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How to cite

SAXLER, Franziska Magdalena et al. Did Descriptive and Prescriptive Norms About Gender Equality at Home Change During the COVID-19 Pandemic? A Cross-National Investigation. In: Personality & social psychology bulletin, 2024, p. 01461672231219719. doi: 10.1177/01461672231219719

This publication URL: https://archive-ouverte.unige.ch/unige:174586

Publication DOI: 10.1177/01461672231219719

Empirical Research Paper

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Personality and Social Psychology Bulletin
1–15

DOI: 10.1177/01461672231219719
journals.sagepub.com/home/pspb
Sage

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Abstract

Using data from 15 countries, this article investigates whether descriptive and prescriptive gender norms concerning housework and child care (domestic work) changed after the onset of the COVID-19 pandemic. Results of a total of 8,343 participants ($M = 19.95$, $SD = 1.68$) from two comparable student samples suggest that descriptive norms about unpaid domestic work have been affected by the pandemic, with individuals seeing mothers' relative to fathers' share of housework and child care as even larger. Moderation analyses revealed that the effect of the pandemic on descriptive norms about child care decreased with countries' increasing levels of gender equality; countries with stronger gender inequality showed a larger difference between pre- and post-pandemic. This study documents a shift in descriptive norms and discusses implications for gender equality—emphasizing the importance of addressing the additional challenges that mothers face during health-related crises.

Keywords

COVID-19, descriptive gender norms, prescriptive gender norms, gender stereotypes, domestic work, cross-national comparison, work-family division

Received June 13, 2023; revision accepted November 10, 2023

In the years 2020 to 2022, the COVID-19 pandemic caused immense disruption to the lives of millions of people: In many countries worldwide, governments imposed strict restrictions, often including lockdowns that—while prudent and successful in curbing the spread of the virus—had significant socioeconomic and mental health consequences (United Nations Inter-Agency Network on Women and Gender Equality, 2021). Due to these restrictions, in many

countries, children could not attend school, requiring additional assistance with their schoolwork at home, which in turn became a new child care responsibility for parents (Sevilla & Smith, 2020). Besides the increase in unpaid child care, there was also an increased need for elder care (United Nations Inter-Agency Network on Women and Gender Equality, 2021). For many households, social distancing also meant the curtailment of help from extended family or paid workers for house or care work (Heilman et al., 2020).

This changed reality affected psychological processes (e.g., Coscioni et al., 2022; Leong et al., 2022; Rudert et al., 2021; Yang et al., 2023). Research on descriptive and prescriptive norms about gender has shown that what others in the social context do has a major influence on how people tend to behave (e.g., Ajzen, 1991)—and this is also true in the face of change due to the pandemic (Rudert & Janke, 2022). In the present article, we investigate whether societal changes induced by the pandemic and related restrictions affected young adults' descriptive and prescriptive norms about gender equality in the domestic sphere using data from 15 countries. We examined both descriptive norms (i.e., beliefs/perceptions about who *does* engage in domestic work) and prescriptive norms (i.e., beliefs about who *should* engage in domestic work). This work thus makes an important contribution to our knowledge of how changes within societies (i.e., the increase and redistribution of domestic work) affect descriptive and prescriptive norms about gender and thus contributes to the question of how social norms develop and change.

How Do Social Norms Change?

Descriptive and prescriptive gender norms are "rules and standards that are understood by members of a group, and that guide and/or constrain social behavior" (Cialdini & Trost, 1998, p. 152). Thus, gender norms operate at the group level and play an important role in explaining human behavior. In the present work, we use the term descriptive social norms as defined by Cialdini (Cialdini, 2007; Cialdini et al., 1990; Cialdini & Trost, 1998), referring to individuals' perceptions of others' behavior. These perceptions do not necessarily reflect the reality of what others actually do. Prescriptive norms prescribe which behavior is valued in a situation (Cialdini, 2007; Cialdini et al., 1991; Cialdini & Trost, 1998). Descriptive and prescriptive norms differ in their function: People use descriptive norms to make accurate and efficient decisions, whereas they follow prescriptive norms to gain or maintain social approval (e.g., Jacobson et al., 2011). People tend to follow descriptive norms, which strongly influence both behavioral intentions and actual behavior (e.g., Corral-Verdugo et al., 2019; Neighbors et al., 2004). This link between descriptive norms and behavior is stronger when there are also prescriptive norms stating that this behavior is approved of and valued by others (Rimal &

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Real, 2005). Thus, a behavior is most likely to occur if people think that others commonly engage in it (descriptive norm) and value it (prescriptive norm).

Despite the important role social norms play in many central psychological theories, such as the theory of planned behavior (TPB; Ajzen, 1991) and social role theory (SRT; Eagly & Wood, 2012), relatively little attention has been given to the question of how norms develop and change (Bicchieri & Mercier, 2014). As outlined by Cialdini and Trost (1998), one way social norms are formed and spread is by observing the behaviors of individuals in our social environment through direct observation, or through exposure to representations of people and opinions in the media (e.g., Cialdini et al., 1990, 1991; Rudert & Janke, 2022). Norms, beliefs, and thoughts are cognitive factors that play a significant role in shaping the connection between observing others' behavior and determining one's own actions (Greitemeyer, 2022). The importance of observing our social and media-based environment is in line with predictions from SRT (Eagly & Wood, 2012), which—in the context of gender—states that the observation of gendered work distributions results in corresponding perceptions of descriptive (i.e., what individuals think that people of a particular gender *do* and *do not do*) and prescriptive gender norms (what individuals think that people of a particular gender *should* or *should not do*).

Gender Inequality in Domestic Work

In heterosexual couples, women are often responsible for most of the domestic work (e.g., Carriero, 2021), which results in a gender care gap (Blom & Hewitt, 2020; Haberkern, 2007). Before the pandemic, mothers spent more time than fathers on housework (e.g., cleaning) and child care (e.g., helping kids with their homework; Lott, 2019; Thulin et al., 2019; for a review, see Lyttelton et al., 2020). Mothers were more likely to make family-related career-damaging decisions than fathers (Parker, 2015), while enjoying less organizational protection, wages, security, and labor market prospects (Yerkes & Hewitt, 2019).

