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Children Do Care: Novel Findings from Colombia and Mexico

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Abstract

In Latin America, where social protection systems are weak and early childhood education services have limited coverage, the burden of care often falls heavily on families. This situation not only impacts women's labor trajectories but also affects children who take on caregiving roles, an understudied phenomenon with potential long-term consequences. This study examines the caregiving dynamics of children aged 12 to 18 in Colombia and Mexico, using recent time-use surveys to analyze their contribution to unpaid family care and its potential consequences. Our methodology involves comparative analysis of time-use data from Colombia (2016) and Mexico (2019), focusing on children's participation in care activities, the types of care provided, and the time allocated to these tasks. We employ econometric models to investigate the determinants of care provision and its effects on children's educational and personal development outcomes. Our results reveal that children aged 12 to 18 bear a significant portion of the care burden in both countries, with participation rates of 6.6% in Colombia and 18.8% in Mexico. Gender imbalances are pronounced, with girls taking on more intensive care tasks. The provision of care is associated with lower school attendance, reduced study time, and decreased leisure activities. These findings highlight the need for public policies that address the defamiliarization of care in Latin America to mitigate the potential long-term impacts on children's life trajectories. Based on these results, we discuss the implications for public policies aimed at alleviating the care burden on children and adolescents. The study contributes to the debate on how to balance young people's involvement in care tasks with their educational and personal development, considering the context of the countries studied and the challenges in breaking cycles of intergenerational inequality.

Keywords Unpaid work · Care work · Children · Latin America · Time use studies

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1 Introduction

While children's engagement in housework and care work is a widely observed phenomenon in Latin America (Guarcello et al., 2006), comprehensive academic studies focusing specifically on children as carers in the region remain scarce. Despite some localized research efforts (e.g., Dahlblom et al., 2009 in Nicaragua; Deutsch, 1998 in Brazil), there is a notable gap in empirical evidence and region-wide analysis of this crucial aspect of household dynamics and child labor in Latin America. In this study, we define child caregivers as children and adolescents who provide care for younger siblings or other children in the household, regardless of their health status, and also for family members with disabilities.

The significance of studying children as caregivers extends beyond mere documentation of a social phenomenon. Care activities are not neutral; they have profound implications for child development, gender socialization, and the perpetuation of social inequalities. Care work, including that performed by children, is crucial for maintaining households and communities, yet often remains invisible in economic analyses. As discussed by Evans (2014), children's care work can be located on a continuum, ranging from low levels of caring responsibilities for a few hours each week, which can be regarded as culturally appropriate, according to norms of age, gender and generational relations, to high levels of 'full-time' substantial and regular caregiving each week, which may imply significant negative outcomes for children's well-being. Performing caring activities at early ages can help to develop children's sense of responsibility and it can be a rewarding and meaningful experience. But being a caregiver may also entail important consequences for children, both in their present and future lives. Performing permanent and intensive caregiving activities can crowd out other enriching activities for children. It may affect children's ability to attend classes, spend time studying or engage in other age-appropriate activities that contribute to the development of healthy and positive adult personalities. In terms of future consequences, besides the effects related to human capital accumulation, housework and care work may contribute to the formation of preferences that determine gender roles in adulthood.

Explanations for children's participation in housework in general have underlined two different potential motivations in parents to stimulate these activities: the desire to develop a sense of responsibility in children, or the need to respond to a demand for care or domestic work in the family that cannot be met by the adults in the household (Blair, 1992). Even if this topic has not received major attention from researchers, there are some studies about time use patterns among children and teenagers available for developed countries. These studies have been facilitated by the fact that all the larger European countries, as well as the US, Canada, and Australia, have nowadays a long tradition of micro-level data based on time-use surveys, which have allowed the development of a fertile field of time-use research (Bauman et al., 2019). Studies for developed countries have found that girls spend more time on domestic chores while boys dedicate more to active leisure and sports (García et al., 2022; Evertsson, 2006; Solaz & Wolff, 2015; Hilbrecht et al., 2008, Bonke, 2010; among others). Another finding from these studies is that the learning of housework is a gendered process, as there is evidence of intergenerational transmission of gendered

involvement (Cordero Coma & Esping Anderson, 2018; Dotti Sani, 2016; Alvarez & Miles Touya, 2012).[1]

In developing countries, studies on children's time use are even scarcer, although due to worse socioeconomic conditions and weaker social protection systems, their role as caregivers is possible greater than in developed countries. But the relative absence of related studies is not strange if we consider that the embracement of time-use surveys as standardized instruments of data collection is more recent in the the developing world. In Latin America, only around 2010 most countries had published at least one time-use survey. Countries in the region have opted for questionnaires instead of time-use diaries, mainly due to cost considerations (see Aguirre & Ferrari, 2014). The availability of time use data allowed the emergence of studies documenting gender gaps in time use in Latin America (Arriagada, 2007; ECLAC, 2010; Gammage, 2010; among others), uncovering the gender inequalities in time dedicated to unpaid work and care. Some studies have also attempted to delve deeper into the associated factors or underlying causes (Amarante & Rossel, 2018; Campaña et al., 2020; Canelas & Salazar, 2014; among others). However, in an area of research still incipient in the region, other questions beyond the gender gap among the adult population remain understudied. One of the almost unexplored topic in Latin America is the time use of children and teenagers, as well as their role as caregivers.

Even though in general terms the analysis of time use patterns of children and teenagers is very scarce in Latin America, there exists some related evidence. Guarcello et al. (2006) observe significant shifts in child labor patterns as children approach adolescence, noting that boys tend to increase their participation in economic activities outside the home, while girls often take on more responsibilities associated with housework and caregiving. Larger differences in housework intensity emerge with age: while hours worked on household chores are almost the same for seven-year-old boys and girls, by the age of 17 girls dedicate as much as twice as many weekly hours to household chores compared to boys. This divergence in roles highlights the early emergence of gendered patterns in care work, a key aspect of understanding overall child caregiving dynamics in Latin America.

These patterns of gendered care work often extend into late adolescence and early adulthood, contributing to a significant societal issue in Latin America: the high percentage of teenagers classified as neither in the labor force nor in schooling (NEET). This classification, which shows a notable gender imbalance (Cardenas et al., 2015; Liu et al., 2022), is particularly relevant to our discussion of child caregiving. Many of these seemingly "inactive" youth are actually engaged in unpaid care work within their households, continuing and intensifying the patterns observed among younger adolescents. Studies have highlighted the inaccuracy of labeling individuals involved in child-rearing or housework as inactive, especially considering the impact of early motherhood on young women's apparent disengagement from formal education and employment (Assusa, 2019; Santillan Pizarro & Pereyra, 2020).

