matter? *Social Forces*, *91*(1), 55–63.
- Bodenmann, G., Ledermann, T., Blattner, D., & Galluzzo, C. (2006). Associations among everyday stress, critical life events, and sexual problems. *The Journal of Nervous and Mental Disease*, *194*(7), 494–501.
- Bumpass, L. L., & Sweet, J. A. (2018). National Survey of Families and Households, Wave 3: 2001–2003, [United States]. *Inter-university Consortium for Political and Social Research*, 2018-06-06. <https://doi.org/10.3886/ICPSR00171.v3>
- Brewer, R. M. (2016). Theorizing race, class, and gender: The new scholarship of Black feminist intellectuals and Black women's labor. In *Race, gender and class*. pp. 58–64. Routledge.
- Brotto, L. A., & Basson, R. (2014). Group mindfulness-based therapy significantly improves sexual desire in women. *Behaviour Research and Therapy*, *57*, 43–54.
- Brotto, L. A., Petkau, A. J., Labrie, F., & Basson, R. (2010). Predictors of Sexual Desire Disorders in women. *The Journal of Sexual Medicine*, *8*, 742–753. <https://doi.org/10.1111/j.1743-6109.2010.02146.x>
- Byrne, B. M. (2005). Factor analytic models: Viewing the structure of an assessment instrument from three perspectives. *Journal of Personality Assessment*, *85*(1), 17–32.
- Carlson, D. L., Miller, A. J., Sassler, S., & Hanson, S. (2016). The gendered division of housework and couples' sexual relationships: A reexamination. *Journal of Marriage and Family*, *78*(4), 975–995.
- Carlson, D. L., Miller, A. J., & Sassler, S. (2018). Stalled for whom? Change in the division of particular housework tasks and their consequences for middle-to low-income couples. *Socius*, *4*, 2378023118765867.
- Claffey, S. T., & Mickelson, K. D. (2009). Division of household labor and distress: The role of perceived fairness for employed mothers. *Sex Roles*, *60*(11–12), 819–831.
- Coltrane, S. (2000). Research on household labor: Modeling and measuring the social embeddedness of routine family work. *Journal of Marriage and Family*, *62*(4), 1208–1233.
- Connell, R. W. (1987). *Gender and power: Society, the person and sexual politics*. Polity.
- Crawford, A. V., Green, S. B., Levy, R., Lo, W. J., Scott, L., Svetina, D., & Thompson, M. S. (2010). Evaluation of parallel analysis methods for determining the number of factors. *Educational and Psychological Measurement*, *70*(6), 885–901.
- Daminger, A. (2019). The cognitive dimension of household labor. *American Sociological Review*, *84*(4), 609–633.
- Davis, M. H. (1983). Measuring individual differences in empathy: Evidence for a multidimensional approach. *Journal of Personality and Social Psychology*, *44*(1), 113.
- Dawson, S. J., & Chivers, M. L. (2014). Gender differences and similarities in sexual desire. *Current Sexual Health Reports*, *6*(4), 211–219.
- Edwards, K. (2018, March 11). Opinion: Why having a husband can be like having a third child. *The Sydney Morning Herald*. <https://www.smh.com.au/lifestyle/life-and-relationships/why-having-a-husband-is-like-having-a-third-child-20180311-p4z3vw.html>
- Ehrstein, Y. (2022). "Facilitating wife" and "feckless manchild": Working mothers' talk about divisions of care on Mumsnet. *Feminism & Psychology*. <https://doi.org/10.1177/09593535221094260>
- Eplov, L., Giraldi, A., Davidsen, M., Garde, K., & Kamper-Jørgensen, F. (2007). Sexual desire in a nationally representative Danish population. *Journal of Sexual Medicine*, *4*(1), 47–56. <https://doi.org/10.1111/j.1743-6109.2006.00396.x>
- Erickson, R. J. (2005). Why emotion work matters: Sex, gender, and the division of household labor. *Journal of Marriage and Family*, *67*(2), 337–351.
- Fabrigar, L. R., Wegener, D. T., MacCallum, R. C., & Strahan, E. J. (1999). Evaluating the use of exploratory factor analysis in psychological research. *Psychological Methods*, *4*(3), 272.
- Feeney, B. C., & Collins, N. L. (2001). Predictors of caregiving in adult intimate relationships: an attachment theoretical perspective. *Journal of Personality and Social Psychology*, *80*(6), 972.
- Ferreira, L. C., Narciso, I., Novo, R. F., & Pereira, C. R. (2014). Predicting couple satisfaction: The role of differentiation of self, sexual desire and intimacy in heterosexual individuals. *Sexual and Relationship Therapy*, *29*, 390–404.