Did the Pandemic Increase Gender Inequality in Domestic Work?

Concerning child care, data from several countries show that during the pandemic, women were more likely than men to undertake additional child care, resulting in a larger gender care gap. Compared to before the pandemic, an increase in the gender care gap was found in Argentina (Costoya et al., 2022), Canada (Johnston et al., 2020), Germany (Kulic et al., 2021), Hungary (Fodor et al., 2021), Italy (Del Boca et al., 2020; Kulic et al., 2021), Norway (Thorsteinsenet al., 2022), Spain (Farré et al., 2020), South Africa (Casale & Posel, 2021), the United Kingdom (Adams-Prassl et al., 2020; Andrew et al., 2020; Hupkau & Petrongolo, 2020; Oreffice & Quintana-Domeque, 2021; Sevilla & Smith, 2020), and the United States (Heilman et al., 2020; Shockley et al., 2021). In the United Kingdom for instance, working-from-home mothers did about 90 minutes of extra child care on a workday during the pandemic relative to working-from-home fathers (Adams-Prassl et al., 2020).

Similarly, for housework (i.e., cleaning and cooking), the gender gap was larger after the onset of the pandemic than before in Argentina (Costoya et al., 2022), Australia (Craig & Churchill, 2021), France (Yildirim & Eslen-Ziya, 2021), India (Deshpande, 2022), Italy (Del Boca et al., 2020; Kulic et al., 2021), Israel (Yaish et al., 2021), the United Kingdom (Andrew et al., 2020; Oreffice & Quintana-Domeque, 2021), and the United States (Heilman et al., 2020).

Did the Pandemic Decrease Gender Inequality in Domestic Work?

The COVID-19 pandemic may have exacerbated inequalities. Nevertheless, some researchers stress that changes to work and domestic routines may also be an opportunity for more equality (Fisher et al., 2020). Concerning child care, research shows that fathers dedicated relatively more time to child care during the pandemic than before (Canada: Petts et al., 2023; Italy: Biroli et al., 2021; Del Boca et al., 2020; Mangiavacchi et al., 2021; Meraviglia & Dudka, 2021; Germany: Hipp & Bünning, 2021; Kreyenfeld & Zinn, 2021; the Netherlands: Yerkes et al., 2020; the United Kingdom: Andrew et al., 2020; Chung et al., 2021; Hupkau & Petrongolo, 2020; the United States: Carlson et al., 2020). Concerning housework, research shows that during the pandemic, fathers also engaged in more housework than before (Canada: Petts et al., 2023; Italy: Biroli et al., 2021; the Netherlands: Yerkes et al., 2020; the United Kingdom: Biroli et al., 2021; Chung et al., 2021; the United States: Biroli et al., 2021; Carlson et al., 2020). The largest change in fathers' involvement in unpaid work during the pandemic seemed to occur when fathers started working from home (Chung et al., 2021) or were not employed (Sevilla & Smith, 2020). Moreover, after increasing their domestic engagement during the pandemic, many fathers indicated that they would like to remain engaged in their domestic contributions after the pandemic (Alon et al., 2020; Carlson et al., 2020). Taken together, these findings suggest that men's engagement in child care and housework increased after the onset of the pandemic. However, fathers still completed notably less unpaid domestic work than mothers did, and changes in men's involvement at home did not occur for all aspects of child care and housework (Biroli et al., 2021).

Changes in Norms About Gender Due to the Pandemic

Based on theories on the formation and change of social norms and SRT, it can be argued that a shift in the observed behavior of people around us can change social norms

(Cialdini & Trost, 1998; Diekman & Eagly, 2000). In the context of gender, it has repeatedly been shown that beliefs about norms are dynamic and open to development (Koch et al., 2005; Scheifele et al., 2021; Sczesny et al., 2007; Twenge, 2001). For instance, threatening environmental factors and major social change can influence gender norms (Zafra & Garcia-Retamero, 2011).

Initial evidence for how the pandemic might have changed descriptive and prescriptive norms about gender comes from Rosenfeld and Tomiyama (2021), who conducted a longitudinal study showing that people in the United States endorsed more traditional gender roles during the pandemic than before. Moreover, Reichelt et al. (2020) found that women expressed more traditional norms about gender if they became unemployed during the pandemic while their partners remained employed. Extending these earlier findings, in the present work, we investigate how a major societal disruption that led to changes in the gender distribution of domestic tasks in families across the world may have affected descriptive and prescriptive norms about gender in young people (i.e., adults between 18 and 24 years of age). It is important to examine norms about gender of young people—who mostly do not yet have children and therefore only observed these changes in their direct social environment or via media in others—since changes in gender norms may be more comprehensive and important in their predictive power than the temporary and practical role changes that families undergo (Meeussen et al., 2016). Young adults' prescriptive norms might not directly affect their current domestic behavior (since most young adults are not married and do not have children yet), but prescriptive norms of young adults have the potential to influence their present life decisions, such as diverting their focus from or toward specific career paths, which can lead to significant future consequences (Meeussen et al., 2016). As the gender-based division of paid and unpaid work and gender inequality in the labor market are inextricably intertwined, increases in traditional norms about the gender division of unpaid work in young people are likely to result in changes to gender role expectations about family and career priorities and thus affect future parental division of unpaid domestic work (Bass, 2015; Brown & Diekman, 2010; Croft et al., 2019; Frome et al., 2006; Meeussen et al., 2016).

The Present Research

SRT (Eagly & Wood, 2012) postulates that a change in descriptive and prescriptive norms in either direction can result from participants' actual experiences or observations of the people around them. With the differing functions of descriptive and prescriptive norms (e.g., making accurate/efficient decisions and gaining/maintaining social approval), COVID-19 may have affected both types of norms uniquely. Therefore, if changes in the distribution of domestic work are perceived and socially valued, we expect a change not only in descriptive but also in prescriptive norms about unpaid work.