[1] There is a strand of literature which addresses non-adult child supervision and factors influencing this practice in low-income countries, mainly with a medical or psychological basis and focusing on unintentional childhood injuries. These studies find a strong association of these practices with socio-economic factors and with living in rural areas (see for example, Ruiz-Casares and Nazif-Muñoz, 2018 and Ruiz-Casares et al., 2018).

By recognizing these hidden care responsibilities, we can better understand the true nature of youth engagement, the factors contributing to their absence from formal education and employment, and the continuation of gendered caregiving patterns from childhood into young adulthood. This perspective also helps explain findings like those of Deutsch (1998) in Brazil, where the presence of children aged 6 to 15 who can serve as substitute care providers negatively influences the decision to use outside childcare. Similarly, ethnographic approaches, such as that of Dahlblom et al (2009) studying sibling caregivers in poor areas in Nicaragua, further illuminate these complex caregiving dynamics among youth.

Even if children achieve essential life skills while caring for others, the caregiving role at younger ages implies a narrowing of life options with a life course perspective. It can pose risks to children's health and affect their ability to attend and benefit from schooling. A recent cross-national study of adolescent young carers aged 15-17 in six European countries revealed that many of them are at significant risk of mental distress (Lewis et al, 2023). Caring activities at younger ages may also contribute to the consolidation of traditional gender roles in adulthood.

In this context, this paper aims at providing original evidence about the role of children as care providers (for other children in the household or for disabled members of the family) in Colombia and Mexico, considering the situation of children aged 12 to 18. Using recent time-use surveys, we consider their role as care providers for their siblings but also other adults. Time-use surveys offer a unique opportunity to quantify and analyze care activities, as they provide detailed, measurable data on how individuals, including children, allocate their time across various activities. Despite their potential, time-use surveys have been generally underutilized in social research, and even less so in examining children's care activities.

Our innovative approach compares the burden of family unpaid care on children with that of their parents or grandparents, and we analyze the potential consequences of caring activities at younger ages. Our results show that, both in Colombia and Mexico, a relevant part of overall care burden falls on children aged 12 to 18, and the gender imbalances are very strong even at those ages. We also confirm the association between providing care at younger ages and lower probabilities of attending school, higher probabilities of school lag, less time dedicated to studying or to leisure time and time with friends. Considering that all these aspects may affect children's future life trajectories, public policies should take this situation into account and strengthen interventions that help relieve families of some of the burden of care.

This paper is structured as follows: Section II provides contextual information about Colombia and Mexico, including relevant socio-demographic indicators and an overview of early childhood care and education services. Section III presents descriptive evidence on children as caregivers in both countries. Section IV delves into the determinants and consequences of caregiving during childhood, employing econometric analysis. Finally, Section V concludes with a discussion of the findings and their implications for policy and future research.

2 Methodological Aspects

2.1 Data

This research is based on data from the Time-Use National Surveys of Colombia (2012 and 2016-17) and Mexico (2014 and 2019), named as ENUT from now on. We mostly use the latest surveys for both countries, except when we perform a comparative analysis to assess the evolution of care time. Both sources of data allow us to identify children and adolescents (aged 12 to 18) who provide care for younger siblings or other children in the household, regardless of their health status, and also for family members with disabilities.

The Colombian ENUT records data from September 2016 to August 2017. It is a multistage, stratified, and block survey. In the first stage, a stratum of the main 24 cities was set, whereas a second stratum included municipal towns, villages, and rural areas. The survey includes information on dwellings, households, and individuals. Information on households covers questions on housing, access to services, subsidies, and goods, as well as whether the household benefits from unpaid domestic work. Data on individuals include sex, age, education, health coverage, labor market situation, and time-use for all members of the household aged 10 and above. 44,999 households and 146,190 people were sampled. 21,391 children between 10 and 18 were interviewed (17,173 between 12 and 18 years), representing 7.3 million children. This survey incorporates a specialized questionnaire that specifically identifies the primary caregivers for children under five years old within the household.

The 2019 Mexican ENUT records data from October to December 2019. It followed a multi-stage, stratified, and block approach. The survey includes information on towns by size (below and above 10,000), States, and indigenous localities. It includes data on dwelling characteristics and equipment, demographics, employment activities, household activities, and household activities carried out by people who do not belong to the same household. 26,631 households and 71,404 individuals aged 12 and above were sampled, representing 33.2 million households and 101.1 million people. The sample includes 11,177 children aged 12 to 18, representing 15.7 million children. The questionnaire identifies time devoted by each individual to care work considering the age of the recipient of care.

Colombian data allows identifying if the girls aged 12-18 are mothers, in which case the nature of the care they are providing would be different. Only 5% of these girls are mothers, so our results do not reflect teenage mothers' situation. Unfortunately, we cannot undertake the same verification with Mexican data.

2.2 Definition of Direct Care

A relevant aspect for our analysis is the delimitation of direct care activities. The definition of direct care varies slightly between the two countries due to differences in survey structure and included activities (Table 1), but the surveys provide sufficient comparability to identify patterns in child caregiving across both countries.

The Colombian ENUT follows a more granular structure so that each member of the household provides information about the number of hours that he or she dedi-

Table 1 Activities included as direct care

Colombia	Mexico
* Feeding, bathing, and dressing * Giving medicines or assisting with rehabilitation * Helping with homework and studies * Taking children to doctor appointments or school * Reading books, playing, or engaging in recreational activities	* Feeding assistance * Bathing, cleaning, changing diapers, and dressing * Putting children to sleep and rocking * Preparing special meals or remedies * Administering medication or checking temperature * Assisting with therapy or physical rehabilitation * Helping with homework * Taking children to medical appointments or school

cates to a particular care activity towards a certain member of the household (or even voluntary care to other households).[2]

The definition of direct care in Colombia is narrower since the survey does not include some care activities (see also Annex Table 8). Most relevant is the absence of time to rock or put to sleep, since that absorbs a significant amount of time, especially while caring for babies. Moreover, the definition of medical care encompasses different items in Colombia and Mexico. Another difference is that in Mexico the care activities are linked with each particular group of beneficiaries (as explained above, the focus of baby care is on feeding, bathing, and putting to sleep), whereas the Colombian questionnaire is more flexible so that the array of care activities could be provided to any member of the household.

