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## A cross sectional survey to understand gender inequalities in time spent doing housework by children in Rajasthan, India and factors affecting them

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### Abstract

**Background:** Gender disparities in housework division are well-documented globally, with women and girls often shouldering a disproportionate share of unpaid domestic labor. This study investigates the gender gap in time spent on housework among children aged 11-18 years in Rajasthan, India, and examines the factors influencing these differences.

**Methods:** A cross-sectional study was conducted among 150 children across urban and rural households. Data on time spent on housework, socio-economic status, family structure, and parental education were collected through structured validated questionnaires. Gender-specific patterns in housework and factors influencing time spent on domestic tasks were analyzed using descriptive statistics and regression models.

**Results:** Girls spent significantly more time on housework than boys, with the gap increasing with age. By the age of 17-18, girls spent three times more time on indoor chores than boys. Boys, particularly in the 14-16 age group, were more engaged in studying and homework. The most significant predictor of the gender gap was maternal education; households with highly educated mothers showed a narrower gap in housework division.

**Conclusion:** The study highlights the persistence of traditional gender roles in household labor among children in Rajasthan, with girls consistently performing more housework. Maternal education emerged as a critical factor in promoting gender equality in domestic tasks. Policy interventions aimed at challenging gender norms and encouraging more equitable distribution of household chores are essential for reducing these disparities.

**Keywords:** Gender gap, housework, children, maternal education, time use, domestic labor, India

### Introduction

Despite substantial progress in various public spheres, gender inequality still persists in private homes, where women do more housework than men. In India there exists a striking gender disparity as well as a rural-urban difference in the distribution of unpaid household work. According to data from the Time Use Survey (2019) of India, which was conducted by the National Sample Survey Office (NSSO) in January-December 2019, division of unpaid domestic work between men and women shows huge gender gap, irrespective of their age, the study said women aged six years and above spend 301 minutes on unpaid domestic work compared to men who devote a mere 98 minutes to the same <sup>[1]</sup>. Women in India do almost 10 times as much unpaid work as men—a much higher ratio than the global average. (World Economic Forum) <sup>[2]</sup>.

As well as doing different amounts of housework, men and women generally do different types of chores. Men do more outdoor-work/maintenance, while women do more care-work/laundry. Unequal housework is a recognised source of domestic conflict, it also undermines women's career progression, professional advancement and buttresses gender power dynamics within society. Gendered patterns of housework may form during childhood and persist into adulthood. Children also have been found to conduct gendered chore types in a similar way seen in adulthood although this is relatively understudied in childhood. Children's housework time has not been documented in India, although Hannan, Smyth, McCullagh, O'Leary and McMahon (1996) <sup>[3]</sup> and Leonard (2004) <sup>[4]</sup> found that young (15-18 year-old) women did more than young men.

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Most young women viewed their parents' housework divisions as unfair, and 84% expected better in their adulthood despite already doing more than young men their age. Our study surveyed children in three different schools in Rajasthan, India, at age groups 11- 18 years regarding their daily time use in order to ascertain time spent by them on housework and its correlating factors based on demographic data of these children<sup>[3, 4]</sup>.

The current study aims to address the following questions in the Indian context:

- How do boys and girls differ in the amount of time they spend doing housework?
- How does time spent doing housework change as children grow older?
- How do boys and girls differ in the types of tasks they conduct and are these trends "gender typical"?
- If there is a gender gap in housework, what are the factors correlating with this gap?

## Methods

After approval from institutional ethical committee (RajKaj Ref No.10004981/Acad-III/MCA/2024 dated 24-08-2024), three senior secondary level schools were identified in the Ajmer-Jaipur region of Rajasthan. A survey was conducted in school children aged groups 11-18 years regarding their daily time use in order to ascertain time spent by them on housework. School administration was visited by a team member who explained the study and data collection process to the school. After school administration's permission they were provided with information sheet for school, parents and students and consent and assent was sought for parents of minor students and students respectively. A school counsellor or staff was trained in helping children to fill out the questionnaire survey and time use diary. After getting the consent forms and assent forms signed, team visited the school and got the children who gave consent to fill out the forms in presence of a school authority.

## Statistical analysis

### Study Design and Sample Size

This study employs a cross-sectional survey design to examine gender inequalities in housework among children in Rajasthan, India. The target population includes children in three age groups 11-13 years, 14-16 years and 17- 18 years. The sample size was determined based on a power analysis with a significance level (type I error) of 0.05 and a power of 0.8. The effect size for this analysis was derived from prior studies on gender differences in housework time among children which came out to be 150 children each group.