Given the gendered distributions of domestic work, where women tend to take on more responsibilities than men, alongside the global changes resulting from the pandemic, it is reasonable to anticipate corresponding shifts in descriptive and prescriptive norms about gender across various countries. In the present work, we use a cross-national approach and compare descriptive and prescriptive norms about gender equality in the domestic sphere in 15 countries before and after the onset of the COVID-19 pandemic. To ensure the robustness of our findings across heterogeneous countries with different divisions of labor and pandemic-related changes (Boehnke et al., 2011), countries were included that ranked from very high to very low in gender equality (World Economic Forum [WEF], 2020). Using the onset of the COVID-19 pandemic as a quasi-experimental factor, we tested whether descriptive and prescriptive norms about child care and housework changed from before to after the onset of the pandemic using data from 15 countries: Norway (rank 3 of 156 on the Global Gender Gap Index [GGGI] 2021), Switzerland (rank 10), Germany (rank 11), Belgium (rank 13), Canada (rank 24), the United States (rank 30), Australia (rank 50), Colombia (rank 59), Spain (rank 71), Ukraine (rank 74), Slovakia (rank 77), Czech Republic (rank 78), Romania (rank 88), Malaysia (rank 112), and Japan (rank 120).

In addition, the multinational design gave us the opportunity to test whether country-level variables related to gender equality and economic development moderated the expected effects of the pandemic on descriptive and prescriptive norms about gender. Specifically, we examined whether country-level gender role attitudes, gender inequality, human development, and the duration of school closures moderated the extent of the pandemic's effect on descriptive and prescriptive norms about gender. These moderator variables were selected to reflect general structural factors not directly related to the pandemic and pandemic-related factors that differed across countries. General structural factors were gender inequality as measured by the GGGI (WEF, 2020) and human development as measured by the Human Development Index (HDI; United Nations Development Programme, 2019): The GGGI indicates a country's level of gender inequality on the dimensions of health, education, economy, and politics. The HDI indicates a country's level of development on the dimensions of life expectancy, literacy, and standard of living. In addition, country levels of traditional gender role attitudes indicate the degree to which people in a specific country value a traditional breadwinner-homemaker role distribution between men and women.

We included these country-level variables to explore whether the effect of the pandemic on descriptive and prescriptive gender norms appeared to be stronger or weaker in countries that were less gender-equal, less developed, and had more traditional gender norms even before the pandemic. Some literature suggests that in times of uncertainty, people fall back on traditional gender norms to help organize actions, thus re-inscribing training gender stereotypes into new

activities, procedures, and organizational structures (Ridgeway, 2011). Therefore, it is possible that the impact of the pandemic on descriptive and prescriptive norms about domestic work is more pronounced in countries that initially had more traditional views on gender. Finally, we assessed the duration of school closures to account for differences in the burden of increased housework and child care due to the closing of schools as a governmental measure to prevent the spread of the virus that varied between countries. Analyses explored whether the effect of the pandemic on descriptive and prescriptive norms about gender was larger in countries with longer school suspensions.

Based on the research to date presented earlier, it is difficult to predict whether traditional descriptive and prescriptive gender norms regarding child care and housework increased or decreased after the onset of the pandemic. While there is evidence suggesting that mothers took the larger share of the additional responsibilities at home (Adams-Prassl et al., 2020; Andrew et al., 2020; Casale & Posel, 2021; Costoya et al., 2022; Del Boca et al., 2020; Farré et al., 2020; Fodor et al., 2021; Heilman et al., 2020; Hupkau & Petrongolo, 2020; Johnston et al., 2020; Kulic et al., 2021; Oreffice & Quintana-Domeque, 2021; Sevilla & Smith, 2020; Shockley et al., 2021; Thorsteinsen et al., 2022), some research found that fathers showed increased participation in domestic work during the pandemic compared to before (Andrew et al., 2020; Biroli et al., 2021; Carlson et al., 2020; Chung et al., 2021; Del Boca et al., 2020; Hipp & Bünning, 2021; Hupkau & Petrongolo, 2020; Kreyenfeld & Zinn, 2021; Mangiavacchi et al., 2021; Meraviglia & Dudka, 2021; Petts et al., 2023; Yerkes et al., 2020). For this reason, it was difficult to formulate directional hypotheses. More precisely, we pre-registered and tested the following non-directional hypotheses predicting a change in the descriptive and prescriptive norms about child care and housework during the COVID-19 pandemic without specifying the direction of the change (https://osf.io/ryf2h/?view_only=44b9424df9864576aae1eca12b4e9ab7).

Hypothesis 1a (H1a): There will be a change in the descriptive norm about the gender distribution of child care from before to after the onset of the pandemic across countries.

Hypothesis 1b (H1b): There will be a change in the descriptive norm about the gender distribution of housework from before to after the onset of the pandemic across countries.

Hypothesis 2a (H2a): There will be a change in the prescriptive norm about the gender distribution of child care from before to after the onset of the pandemic across countries.

Hypothesis 2b (H2b): There will be a change in the prescriptive norm about the gender distribution of housework from before to after the onset of the pandemic across countries.

Method

Participants and Procedure

The present study was pre-registered and used data from a large cross-national research project on understanding communal orientation in men (UCOM; https://ucom2017.wordpress.com). Exclusion criteria, hypotheses, and analyses for this subproject were pre-registered on OSF. Raw and processed data, the variable list, as well as the analysis code from this study are publicly available (https://osf.io/ryf2h/?view_only=44b9424df9864576aae1eca12b4e9ab7). Collaborators from 19 universities in 15 countries collected data via a questionnaire, either online or in a laboratory. Collaborators were instructed to recruit a minimum number of students as participants from either psychology or HEE (Health, Early Education) and STEM (Science, Technology, Engineering, and Mathematics) majors. Collaborators obtained ethical approval from their respective universities. There were two independent samples associated with each university. One sample was collected from October 2017 to June 2019 (i.e., before the onset of the COVID-19 pandemic) and the other from March 2020 to June 2020.[1] Comparing scores from these samples gives insight into normative changes due to COVID-19 because these samples are highly similar (i.e., university students in the same programs).

