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Gendered share of housework and the COVID-19 pandemic: Examining self-ratings and speculation of others in Germany, India, Nigeria, and South Africa

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Abstract

This cross-sectional study examined gender differences between male- and female-typed housework during the early COVID-19 lockdowns in 2020. Participants in Germany, India, Nigeria, and South Africa ($N = 823$) rated their housework share before and during the lockdown, then speculated about the division of housework performed by men and women in general, before and post-lockdown. Women spent more time on female-typed tasks and men (in Nigeria and South Africa) on male-typed tasks before and during the lockdown. Irrespective of participants' gender, they speculated that men's and women's housework was more pronounced post-lockdown than before, but we only found gender differences in South Africa and India. Gender role ideology (GRI) moderated the gender–housework relationship in Germany, but gender did not moderate the paid work hours and housework relationship in any country. Our findings suggest that gendered housework persisted

in these countries and raises concerns that this pattern is likely to continue post-lockdown.

INTRODUCTION

The novel coronavirus (COVID-19) began in late 2019 and several countries across the world initiated containment measures, such as lockdowns, to prevent further spread of the virus (World Health Organization, 2020). The temporary closures of workplaces and educational institutions forced numerous employees to switch to remote work, reduced work hours, or lose their jobs entirely. While these closures meant that many men spent more time in their homes, there was only a slight increase in men performing additional housework and childcare tasks (Sevilla & Smith, 2020). Women became increasingly responsible for such work during COVID-19 (Del Boca et al., 2020), consistent with gender norms prior to the pandemic, where they accounted for approximately three times more housework and childcare than men (Bianchi et al., 2000; Craig & Powell, 2018; United Nations, 2020). During the pandemic, economic losses and their effects disproportionately affected women (Dinella and Fulcher, 2022). For example, women lost more jobs or reduced their paid working hours more than men (Reichelt et al., 2021) to meet increased demands of housework and childcare, for instance from school closures (for review see Dinella and Fulcher, 2022). These findings were consistent in Europe (Del Boca et al., 2020; Farré et al., 2020), the United Kingdom (Andrew et al., 2020), North America (Carlson et al., 2020; Shafer et al., 2020), and Australia (Craig & Churchill, 2021). However, these findings cannot be uncritically generalized to diverse socio-economic and cultural contexts in low and middle income countries (LMICs), that are often not represented in mainstream gender role research (Weziak-Bialowolska, 2015). We thus seek to expand knowledge on the gendered division of housework during the COVID-19 pandemic from diverse underrepresented contexts, particularly from the African continent and South Asia.

Despite women's advancement in economic participation (Hernandez Bark et al., 2014), the distribution of housework and childcare in many societies remains associated with gendered roles such as the male breadwinner/female homemaker model (Froehlich et al., 2020; Junker et al., 2020). Gendered roles are socialized perceptions and behavioral norms that individuals of a society associate with males and females (Eagly, 1987; Eagly & Wood, 1999). While men have increasingly participated in unpaid work, empirical studies have noted that this work primarily comprises of "male tasks" such as car maintenance and yard work, that perpetuate masculinity. Meanwhile, women predominantly perform "female tasks" such as cleaning and childcare, that perpetuate femininity (Craig & Powell, 2018; Greenstein, 2004). Gender role perceptions are linked to a person's gender role ideology (GRI; Greenstein, 2004) ranging from traditional to egalitarian. Individuals' GRI orientations that align with the male breadwinner/female homemaker model espouse a more traditional GRI and those that support males and females equally engaging in paid and unpaid work, hold a more egalitarian GRI. Considering both gender and GRI offers a more nuanced understanding of the effect of gender on household division of labor during the COVID-19 lockdown.

Our study extends literature in this area in several ways. First, we expand understandings of the effects of COVID-19 lockdown on the division of household tasks by including experiences from LMICs from the South Asian and African contexts, which are underrepresented in the literature. We included three LMICs (India, Nigeria, and South Africa) and one high-income country

(Germany). Given that lockdown restrictions and contextual factors across the countries were so varied, we did not seek to make cross-country comparisons about gender or GRI differences (to avoid inaccurate oversimplifications; ILOSTAT, 2021). Instead, we sought an exploratory approach with a descriptive design to better understand gender differences in the share of housework and childcare between men and women within each of the diverse countries, because research on gender roles and the COVID-19 pandemic from LMIC contexts are scarce. Weziak-Bialowolska (2015) also noted that GRI is not comparable across countries because (1) roles may be shaped by qualitatively different processes, and (2) even if statistical equivalence is met, they still measure either different, or only slightly related phenomena in the national contexts. Second, we advance research by not only including female-typed household tasks (routine, e.g., cooking and childcare), commonly studied in extant research, but also including male-typed tasks (non-routine, e.g., outdoor and car maintenance). This unique perspective contributes to a nuanced multi-dimensionality to understanding division of household work. Third, we consider gendered differences in household tasks in three ways: participants' perceptions of their share of household tasks that were carried out before the lockdown, their perceptions of their current share of household tasks during the lockdown, and their speculative perceptions of the share of household tasks performed by men and women in general before versus expected tasks 2 years post-COVID-19 lockdowns. Finally, we examine the effects of individuals' GRI and paid work hours on the share of female- and male-typed household tasks.

Theoretical framework

For this study we integrate three theoretical lenses to help explain the role of gender in the division of household tasks during COVID-19; social role theory (Eagly, 1987; Eagly & Wood, 1999, 2012), GRI (Greenstein, 2004), and time availability (Hiller, 1984).

Social role theory (Eagly, 1987) posits that men and women are classified into certain stereotypic roles based on their sex. These roles influence both men and women's social and economic standing in society, that is, women are more communal (care and people-oriented) than men, and men are more agentic (assertive and leadership-oriented) than women (Eagly, 1987; Hernandez Bark et al., 2014; March et al., 2016). Through the continuous construction and performance of these distinct roles, gender-typed segregation of household tasks are sustained (Eagly & Wood, 1999). The term "doing gender" coined by West and Zimmerman (1987) suggests that individuals behave consistently with stereotypically normative expectations of their gender identity. Women and girls become primary agents of domestic labor and perform more routine housework such as cleaning, cooking, and laundry, while men and boys are inclined toward non-routine housework like outdoor maintenance/repairs (Craig & Powell, 2018). We therefore coin our research questions below, based on previous research and theories.

During the COVID-19 lockdowns, unpaid care work increased, together with heightened elderly care needs, and overwhelmed health care systems. Acknowledging that the circumstances have been difficult for both men and women, women have disproportionately experienced this burden (Alon et al., 2020; Chung et al., 2022; Dinella & Fulcher, 2022; Farré et al., 2020). Consistent with social role theory, this can be explained by the gender stereotype expectation of women performing communal and family related tasks (for review see Eagly & Wood, 1999; Hernandez Bark et al., 2014; March et al., 2016).

RQ1. *Are women spending more time on female-typed tasks and men on male-typed tasks in each of the four countries, both before and during the lockdown?*

Social role theory also posits that people do not only perceive themselves in gender-consistent roles but also in comparison with others (Eagly & Wood, 2012). These perceptions are influenced by accepted societal status and power relations in the family within the country context (Eagly & Wood, 1999, 2012; Hofstede, 2001). Studies on stereotype perceptions (see Obioma et al., 2021), housework share (Mikelson, 2008), and fairness of housework (Coltrane, 2000) showed that men and women do not evaluate themselves and others of their gender similarly. For instance, husbands may perceive themselves to be more involved in housework, but wives do not overestimate their contributions (Mikelson, 2008). Based on these findings we sought to examine gender differences in the perceptions of men and women about the divisions in household tasks prior to the lockdowns, and whether they anticipate any changes in the sharing of such tasks 2 years after the lockdowns in each of the four countries.