### Data Collection

Data was collected using structured questionnaires administered to children. The survey included questions on the amount of time spent on various household chores, types of tasks performed, and demographic information.

**Statistical Tests:** Prior to analysis, data was cleaned to address any missing or inconsistent responses. Descriptive statistics were used to summarize the demographic characteristics of the sample, as well as the average time spent on housework by boys and girls at each age group. Descriptive statistics (means, medians, and standard deviations) were calculated for continuous variables, while categorical variables were summarized as frequencies and percentages. T-test compared housework time between boys and girls, and ANOVA tested differences across age groups. Multiple regression identified factors influencing housework time, including gender and socio-economic status, with interaction terms examining age-gender effects. Chi-square tested task distribution, and logistic regression assessed the likelihood of gender-typical tasks. Significance was set at  $p < 0.05$ , and analyses were conducted using SPSS, with results illustrated via graphs and tables.

**Time spent doing housework (Diary):** The dependent variable time spent doing housework was measured using a one-day time-use diary which partitioned the 24-hr day into 15 min time slots. This diary provided the respondent with 24 closed activities to choose from, one of which was "Housework". The participant had to complete the diary themselves, but they could ask for assistance from a caregiver if they were having difficulty. A composite variable of housework time in minutes was created counting the number of 15-min slots spent doing housework during the diary day.

**Time spent doing specific chores (Questionnaire):** The independent variables cooking, washing dishes, hovering, helping with relatives, helping with younger siblings cleaning the car, putting out bins and gardening were measured using a questionnaire. The predictor variables are classified a priori into typically male and typically female tasks based on previous research. Typically, female tasks included cooking, washing dishes, hovering, helping with relatives and helping with younger siblings. Typically male tasks included cleaning the car, putting out the bins and gardening (American Time Use Survey, 2015; Bartley *et al.*, 2005; Bianchi *et al.*, 2000; Quadlin & Doan, 2018)<sup>[5-8]</sup>. Respondents were asked "Do you do any of these chores at home?" and rated answers on a five-point scale ranging from 1 (Never), 2 (Less often), 3 (Two to three times a week), 4 (Four to five times a week) and 5 (everyday)<sup>[5-8]</sup>.

## Results

A total of 150 survey forms were distributed, with 50 forms each given to two schools in Ajmer and one school in Jaipur, Rajasthan, India. Of these, 126 completed forms were returned, and 104 contained complete data, which were included in the final analysis. Among the 104 respondents, 40 were female and 64 were male students. The twenty-one activities were categorized into five groups to facilitate analysis (Table 1).

**Table 1:** Categorisation of Daily Activities

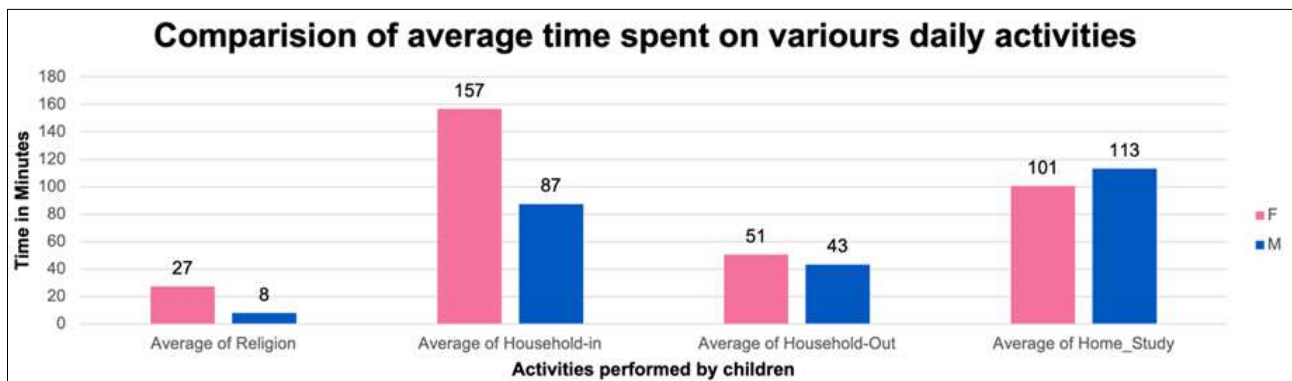
Leisure/Rest	Religious Activities	Household Work-Indoor	Household Work-Outdoor	Homework or Study
Sleep	Religious Activity	Cleaning	Gardening	School
Free time		Washing clothes	Grocery shopping	Homework
Roam around		Cooking	Maintenance	
Rest		Dishes		
Play		Putting out garbage		
Hobbies		Taking care		
Reading leisure				
Internet				
Others				

Although no significant differences were observed between girls and boys in time spent on leisure/rest, outdoor housework, or homework/study, girls spent considerably more time on both religious activities and indoor housework. Girls spent over three times as much time on religious activities (27±37.96 minutes) compared to boys

(8±18.12 minutes), with this difference being statistically significant (P = 0.0009). Notably, the time girls devoted to indoor housework (157±162.83 minute) was nearly double that of boys (87±59.73 minutes), a significant difference (P = 0.0023) (Table 2, Figure 1).