A total of 9,536 participants completed the questionnaires.[2] After excluding participants based on pre-registered criteria—namely those who completed less than 80% of the survey or did not pass one of the two attention checks—a sample of 9,262 participants remained. In addition to the pre-registered criteria, we also excluded participants who were younger than 18 years or older than 24 since we were interested in changes in descriptive gender norms in young adults (the age range identified as young adults by Mental Health Foundation, Rowland, 2023). This resulted in a total sample size of 8,350 participants (6,240 before the onset of the pandemic and 2,110 after).[3] Participants completed the questionnaire in their national language or in English at their respective universities. In the sample, 5,519 participants identified as women, 2,739 identified as men, and 92 participants did not identify as one of these two genders. Ages ranged from 18 to 24 years ($M = 19.95$, $SD = 1.68$). Among the participants, 60% were enrolled in health-related majors (such as medicine or psychology), 23% were pursuing science degrees, 4% were studying social sciences, 9% were majoring in business or law, and 4% had chosen other fields of study. Only 28 participants had children, and 1,845 participants were in a committed relationship or married. Descriptive statistics of the national subsamples are displayed in Table 1.

Measures

Descriptive and Prescriptive Norms. Only those measures relevant to the current analyses will be described here (for a complete list, see: https://osf.io/rwxcj/?view_only=35deb74b4ddc

Table 1. Descriptive Statistics for the National Subsamples.

Country	*N* (before; after)	Gender: woman; man; neither[a]	Age	
			Before, *M* (*SD*)	After, *M* (*SD*)
Australia	348 (264; 84)	227; 119; 2	19.0 (1.3)	19.3 (1.4)
Belgium	523 (348; 175)	412; 109; 2	18.5 (1.0)	18.8 (1.2)
Canada	1,162 (878; 284)	669; 488; 5	19.7 (1.6)	20.0 (1.6)
Columbia	353 (223; 130)	211; 133; 9	19.8 (1.6)	19.4 (1.3)
Czechia	323 (230; 93)	215; 107; 1	21.7 (1.6)	21.4 (1.5)
Germany	205 (156; 49)	158; 47; 0	20.6 (1.7)	21.3 (1.7)
Japan	424 (245; 179)	222; 185; 17	19.8 (1.3)	20.2 (1.0)
Malaysia	562 (344; 218)	440; 116; 6	20.3 (1.1)	20.9 (1.3)
Norway	251 (221; 30)	162; 82; 7	21.5 (1.6)	21.4 (1.2)
Romania	337 (232; 105)	223; 108; 6	20.5 (1.4)	20.5 (1.4)
Slovakia	299 (229; 70)	188; 103; 8	21.9 (1.3)	21.6 (1.3)
Spain	218 (168; 50)	127; 89; 2	21.2 (1.8)	20.2 (1.6)
Switzerland	835 (737; 98)	602; 230; 3	21.2 (1.5)	21.5 (1.5)
Ukraine	336 (236; 100)	193; 131; 12	19.4 (1.7)	19.2 (1.5)
The United States	2;174 (1,729; 445)	1,470; 692; 12	18.9 (1.3)	19.5 (1.3)
Total	8,350 (6,240; 2,110)	5,519; 2,739; 92	19.9 (1.7)	20.1 (1.6)

[a]Those participants indicated that neither the category women nor the category man reflects their identity.

49958bd7001a0064431d). To assess descriptive norms about child care and housework, participants were asked to indicate the extent to which they thought fathers and mothers engage in child care and housework in their country on a scale ranging from 0 (father does it all) to 100 (mother does it all). Prescriptive norms about child care and housework were assessed by asking participants to indicate the extent to which they thought that mothers and fathers in their country should engage in child care and housework on a scale ranging from 0 (father should do it all) to 100 (mother should do it all). Perceptions of descriptive and prescriptive norms about unpaid child care and housework were recoded to be centered around the midpoint of the scale. With this coding, zero represents equity at the midpoint of the scale. Positive values indicate that participants think that mothers do (or should do) more child care and housework, whereas negative values mean participants think that fathers do (or should do) more.

Participant Demographics. The following demographic variables were assessed in the surveys before and after the onset of the pandemic: participant gender (man, woman, neither best reflects my identity), age (in years),[4] study major ("What field most closely describes your major or aspired major? If you have not decided yet, please select what is most likely of the choices." (a) Health care and early education (e.g., psychology); (b) science, technology, engineering, and math, (c) other social sciences (e.g., sociology), (d) business and law, (e) others); as well as subjective socioeconomic status (Adler et al., 2000) within their own country ("Please think about where YOUR FAMILY stands in comparison to others in [COUNTRY]. This ladder conceptually represents society where those with the highest socioeconomic status are at the top (Rung 10; i.e., those with the most money, highest education, and best jobs) and those with the lowest socioeconomic status are at the bottom (Rung 1; i.e., those with the least money, least education, and worst jobs). Please choose the number that best represents where YOUR FAMILY is on this ladder compared to others in [COUNTRY].")

Country-Level Moderator Variables. The country-level moderator of traditional gender role attitudes was assessed with four items selected from the Traditional Egalitarian Sex Role Scale (Larsen & Long, 1988; "In groups that have both male and female members, it is more appropriate that leadership positions be held by males," "Fathers make better leaders," "A woman's place is in the home," "Some equality in marriage is good, but by and large the husband ought to have the main say-so in family matters") on a ranging from 1 (strongly disagree) to 7 (strongly agree) ($\alpha = .87$). Traditional gender role attitudes were averaged across participants within a country and used as a country-level predictor.

The other country-level moderator variables were based on or derived from external sources. The GGGI is a frequently used index that represents the levels of gender equality in a country (WEF, 2020), based on the number of women divided by the number of men in economic participation and opportunity, educational attainment, health and survival, as well as political empowerment. The calculated gender index score ranges from 0 to 1, with 0 representing total disparity and 1 representing total parity. The HDI is the geometric mean of normalized indices for human development in terms of health, education, and standard of living (United Nations Development Programme, 2019). The score ranges from 0 to 1, with higher values reflecting higher development. Finally,