- Ferreira, L. C., Narciso, I., Novo, R. F., & Pereira, C. R. (2016). Partners' similarity in differentiation of self is associated with higher sexual desire: A quantitative dyadic study. *Journal of Sex and Marital Therapy*, *42*, 635–647.
- Fugl-Meyer, K. S., & Fugl-Meyer, A. R. (2002). Sexual disabilities are not singularities. *International Journal of Impotence Research*, *14*(6), 487.
- Ghavami, N., & Peplau, L. A. (2013). An intersectional analysis of gender and ethnic stereotypes: Testing three hypotheses. *Psychology of Women Quarterly*, *37*, 113–127.
- Glenn, E. N. (1992). From servitude to service work: Historical continuities in the racial division of paid reproductive labor. *Signs: Journal of Women in Culture and Society*, *18*(1), 1–43.
- Goretzko, D., Pham, T. T. H., & Bühner, M. (2021). Exploratory factor analysis: Current use, methodological developments and recommendations for good practice. *Current Psychology*, *40*(7), 3510–3521.
- Greenstein, T. N. (2000). Economic dependence, gender, and the division of labor in the home: A replication and extension. *Journal of Marriage and Family*, *62*(2), 322–335.
- Hamilton, L. D., & Meston, C. M. (2013). Chronic stress and sexual function in women. *The Journal of Sexual Medicine*, *10*, 2443–2454.
- Hartley, G. (2017, September 27). *Women Aren't Nags—We're Just Fed Up*. Harper's BAZAAR. <https://www.harpersbazaar.com/culture/features/a12063822/emotional-labor-gender-equality/>
- Hartley, H., & Tiefer, L. (2003). Taking a Biological Turn: The push for a "female Viagra" and the medicalization of women's sexual problems. *Women's Studies Quarterly*, *31*(1/2), 42–54.
- Hayes, A. F. (2017). Introduction to mediation, moderation, and conditional process analysis: A regression-based approach. Guilford publications.
- Hendrick, S. S. (1988). A generic measure of relationship satisfaction. *Journal of Marriage and the Family*, 93–98.
- Hochschild, A. (1989). *The second shift: Working parents and the revolution at home*. Viking.
- Horne, R. M., Johnson, M. D., Galambos, N. L., & Krahn, H. J. (2018). Time, money, or gender? Predictors of the division of household labour across life stages. *Sex Roles*, *78*(11), 731–743.
- Horne, R. M., & Johnson, M. D. (2019). A labor of love? Emotion work in intimate relationships. *Journal of Social and Personal Relationships*, *36*, 1190–1209.
- Hoskin, R. A. (2019). Can femme be theory? Exploring the epistemological and methodological possibilities of femme. *Journal of Lesbian Studies*, *25*, 1–17.
- Hu, L., & Bentler, P. M. (1999). Cutoff criteria for fit indexes in covariance structure analysis: Conventional criteria versus new alternatives. *Structural Equation Modeling*, *6*(1), 1–55.
- Ishii-Kuntz, M., & Coltrane, S. (1992). Predicting the sharing of household labor: Are parenting and housework distinct? *Sociological Perspectives*, *35*(4), 629–647.
- Jaspers, L., Feys, F., Bramer, W. M., Franco, O. H., Leusink, P., & Laan, E. T. (2016). Efficacy and safety of flibanserin for the

- treatment of hypoactive sexual desire disorder in women: A systematic review and meta-analysis. *JAMA Internal Medicine*, 176(4), 453–462.
- Johnson, M. D., Galambos, N. L., & Anderson, J. R. (2016). Skip the dishes? Not so fast! Sex and housework revisited. *Journal of Family Psychology*, 30(2), 203.
- Lavee, Y., & Katz, R. (2002). Division of labor, perceived fairness, and marital quality: The effect of gender ideology. *Journal of Marriage and Family*, 64, 27–39.
- Le, Y., McDaniel, B. T., Leavitt, C. E., & Feinberg, M. E. (2016). Longitudinal associations between relationship quality and coparenting across the transition to parenthood: A dyadic perspective. *Journal of Family Psychology*, 30(8), 918.
- Leavitt, C. E., McDaniel, B. T., Maas, M. K., & Feinberg, M. E. (2017). Parenting stress and sexual satisfaction among first-time parents: A dyadic approach. *Sex Roles*, 76(5–6), 346–355.
- Lennon, M. C., & Rosenfield, S. (1994). Relative fairness and the division of housework: The importance of options. *American Journal of Sociology*, 100(2), 506–531.
- Lockman, D. (2019, May 4). Opinion | What ‘Good’ Dads Get Away With. *The New York Times*. <https://www.nytimes.com/2019/05/04/opinion/sunday/men-parenting.html>
- Luxton, M. (1997). The UN, women, and household labour: Measuring and valuing unpaid work. *Women’s Studies International Forum*, 20, 431–439.