**Table 2:** Comparison of average time spent on various daily activities by male and female children

Gender	N	Mean±Standard Deviation of time spent in minutes in various activities				
		Leisure/Rest	Religious activities	Household work-indoor	Household work-Outdoor	Homework or Study
Female	40	683±147.6491	27± 37.96	157± 162.83	51±48.24	101±57.76
Male	64	731±149.24	8±18.12	87±59.73	43±30.01	113±58.91
95% CI		-11.46 to 107.46	-29.97 to -8.02	-114.41 to -25.58	-23.20 to 7.20	-11.37 to 35.37
P Value		0.1125	0.0009	0.0023	0.2991	0.3110
Grand Total	104	713	15	114	46	108



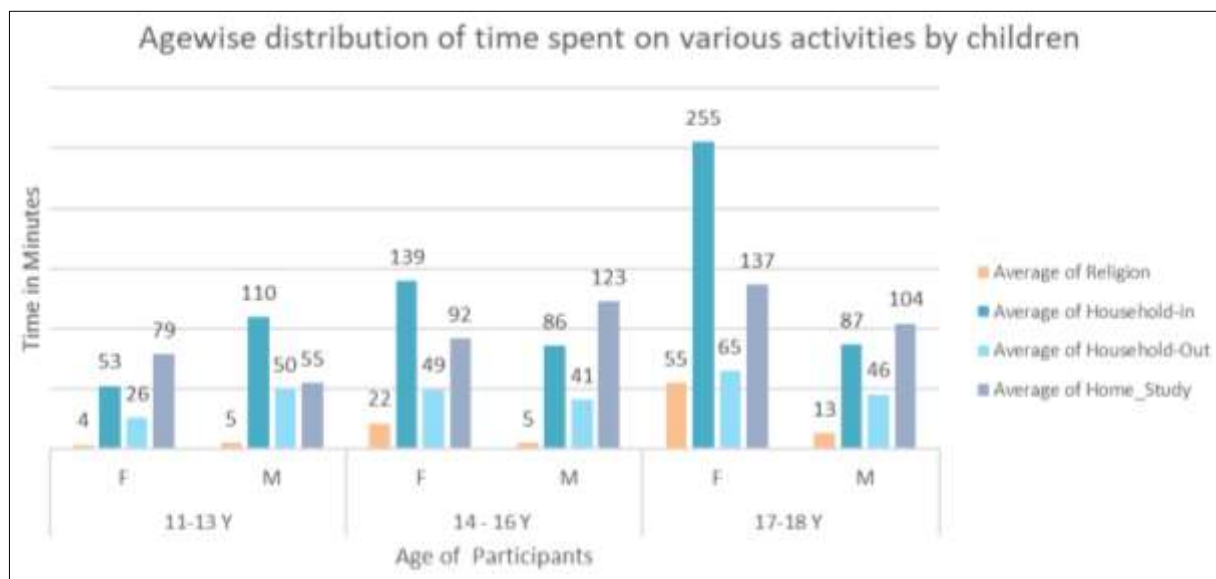
**Fig 1:** Comparison of average time spent on various daily activities by male and female children

**Age wise distribution of time spent on various daily activities:** No statistically significant differences were found between boys and girls in the time spent on various activities within the 11-13 age group. However, with increasing age, the time spent by females on indoor housework increased gradually. Girls in the 14-16 age group spent 1.5 times more time on indoor housework than boys (139±130.88 minutes versus 86±67.14 minutes), a difference that was statistically significant (P = 0.036). In this age group, girls also spent significantly more time on religious activities compared to boys (P = 0.0008). Interestingly, boys aged 14-16 spent significantly more time

on studying and school homework (123±55.26 minutes) compared to girls (92±45.82 minutes) (P = 0.019). No significant differences were observed between boys and girls in other activities within this age group. By the 17-18 age group, girls spent significantly more time on indoor housework, three times more than boys (255±236.10 minutes versus 87±49.74 minutes) (P = 0.0024). Girls in this age group also spent significantly more time on religious activities compared to boys (P = 0.008). For all other activities, no significant differences were found in the time spent by boys and girls.