To analyze the determinants of providing direct care and its effects on various outcomes, we employ Ordinary Least Squares (OLS) regression. OLS is a widely used statistical method for estimating the relationships between variables. It aims to find the best-fitting linear relationship between a dependent variable and one or more independent variables by minimizing the sum of squared differences between observed and predicted values. In our study, OLS allows us to estimate the impact of various factors on the likelihood of children providing care, as well as the effects of caregiving on outcomes such as school attendance and leisure time. While OLS assumes a linear relationship between variables and has certain limitations (e.g., it doesn't account for potential endogeneity), it provides a straightforward and interpretable approach for our analysis, offering insights into the direction and magnitude of relationships between variables of interest. The exact specifications of each equation are detailed in the presentation of results (section IV).

[2] Additionally, the Colombian questionnaire does separate supervision (i.e. indirect care, not considered in our analysis) from other activities of direct care.

3 Colombia and Mexico: Some Contextual Information

Colombia and Mexico represent two similar contexts for analyzing the role of children as caretakers. Both are countries with large populations (more than 51 million people and almost 127 million people respectively), as they have experienced significant population growth in the last decades, a tendency which has been reversed more recently. The population of both countries is concentrated in urban areas (around 83% in both countries). The group of those aged 12 to 18, our subject of study, represents 11% of the total population in Colombia and 12% in Mexico.

Both countries exhibit similar levels of incidence of poverty and, like in other Latin American countries, the incidence of poverty is significantly higher among children (Table 2). It is important to notice that the average poverty rate for Latin American countries is 32,8%, so these two countries are among the ones with higher levels of poverty in the region. On the same line, they exhibit high levels of income inequality: comparable to the average for Latin America (0,462) in the case of Mexico, and the highest level of inequality in the region in the case of Colombia. Both countries show large gender gaps in labor force participation. The female participation rate in Colombia is similar to the average in Latin America, whereas Mexico presents some of the lowest participation of women in the labor market in the region.[3]

At the same time, despite efforts to expand early childhood care and education services in both countries, coverage remains insufficient to meet the needs of families. Around 50% of children under 5 attend formal early childhood education programs, and the figures are considerably lower for children under 3. This low coverage of institutional care services leads to a high degree of familiarization of childcare.

Two indicators calculated by the United Nations Development Program (UNDP) allow to analyze countries in terms of gender inequalities and gender norms. The Gender Inequality Index is a composite measure reflecting inequality in achievement between women and men in three dimensions: reproductive health, empowerment, and the labor market. As shown in Fig. 1, both Mexico and Colombia experienced decreases in this gender inequality index in the last decade, a trend experienced by most countries in the region. Colombia exhibits higher levels of inequality, whereas Mexico, which experienced higher improvements in the period, is the fifth country in terms of the ordering resulting from this indicator. The other indicator is the Gender Social Norms Index (UNDP, 2020), which measures the extent to which the population holds some kind of bias against women in the dimensions of politics, education, work, and physical integrity. Only 9 or 10% of the population in Colombia and Mexico respectively express no gender bias in either of these dimensions, and the share of people with biases is slightly higher among men when compared to women (Annex Table 9). Both countries present similar levels of this index and are situated in an intermediate situation in the region when compared to the rest of countries of the region.

In the case of Colombia, we can build a composite gender norms index ($GN_{i,}$) and consider in more depth heterogeneities about gender norms among the popula-

[3] These participation rates correspond to 2020, so they are affected by the COVID-19 crisis, which implied an important reduction in participation rates in the region.

Table 2 Main sociodemographic indicators for Colombia and Mexico. 2020

	Colombia	Mexico
Poverty rates (%)	39,8	37,4
10–15	*53,3*	*52,2*
15–24	*42,3*	*38,1*
Gini Index	0,552	0,452
Labor force participation	58,6	55,6
Male	*70,7*	*71,7*
Female	*47,3*	*41,0*

Source: CEPALSTAT

tion. The index is a summary measure based on six questions about gender attitudes included in the survey and ranges from 1 to 4, where 4 indicates a more conservative person. The measure is calculated as the simple average of each of the questions. The statements included in the survey are: 1. A working mother can form as warm and secure a relationship with her children as a non-working mother, 2. Both men and women should contribute to the household income, 3. A man's duty is to earn money, a woman's duty is to take care of the home and family, 4. Women are better at housework than men, 5. The husband should make decisions related to the wife's life. 6. The head of the household should be the man. Respondents should classify each statement on a scale from 1 to 4, ranging from complete disagreement to complete agreement. Answers corresponding to statements 1 and 2 were reversed to build the composite index.

As expected, adults exhibit more conservative gender attitudes than youngsters (12–18). The correlation coefficient between the gender norms index for youngsters

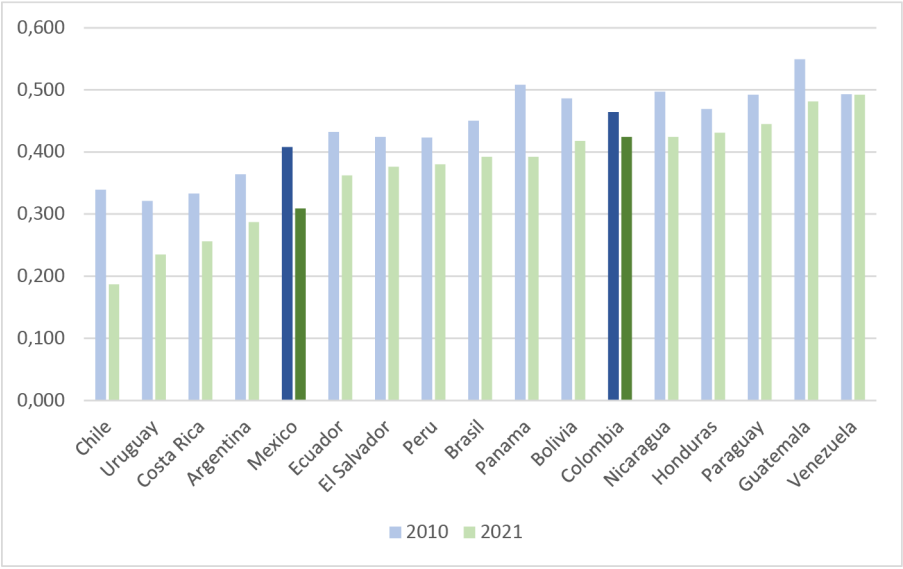

Fig. 1 Gender inequality index (UNDP) in Latin American countries. 2010 and 2021. source: UNDP. https://hdr.undp.org/data-center/thematic-composite-indices/gender-inequality-index#/indicies/GII