- Maas, M. K., McDaniel, B. T., Feinberg, M. E., & Jones, D. E. (2018). Division of labor and multiple domains of sexual satisfaction among first-time parents. *Journal of Family Issues*, 39, 104–127.
- Malmquist, A. (2015). Women in lesbian relations: Construing equal or unequal parental roles? *Psychology of Women Quarterly*, 39(2), 256–267.
- Mark, K. P. (2012). The relative impact of individual sexual desire and couple desire discrepancy on satisfaction in heterosexual couples. *Sexual and Relationship Therapy*, 27(2), 133–146. <https://doi.org/10.1080/14681994.2012.678825>
- Mark, K. P., & Lasslo, J. A. (2018). Maintaining sexual desire in long-term relationships: A systematic review and conceptual model. *The Journal of Sex Research*, 55(4–5), 563–581.
- McClelland, S. I. (2011). Who is the “self” in self reports of sexual satisfaction? Research and policy implications. *Sexuality Research and Social Policy*, 8, 304–320.
- McClelland, S. I. (2014). “What do you mean when you say that you are sexually satisfied?” A mixed methods study. *Feminism and Psychology*, 24, 74–96.
- McNeish, D., & Wolf, M. G. (2020). Dynamic fit index cutoffs for Confirmatory Factor Analysis models.
- Milkie, M. A., & Peltola, P. (1999). Playing all the roles: Gender and the work-family balancing act. *Journal of Marriage and the Family*, pp. 476–490.
- Morgensen, S. L. (2010). Settler homonationalism: Theorizing settler colonialism within queer modernities. *GLQ: A Journal of Lesbian and Gay Studies*, 16(1–2), 105–131.
- Morokoff, P. J., & Gilliland, R. (1993). Stress, sexual functioning, and marital satisfaction. *Journal of Sex Research*, 30(1), 43–53. <https://doi.org/10.1080/00224499309551677>
- Morton, F. B., & Altschul, D. (2019). Data reduction analyses of animal behaviour: Avoiding Kaiser’s criterion and adopting more robust automated methods. *Animal Behaviour*, 149, 89–95.
- Moyser, M., & Burlock, A. (2018). Time use: Total work burden, unpaid work, and leisure. *Statistics Canada*, 30.
- Muise, A., & Impett, E. A. (2016). Applying theories of communal motivation to sexuality. *Social and Personality Psychology Compass*, 10, 455–467. <https://doi.org/10.1111/spc3.12261>
- Murray, S. H., & Milhausen, R. R. (2012). Sexual desire and relationship duration in young men and women. *Journal of Sex & Marital Therapy*, 38, 28–40.
- OECD Policy Responses to Coronavirus (COVID-19) (13 December, 2021). Caregiving in crisis: Gender inequality in paid and unpaid work during COVID-19.
- Raisanen, J. C., Chadwick, S. B., Michalak, N., & van Anders, S. M. (2018). Average associations between sexual desire, testosterone, and stress in women and men over time. *Archives of Sexual Behavior*, 47(6), 1613–1631.
- Raposo, S., Rosen, N. O., & Muise, A. (2020). Self-expansion is associated with greater relationship and sexual well-being for couples coping with low sexual desire. *Journal of Social and Personal Relationships*, 37(2), 602–623.
- Ray, R., & Jackson, P. B. (2013). Intersectionality and work–family balance: A study of Black, White, and Mexican-American adults. *Advances in Gender Research*, 17, 241–262.
- Rich, A. (1980). Compulsory heterosexuality and lesbian existence. *Signs: Journal of Women in Culture and Society*, 5(4), 631–660.
- Robertson, L. G., Anderson, T. L., Hall, M. E. L., & Kim, C. L. (2019). Mothers and Mental Labor: A Phenomenological focus group study of family-related thinking work. *Psychology of Women Quarterly*, 43(2), 184–200.
- Rodsky, E. (2019). *Fair Play: A Game-Changing Solution for When You Have Too Much to Do (and More Life to Live)*. Penguin.
- Romero, M. (2016). *Maid in the USA*. Routledge.
- Rosseel, Y. (2012). Lavaan: An R package for structural equation modeling and more. Version 0.5–12 (BETA). *Journal of Statistical Software*, 48(2), 1–36.
- Rubin, G. (1984). Thinking sex: Notes for a radical theory of the politics of sexuality. In C. S. Vance (Ed.), *Pleasure and danger* (pp. 143–178). Routledge.
- Rudman, L. A., & Phelan, J. E. (2007). The interpersonal power of feminism: Is feminism good for romantic relationships? *Sex Roles*, 57(11), 787–799.