RQ2. *Are there gender differences in speculations of how much female- and male-typed household tasks men and women performed before the lockdown versus post-lockdown in each country?*

The second theoretical lens, GRI, connotes the extent to which an individual accepts and manifests distinct gendered roles for men and women. This ranges from traditional (beliefs consistent with the male breadwinner/female homemaker model) to egalitarian (beliefs support equal role sharing among genders). Women with a traditional GRI invest more time in their gender-appropriate roles that is often consistent with their cultural/societal norms. Consequently, women are likely to set ambitious standards for themselves in the family domain, which can influence their housework share to varying degrees in diverse cultural contexts (Jaga et al., 2014; Rajadhyaksha & Velgach, 2015).

RQ3. *Does gender role ideology affect the relationship between gender and the share of female- and male-typed tasks performed during the lockdown in each country?*

According to time availability theory (Hiller, 1984), the partner that spends less hours on paid work outside the home will contribute to a larger share of household tasks. The pandemic disproportionately affected women's employment. Women comprised 39% of global employment but had 84% of COVID-19 related job losses (Sevilla & Smith, 2020). Women also experienced more reduced work hours, or worked part-time compared to men, resulting in them spending more time in unpaid household tasks (Del Boca et al., 2020; Farré et al., 2020; Reichelt et al., 2021). Andrew et al. (2020) found that British mothers spent more time on childcare and household tasks compared to fathers, especially when they were unemployed (Andrew et al., 2020). Interestingly, when British fathers were unemployed, the substantial increase did not apply. Additionally, working mothers with children (under 5 years) had greater challenges balancing work and family demands because of the lockdown-induced burdens from school closures such as homeschooling and caring for children at home.

RQ4. *Does gender moderate the relationship between paid work hours and share of female- versus male-typed household tasks during the lockdown in each country?*

Socio-cultural and economic contexts of the four countries

The four countries in our study share similarities and differences at socio-cultural and economic levels. Each country is among the top three economies in their continent (Silver, 2020; Varrella, 2021), and Nigeria, India, and Germany are among the most populous countries on their continents (Buchholz, 2021). Using the Gini coefficient (measuring income inequality), South Africa has the largest income gap (63%), followed by India (35.7%), Nigeria (35.1%), and Germany with the least (31.9; World Bank, n.d.). In the three LMICs, government welfare coverage is weaker, thus social protection is distributed among government, non-government, and civil society agencies. Meanwhile, Germany has highly institutionalized social protection systems (e.g., unemployment insurance and nursing care; di Hollo, 2012; Mustapha & Uyot, 2012). Women in the three LMICs are typically overrepresented in the informal economy and have less access to health services or financial services unlike in Germany (Ohnsorge & Yu et al., 2021; Raveendran & Vanek et al., 2020; Vidisha, 2016).

The countries also differ by cultural values at the societal level, particularly regarding the individualism-collectivism dimension (Hofstede, 2001), which shapes gender norms around economic participation and homemaking. For instance, group identity (e.g., one's gender) is strongly connected with self-perception and societal roles in collective cultures, but weakly connected in individualistic cultures (Obioma et al., 2021). According to Hofstede (2001), Nigeria is a collective society with tight-knit social frameworks valuing interdependence and kinship. Germany and – to a lesser extent – South Africa are considered individualistic societies, focusing on personal goals. However, on closer inspection in the South African context, black South Africans tend to identify more with collectivistic values and white South Africans more with individualistic values. Interestingly, India displays a mix of individualism and collectivism (Hofstede, 2001). In the more collective LMICs, patriarchal culture and the male breadwinner model persists despite the necessity of female labor market participation for the financial security of the family (Asekun, 2018; Vidisha, 2016). In Germany, while male breadwinner families are still common, female breadwinner families and women's formal economic participation continue to rise (Jurczyk et al., 2019).

The collective cultural societies like India, Nigeria, and South Africa, encourage multigenerational households, where high value is placed – and morally/culturally expected – on caring for disadvantaged or elderly relatives (Hall & Mokomane, 2018; Oladeji et al., 2011; Raina et al., 2020). These elderly or disadvantaged household members in turn often help with childcare support. In contrast, in individualistic Germany, elderly relatives are typically placed in institutions for the aged or personal carers are hired to care for them at home (Engstler & Menning et al., 2003). German multigenerational households are rare and usually found amongst poor families and single mothers (Glaser et al., 2013). German households are therefore more likely to engage formal childcare assistance or have one parent – usually the mother in a heteronormative relationship – stay at home for the housework and children.

COVID-19 lockdowns in Germany, India, Nigeria, and South Africa

By March 2020, all four countries in this study had closed their borders to non-residents and imposed various degrees of lockdown restrictions (Kantis et al., 2021; Potgieter et al., 2021) to prevent the spread of COVID-19 infection and reduce the risk of the countries' healthcare sys-

tems being overwhelmed. Between March and October 2020, when the data for this study were collected, all four countries had moved from full lockdowns (typically termed level 5: severe restrictions imposed on travel, and strict stay-at-home directives/curfews with exceptions for essential workers) to partial lockdowns (such as those termed level 3: public/outdoor spaces for recreation and take-away restaurants re-opened with specific social distancing restrictions). The scarce state aid in the LMICs made it more difficult to tackle the sudden pandemic-induced economic hardship as most companies could not pay their staff while they were inoperative. The full lockdowns in the African countries meant further job losses, as unemployment in South Africa rose from an already high 29.1% in January 2020 to 32.5% in January 2021, and in Nigeria from 27.1% in January 2020 to 33% in January 2021, and continued to deteriorate (Trading Economics, 2020). Both India (90%; Raveendran & Vanek, 2020) and Nigeria (80%) have large informal work sectors (such as agricultural laborers, kiosk owners, and street vendors) compared to South Africa (30%; Rogan, 2019) and Germany (11%; World Economics, n.d.). As most employees in the informal sector lack social protection coverage, the resultant impact of COVID-19 lockdowns exacerbated their vulnerability to economic and health risks (Jaga & Ollier-Malaterre et al., 2022).

METHOD

To explore the housework dynamics in diverse contexts, especially those more neglected in the research from LMICs, this study used a descriptive design. This research design offers a comprehensive account of the type of housework performed by men and women in each country by using identical procedures and measures.

Participants and procedure

As part of a larger project (Couples' Dynamics During COVID-19: CDDC), we collected data from 886 participants who were (a) at least 18 years old; (b) married or cohabiting before the pandemic began and during the lockdown; (c) identified as sex binary: male or female, and (d) in a heteronormative relationship.[1] Similar to studies like Fuwa and Cohen (2007), and Mannino and Deutsch (2007), we collected unpaired data from individuals in relationships. The data in Germany were collected in German, for which back-translation procedures were employed (Gjersing et al., 2010). In South Africa, Nigeria, and India (with English as an official language), the data were collected in English. Ethics approval was granted by affiliate institutions.[2] These convenience samples were gathered through a mix of avenues, for example, social media, flyers, university mailing lists, and personal networks of each author. All participants provided their informed consent before starting the online survey, which began with demographic questions to filter out participants who did not meet the minimum age eligibility criteria (there was no upper age limit). We included an honesty check at the end of the survey "Did you understand all questions in this survey and answer

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[1] Only participants in male-female relationships were encouraged to participate, as findings show that same-sex households typically distribute household tasks differently than male-female gendered homes.

[2] Ethics approval was obtained from the Faculty of Commerce at the University of Cape Town, South Africa (reference: REC 2020/07/003) and from the Psychology and Sports Science Ethics Committee at Goethe University, Germany (reference: 2020-35). In Nigeria and India, an ethics approval is not required for anonymous studies which cause no harm to the participant. Therefore, we did not seek for ethics approval.

them honestly?" This was used to filter participants who were unsure of some answers. These exclusions included five participants in Germany, two in South Africa, and one each in India and Nigeria. The nine cases were deleted list-wise. We also performed list-wise deletions of cases that did not live in a city with COVID-19 restrictions. All exclusions reduced the sample size from 886 to 823 participants.