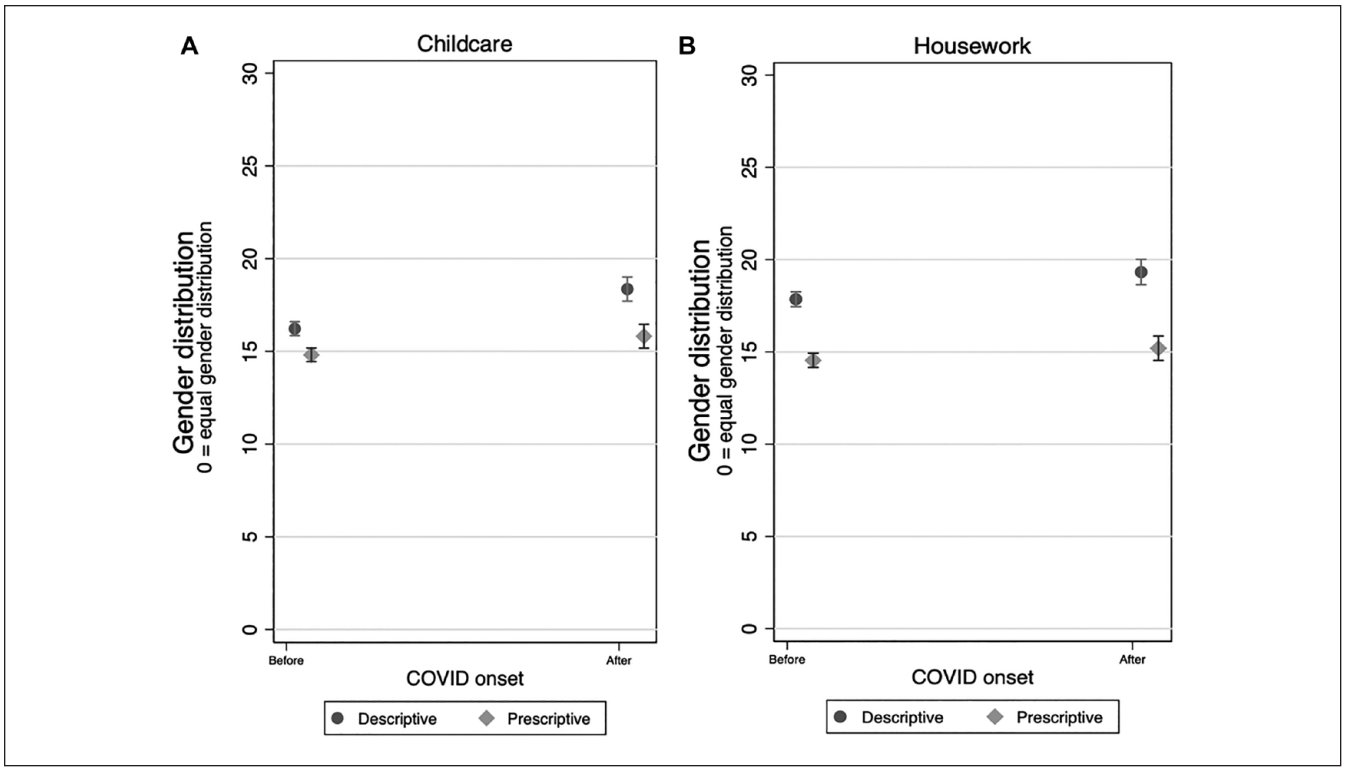

Figure 1 Descriptive and Prescriptive Norms About Child care and Housework Before and After the Onset of the Pandemic
Note. Positive values represent perceptions that women do (descriptive norm) or should do (prescriptive norm) more child care or housework than men. Error bars represent 95% confidence intervals.

to account for length of suspension of regular school operation due to COVID-19 in days for each country, each participant was assigned a score for the cumulative number of days of suspension of regular school operation in their country on the day that they started their survey. We then averaged the cumulative number of days for participants within a country to create a country-level score for cumulative suspension of regular school operation.

Results

Initial analyses revealed that the two unpaired samples (before and after the onset of the pandemic) did not significantly differ in study major, $\chi^2(4) = 5.54$, $p = .236$, gender distribution, $\chi^2(2) = 1.93$, $p = .382$, socioeconomic status, $t(8348) = .08$, $p = .470$, or age, $t\,(8348) = -3.87$, $p > .999$. Therefore, as pre-registered, we did not include any of those variables as control variables in the analyses. To examine whether descriptive and prescriptive norms of child care and housework distributions between fathers and mothers changed after the onset of the COVID-19 pandemic, we computed linear mixed models with time of data collection (Time 1: pre-pandemic; Time 2: after the onset of the pandemic) predicting descriptive and prescriptive norms about unpaid domestic work. The model included time as a fixed factor and random by-country intercepts.

Descriptively, across all countries, participants reported that women do (i.e., descriptive norm) and should do (i.e., prescriptive norm) more unpaid child care and housework before as well as after the onset of the pandemic (Figure 1).

Time of data collection had a significant effect on the descriptive norm of unpaid child care work, that is, a belief that women, more than men, completed more unpaid child care work after the start of the pandemic than before, $b = 2.12$, 95% CI [1.33, 2.91], $SE = .40$, $p < .001$. Moreover, there was a significant effect of time of data collection on the descriptive norms about unpaid housework. That is, women, more than men, were perceived to complete more unpaid housework after the start of the pandemic than before the pandemic, $b = 1.07$, 95% CI [0.21, 1.92], $SE = .44$, $p = .014$. These findings are in line with H1a and H1b, which predicted that the descriptive norm about the gender distribution of child care and housework would differ from before to after the onset of the pandemic. This direction of the change was visible in 10 of 15 countries for child care and in 9 of 15 for housework. However, specific country-level results did not meet conventional levels of significance probably due to insufficient power at the country level to detect small effects. Means and standard deviations for descriptive and prescriptive norms about domestic work before and after the onset of the pandemic are displayed by country in Table 2.

Table 2. Means and Standard Deviations for Descriptive and Prescriptive Norms About Child care and Housework for Each Country, Before and After Pandemic Onset.