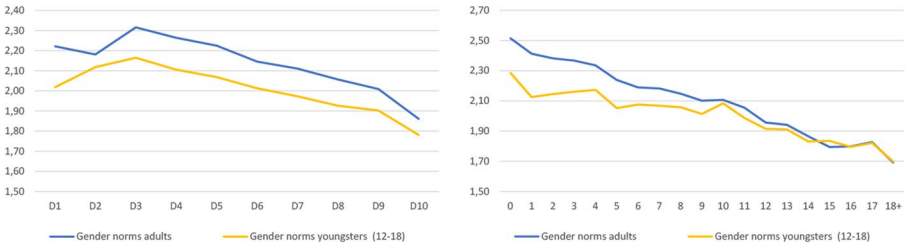

Fig. 2 Gender Norms Index. Colombia. *Source*: own elaboration, based on ENUT Colombia 2016

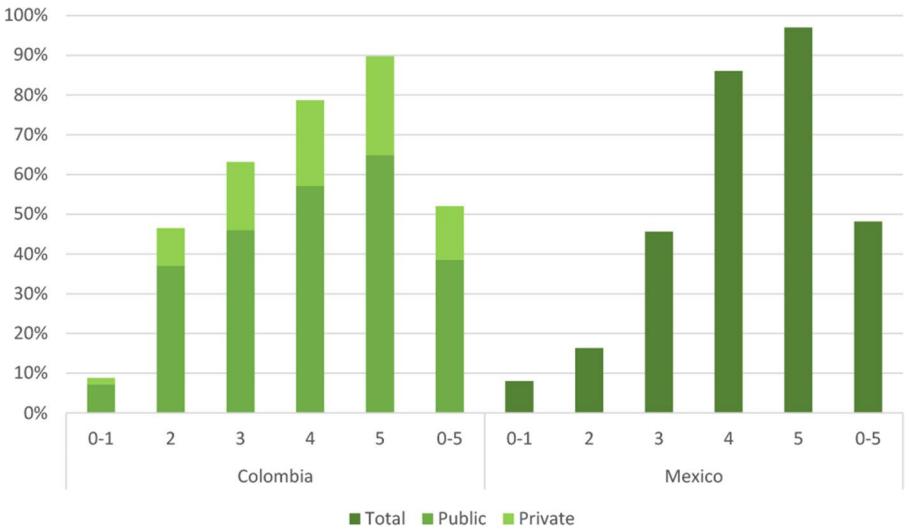

Fig. 3 Attendance to early childhood education and care services by age. Colombia and Mexico. Source: own elaboration, based on ENUT Colombia 2016 and ENUT Mexico 2019

and the gender norms index for adults within a household is 0,55, and it is statistically significant, suggesting the importance of intergenerational transmission of gender attitudes. There is a clear decreasing gradient between the index and years of education of the household head (Fig. 2), both adults and youngsters living in households whose head is highly educated, tend to express less conservative opinions. The association is also present when considering (per capita) household income deciles, although the pattern is decreasing only after the third decile.

Finally, and closely related to our research question, in both countries care depends to a great extent on informal practices and the role of families (Martínez Franzoni, 2008). Although in the two countries there are early childhood education and care services, which constitute a relevant factor that influences household decisions related to child care, the coverage from these services is far from universal. As reflected in Fig. 3, around half of the children aged 0–5 attend these services. The rate of attendance is lower for children younger than 3 years old (Fig. 4).

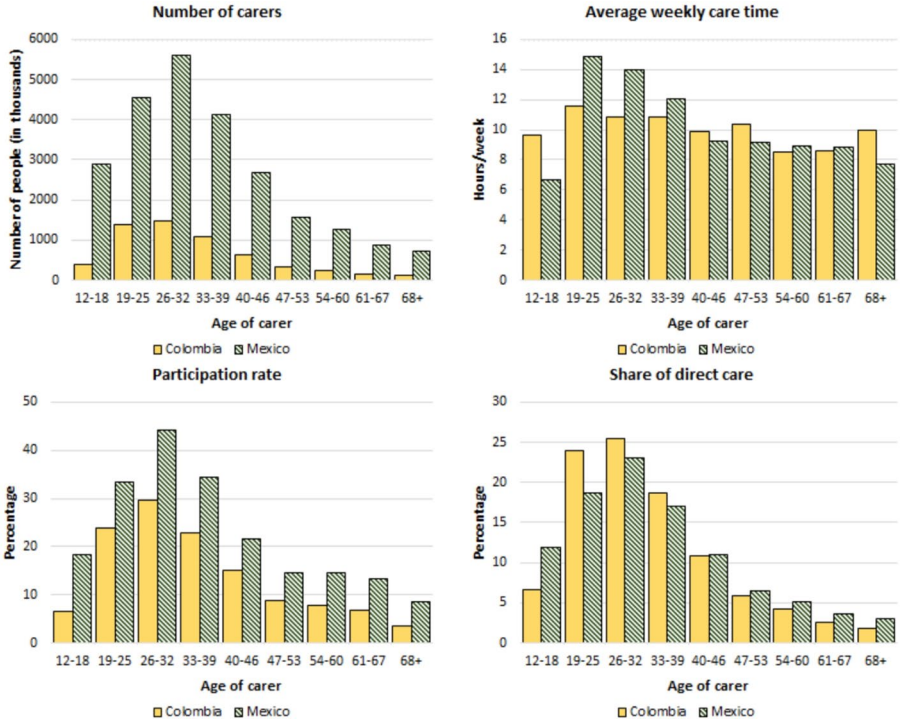

Fig. 4 Key charts on direct care, Mexico (2019) and Colombia (2016). Source: ENUT Colombia 2016 and ENUT Mexico 2019

4 Children as Caretakers: Descriptive Evidence

The widely documented fact about women bearing an enormous burden of care in the household around the world is also found in Latin America (Amarante & Rossel, 2018; Campaña et al., 2020; among others). At the international level, it has also been documented the key role played by grandmothers in caring for children, allowing mothers to work (Ho 2015; Lumsdaine and Vermeer 2015; Zamarro 2020). However, much less is known about the participation of children and youngsters in caring for other members of their households.