Measures

Demographic variables

We designed the questionnaire to gather information such as gender (0 = male, 1 = female), age, country of residence (0 = Germany, 1 = South Africa, 2 = Nigeria, 3 = India), educational attainment (0 = no degree, 1 = vocational school/diploma, 2 = college/university degree or higher), and the presence of children (0 = No, 1 = Yes). Assessing demographic information of a combined gender and country dataset, the average age was 38 years ($SD = 10.97$). A larger proportion of participants in Germany were young (78.9% were below 40 years), while in India, Nigeria, and South Africa, about 60% of participants were below 40 years old. In the LMICs at least 90% of participants reported being married and having children (least being 62% in India). In contrast, in Germany, more participants were cohabiting (63.4%) and fewer participants had children (31.9%). The samples were all highly educated, with the Nigerian participants having the most college degrees (94.4%) and the German sample having the least (63.8%).

Considering COVID-19, we collected further information informing welfare and social characteristics, such as strictness of the lockdown (0 = full lockdown, 1 = partial lockdown), if participants received short-term governmental subsidy (e.g., kurzarbeit in Germany; 0 = No, 1 = Yes) due to loss of employment, if they worked in essential services (0 = No, 1 = Yes), and if they were part of a COVID-19 risk group[3] (0 = Yes, 1 = No). We present detailed demographic statistics within each country, and separately for men and women, in Table 1 and correlation tables on Tables S1–S4.

Household tasks

Housework was measured using eleven items: (a) cooking, (b) doing laundry, (c) cleaning, (d) cleaning up after meals, (e) shopping, (f) childcare, (g) outdoor maintenance, (h) automobile repairs, (i) maintenance, (j) paying bills, and (k) driving other household members. We adopted this measure based on its repeated use amongst varying samples, as seen in Bianchi et al. (2000); Craig and Powell (2018); Parkman (2004), as well as Pinto and Coltrane (2009). Our focus was not on the amount of time spent performing each task but on how the housework was divided between spouses within each country. Each participant stated the share of household tasks they performed before[4] (scale from 1- Never to 5 - All the time) and during the pandemic (100% = they

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[3] If they were over 60 years or had an underlying health condition that put them at a higher risk of severe COVID-19 symptoms.

[4] Participants answered the question "What share (from 0 to 100) of each total domestic work and responsibilities did you have BEFORE the lockdown in your city? Please distribute the 100% between you and your partner/spouse. For example, if you were responsible for 40% it means your partner was responsible for 60%. If other people were responsible, please do

TABLE 1 Demographic information of men and women in all countries

	Germany		India		Nigeria		South Africa	
	Men (N = 89)	Women (N = 143)	Men (N = 102)	Women (N = 94)	Men (N = 105)	Women (N = 91)	Men (N = 98)	Women (N = 101)
Age	35.60 (9.53)	31.33 (8.43)	40.21 (11.58)	37.62 (13.25)	38.80 (8.89)	37.24 (7.74)	42.98 (11.6)	42.99 (10.93)
Marital status (married)	42.70	32.87	90.20	90.43	87.62	92.31	88.78	92.08
Degree attained								
No academic degree	22.47	6.99	4.90	6.38	3.81	3.30	17.35	8.91
Some college	26.97	20.98	1.96	1.06	.95	3.30	7.14	6.93
College degree or higher	50.56	72.03	93.14	92.55	95.24	93.41	75.51	84.16
Children (1 = Yes)	40.45	26.57	67.65	55.32	72.38	79.12	61.22	71.29
Number of children								
Zero	56.18	73.43	31.37	43.62	26.67	19.78	39.80	28.71
One child	31.46	10.49	36.27	28.72	23.81	15.38	18.37	22.77
Two children	10.11	11.89	26.47	26.60	17.14	28.57	31.63	31.68
Three children	1.12	4.20	1.96	1.06	19.05	17.58	10.20	13.86
Four and above	1.12	–	3.92	–	13.33	18.68	–	2.97
Identifies as risk group (1 = Yes)	13.48	18.88	16.67	17.02	6.67	24.18	21.43	23.76
Receives short-term government subsidy (1 = Yes)	22.47	18.88	10.78	6.38	8.57	8.79	11.22	5.94
Does not apply	2.25	3.50	23.53	29.79	14.29	10.99	14.29	11.88
Lockdown restrictions								
Partial lockdown	94.38	76.92	16.67	25.53	20	30.77	4.08	–
Total lockdown	5.62	23.08	83.33	74.47	80.00	69.23	95.92	100.00
Change in lockdown restrictions								
No change	12.36	4.20	2.94	2.13	–	4.40	1.02	.99
Gotten stricter	31.46	3.50	13.73	11.70	5.71	6.59	2.04	1.98
Gotten relaxed	49.44	85.31	79.41	77.66	94.29	89.01	94.90	96.04
Does not apply	6.74	7.00	3.92	8.51	–	–	2.04	.99

(Continues)

TABLE 1 (Continued)

	Germany		India		Nigeria		South Africa	
	Men (N = 89)	Women (N = 143)	Men (N = 102)	Women (N = 94)	Men (N = 105)	Women (N = 91)	Men (N = 98)	Women (N = 101)
Employment during the lockdown								
Fulltime	70.79	48.25	65.69	52.13	61.90	59.34	67.35	64.36
Self employed	10.11	4.90	21.57	10.64	25.71	29.67	25.51	16.83
In education	12.36	30.07	5.88	7.45	8.57	2.20	3.06	3.96
Unemployed	–	2.10	2.94	14.89	2.86	5.49	2.04	–
Stay at home parent	1.12	4.20	.98	13.83	–	3.30	1.02	9.90
Others	5.62	10.49	2.94	1.06	.95	–	1.02	4.95
Employed in essential services (1 = Yes)	26.97	38.46	20.59	17.02	20.00	19.78	32.65	20.79
Does not apply	–	2.10	.98	5.32	4.76	2.20	3.06	–

Note. Means and standard deviations are only reported for continuous variables. All other variables are reported in percentages.

solely performed the task). They then speculated[5] about the share of household tasks women/men in general performed before the pandemic and are likely to perform "two years" post-pandemic (scale from 1- Never to 5 - All the time). We used housework share estimations during the pandemic because evidence has shown that relative share (rather than absolute share) of housework highlights compensating behavior of a spouse (Greenstein, 2004). Furthermore, perceptions of fairness and distributive justice in housework are related to participants' perceived housework share (Greenstein, 2004). Consistent with Craig and Powell (2018), the first six items (a–f) were computed as routine/female-typed tasks (FTT) and the last five items (h–k) as non-routine/male-typed tasks (MTT). To reduce repetition, we use FTT and MTT to refer to these tasks in the remainder of the paper.

Time availability

Respondents stated how many hours they spent on paid work every day before and during the lockdown (minimum = 0, maximum = 20 hours/day), They indicated "0" if they were not working before or during the lockdown, which we computed as "*missing*" in the analyses.

Gender-role ideology

We used items adopted from the National Survey of Families and Households (NSFH; scale from 1 - Strongly disagree to 5 - Strongly agree) to examine respondents' orientation towards egalitarian gender attitudes. These items have been used amongst different ethnic groups (Pinto & Coltrane, 2009), categories of couples (Lucier-Greer & Adler-Baeder, 2011), and cultures (Parkman, 2004). The scale was recoded so that higher scores reflect an individual's egalitarian GRI. The three items adopted were "Parents should also pay as much attention to their daughters and promote independence like their sons," "In a successful marriage, parents should have the freedom to do what they personally want," and "If husband and wife both work full-time, you should divide household tasks equally." McDonald's omega reliabilities for men were $\omega = .57$, $\omega = .77$, and $\omega = .76$ and for women, they were $\omega = .72$, $\omega = .76$, and, $\omega = .75$ in South Africa, India, and Germany, respectively. The reliability was low in Nigeria; hence the country was excluded from all analyses involving this measure.