**Table 3:** Age wise distribution of time spent on various daily activities by male and female children

Age group of participants	N (sample size)	Mean±SD of time spent in various activities in minutes				
		Leisure/Rest	Religious activity	Household work indoor	Household work Outdoor	Homework / Study
11-13 Y	7	675±128.45	4±7.31	77±44.52	36±36.59	69±42.29
Female	4	675±170.14	4±7.5	53±37.74	26±30.92	79±56.62
Male	3	675±77.94	5±8.66	110±31.22	50±45.82	55±8.66
95% CI		276.25 to 276.25	-14.67 to 16.67	-12.25 to 126.25	-49.81 to 97.81	-110.77 to 62.77
P value		1.000	0.8762	0.0880	0.4414	0.5089
14-16 Y	65	709±126.34	12±20.74	108±101.33	45±33.27	110±53.51
Female	27	686±121.06	22±26.42	139±130.88	49±39.20	92±45.82
Male	38	726±128.96	5±11.71	86±67.14	41±28.42	123±55.26
95% CI		-23.25 to 103.25	-26.66 to -7.33	-102.58 to -3.41	-24.74 to 8.74	5.05 to 56.94
P value		0.2110	0.0008	0.036	0.3434	0.0199
17-18 Y	32	728±194.39	25±41.66	134±148.48	51±46.95	113±68.78
Female	9	678±218.42	55±59.05	255±236.10	65±73.86	137±79.17
Male	23	747±185.74	13±25.70	87±49.74	46±31.81	104±63.87
95% CI		-87.57 to 225.57	-72.19 to -11.80	-271.70 to -64.29	-56.63 to 18.63	-87.83 to 21.83
P value		0.3753	0.008	0.0024	0.3108	0.2286
Grand Total	104	713±149.77	15±28.92	114±115.63	46±38.01	108±58.52



**Fig 2:** Age wise distribution of time spent on various daily activities by male and female children

**Demographic Factors affecting the gender gap in amount of time spent by children in doing housework**

**Table 4:** Comparison of time spent in various activities by boys and girls in different types of families

Mean time spent in various activities in minutes						
Male vs Female by Family Type						
Family Type	N	Leisure/Rest	Religious Activity	Household work indoor	Household work Outdoor	Homework / Study
<b>Joint</b>						
Female	22	714	36	173	49	102
Male	39	713	9	80	43	114
<b>Nuclear</b>						
Female	18	645	17	137	53	98
Male	25	759	7	100	44	112
<b>Male vs Female by Income in INR/ month</b>						
<b>&lt;20,000</b>						
F	11	661	29	198	50	97
M	19	697	2	103	50	107
<b>&gt; 20,000</b>						
F	28	698	28	130	53	97
M	45	745	11	81	41	116

Our survey results indicate that girls in joint families spent more than twice the amount of time on indoor housework (173 minutes) compared to boys (80 minutes). Although no significant differences were observed in time spent on other activities in this subgroup, girls consistently spent more time on religious activities than boys. In nuclear families, girls also spent more time on indoor housework (137 minutes) compared to boys (100 minutes), though the gender gap was less pronounced than in joint families. Similarly, no significant differences were found in time spent on other activities in this subgroup.

In lower-income families (family income < 20,000 INR/month), girls spent considerably more time on indoor housework (198 minutes) compared to boys (103 minutes). Girls also devoted more time to religious activities, but there were no significant differences between boys and girls for other activities in this income group. In families with

incomes > 20,000 INR/month, girls also spent more time on indoor housework (130 minutes) compared to boys (81 minutes), while time spent on other activities remained comparable between genders.

Among other factors examined for their correlation with the gender gap in time spent on housework for children aged 11-18 years - such as number of siblings, parental education, father's profession, and mother's working hours - a strong correlation was observed with the mother's level of education. As shown in Table 5, in households where the mother's education was only up to the primary level, girls spent significantly more time on housework (241±210.76 minutes) compared to boys (87±71.19 minutes) ( $p < 0.05$ ). This gender gap in time spent on housework decreased with increasing maternal education levels and became non-significant when the mother had attained a postgraduate degree (Table 5).