	Childcare		Housework	
	Before	After	Before	After
Desciptive and Prescriptive Norms by Country	*M* (*SD*)	*M* (*SD*)	*M* (*SD*)	*M* (*SD*)
Australia				
Descriptive norms	16.45 (14.18)	18.55 (14.84)	19.30 (14.62)	18.57 (19.17)
Prescriptive norms	14.07 (14.41)	15.17 (12.73)	13.18 (14.21)	13.15 (13.02)
Belgium				
Descriptive norms	13.70 (11.62)	14.93 (10.92)	15.61 (11.93)	15.89 (9.18)
Prescriptive norms	13.35 (12.99)	13.27 (11.89)	13.87 (13.30)	14.62 (11.37)
Canada				
Descriptive norms	15.35 (16.66)	17.48 (15.48)	15.33 (17.75)	16.76 (18.04)
Prescriptive norms	12.12 (14.29)	13.51 (14.90)	11.71 (15.21)	11.75 (15.43)
Columbia				
Descriptive norms	16.36 (16.92)	18.1 (16.55)	22.49 (19.19)	24.38 (17.01)
Prescriptive norms	22.67 (17.80)	24.29 (18.40)	24.58 (19.10)	23.40 (18.99)
Czechia				
Descriptive norms	18.41 (13.91)	19.49 (13.69)	18.99 (13.99)	21.26 (14.74)
Prescriptive norms	17.62 (15.25)	17.40 (14.45)	18.91 (16)	19.31 (14.13)
Germany				
Descriptive norms	18.98 (12.05)	18.84 (10.08)	23.28 (14.14)	22.37 (09.32)
Prescriptive norms	13.90 (12.40)	14.84 (12.54)	15.69 (12.62)	12.73 (11.24)
Japan				
Descriptive norms	13.76 (19.07)	19.22 (17.60)	20.72 (22.63)	23.58 (18.67)
Prescriptive norms	9.57 (15.21)	9.06 (12.59)	13.35 (17.58)	12.60 (13.31)
Malaysia				
Descriptive norms	17.13 (18.08)	22.33 (17.27)	20.88 (20.42)	22.61 (17.49)
Prescriptive norms	18.78 (18.76)	20.06 (18.20)	17.63 (19.80)	19.25 (17.94)
Norway				
Descriptive norms	9.72 (11.18)	9.47 (16.39)	14.02 (12.85)	16.13 (11.88)
Prescriptive norms	8.36 (9.41)	8.17 (9.40)	7.56 (10.57)	9.33 (10.13)
Romania				
Descriptive norms	19.38 (19.50)	21.54 (20.64)	19.28 (18.78)	20.75 (17.20)
Prescriptive norms	24.00 (18.50)	24.44 (21.00)	19.60 (20.08)	22.77 (22.35)
Slovakia				
Descriptive norms	21.58 (13.67)	21.53 (14.97)	20.56 (13.91)	18.67 (15.49)
Prescriptive norms	18.90 (15.97)	23.74 (17.45)	18.31 (16.85)	21.16 (18.34)
Spain				
Descriptive norms	20.38 (13.90)	18.76 (13.81)	24.78 (15.08)	21.64 (14.78)
Prescriptive norms	18.66 (17.11)	18.18 (12.58)	19.03 (16.00)	16.52 (14.01)
Switzerland				
Descriptive norms	14.58 (12.82)	14.11 (12.45)	18.47 (14.05)	18.02 (14.68)
Prescriptive norms	14.17 (13.42)	15.61 (13.48)	15.41 (13.77)	16.21 (12.54)
Ukraine				
Descriptive norms	17.64 (18.24)	18.82 (17.12)	16.12 (20.28)	20.05 (17.81)
Prescriptive norms	14.30 (15.91)	14.76 (15.59)	13.31 (17)	16.10 (17.04)
The United States				
Descriptive norms	16.04 (16.40)	18.46 (17.27)	15.55 (18.07)	16.39 (18.47)
Prescriptive norms	14.49 (15.76)	14.60 (15.14)	13.07 (16.77)	12.43 (16.04)
Total				
Descriptive norms	16.08 (15.81)	18.49 (16.14)	17.63 (17.26)	19.25 (17.03)
Prescriptive norms	14.88 (15.58)	16.03 (15.87)	14.57 (16.39)	15.46 (16.22)

Note. Values could range from −50 (father does it all/father should do it all) to 50 (mother does it all/mother should do it all).

As for the prescriptive norms, while in the expected direction, the effect of time of data collection on the prescribed distribution of unpaid child care work failed to meet the conventional criterion of significance, $b = .73$, CI [−0.03, 1.50], $SE = .39$, $p = .061$. Same is true for unpaid housework, $b = .30$, CI [−0.50; 1.11], $SE = .41$, $p = .458$.[5] These findings do not support H2a and H2b, which predicted that the amount of child care and housework that participants think men vs. women should do would differ after the onset of the pandemic as compared to before.[6]

Next, we included the pre-registered country-level variables that potentially moderated the effect of time on descriptive and prescriptive norms about gender in our analyses, more specifically country-level gender role attitudes, gender inequality (GGGI), the HDI, and length of suspension of regular school operation due to COVID-19. Results showed a significant interaction between time and GGGI on descriptive norms about child care, $b = -36.06$, CI [−62.83, −9.28], $SE = 13.66$, $p = .008$. The effect of time decreased with increasing gender equality in a country indicating that countries with higher gender equality showed a smaller difference between pre- and post-pandemic levels. The other pre-registered country-level variables (i.e., gender role attitudes, the HDI, and length of suspension of regular school operation) did not significantly moderate the effect of the pandemic on descriptive and prescriptive norms about child care and housework (see Supplemental Online Material [SOM] Tables 1–4).

In addition, analyses revealed a significant main effect of participant gender on descriptive and prescriptive norms about child care and housework. Female participants, more than male participants, perceived mothers to take on a larger amount of unpaid work of child care, $b = -1.45$, 95% CI [−2.25, −.57], $SE = .40$, $p < .001$, and housework, $b = -2.25$, 95% CI [−3.10, −1.40], $SE = .43$, $p < .001$. Female participants also prescribed more unpaid child care, $b = -2.65$, 95% CI [−3.42, −1.89], $SE = .39$, $p < .001$, and housework, $b = -2.80$, 95% CI [−3.60, −2], $SE = .41$, $p < .001$, to mothers than to fathers. The effects of participant gender did not interact with the time of data collection for descriptive norms about child care ($p = .342$) and housework ($p = .742$), nor prescriptive norms about child care ($p = .385$) and housework ($p = .344$).