We also measured individuals' negotiation styles (using the Dutch test for conflict handling; De Dreu et al., 2001) and marital burnout (using the 12-item marital burnout scale; Erickson, 1993). However, these variables go beyond the scope of this paper.

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not include them in the distribution. If you were solely responsible, please indicate 100%. If an option is not applicable to you, please indicate skip." The same question was reworded to during the pandemic/lockdown.

[5] Participants answered the question "How frequently do you think MEN IN YOUR COUNTRY WERE performing the following tasks in their households BEFORE THE PANDEMIC/LOCKDOWN?" The same question was reworded to women and 2-years after the pandemic/lockdown.

Analysis procedures

To answer our research questions, we conducted several types of multivariate analysis of variance (MANOVA). For RQ1, we conducted a 2 (between-subject: gender - male vs female) × 2 (within subjects: self-performed housework share - MTT vs. FTT) MANOVA to assess if there are gender differences in ratings of MTT and FTT housework share. This was performed separately for ratings before the lockdown and during the lockdown. We followed up significant results with Bonferroni posthoc tests. For RQ2, we conducted a 2 (between-subject: gender - male vs. female) × 4 (time: before lockdown vs. post lockdown) × 4 (target group: men in general MTT vs men in general FTT vs. women in general MTT vs. women in general FTT speculated housework share) RM-MANOVA. We calculated the Mahalanobis distances to assess normality. The German and South African data showed slight deviations from normality; thus, we report Pillai's trace in all countries as it is robust to violations of normality. We report univariate tests and Bonferroni adjusted post hoc tests for all significant analyses and simultaneously control for alpha inflation in multiple comparisons (Field, 2018).

To test RQ3 and RQ4, we conducted two mediation models per RQ using the PROCESS Macro for SPSS (Hayes, 2018) in each country. For RQ3, we assessed if gender moderated the relationship between GRI and MTT or FTT share during the lockdown. For RQ4, we assessed if participants' gender moderated the relationship between hours of paid work during the lockdown and MTT or FTT during the lockdown. Continuous predictor variables were grand mean centered to avoid multicollinearity. The simple slopes for interactions were tested for low (−1 SD below the mean), moderate (mean), and high (+1 SD above the mean) levels of GRI.

RESULTS

> **RQ1**. *Are women spending more time on female-typed tasks and men on male-typed tasks in each of the four countries, both before and during the lockdown?*

We conducted a multivariate analysis of variance (MANOVA) in each country to assess if there were significant gender differences in the share of MTTs and FTTs performed before and during the lockdown. All means and standard deviations can be found on Table 2.

Before the lockdown. The MANOVA results for the main effect of *Gender* was significant in Germany, Pillai's Trace $= .06$, $F(2, 229) = 7.61$, $p < .001$, $\eta^2_p = .06$, India, Pillai's Trace $= .04$, $F(2, 193) = 4.42$, $p = .013$, $\eta^2_p = .04$, Nigeria, Pillai's Trace $= .07$, $F(2, 193) = 7.36$, $p < .001$, $\eta^2_p = .07$, and South Africa, Pillai's Trace $= .17$, $F(2, 196) = 19.77$, $p < .001$, $\eta^2_p = .17$.

To further examine the effects of *Gender* on the share of MTT and FTT, a series of analysis of variances (ANOVAs) were conducted for each dependent variable. ANOVA results were not significant for MTT in Germany, $F(1, 230) = .98$, $p = .322$,, $\eta^2_p = .00$ and India, $F(1, 194) = .00$, $p = .976$, $\eta^2_p = .00$ indicating that there were no differences in male and female participants share of MTT. However, in Nigeria, $F(1, 194) = 8.83$, $p = .003$, $\eta^2_p = .04$, and South Africa, $F(1, 197) = 25.31$, $p < .001$, $\eta^2_p = .11$ the results were significantly higher for male participants than female participants.

For FTT, the ANOVA results in Germany, $F(1, 230) = 13.58$, p $< .001$, $\eta^2_p = .06$, India, $F(1, 194) = 8.77$, $p = .003$, $\eta^2_p = .04$, Nigeria, $F(1, 194) = 4.94$, $p = .027$, $\eta^2_p = .02$, and South Africa, $F(1,$

TABLE 2 Means, and Standard Deviations of housework performed by male and female participants before and during the lockdown

Countries		Before lockdown				During the lockdown			
		FTT[a]		MTT[b]		FTT[a]		MTT[b]	
		Male	Female	Male	Female	Male	Female	Male	Female
Germany	M	3.75	4.01	3.47	3.38	41.94	58.49	50.07	27.81
	SD	.50	.52	.64	.73	19.20	18.52	28.05	18.77
India	M	3.85	4.15	3.78	3.78	35.50	54.10	64.88	29.13
	SD	.68	.69	.95	.89	20.17	25.85	32.51	24.18
Nigeria	M	4.16	4.35	4.00	3.73	37.14	63.75	71.28	30.29
	SD	.58	.60	.56	.71	15.44	22.45	25.41	22.10
South Africa	M	4.29	4.01	3.73	3.25	43.20	68.94	69.99	36.98
	SD	.58	.59	.63	.72	17.46	19.21	18.01	19.78

Note: Germany, Male: $N = 81$, Female, $N = 140$; India, Male, $N = 96$, Female: $N = 82$; Nigeria, Male: $N = 99$, female: $N = 83$; South Africa, Male, $N = 96$, Female, $N = 95$.

[a]Female typed tasks.

[b]Male typed tasks.

197) = 10.67, $p = .001$, $\eta^2_p = .05$ were significant. This indicated that female participants in all the countries rated their share of FTT higher than that of male participants.

During the lockdown. The MANOVA results showed significant main effect for *Gender* in all countries: Germany, Pillai's Trace = .37, $F(2, 218) = 63.32$, $p < .001$, $\eta^2_p = .37$, India, Pillai's Trace = .45, $F(2, 174) = 71.09$, $p < .001$, $\eta^2_p = .45$, Nigeria, Pillai's Trace = .58, $F(2, 178) = 123.55$, $p < .001$, $\eta^2_p = .58$, and South Africa, Pillai's Trace = .64, $F(2, 187) = 168.58$, $p < .001$, $\eta^2_p = .64$.

Univariate tests for MTT showed significant results in Germany, $F(1, 219) = 49.76$, $p < .001$, $\eta^2_p = .19$, India, $F(1, 176) = 67.31$, $p < .001$, $\eta^2_p = .28$, Nigeria, $F(1, 180) = 132.08$, $p < .001$, $\eta^2_p = .42$, and South Africa, $F(1, 189) = 144.77$, $p < .001$, $\eta^2_p = .43$. All results showed that male participants consistently had significantly higher ratings than female participants.

Univariate tests for FTT showed significant results in Germany, $F(1, 226) = 41.63$, $p < .001$, $\eta^2_p = .16$, India, $F(1, 183) = 30.05$, $p < .001$, $\eta^2_p = .14$, Nigeria, $F(1, 184) = 90.53$, $p < .001$, $\eta^2_p = .33$, and South Africa, $F(1, 191) = 94.70$, $p < .001$, $\eta^2_p = .33$. Female participants consistently rated their FTT higher than male participants did. See Table 2 for all means and standard deviations.