In 2016, there were 381,497 children from 12 to 18 who provided direct care to other members of the household in Colombia, implying a rate of participation in care of around 6.6% for this age group (Figure 1).[4] On average, youngsters who cared for others dedicated 9.65 hours per week in Colombia, and they bore 5.96% of the total direct care burden managed by households. As expected, this represents much lower than the amount absorbed by household members between 19 and 46, but it is inter-

[4] In the case of Colombia, the ENUT also collects information about time use for children aged 10 and 11. Details about care among children aged 10 and 11 can be found in Annex 2. The participation rate in this group is low (only 2.4% participate in care activites and the time dedicated per week is also low (Annex Table 10).

esting to notice that this share is significantly higher than the shares corresponding to any age group above 47.

In the case of Mexico, there were 2,965,524 youngsters proving care to young children and dependent members of their households in 2019, representing a participation rate of 18.85% for this age group. This participation rate is much larger than the one corresponding to Colombia, and is similar to the one corresponding to the age group 40-46. On average, youngsters dedicate around 8.24 hours every week to care for young children and dependents, a figure that is lower than that for any other age group. In terms of hours of direct care, Mexican youngsters were responsible for 6.71% of the overall care burden, very close to what we found in Colombia. Similarly, their share is almost identical to the 47-53 age group, and significantly larger than the share of care work undertaken by older people.

Beyond the fact that youngsters bear a significant amount of the care burden, our data indicates that it is not equally shared among boys and girls: there is a large difference in participation in care activities and overall care time between girls and boys. In 2016, only 2.2% of boys provide direct care in Colombia (Annex Figure 5), whereas the participation among girls reaches 11.18%. In absolute numbers, 300,588 girls provide direct care at home, but only 80,909 boys. In terms of weekly hours dedicated to care by week, the burden surpasses 10 hours for women and is around 6 hours for men. At central reproductive ages, women dedicate almost 12 hours per week to care activities. The gender gaps in time dedicated to care are similar for those aged 12-18 and for young adults, clearly these gender gaps arise much earlier than motherhood. Moreover, the comparison of weekly time dedicated to care by girls aged 12-18 with time dedicated by men in Colombia is illustrative. Girls dedicate more hours of caregiving than any group of men in Colombia. They provide 5.11% of the total hours of direct care, whereas the age group of men who provide more direct care, those between 33 and 39 years old, only account for 2.76%.

A similar picture in terms of gender differentials is found in Mexico (Annex Figure 6). In 2019, there are 1.73 million girls and 1.24 million boys providing care to children and dependents. The participation rate among girls is very large, 22.2%, at the level of the 40-46 age group. The overall share in total direct care for girls amounts to 4.97%, slightly below the share of men in the 26-32 age group, but above any other age group among men.

To understand to what extent youngsters do care work, we focus on households where youngsters and young children live together (see Table 3). In Mexico, the ENUT measures direct care of children up to 5 years old, whereas in Colombia it covers only kids up to 4 years old. In Mexico, 77% of girls who live with young children do care work at home. They dedicate more than 5 hours weekly to help other members of the household to eat, and more than 3 hours to help bathing and dressing them. Boys' participation is significantly lower, 49% of them care for young children living with them and allocate significantly less time to helping others eat or dress when compared to girls. In Colombia, 48% of girls living with young children engage in direct care, and 28% participate in feeding, bathing, and dressing. Their participation is significantly lower than in Mexico, but those who do care work, allocate more time to do so in Colombia. It is important to notice that we acknowledge that there are indeed differences in the granularity and detail of the surveys between Colombia

Table 3 Summary Data on care time by Youngsters (12 to 18 years) living in households with young children, Colombia (2016) and Mexico (2019)

	Female		Male	
Country	Colombia	Mexico	Colombia	Mexico
Number of children aged 12–18	702,150	1,849,972	661,407	1,763,126
Average age	15.27	15.04	14.79	14.74
Share enrolled in school	0.70	0.66	0.79	0.75
Participation in direct care	0.48	0.77	0.16	0.49
Participation in dressing/bathing	0.28	0.54	0.02	0.15
Participation in feeding assistance	0.28	0.57	0.03	0.29
Average dressing/bathing time (hours/week)	4.15	3.13	3.20	1.69
Average feeding time (hours/week)	8.71	5.37	4.00	1.93
Observations	1,845	1,407	1,564	1,295

Source: ENUT Colombia 2016 and ENUT Mexico 2019

and Mexico, which could contribute to these variation in the reported prevalence of child caregivers. When we look at boys, we find that their participation in Colombia is 16%, and only 2 and 3% engage in activities like bathing and feeding, respectively. In Mexico 49% of boys participate in care activities, a high rate of participation, although significantly lower than that of girls of the same age in the country. Again, as in the case of girls, higher rates of participation among Mexican youngsters also imply lower intensity of efforts in terms of time, when compared to youngsters of the same age in Colombia.

We can also assess the evolution of children's care work in Colombia and Mexico, by comparing surveys in two points in time. In the case of Colombia, the time use surveys of 2012 and 2016 show a reduction in the participation of children aged 12 to 18 in care work (Annex Figure 7). In contrast, the time that youngsters dedicate to care in a week has increased: those who keep caring for others are those who tend to provide more care time. The overall share of care work that falls on children aged 12 to 18 has increased in the period. A similar pattern is found when time use surveys from 2014 and 2019 are compared in the case of Mexico (Annex Figure 8).

The descriptive analysis presented below indicates that youngsters provide more direct care than other members of households aged 54 and above. Moreover, girls bear a large amount of care work in both countries. In Colombia, they put more time than their fathers, while in Mexico only men aged 26-32 barely put on more care work than girls. There seems to be a clear specialization in care activities: girls oversee more intense tasks, like feeding or bathing. Moreover, when girls live with young siblings they do care work at home, the figures are around one in two in Colombia and two in three in Mexico.