Discussion

This research investigated young people's gender norms, not based on their own experiences, but based on their perceptions of the gender distribution of labor within their society. It therefore tested predictions based on theories of norm formation (Cialdini & Trost, 1998) and SRT (Eagly & Wood, 2012) and suggest that societal changes due to the COVID-19 pandemic are reflected in a change in the normative beliefs of young people (i.e., university students). This change in normative beliefs was observed over a broad range of different societies with varying degrees of gender equality (e.g., GGGI 2020: Norway = rank 3, Japan = rank 120).

More Traditional Descriptive Norms After the Pandemic

After the onset of the COVID-19 pandemic, descriptive norms about unpaid housework and child care became more traditional across countries, with women being perceived as taking on more domestic work than men. One explanation for these findings is that the job shortage caused by the pandemic (International Labour Organization, 2020) was more costly/impactful for women than for men, as gendered job sectors were affected differently by the pandemic (e.g., Farré et al., 2020). Our data suggest that this changed reality is reflected in normative assumptions about this work.

Findings show that the pandemic was associated with a small change in descriptive gender norms regarding unpaid domestic work at the expense of women. This supports earlier work showing that during the pandemic, women took on a greater burden of unpaid work within their households than fathers (e.g., Thorsteinsenet al., 2022), and adds to this literature by showing that young adults perceived a change in norms during this time as well. It needs to be pointed out that based on the present data, we cannot dismiss the possibility that this effect was driven not by the pandemic but by other factors unobserved in the current study, such as cohort effects or other societal impacts. However, it is difficult to imagine another variable that would create these changes systematically across so many countries given the time between data collection was rather short (1–2 years). Meanwhile, the pandemic was a globally transformative event that impacted women and men in different ways. Furthermore, the two samples did not differ in study major, gender distribution, socioeconomic status, and age. For this reason, the observed changes in gender norms were most likely related to the onset of the COVID-19 pandemic. Despite this, future research should use longitudinal designs to better understand the effects of future health-related crises on gender norms while controlling for other variables potentially reflecting further societal change.

While the effect of the pandemic on descriptive norms was small, we believe that it is still meaningful. Based on recent work by Anvari et al. (2023) that provides an overview of mechanisms that amplify and counter an effect's importance (see Anvari et al., 2023, Table 1), we argue that in this case, the amplifying mechanisms outweigh the counteracting mechanisms. Specifically, the observed shift in gender norms will likely accumulate through repetition due to potential additional global crises in the future. In addition, the effect reported in the present paper is scaled to a large number of people (i.e., men and women across many different countries). Moreover, the true effect might have been underestimated in the current study since the timing of data collection for T2 was directly after the onset of the pandemic and before the pandemic had run its full course. It is possible that especially in countries in which the start of data collection was very early, the effects of the pandemic on perceived norms had not yet set in. Analyses

examining any effects of time since the start of the epidemic revealed no effects of time (see SOM).

No Effects of the Pandemic on Prescriptive Norms

Contrary to our hypotheses, we did not find any impact of the pandemic on prescriptive norms although the findings were in the expected direction. This suggests that the young people in our sample did not yet strongly change their beliefs about what women and men should do as a result of the pandemic to conform to a more traditional division of domestic work, even though they believe that women do more unpaid work. The means although suggest that the changes were heading in that direction. One explanation for this is that prescriptive norms are derived from descriptive norms due to the bias of maintaining the status quo (Roberts, 2022). Therefore, value-based attitudes about domestic work may change more slowly than perceptions of the situation. Another explanation relates to the function of prescriptive norms (i.e., to gain and maintain approval from the social environment; Jacobson et al., 2011). Young people, especially college-educated students, hold more progressive gender role beliefs than older people (e.g., Peterson, 2001). This is also true for our sample of university students. Our participants held mostly progressive gender role attitudes (M = 2.04, SD = 1.23; with 1 = progressive; 7 = traditional), and therefore, it is possible that they were more resistant to changes in these progressive norms and that it would take longer for them to believe that others around them—including their peers—would value more traditional norms about unpaid housework. This may have resulted in their prescriptive norms being more resistant to change. Another potential explanation is that young people recognize that the pandemic is temporary and are therefore clear-eyed about the fact that women are doing more, but this does not translate into a stable belief that they ought to do more.

As the link between descriptive norms and behavior is stronger when there are also prescriptive norms stating that this behavior is approved of and valued by others (Rimal & Real, 2005), the observed shift in descriptive norms about gender might or might not affect young adults' future behavior. Conflicts between prescriptive and descriptive norms have been found to weaken behavioral intentions (Smith et al., 2012). Yet, the literature suggests that both descriptive and prescriptive norms guide behavior (Cialdini, 2003), so despite the lack of a significant change in prescriptive norms over the time studied, it is possible that more traditional descriptive norms will still have an effect on young people. Indeed, some studies have found descriptive normative beliefs to be one of the strongest predictors of an individual's decision (e.g., Nolan et al., 2008). They hinder an individual's movement into new roles (Eagly & Koenig, 2021) and operate outside of an individual's awareness. Therefore, we argue that it is important to acknowledge these changes in descriptive norms and the consequences these might have for young women's—and men's—important life decisions.

The Role of GGGI and Participant Gender

We observed a significant interaction between time of data collection and country-level gender equality on descriptive norms about child care. This result indicates that the pandemic had a more pronounced impact on the reinforcement of traditional gender norms related to child care in countries with low gender equality. One explanation for this result is that in countries with lower pre-pandemic gender inequality (i.e., women were less represented than men in health, education, economy, and politics), young people were more prone to perceive that women do more unpaid child care and housework than men compared to more gender-equal countries. Interestingly, further country-level moderators did not explain between-country variation in the effect of the pandemic on descriptive or prescriptive norms about gender. Results were robust for countries with different levels of human development, indicating that the effect of the pandemic of descriptive norms was linked only to country-level inequality related to gender, but not to more general indicators of human development. The length of suspension of regular school operations also did not moderate the effect of the pandemic on gender norms. One potential explanation is that the cross-country variance in length of suspension of regular school operations was quite low (average difference of 17 days), as many countries put similar restrictions in place simultaneously to decrease the spread of COVID-19. In addition, it is possible that longer school suspensions might not have affected young people who were predominantly not parents themselves.