- Sakaluk, J. K., & Fisher, A. N. (2019). Measurement memo I: Updated practices in psychological measurement for sexual scientists. *The Canadian Journal of Human Sexuality*, 28(2), 84–92.
- Schoemann, A. M., Boulton, A. J., & Short, S. D. (2017). Determining power and sample size for simple and complex mediation models. *Social Psychological and Personality Science*, 8(4), 379–386.
- Scherrer, K. S. (2008). Coming to an asexual identity: Negotiating identity, negotiating desire. *Sexualities*, 11(5), 621–641.
- Schippers, M. (2007). Recovering the feminine other: Masculinity, femininity, and gender hegemony. *Theory and Society*, 36(1), 85–102.
- Schudson, Z. C., & van Anders, S. M. (2022). Gender/sex diversity beliefs: Scale construction, validation, and links to prejudice. *Group Processes & Intergroup Relations*, 25(4), 1011–1036.
- Settles, I. H., Pratt-Hyatt, J. S., & Buchanan, N. T. (2008). Through the lens of race: Black and White women’s perceptions of womanhood. *Psychology of Women Quarterly*, 32(4), 454–468.
- Sims, K. E., & Meana, M. (2010). Why did passion wane? A qualitative study of married women’s attributions for declines in sexual desire. *Journal of Sex and Marital Therapy*, 36, 360–380. <https://doi.org/10.1080/0092623X.2010.498727>
- Stephenson, K. R., & Kerth, J. (2017). Effects of mindfulness-based therapies for female sexual dysfunction: A meta-analytic review. *Journal of Sex Research*, 54, 832–849. <https://doi.org/10.1080/00224499.2017.1331199>
- Tiefer, L. (2001). A new view of women’s sexual problems: Why new? Why now? *Journal of Sex Research*, 38, 89–96.
- Tingley, D., Yamamoto, T., Hirose, K., Keele, L., & Imai, K. (2014). Mediation: R package for causal mediation analysis. *Journal of Statistical Software*.
- Trice-Black, S. (2010). Perceptions of women’s sexuality within the context of motherhood. *The Family Journal*, 18, 154–162.
- Uehara, E. S. (1995). Reciprocity reconsidered: Gouldner’s ‘moral norm of reciprocity’ and social support. *Journal of Social and Personal Relationships*, 12(4), 483–502.

- van Anders, S. M. (2012). Testosterone and sexual desire in healthy women and men. *Archives of Sexual Behavior*, 41(6), 1471–1484. <https://doi.org/10.1007/s10508-012-9946-2>
- van Anders, S. M. (2015). Beyond sexual orientation: Integrating gender/sex and diverse sexualities via sexual configurations theory. *Archives of Sexual Behavior*, 44(5), 1177–1213. <https://doi.org/10.1007/s10508-015-0490-8>
- van Anders, S. M., & Dunn, E. J. (2009). Are gonadal steroids linked with orgasm perceptions and sexual assertiveness in women and men? *Hormones and Behavior*, 56(2), 206–213.
- van Anders, S. M., Herbenick, D., Brotto, L. A., Harris, E. A., & Chadwick, S. B. (2021). The heteronormativity theory of low sexual desire in women partnered with men. *Archives of Sexual Behavior*. <https://doi.org/10.1007/s10508-021-02100-x>
- Van der Graaff, J., Branje, S., De Wied, M., Hawk, S., Van Lier, P., & Meeus, W. (2014). Perspective taking and empathic concern in adolescence: Gender differences in developmental changes. *Developmental Psychology*, 50(3), 881.
- Vowels, L. M., Rosenkrantz, D. E., Brown, H. M., & Mark, K. P. (2020). Ebbs and flows of desire: A qualitative exploration of contextual factors affecting sexual desire in bisexual, lesbian, and straight women. *Journal of Sex and Marital Therapy*, 46(8), 807–823.
- Voydanoff, P., & Donnelly, B. W. (1999). The intersection of time in activities and perceived unfairness in relation to psychological distress and marital quality. *Journal of Marriage and the Family*, pp. 739–751.
- Warner, M. (1991). Introduction: Fear of a queer planet. *Social Text*, pp. 3–17.
- Wooten, M. E., & Branch, E. H. (2012). Defining appropriate labor: Race, gender, and idealization of black women in domestic service. *Race, Gender and Class*, pp. 292–308.
- Wooten, M. E. (2019). Race, organizations, and the organizing process. In *Race, Organizations, and the Organizing Process*. Emerald Publishing Limited.
- Wright, E. O., Shire, K., Hwang, S. L., Dolan, M., & Baxter, J. (1992). The non-effects of class on the gender division of labor in the home: A comparative study of Sweden and the United States. *Gender and Society*, 6(2), 252–282.

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