**Table 5:** Comparison of time spent in indoor housework by boys and girls in households with different level of maternal education

Comparison of Mean time spent on indoor Housework in minutes by boys and girls by level of maternal education										
Maternal Education	None (n)	Time (Mean±SD)	Primary (n)	Time (Mean±SD)	Secondary (n)	Time (Mean±SD)	Graduate (n)	Time (Mean±SD)	Post Grad (n)	Time (Mean±SD)
Female	13	84±88.00	17	241±210.76	8	113±43.17	5	132±64.86	2	90±63.63
Male	21	71±49.72	17	87±71.19	17	96±58.83	0	-	4	79±41.30
95% CI		-60.94 to 34.94		-263.90 to -44.09		65.3749 to 31.3749		-		126.10 to 104.10
P Value		0.5846		0.0075		0.4746		-		0.8039

## Discussion

This study aimed to investigate the gender gap in time spent on housework among children aged 11-18 years in Rajasthan, India, and identify the factors that influence this disparity. The findings of this study are consistent with the global trends that show a significant difference in the amount of time boys and girls devote to unpaid housework, as seen in the Time Use Survey (2019) from India.<sup>1</sup> The results of this study indicate that girls, across different household and socio-economic contexts, spend significantly more time on indoor housework than boys. This is consistent with previous literature that highlights the deeply entrenched cultural and social norms that perpetuate gender-specific roles within the household (Bianchi *et al.*, 2000; Quadlin & Doan, 2018)<sup>[7, 8]</sup>.

In terms of the specific aims of this study, the first objective was to determine how boys and girls differ in the amount of time they spend doing housework. The findings revealed that, across all age groups and socio-economic backgrounds, girls consistently spent more time on housework than boys. This finding aligns with previous studies conducted in other regions of the world, such as Hannan *et al.* (1996) and Leonard (2004)<sup>[4]</sup>, which also found that young girls (aged 15-18) tend to do more housework than boys<sup>[3, 4]</sup>. In our study, this disparity was most pronounced in the oldest age group (17-18 years), where girls spent three times as much time on indoor housework as boys. Such a trend suggests that as girls grow older, they are expected to take on more domestic responsibilities, reinforcing gender roles and expectations (Cunningham, 2001)<sup>[9]</sup>.

The second aim was to assess whether the time spent on housework changes as children grow older. Our results showed that time spent on housework increases with age, particularly among girls. This pattern suggests that as children approach adulthood, gendered expectations around housework become more rigid, with girls taking on more responsibility for domestic chores. This finding is in line

with research by McHale *et al.* (1999), which also observed that gender differences in housework increase as children transition from adolescence to adulthood<sup>[10]</sup>.

In terms of task allocation, the study sought to determine whether boys and girls perform different types of housework. The results revealed that girls were more likely to engage in "typically female" tasks, such as cooking and cleaning, while boys were more involved in outdoor chores, supporting the hypothesis of gender-typical task allocation. This trend was observed across all income groups and family structures, which reflects long-standing cultural norms about gendered divisions of labor within households (Bartley *et al.*, 2005)<sup>[6]</sup>.

A key finding of this study is the influence of maternal education on the gender gap in housework. In households where mothers had only a primary education, girls spent significantly more time on housework compared to boys. However, as the level of maternal education increased, the gender gap in housework narrowed, and in families where the mother had a postgraduate degree, the gap was no longer statistically significant. This finding suggests that higher maternal education levels may promote more egalitarian attitudes toward gender roles within the household (Dotti Sani, 2014)<sup>[11]</sup>.

Interestingly, while girls spent significantly more time on indoor housework and religious activities, boys in the 14-16 age group spent more time on studying and homework. This observation could reflect differential expectations placed on boys and girls, with boys being encouraged to focus on academic success, while girls are more likely to be engaged in domestic work. Such findings align with broader discussions on the gendered distribution of labor, where boys may be freed from household responsibilities to pursue education, while girls are often expected to balance both domestic and academic responsibilities (Gershuny & Sullivan, 2017)<sup>[12]</sup>.

**Conclusion**

This study provides further evidence of the persistent gender gap in the division of housework among children and adolescents in India. Girls, regardless of age, socio-economic background, or family structure, consistently spent more time on housework than boys, with the gap widening as they grew older. The results underscore the deep-rooted nature of gendered socialization and the impact it has on children's participation in unpaid domestic work.

One of the most significant findings from this study is the role of maternal education in mitigating gender disparities in housework. As maternal education levels rise, the gender gap in housework decreases, highlighting the importance of female education in promoting more equitable divisions of labor within households.

In conclusion, this study contributes to the growing body of literature that highlights the gendered nature of housework and the early age at which these disparities emerge. It emphasizes the need for policy interventions aimed at challenging traditional gender roles and encouraging more equitable sharing of domestic responsibilities among boys and girls. Future research should explore interventions at the family and school levels to promote gender equality in domestic work and examine the long-term effects of such interventions on children's attitudes and behaviors around gender roles.

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**Conflict of interest**

None

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