> *RQ2. Are there gender differences in speculations of how much female- and male-typed household tasks men and women performed before the lockdown versus post-lockdown in each country?*

We conducted a repeated measures multivariate analysis of variance (MANOVA) with two within-subjects factors (*Target group*: men in general performing MTT or men in general performing FTT and vice versa for women in general; *Time*; before versus post lockdown) and one between-subjects' factor (*Gender: male vs. female*). We sought to determine whether there were significant differences between male and female speculations of each target group's housework across time in each country. For this research question, we only performed Bonferroni corrected post hoc tests for significant three-way multivariate results. See Table 3 (men in general) and Table 4 (women in general) for all means and standard deviations.

Germany. The main effect for *Gender,* $F(1, 230) = 2.86$, $p = .092$, $\eta_p^2 = .01$, and *Time*, $F(1, 230) = .15$, $p = .699$, $\eta_p^2 = .00$, were not significant. This indicates that male and female participants speculated housework share to be similar, and the speculated time spent on household tasks (before and post-lockdown) did not differ. The main effect for *Target group* was significant, $F(3, 690) = 223.66$, $p < .001$, $\eta_p^2 = .49$. This indicated that there was a difference between speculated MTT or FTT housework that men and women in general performed.

We did not find a significant interaction between *Time and Target group,* $F(3, 690) = 2.69$, $p = .051$, $\eta_p^2 = .01$, or *Time and Gender* ($F(1, 230) = 1.78$, $p = .184$, $\eta_p^2 = .01$). However, the interaction effect between *Target group and Gender* was significant, $F(3, 690) = 11.12$, $p < .001$, $\eta_p^2 = .05$, indicating that regardless of *Time*, male and female participants speculated that the type of housework men and women in general performed differed significantly. The three-way interaction between *Time, Target group, and Gender* was not significant, $F(3, 690) = .23$, $p = .861$, $\eta_p^2 = .00$. This indicates that for RQ2, there were no significant changes in the housework male and female participants speculated that men in general and women in general performed before and post-lockdown.

India. The main effect for *Gender* was not significant, $F(1, 194) = 2.79$, $p = .097$, $\eta_p^2 = .01$, but the main effect for *Time,* $F(1, 194) = 25.83$, $p < .001$, $\eta_p^2 = .12$, and *Target group* were significant $F(3, 582) = 187.16$, $p < .001$, $\eta_p^2 = .49$, indicating there were significant differences between before lockdown and post-lockdown speculations, as well as between the group performing FTT or MTT, and women in general performing FTT or MTTs. The interaction effect between *Time and Target*

TABLE 3 Means, and Standard Deviations of speculated housework performed by men in general before and post-lockdown

Time	Participant	Germany		India		Nigeria		South Africa	
		M	SD	M	SD	M	SD	M	SD
Before lockdown - FTT[a]	Male	3.00	.58	2.77	.71	2.85	.64	2.64	.71
	Female	2.76	.62	2.58	.70	2.51	.67	2.45	.58
	Total	2.85	.61	2.68	.71	2.69	.67	2.54	.65
Post lockdown - FTT[a]	Male	2.94	.61	3.12	.75	3.07	.57	3.28	.65
	Female	2.78	.56	2.91	.72	2.90	.65	2.83	.74
	Total	2.84	.58	3.02	.74	2.99	.62	3.05	.73
Before lockdown - MTT[b]	Male	3.47	.64	3.78	.95	4.00	.56	3.73	.63
	Female	3.38	.73	3.78	.89	3.73	.71	3.25	.72
	Total	3.41	.70	3.78	.92	3.88	.64	3.49	.72
Post lockdown - MTT[b]	Male	3.50	.79	4.00	.80	4.20	.64	3.98	.55
	Female	3.50	.61	3.85	.75	3.94	.64	3.52	.76
	Total	3.50	.68	3.93	.78	4.08	.65	3.75	.70

Note: Germany, N_{male} = 89, N_{female} = 143, N_{Total} = 232; India, N_{male} = 102, N_{female} = 94, N_{Total} = 196; Nigeria N_{male} = 105, N_{female} = 91, N_{Total} = 196; South Africa, N_{male} = 98, N_{female} = 101, N_{Total} = 199.

[a]Female typed tasks.
[b]Male typed tasks.

TABLE 4 Means, and Standard Deviations of speculated housework performed by women in general before and post-lockdown

Time	Participant	Germany		India		Nigeria		South Africa	
		M	SD	M	SD	M	SD	M	SD
Before lockdown - FTT[a]	Male	3.75	.50	3.85	.68	4.16	.58	4.01	.59
	Female	4.01	.52	4.15	.69	4.35	.60	4.29	.58
	Total	3.91	.53	3.99	.70	4.25	.60	4.15	.60
Post lockdown - FTT[a]	Male	3.68	.57	3.71	.63	4.05	.58	3.83	.59
	Female	3.96	.54	3.93	.71	4.14	.57	4.08	.52
	Total	3.85	.56	3.81	.68	4.09	.58	3.96	.56
Before lockdown - MTT[b]	Male	2.62	.68	2.21	.94	2.21	.54	2.58	.53
	Female	2.85	.58	2.65	.98	2.81	.54	2.96	.62
	Total	2.76	.63	2.42	.98	2.49	.62	2.77	.61
Post lockdown - MTT[b]	Male	2.64	.70	2.66	.93	2.46	.60	2.71	.56
	Female	2.91	.57	2.96	.87	2.94	.60	3.10	.56
	Total	2.81	.64	2.80	.91	2.68	.65	2.91	.59

Note: Germany, N_{male} = 89, N_{female} = 143, N_{Total} = 232; India, N_{male} = 102, N_{female} = 94, N_{Total} = 196; Nigeria N_{male} = 105, N_{female} = 91, N_{Total} = 196; South Africa, N_{male} = 98, N_{female} = 101, N_{Total} = 199.

[a]Female typed tasks.

[b]Male typed tasks.

group was significant, $F(3, 582) = 22.87$, $p < .001$, $\eta_p^2 = .11$, whereby the relationships between the *Target groups* differed significantly across *Time points*.

The interaction effect between *Time and Gender* was not significant, $F(1, 194) = 1.94$, $p = .166$, $\eta_p^2 = .01$. However, the interaction between *Target group* and *Gender* was significant, $F(3, 582) = 7.55$, $p < .001$, whereby male and female participants' rating of each target group differed significantly (all p < .010) except for men performing MTT. The three-way interaction between *Time, Target group, and Gender* was not significant $F(3, 582) = .37$, $p = .763$, $\eta_p^2 = .00$. Therefore, our results for RQ2 in India indicate that there were no gender differences in housework speculations for men and women in general between before and post-lockdown (see Tables 3 and 4).

Nigeria. Results showed that the main effect for *Gender* was not significant, $F(1, 194) = 1.13$, $p = .290$, $\eta_p^2 = .01$). However, the main effect for *Time, $F(1, 194) = 30.12$, $p < .001$, $\eta_p^2 = .13$* and *Housework, $F(3, 582) = 478.86$, $p < .001$, $\eta_p^2 = .71$* were significant indicating there were significant differences between before lockdown and post-lockdown speculations of men in general performing FTT, men in general performing MTT, women in general performing FTT, and women in general performing MTT across or regardless of the time point. The interaction effect between *Time and target group* was also significant $F(3, 582) = 20.17$, $p < .001$, $\eta_p^2 = .09$ showing that the relationships between the *Target groups*, women in general were speculated to perform more FTTs before and post-lockdown than men. While men in general were speculated to perform more MTTs before and post-lockdown than women.