5 Determinants and Consequences of Caregiving During Childhood

To explore the determinants of providing direct care, we run basic linear models on a linear binary variable that distinguishes those who provide direct care in Mexico and Colombia, considering children aged 12–18. Since the data contained in the two surveys differ, we estimate different models for each country. In the case of Colombia, we estimate the following equation using Ordinary Least Squares (OLS):

$$PDC_i = \beta_0 + \beta_1 GN_i + \beta_2 RH_i + \beta_3 VH_i + \beta_Z Z_i + \varepsilon_h \quad (1)$$

where the dependent variable PDC_i is a dummy variable that indicates if the youngster provides direct care. Among the independent variables, we include a gender norm index ($GN_{i,}$ explained in the next section), a binary variable that indicates the presence of remunerated (RH_i) and voluntary (VH_i) homecare. We also include characteristics of the youngsters and characteristics of the household as control variables (Z_i): age, sex, per capita household income, a binary variable to indicate the presence of children under 5 years old in the household, as well as the type of urban setting and regional controls. We also include an interaction between the presence of children aged 0–5 in the household and a binary variable that indicates if all those children attend pre-school services.In the case of Colombia, for the estimation of Eq. (1) we use four different specifications which go from a simplified version to a completer one (Table 4). The results obtained for the basic specification (column 1) are maintained under different specifications. As expected, higher household income is associated with a lower probability of providing care by youngsters, and children have higher chances of providing care as they grow older. Being a girl leads to a significant increase in the probability of providing care. Living with someone younger than 5 is a strong determinant of providing care, although if the child attends kindergarten the probability decreases, suggesting the substitution between informal care provided by siblings and education and care services. The effect of living with a child under 5 is differential between girls and boys, with a higher effect on girl's probability of providing care. A second specification (column 2) adds the gender norms index, which presents higher values for more conservative youngsters. The positive association indicates that those children who provide care tend to hold more gender conservative views, but we cannot disentangle the direction of causality in this association. Holding more conservative views may lead to the provision of more care work, but it may also be the other way round: those who provide care may rationalize that care is beneficial for women and hold more conservative views. The third specification (column 3) adds two control variables that indicate if there are female adults inactive or unemployed in the household, and the same for the case of men. The variable corresponding to women is negative and significant, indicating the lower probability of providing care of those children who live with adult women who are not employed. The presence of men in the same conditions does not have significant effects. The complete specification (column 4) adds four control variables associated to household characteristics. Having a female household head and receiving remunerated or voluntary home care are not significant, whereas living in a household

Table 4 Direct care determinants for young people (12–18 years) in Colombia, 2016

	Dependent variable: provides direct care			
	(1)	(2)	(3)	(4)
Per capita household income (logs)	-0.001***	-0.001**	-0.002***	-0.002***
	(0.000)	(0.000)	(0.000)	(0.000)
Age	0.010***	0.010***	0.010***	0.010***
	(0.001)	(0.001)	(0.001)	(0.001)
Sex (female)	0.013***	0.015***	0.015***	0.015***
	(0.004)	(0.004)	(0.004)	(0.004)
Children under 5 at home	0.073***	0.078***	0.085***	0.085***
	(0.007)	(0.007)	(0.007)	(0.007)
Children under 5 at home * Kindergarden	-0.064***	-0.072***	-0.075***	-0.076***
	(0.007)	(0.008)	(0.008)	(0.008)
Children under 5 at home * Female	0.264***	0.271***	0.269***	0.269***
	(0.008)	(0.009)	(0.009)	(0.009)
Gender norms (conservative index)		0.008***	0.010***	0.010***
		(0.003)	(0.003)	(0.003)
Presence of inactive/ unemployed female adults in hh			-0.040***	-0.042***
			(0.004)	(0.004)
Presence of inactive/unemployed male adults in hh			0.007	0.003
			(0.004)	(0.005)
Female head of hh				-0.001
				(0.004)
Remunerated homecare (RH)				-0.004
				(0.014)
Voluntary homecare (VH)				0.019*
				(0.010)
Presence of people with disabilities or over 80 in hh				0.040***
				(0.008)
Type of urban setting	-0.001	-0.001	0.003	0.003
	(0.004)	(0.004)	(0.004)	(0.004)
Regional controls	Yes	Yes	Yes	Yes
Constant	-0.122***	-0.148***	-0.120***	-0.121***
	(0.015)	(0.017)	(0.017)	(0.018)
Observations	17,173	15,732	15,732	15,732
R-squared	0.189	0.196	0.202	0.204

Standard errors in parentheses

*** $p<0.01$, ** $p<0.05$, * $p<0.1$

Source: own estimation based on ENUT 2016

integrated by someone with disabilities or older than 80 increases the probability of providing care.[5]

For Mexico, we estimate the following model, using OLS:

$$PDC_i = \beta_0 + \beta_1 HC_i + \beta_2 HPC_i + \beta_Z Z_i + \varepsilon_h \quad (2)$$

where the dependent variable PDC_i is a dummy variable that reflects if the youngster provides direct care. Among the control variables, we include the presence of homecare (HC_i) and the presence of a remunerated person for caring (RPC_i). Z_i includes the same set of variables reflecting individual and household characteristics as in the case of Colombia. In this case, as mentioned, the GN index is not available. Also, instead of considering per capita household income (in logs), we differentiate between households in the first three quintiles and the rest.[6] The results for the case of Mexico lead to similar conclusions than in the case of Colombia, although some differences arise (Table 5).In three of the four specifications, there is a negative association between belonging to the two upper quintiles and providing care, although it is not statistically significant. In the fourth specification, where more variables reflecting household characteristics are included, the sign of the coefficient reverses, suggesting a composition effect which deserves further research. No differential patterns by ages among youngsters are found. There is a higher probability of providing care if there are children under 5 at home, and this is clearly associated to being a girl, and decreases when the young child attends kindergarten. Again, the presence of adult women with no time constraints associated to paid work makes caregiving less likely for youngsters, whereas the contrary effect is detected, under two specifications, if the unemployed or inactive individual is a man. There is a higher probability of youngsters providing care if the household hires someone for caring (HI, column 3). Given that this result may be counterintuitive, we run another specification (column 4) including the interaction between hiring someone for care and living in a household with disabled or older people. The effect of the binary variable indicating the presence of a remunerated caregiver vanishes, indicating that it is mainly driven by households who hire additional care to face the needs of older adults or disabled people in the household. This specification also shows a higher probability of providing care if youngsters live with a disabled or older person. It is interesting to note that the positive association between the presence of an inactive or unemployed adult male turns negative in this specification which controls for the presence of disabled or older people (column 4), indicating that the results in columns 2 and 3 regarding this variable may be driven by a composition effect.

As a final step, we also explore the effects of the provision of direct care on a series of relevant outcomes for child wellbeing. We consider the following equation:

[5] The same estimation but considering children aged 10 and 11 in Colombia is presented in Table 11 in Annex 2. Results must be taken with caution given the low incidence of care activities in this age group. The probability of caring is higher when children aged 10 or 11 live with children under 5, specially in the case of girls. The positive association between conservative positions in terms of gender norms and caring activities among children also holds for this age group.