Finally, country-level differences in traditional gender role attitudes also did not moderate the effect of the pandemic on descriptive or prescriptive norms about gender. It seems that country differences in higher ascriptions of agency to men compared to women through traditional gender role attitudes did not play a central role in how social norms shifted due to the health-related crisis during the pandemic. As the samples generally were quite progressive in their gender role attitudes, the aggregation of these attitudes to the country level likely led to an underestimation of the traditionalism of gender role attitudes on the country level. Taken together, the effects of the pandemic on descriptive social norms shown in the current research were largely generalizable across countries but were more pronounced in countries with high gender inequality.

In addition, we found that female participants, more than male participants, perceived mothers to take on a greater amount of unpaid child care and housework. This might point to the fact that women with less traditional gender norms are more aware of their disproportionate contributions to domestic tasks (Lachance-Grzela & Bouchard, 2010). The finding is consistent with previous research, suggesting that

women have less traditional gender norms than men, and women's less traditional gender norms are reflected in a decreased engagement in domestic tasks. Surprisingly, at both points of measurement, male and female participants reported that mothers should do more domestic work, and this was actually more pronounced for female participants. Since the current student sample has relatively progressive gender role attitudes, this unexpected gender difference might be explained by male participants attempting to resolve their cognitive dissonance (Harmon-Jones & Mills, 2019) regarding the fact that women perform more domestic tasks. Future research should investigate whether this effect can be replicated in samples that represent a more balanced continuum of traditional and progressive gender role attitudes.

Limitations

Despite the important contribution that the present research makes in gaining knowledge about changes in gender norms, several limitations need to be mentioned. Our main dependent variables (descriptive and prescriptive norms) were measured with single items. Single-item measures can be criticized for methodological shortcomings. However, for large-scale multinational research, they have many advantages (Allen et al., 2022). Single-item measures are more parsimonious with regard to administration time, and they can be more applicable to different populations. To illustrate, measuring norms in a very general manner seems appropriate since domestic work for example might encompass very different specific tasks in different countries. Moreover, earlier research on norms has used similar types of measures (e.g., Doxbeck & Osberg, 2021; Talbott et al., 2014).

Another limitation of the current study is that the data did not include the same participants for each measurement; thus, neither longitudinal analyses nor analyses of underlying psychological mechanisms were possible. However, the samples at the two time points were comparable, as they were recruited from the same participant pool (students from the same universities) and did not differ in terms of gender distribution, study major, or socioeconomic status. University students tend to represent the upper social classes, hence the importance to replicate these findings with representative samples. Nevertheless, the findings on the current population are still noteworthy as university students may later hold politically influential positions that shape social development (Meeussen et al., 2016; Olsson et al., 2023). Another issue with the current analyses was power: The present data lacked statistical power to detect small effects at the country level with the available subsamples, which explains why the shift in descriptive norms was significant across countries, but not statistically significant within any single country. Thus, researchers interested in the effect of social crises in a specific country should aim to recruit larger samples to maximize statistical power. Furthermore, future research including an even larger number of countries could systematically investigate which country-level variables affect the relationship between crises and gender norms.

Conclusion

Even though it seems like the COVID-19 pandemic is mostly over, virologists and cell researchers have repeatedly argued that another pandemic is likely not that far away (e.g., Morens & Fauci, 2020). As a single year of the COVID-19 pandemic has been estimated to increase the number of years needed to close the global gender gap by one generation (WEF, 2022), it is important to address the increasing gender-based division of roles to prevent further delays to gender equality in future (health-related) crises. The present study provides first evidence that one of these challenges may be the normative beliefs about unpaid additional domestic work. We know from other work that gender inequality in unpaid work is a major factor contributing to gender inequality in paid work (WEF, 2021). As norms are standards that guide behavior (Hewstone & Martin, 2014), the fact that normative beliefs about household responsibilities have changed even in this relatively progressive population is crucial and may influence future family-career priorities, career choices, and inequities in parental division of labor between women and men (Brown & Diekman, 2010). To address gender inequality in the labor market, this research emphasizes that policy measures to support more gender-equal work-family roles and to support mothers are of great importance, especially during crises.

Author Contributions

F.M.S., A.R.D., L.F., and S.E.M. contributed to study design and hypothesis development. All authors collected data and checked the questionnaires and approved the final manuscript.

Declaration of Conflicting Interests

The author(s) declared no potential conflicts of interest with respect to the research, authorship, and/or publication of this article.

Funding

The author(s) disclosed receipt of the following financial support for the research, authorship, and/or publication of this article: This research project was conceived following the award of an SSHRC Insight Development Grant (430-2018-00361) and a grant of the Social Sciences and Humanities Research Council of Canada (895-2017-1025) to Toni Schmader. Additional funding included a SSHRC Insight Grant awarded to J. R. Steele (435-2014-1247) and a SSHRC doctoral fellowship awarded to C. Lapytskaia Aidy; funding from State Research Agency awarded to Soledad de Lemus (PID2019-111549GB-I00/10.13039/501100011033); funding from the research infrastructure HUME Lab Experimental Humanities Laboratory, Faculty of Arts, Masaryk University awarded to Eva Kundtová-Klocová; a grant from the Swiss National Science Foundation awarded to Tabea Hässler (P1ZHP1_184553) and Léïla

Eisner (P2LAP1_194987); funding from Slovak Research and Development Agency project (APVV 20-0319) awarded to Denisa Fedáková.

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Supplemental Material

Supplemental material is available online with this article.

Notes

1. The average time between the median date of data collection before and after COVID was 19 months.
2. Universities with less than six participants at the first measurement were not invited to collect data at the second measurement.
3. We pre-registered the analyses without the age cutoff, but due to some age variation, we added this constraint. Analyses including all participants can be found in the SOM. The patterns of non-/significant findings did not change with the age cutoff.
4. Norway (because of new privacy laws) collected age as categories at Time 2. We assigned participants the median age from their chosen category (e.g., "22–24" = 23, "25–27" = 26).
5. In response to the comment of an anonymous reviewer, we conducted these analyses again, excluding participants who already have children (N = 27). This did not change the results.
6. Robustness checks were performed, and analyses were also conducted while controlling for individual-level gender, sexual orientation (i.e., whether participants identified as heterosexual or not), marital status, political orientation, and parental status. The results are reported in the SOM, Table 9–12. The results remain unchanged when controlling for these variables.

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