The interaction between *Time* and *Gender* was not significant $F(1, 194) = .01$, $p = .926$, $\eta_p^2 = .00$. However, the interaction between *Target group* and *Gender* was significant $F(3, 582) = 28.05$, $p < .001$, $\eta_p^2 = .13$, indicating that the estimations of FTT and MTT between the *target groups* differed significantly between male and female participants. Finally, the three-way interaction effect between *Time, Target group, and Gender* was not significant $F(3, 582) = 2.33$, $p = .078$, $\eta_p^2 = .01$, indicating that there were no significant gender differences in *Target group* estimations across time. See Tables 3 and 4 for all means and standard deviations.
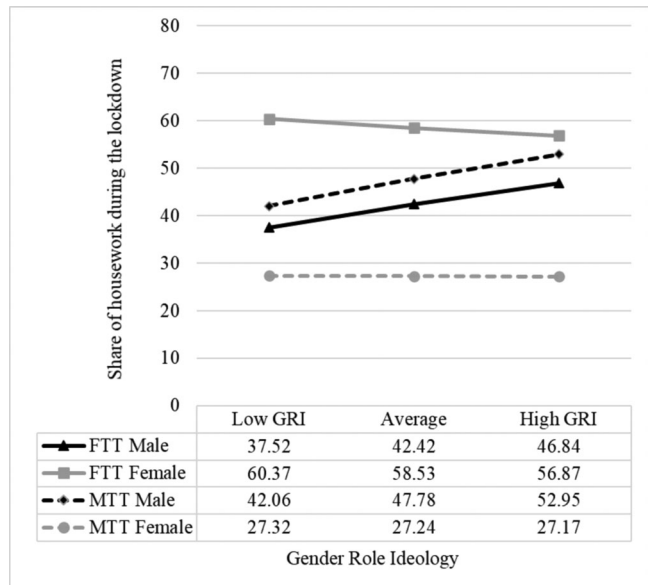
South Africa. The main effect for *Gender* was not significant, $F(1, 197) = .75$, $p = .387$, $\eta_p^2 = .00$, however, the main effect for *Time* was significant $F(1, 197) = 44.25$, $p < .001$, $\eta_p^2 = .18$, indicating there were significant differences between before the lockdown and post-lockdown speculations. The main effect for *Target group* was significant; $F(3, 591) = 275.96$, $p < .001$, $\eta_p^2 = .58$, indicating there were differences across men in general performing FTT, men in general performing MTT, women in general performing FTT, and women in general performing MTT. The interaction effect between *Time* and *Target group* was significant; $F(3, 591) = 50.96$, $p < .001$, $\eta_p^2 = .21$, whereby men in general speculated to perform MTT and women in general speculated to perform FTT was significantly different across *Time* (all $p < .001$).

Most importantly, the interaction between *Time, Target group, and Gender* was significant, $F(3, 591) = 2.75$, $p = .048$, $\eta_p^2 = .01$. Post hoc results showed that both male and female participants in South Africa estimated that men in general will do more MTT and FTT (both $p < .001$) post-lockdown than they did before the lockdown. For FTTs, male and female participants both estimated that women in general were doing more FTTs before the lockdown than they would post-lockdown (both $p < .001$). However, they both speculated that women will increase their MTTs post-lockdown (male participants, $p = .013$; female participants, $p = .015$).

> **RQ3.** *Does gender role ideology moderate the relationship between gender and the share of female- and male-typed tasks performed during the lockdown?*

FIGURE 1 Slopes for gender predicting male- and female-typed housework share during lockdown in Germany

	Low GRI	Average	High GRI
FTT Male	37.52	42.42	46.84
FTT Female	60.37	58.53	56.87
MTT Male	42.06	47.78	52.95
MTT Female	27.32	27.24	27.17

Gender Role Ideology

We assessed if participants' GRI moderates the relationship between their gender and their share of FTTs or MTTs in Germany, India, and South Africa.

Germany. We found that the overall model for FTTs was significant, $R = .433$, $F(3,228) = 17.14$ $p < .001$, $R^2 = .18$ and the significant interaction between *gender and GRI* accounted for a marginal change to the model, R^2 Change $= .023$, $F(1,228) = 6.98$, $p = .009$. The simple slopes on Figure 1 for both male (increase) and female (decrease) participants were significant. This suggests that for male participants at low (traditional) GRI performed the least share of FTT during the lockdown. Meanwhile the share of FTT consistently increased at moderate, and high GRI (egalitarian). For female participants, the simple slopes were reversed. This indicates that their share of FTTs decreased with an increase in GRI (having higher egalitarian GRI).

For MTTs, we found that the overall model was significant, $R = .380$, $F(3,228) = 10.13$, $p < .001$, $R^2 = .14$, however the interaction between *gender and GRI* was not (see Tables 5, 6). This suggests that GRI did not moderate the share of MTT that male and female participants performed during the lockdown.

India. The separate moderation results for FTTs, $R = .338$, $F(3,192) = 7.83$, $p < .001$, $R^2 = .11$ and MTTs, $R^2 = .507$, $F(3,192) = 22.43$ $p < .001$, $R^2 = .26$, both showed that the overall model was significant. However, the interaction between *gender and GRI* was not significant (see Table 5). This suggests that GRI did not moderate the relationship between gender and FTTs nor between gender and MTTs that male and female participants performed during the lockdown.

South Africa. The separate moderation results for both FTTs, $R = .524$, $F(3,195) = 24.91$, $p < .001$, $R^2 = .27$ and MTT, $R = .632$, $F(3,195) = 45.06$ $p < .001$, $R^2 = .40$, showed that the overall model was significant. However, both interactions between *gender and GRI* were not significant. This indicates that GRI did not moderate the relationship between gender and FTTs nor between gender and MTTs performed during the lockdown (see Table 5).

RQ4. Does gender moderate the relationship between paid work hours and share of female- vs male-typed household tasks in each country during the lockdown?

TABLE 5 Moderation analysis of share of female-typed tasks and male-typed tasks predicted by gender moderated by gender role ideology per country

	Predictor	Female-typed tasks						Male-typed tasks					
						95 % CI						95 % CI	
		B	SE	t	p	LLCI	ULCI	B	SE	t	p	LLCI	ULCI
Germany	(Constant)	42.42	2.26	18.74	**<.001**	37.96	46.88	47.78	3.39	14.12	**<.001**	41.11	54.45
	Gender	16.11	2.80	5.75	**<.001**	10.58	21.63	−20.54	3.74	−5.50	**<.001**	−27.90	−13.18
	GRI	8.00	3.23	2.48	**.014**	1.63	14.36	9.33	4.79	1.95	.053	−.11	18.78
	Gender*GRI	−11.00	4.16	−2.64	**.009**	−19.20	−2.90	−9.64	5.40	−1.75	.081	−20.11	1.81
	R² change	$F(1, 228) = 6.94$, **p = .009**, R² change = .02						$F(1, 228) = 3.07$, p = .081, R² change = .01					
India	(Constant)	34.39	2.13	16.18	**<.001**	30.19	38.58	61.02	3.57	17.12	**<.001**	53.99	68.05
	Gender	15.97	3.83	4.17	**<.001**	8.42	23.53	−35.92	4.41	−8.14	**<.001**	−44.62	−27.22
	GRI	4.32	3.22	1.34	.181	−2.03	10.67	−.29	5.56	−.05	.959	−11.25	10.68
	Gender* GRI	−2.47	6.14	−.40	.688	−14.58	9.64	2.26	6.34	.36	.717	−10.04	14.56
	R² change	$F(1, 192) = .16$, p = .688, R² change = .00						$F(1, 192) = .13$, p = .717, R² change = .00					
South Africa	(Constant)	41.88	1.89	22.17	**<.001**	38.16	45.61	68.53	2.05	33.51	**<.001**	64.50	72.56
	Gender	25.19	2.93	8.60	**<.001**	19.41	30.97	−33.76	2.99	−11.31	**<.001**	−39.65	−27.87
	GRI	.04	2.76	.01	.989	−5.41	5.49	−.44	3.24	−.14	.892	−6.83	5.96
	Gender* GRI	−3.02	4.31	−.70	.485	−11.51	5.48	.752	4.69	.160	.873	−8.49	9.99
	R² change	$F(1, 195) = .49$, p = .485, R² change = .00						$(F(1, 195) = .03$, p = .873, R² change = .00					