[6] The participation rates are higher than 20% for children belonging to the first three quintiles of per capita income distribution, whereas they drop to 15% in the fourth quintile and 9% in the fifth quintile.

Table 5 Direct care determinants for young people (12–18 years) in Mexico, 2019

	Provides direct care			
	(1)	(2)	(3)	(4)
Income group (quintiles 4 & 5 = 1)	-0.00646	-0.00605	-0.00408	0.000109
	(0.00838)	(0.00846)	(0.00855)	(0.00802)
Age	0.000469	0.000273	0.000260	0.000554
	(0.00134)	(0.00134)	(0.00134)	(0.00125)
Sex (female)	0.000823	0.000617	0.000891	0.00351
	(0.00607)	(0.00607)	(0.00607)	(0.00570)
Children under 5 at home	0.501***	0.503***	0.503***	0.515***
	(0.00990)	(0.00991)	(0.00991)	(0.00930)
Children under 5 at home * Kindergarden	-0.0644***	-0.0646***	-0.0653***	-0.0714***
	(0.0117)	(0.0117)	(0.0117)	(0.0110)
Children under 5 at home * Female	0.249***	0.249***	0.248***	0.249***
	(0.0126)	(0.0126)	(0.0126)	(0.0118)
Presence of inactive/ unemployed female adults in hh		-0.0111**	-0.0108**	-0.0293***
		(0.00548)	(0.00549)	(0.00517)
Presence of inactive/unemployed male adults in hh		0.0309***	0.0313***	-0.0135*
		(0.00772)	(0.00776)	(0.00737)
Female head of hh			0.00465	-0.0109*
			(0.00609)	(0.00573)
Homecare (HC)			-0.0173	-0.0130
			(0.0172)	(0.0173)
Hired person for caring (HI)			0.306***	0.101
			(0.0741)	(0.0952)
Presence of people with disabilities or over 80 in hh				0.314***
				(0.00799)
HC* Presence of people with disabilities or over 80 in hh				-0.0934*
				(0.0482)
HI * Presence of people with disabilities or over 80 in hh				0.233*
				(0.140)
Type of urban setting	0.00651***	0.00736***	0.00742***	0.00401*
	(0.00237)	(0.00238)	(0.00240)	(0.00225)
Regional controls	Yes	Yes	Yes	Yes
Constant	0.0120	0.0148	0.0127	-0.00619
	(0.0254)	(0.0255)	(0.0256)	(0.0240)
Observations	11,633	11,633	11,633	11,633
R-squared	0.467	0.468	0.469	0.533

Standard errors in parentheses

*** $p<0.01$, ** $p<0.05$, * $p<0.1$

Source: ENUT 2019

$$Y_i = \beta_0 + \beta_1 PDC_i + \beta_Z Z_i + \varepsilon_h \quad (3)$$

where the dependent variable Y_i is, alternatively, attendance at school, time spent studying, school lag, leisure time, and time spent with friends. Among the explanatory variables, we include a dummy variable that indicates if the youngster provides direct care (PDC_i). Like the first set of estimations, we include the same characteristics of the teenagers and characteristics of the household as control variables Z_i (age, sex, per capita household income, a dummy variable to indicate the presence of children under 5 years old, the type of urban setting, and the region). For the case of Colombia, we also include the gender norms index of the youngsters and the adults of the household (explained in the following section).In the case of Colombia, the provision of direct care is associated with a drop of 16 percentage points in school attendance (Table 6, column 1), and this effect is especially important among girls (column 2). Living with a child younger than 5 is also associated with an attendance reduction of around 6 percentage points. Providing direct care implies a significant decrease in time dedicated to study or schoolwork (column 3), and again this effect is especially relevant for girls. The effect is quite large: almost 23 min per day in the case of girls. The provision of direct care is also associated with higher probabilities of school lag (column 5), and again, the effect is especially significant for girls. Finally, the provision of direct care is associated with a decline in leisure time in general, and with time spent with friends in particular. In this case, no differences between girls and boys are detected.[7]

The results for Mexico are similar in terms of the effect of the provision of direct care on youngster's educational outcomes, although the effects are of smaller magnitude (Table 7). These differences can be explained by the "intensity" of care in Colombia and Mexico. Whereas in Mexico, care is more widespread, in Colombia it is highly concentrated. These leads to narrower and more "acute" identification of effects. In Mexico, the provision of direct care negatively affects the probability of attending school and the time dedicated to study or homework, but in this case the effect is always concentrated on girls (columns 2 and 4). Contrary to the situation in Colombia, significant effects are identified in school lag (higher probability) or time dedicated to leisure or friends (negative effect).

6 Conclusions

The analysis presented in this article, based on previously unexplored information about time use of youngsters, provides empirical evidence of caregiving dynamics within households from the perspective of children aged 12 to 18 in Colombia and Mexico. In contexts with weak social protection systems and low coverage of early childcare and education services, such as those in Latin America, the role of families

[7] The same estimation but considering children aged 10 and 11 in Colombia is presented in Table 12 in Annex 2. Results must be taken with caution given the low incidence of care activities in this age group. The provision of direct care is not associated with changes in the outcomes considered. This result is not surprising given the low participation rate and intensity of care activities in this age group.

Table 6 Relationship between providing care and educational and wellbeing outcomes. Colombia, 2016