TABLE 6 Results of gender moderating the relationship between Paid work hours during lockdown and share of female-typed tasks and male-typed tasks per country

	Predictor	Female-typed tasks				95 % CI		Male-typed tasks				95 % CI	
		B	SE	t	p	LLCI	ULCI	B	SE	t	p	LLCI	ULCI
Germany	(Constant)	41.62	2.06	20.16	**<.001**	37.55	45.70	50.16	2.55	19.70	**<.001**	45.14	55.18
	Paid work hours	.92	.68	1.35	.180	−.43	2.27	.288	.87	.33	.740	−1.42	2.00
	Gender	15.87	2.67	5.94	**<.001**	10.60	21.14	−23.05	3.27	−7.05	**<.001**	−29.50	−16.60
	Paid work hours*Gender	−1.02	.83	−1.23	.219	−2.66	.61	.58	1.03	.56	.574	−1.46	2.622
	R² change	$F(1, 199) = 1.52, p = .219, R^2 \text{ change} = .01$						$F(1, 193) = .32, p = .574, R^2 \text{ change} = .00$					
India	(Constant)	35.32	2.31	15.27	**<.001**	30.75	39.89	64.25	3.04	21.16	**<.001**	58.25	70.25
	Paid work hours	.97	.56	1.73	.086	−.14	2.09	2.10	.74	2.83	**.005**	.63	3.56
	Gender	17.97	3.56	5.05	**<.001**	10.94	24.99	−32.92	4.76	−6.92	**<.001**	−42.32	−23.52
	Paid work hours*Gender	.49	.81	.61	.546	−1.11	2.09	−.78	1.08	−.73	.469	−2.91	1.34
	R² change	$F(1, 159) = .37, p = .546, R^2 \text{ change} = .00$						$F(1, 153) = .53, p = .469, R^2 \text{ change} = .00$					
Nigeria	(Constant)	37.23	1.97	18.93	**<.001**	33.35	41.12	72.36	2.53	28.56	**<.001**	67.35	77.36
	Paid work hours	−.36	.49	−.73	.465	−1.31	.60	.41	.63	.66	.511	−.82	1.65
	Gender	26.82	2.93	9.15	**<.001**	21.03	32.61	−40.74	3.82	−10.66	**<.001**	−48.29	−33.19
	Paid work hours*Gender	.27	.70	.38	.703	−1.11	1.64	−.44	.91	−.49	.625	−2.23	1.34
	R² change	$F(1, 160) = .15, p = .703, R^2 \text{ change} = .00$						$F(1, 157) = .24, p = .625, R^2 \text{ change} = .00$					
South Africa	(Constant)	43.02	1.98	21.71	**<.001**	39.11	46.93	70.98	2.06	34.44	**<.001**	66.92	75.05
	Paid work hours	−.71	.70	−1.01	.314	−2.10	.68	−.73	.74	−.99	.324	−2.18	.73
	Gender	25.21	2.87	8.79	**<.001**	19.55	30.87	−32.59	3.00	−10.85	**<.001**	−38.52	−26.66
	Paid work hours*Gender	1.06	.93	1.14	.256	−.77	2.89	1.58	.98	1.62	.107	−.35	3.50
	R² change	$F(1, 169) = 1.30, p = .256, R^2 \text{ change} = .01$						$F(1, 169) = 2.62, p = .107, R^2 \text{ change} = .01$					

We assessed if participants' gender moderates the relationship paid work hours on their share of FTTs or MTTs in Germany, India, Nigeria, and South Africa.

Germany. The overall model was significant for FTT, $R = .393$, $F(3, 199) = 12.13$, $p < .001$, $R^2 = .16$ and MTT, $R = .467$, $F(3, 193) = 17,93$, $p < .001$, $R^2 = .22$. However, the interaction of *gender* and *paid work hours* during the lockdown did not significantly predict the share of FTT, or MTT (see Table 5).

India. The model was significant for FTT, $R = .419$, $F(1,159) = 11.25$, $p < .001$, $R^2 = .18$ and MTT, $R = .529$, $F(3, 153) = 19,84$, $p < .001$, $R^2 = .28$, both the interactions between *gender* and *paid work hours* on FTT and MTT were not significant (see Table 5). Therefore, moderation was not supported.

Nigeria. The separate moderation results for both FTTs, $R^2 = .594$, $F(3,160) = 29.00$, $p < .001$, $R^2 = .35$, and MTT, $R^2 = .654$, $F(3,157) = 39.10$ $p < .001$, $R^2 = .43$, showed that the overall model was significant. However, both interactions between *gender and paid work hours* were not significant for either MTT or FTT (see Table 5).

South Africa. The model was significant for FTT, $R = .581$, $F(1,169) = 28.69$, $p < .001$, $R^2 = .34$, and MTT, $R = .660$, $F(3, 169) = 43.45$, $p < .001$, $R^2 = .44$, both the interactions between *gender* and *paid work hours* on FTT and MTT were not significant (see Table 5). Therefore, moderation was not supported.

DISCUSSION

We expand knowledge on the gendered division of household roles during COVID-19 by incorporating perspectives from three LMICs (India, South Africa, and Nigeria) where research is scant. By doing so, we avoid universalizing majority research and highlight findings from these under-researched countries on three continents. We also open space for plural ways of understanding the gendered division of labor and diverse realities that shaped household experiences during the COVID-19 pandemic. Our contribution extends the nuanced complexity of household tasks by conceptualizing and measuring both male-typed (non-routine) and female-typed (routine) tasks, as prior studies have mostly focused on the latter. Additionally, we considered multiple perspectives and timeframes such as, (1) participants' perceptions of self-performed housework before and during the lockdown, (2) speculative changes in housework men and women in general performed before and post-lockdown, and (3) if participants' GRI and paid work hours affects their housework share. Our research questions were based on social role theory (Eagly & Steffen, 1984), GRI (Greenstein, 2004), and time availability theory (Hiller, 1984).

Our results for RQ1 (participants' time spent on male- vs. female-typed housework) suggests that irrespective of the country, there is a significant difference in the housework performed by men and women. Women spent significantly more time on FTTs before and during the lockdown, while men spent significantly more time on MTTs before (only in Nigeria and South Africa) and during the lockdown. Our findings are consistent with previous studies, that women shoulder most of the female-typed housework both prior to COVID-19 (Bianchi et al., 2000) and during the lockdowns (Alon et al., 2020; Farré et al., 2020; Sevilla & Smith, 2020). However, even though men performed more MTTs, FTTs are performed more often, are more time consuming, emotionally demanding, and contribute to a mental load which women disproportionately carry (Chung et al., 2022).

In answering RQ2, on perceptions of household task share performed by men and women in general, we found that irrespective of participants' sex, housework was perceived as gendered

before COVID-19, and speculated to continue to be gendered even 2 years post-lockdown in all countries. This is consistent with our results on participants' own housework estimations above. The sex differences in participants' perceptions, was only significant in South Africa, where female participants speculated that women in general would do more MTTs and FTTs post-lockdown than they did before the lockdown and vice versa for male participants. Finding no gender differences in the speculative housework before and post-lockdown in Germany, Nigeria and India infers that those participants agree that gender consistent housework will be maintained post-lockdown. Might these perceptions be due to ingroup bias? Previous research has shown that men and women do not perceive the sharing of household tasks similarly. For instance, similar to our findings, Mikelson (2008) reported that husbands perceived themselves to be more involved in housework (or wives underestimate their husbands' contribution), but wives had less biased perceptions. This contention may apply even when individuals think about how third-party households share tasks. Additionally, consistent with social role theory (Eagly, 1987), men are stereotypically expected to be physically strong and engage in more MTTs (e.g., outdoor maintenance) and women are expected to be communal and engage in more FTTs (e.g., cooking). Thus, participants could have estimated the task share based on social expected roles men and women occupy or simply believed in "doing gender" (West & Zimmerman, 1987).

Examining the moderating effect of GRI on housework share during the lockdown, we found significant results in Germany—but not in India or South Africa. The more egalitarian a man's GRI and less egalitarian a woman's GRI, the more likely they were to perform FTT during the lockdown. Similar to Carlson et al. (2020), when circumstances dictated—such as the increased time men spent at home and the heightened burden of FTT during the lockdown— men with greater egalitarian GRIs performed more FTT. Meanwhile men and women performing MTT did not significantly change irrespective of whether they had high or low egalitarian GRIs. This highlights the urgent need for a cultural shift in family roles to alleviate the often-tedious FTT that women perform (Dinella & Fulcher, 2022). The nonsignificant moderating effects in India and South Africa may be attributed to egalitarianism being more accepted in one's paid work role and less so in the more traditional collective family role in these countries (Obioma et al., 2021).

In contrast to time availability theory (Hiller, 1984), where paid employment hours should determine reduced share of housework for the individual, we did not find significant results in any of the countries. This may be because due to the sudden COVID-19 lockdowns which increased housework and decreased paid work hours for many families (Alon et al., 2020; Reichelt et al., 2021). Further, recall bias (an error that occurs when participants do not remember previous events or experiences accurately or omit details) could also have occurred. Due to limitations in human memory, a gap between time spent on paid work (in hours) – often irregular – patterns of housework may have caused retrospective recall bias to come into play (Kan, 2008). With family and work routines often interrupting each other, there may also be an element of social desirability in juggling both paid and unpaid work that we cannot rule out.

Research and policy implications

Our results show that the COVID-19 lockdown has affected gender inequalities in housework, especially for individuals in developing countries and among people whose GRIs are more traditional. Women have continued to take on a greater burden of FTTs during the lockdown such as caring for children and cleaning. Thus, even though men performed more MTT during the lockdown, the restrictions implemented to curb the spread of COVID-19— such as closed schools and

remote work— have burdened women more than men. Not only has the pandemic reinforced gendered household duties, but people expect that gendered chores will continue for at least 2 years after the pandemic in both high income and LMICs. This means that the ramifications may be long-term for women in the countries observed and perhaps several other economically and culturally similar countries.

Men's increased time at home —albeit unintentional— does not necessarily reduce the gender differences in time-intensive housework like FTT. We therefore recommend a COVID-19 recovery with strong gender mainstreaming specific to the local needs of the country, foregrounding ways to strengthen women's capacity to combine care and employment. For instance, engaging men in gender equality dialogues and initiatives in each country can facilitate their increased participation in housework traditionally seen as women's responsibility, and help to identify ways to reduce and/or redistribute women's household and care work (Alon et al., 2020, Hayes et al., in press). In LMICs where informality is high, and states may be resource constrained in offering strong social safety nets, it is important to engage local community groups, together with government and non-governmental agencies to collectively develop sustainable social protection interventions and gender equity strategies. Uncritically imposing high-income country policies in diverse LMIC contexts, may fail to take into account local material realities, cultural complexities, household dynamics, and employment needs that arise from them (Jaga & Ollier-Malaterre, 2022). Meanwhile, financial assistance (to hire help) may be necessary for German families to balance their new work situations, while LMICs, where intergenerational homes are more common may already have the additional support (Alon et al., 2020). Policies aimed at supporting fathers' involvement in FTT (parental leave, childcare, and housework) and educating children at the grassroots (primary and secondary schools) to partake in non-gender-conforming housework, may be needed in all countries. For instance, previous research suggests that parental leave policies focused on just women might not only affect childcare responsibilities, but also women's labor market participation (Fuwa & Cohen, 2007). Thus, to promote gender equality and strengthen women's adaptive capacity for potential future economic and health crises, governments and institutions must carefully consider the policies they adopt (Hayes, in press). In the long term, gender empowering, and context sensitive policies will encourage men's involvement in FTT, aid women's economic participation, reduce unpaid workload, and foster gender equitable environments.

Study limitations and future directions

This research is not without its limitations. The data analyzed were cross-sectional and thus cannot determine causality, hence future research can benefit from longitudinal designs especially in relation to post-lockdown dynamics. However, we featured under-researched contexts from LMICs and shows that that household task share does not only differ based on gender, but patterns differ in national contexts due to varying workplace structures, social policies, and cultural norms (Fuwa, 2004). Future research should examine whether our findings pertain to other countries where research on the COVID-19 and housework distribution is scant, especially in relation to post-lockdown dynamics. Qualitative studies to expand in-depth understanding of housework patterns in diverse contexts will be valuable, especially in contributing to plural ways of knowledge. Qualitative research will emphasize local material circumstances, lived realities, and alternate conceptualizations of families and care to those that are presented as universal from high-income countries (Jaga & Ollier-Malaterre, 2022).

Although we allowed for the survey to be completed on a laptop, tablet, or mobile phone, we acknowledge that the survey only includes participants who have internet access and at least good literacy level. Further, selective participation may have ensued as only healthy individuals during the pandemic may have participated in the survey. More so, we find that our sample consists of a well-educated populace in all countries of which a high percentage were still gainfully employed in some manner during the COVID-19 induced lockdowns in their respective countries. Research has shown that more educated people are likely to renegotiate how much housework they perform (Lachance & Bouchard, 2010). Research also found that due to the lockdowns, working from home resulted in higher levels of multitasking between paid work and domestic care for both men and women (Craig & Churchill, 2021). Hence, both men and women engaged in more domestic work irrespective of their employment status than they would have before the pandemic. Confounding variables may have influenced the share of housework by male and female participants in our study (e.g., parents with children did more housework; Alon et al., 2020). However, due to grave differences in sample sizes of our confounding variables (e.g., child status, age, marital status, education, etc.) and low correlations between some covariates and the dependent variables in one country and not in the other, we were unable to ascertain these relationships. Although our findings are consistent with other research on cis-gender, housework, and COVID-19, the lack of confounding variables poses a limitation to our study. These variables may also aid in understanding the intersectionality of experiences based on age, sexual orientation, ethnicity or race within these countries. We call on future studies to employ an intersectional approach by including other aspects of individuals' social identity (Shields, 2012) and gather a more balanced sample in terms of demographic information.

Further, the GRI items indicated low reliability in Nigeria and the country had to be omitted from the analyses. While this statistically indicates that the construct is perceived differently in Nigeria, it also may also have other underlying cultural implications. As found in Obioma et al. (2021), Nigerian men and women have stronger agentic perceptions of men and women. Agency translates into, for example, independence, leadership, and competence. Measuring gender roles with items focused on women's inability to engage in paid work (agency) may therefore not be culturally appropriate. Despite high perceived agency of women, they are still perceived and rate themselves to be highly communal (people and care-oriented; Obioma et al., 2021). This implies that Nigerians (and perhaps South Africans with acceptable internal consistency for men) may have a different construction of what it means to have an egalitarian GRI – which may be inconsistent with the conceptualizations and measures from high income countries. Our study calls for scale development grounded in LMICs and culture specific contexts to be sensitive to local meaning.

CONCLUSION

The COVID-19 pandemic shone a spotlight on gender relations, and the division of housework and paid labor. We provide empirical results from three LMICs (India, Nigeria, and South Africa) where research has been scant, and a high-income country (Germany). Our findings show that participants perceived gender differences in their households before and during the COVID-19 lockdown. They also speculate that this was similar in other households before the lockdown and foresee these inequalities to persist into the near future. We recommend gender mainstreaming in policies and consultative local innovations that are sensitive to the context for gender equitable COVID-19 recoveries.

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SUPPORTING INFORMATION

Additional supporting information can be found online in the Supporting Information section at the end of this article.