	Attends school		Study time		School lag		Leisure time		Time with friends	
	(1)	(2)	(1)	(2)	(1)	(2)	(1)	(2)	(1)	(2)
Per capita household income (logs)	-0.002***	-0.002***	-0.001	-0.001	-0.001	-0.001	-0.023***	-0.023***	-0.012***	-0.012***
	(0.001)	(0.001)	(0.003)	(0.003)	(0.001)	(0.001)	(0.009)	(0.009)	(0.003)	(0.003)
Age	-0.068***	-0.068***	-0.051***	-0.051***	0.063***	0.063***	0.006	0.007	0.047***	0.046***
	(0.001)	(0.001)	(0.005)	(0.005)	(0.002)	(0.002)	(0.017)	(0.017)	(0.006)	(0.006)
Sex (female)	0.019***	0.024***	0.144***	0.152***	-0.115***	-0.118***	-0.666***	-0.657***	-0.102***	-0.105***
	(0.006)	(0.006)	(0.021)	(0.022)	(0.007)	(0.008)	(0.066)	(0.068)	(0.025)	(0.025)
Children under 5 at home	-0.060***	-0.057***	-0.117***	-0.113***	0.108***	0.106***	-0.503***	-0.498***	-0.037	-0.039
	(0.007)	(0.007)	(0.028)	(0.028)	(0.010)	(0.010)	(0.087)	(0.087)	(0.032)	(0.032)
Provides direct care	**-0.163****	**-0.063****	**-0.281****	**-0.105**	**0.104****	**0.034**	**-1.236****	**-1.063****	**-0.260****	**-0.334****
	(0.012)	(0.026)	(0.047)	(0.099)	(0.016)	(0.034)	(0.147)	(0.308)	(0.055)	(0.114)
Provides direct care * Female		-0.128***		-0.225**		0.089**		-0.220		0.095
		(0.029)		(0.111)		(0.038)		(0.345)		(0.128)
Gender norms (conservative index)	-0.055***	-0.055***	-0.051***	-0.050***	0.095***	0.095***	-0.368***	-0.367***	-0.232***	-0.232***
	(0.005)	(0.005)	(0.018)	(0.018)	(0.006)	(0.006)	(0.055)	(0.055)	(0.020)	(0.020)
Type of urban setting	-0.057***	-0.057***	-0.140***	-0.140***	0.104***	0.104***	-0.981***	-0.981***	-0.142***	-0.142***
	(0.007)	(0.007)	(0.027)	(0.027)	(0.009)	(0.009)	(0.085)	(0.085)	(0.031)	(0.031)
Regional controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Constant	2.090***	2.083***	1.761***	1.749***t	-0.879***	-0.874***	19.333***	19.322***	2.161***	2.166***
	(0.028)	(0.028)	(0.106)	(0.106)	(0.036)	(0.037)	(0.328)	(0.329)	(0.122)	(0.122)
Observations	15,732	15,732	15,732	15,732	15,732	15,732	15,732	15,732	15,732	15,732
R-squared	0.164	0.165	0.027	0.027	0.120	0.120	0.046	0.046	0.039	0.039

Standard errors in parentheses

*** $p<0.01$, ** $p<0.05$, * $p<0.1$

Source: ENUT 2016

Table 7 Relationship between providing care and educational and wellbeing outcomes. Mexico. 2019

	Attends school		Study time		School lag		Leisure time		Time with friends	
	(1)	(2)	(1)	(2)	(1)	(2)	(1)	(2)	(1)	(2)
Per capita household income (logs)	-0.008***	-0.008***	-0.006	-0.005	0.008***	0.008***	1.401***	1.401***	0.047***	0.047***
	(0.002)	(0.002)	(0.029)	(0.029)	(0.002)	(0.002)	(0.115)	(0.115)	(0.018)	(0.018)
Age	-0.078***	-0.077***	-0.112***	-0.108***	0.073***	0.073***	-0.158	-0.156	0.107***	0.107***
	(0.002)	(0.002)	(0.032)	(0.032)	(0.002)	(0.002)	(0.125)	(0.125)	(0.019)	(0.019)
Sex (female)	0.025***	0.041***	1.370***	1.572***	-0.050***	-0.055***	-0.903*	-0.801	0.043	0.028
	(0.007)	(0.008)	(0.127)	(0.140)	(0.008)	(0.009)	(0.499)	(0.553)	(0.076)	(0.085)
Children under 5 at home	-0.081***	-0.077***	-1.055***	-1.002***	0.098***	0.097***	0.208	0.235	-0.279**	-0.283**
	(0.011)	(0.011)	(0.199)	(0.200)	(0.012)	(0.012)	(0.785)	(0.787)	(0.120)	(0.121)
Provides direct care	**-0.024****	**0.022**	**0.016**	**0.596****	**0.006**	**-0.007**	**1.910****	**2.204****	**0.267****	**0.221**
	(0.012)	**(0.015)**	**(0.216)**	**(0.278)**	**(0.013)**	**(0.017)**	**(0.851)**	**(1.095)**	**(0.130)**	**(0.168)**
Provides direct care * Female		**-0.086*****		**-1.084*****		0.026		-0.550		0.085
		(0.018)		**(0.327)**		(0.020)		(1.290)		(0.198)
Type of urban setting	-0.033***	-0.033***	-0.536***	-0.535***	0.020***	0.020***	-0.383*	-0.382*	-0.061*	-0.061*
	(0.003)	(0.003)	(0.056)	(0.056)	(0.003)	(0.003)	(0.220)	(0.220)	(0.034)	(0.034)
Regional controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Constant	2.080***	2.066***	7.587***	7.409***	-0.917***	-0.913***	74.603***	74.513***	-0.159	-0.145
	(0.035)	(0.035)	(0.634)	(0.636)	(0.040)	(0.040)	(2.496)	(2.505)	(0.383)	(0.384)
Observations	11,633	11,633	11,633	11,633	11,633	11,633	11,633	11,633	11,633	11,633
R-squared	0.177	0.179	0.044	0.045	0.132	0.132	0.038	0.038	0.023	0.023

Standard errors in parentheses

*** $p<0.01$, ** $p<0.05$, * $p<0.1$

as caregivers becomes fundamental. While there has been much discussion on the effects of informal family care on women's labor trajectories and a recent recognition of grandmothers' role in the care constellation, the role of young people as caregivers has remained mostly invisible, with the potential consequences of that caregiving role at early stages in life not discussed in depth.

Our findings indicate that in both Colombia and Mexico, families meet a significant part of their care needs by relying on young household members. Approximately 6.6% and 18.8% of children aged 12 to 18 perform care tasks in Colombia and Mexico respectively, dedicating 9.6 and 8.2 h to these activities each week. Consequently, 6% of the overall care burden in Colombia and 6.7% in Mexico falls on these young people, who mostly care for other small children in their households. The data also provides stark evidence of gender imbalances: participation and time dedicated to care activities is significantly higher for girls, who oversee more intense tasks like feeding or bathing than boys and most adults.

In both countries, living with someone younger than 5 is a strong determinant of providing care, especially for girls, although kindergarten attendance decreases this probability, suggesting a substitution between informal sibling care and formal education services. Living in a household with someone with disabilities or over 80 increases the probability of providing care, while living with non-employed adult women decreases it. In Colombia, children who provide care tend to hold more gender-conservative views, though we cannot determine the direction of causality. Importantly, caregiving activities crowd out enriching activities for children, such as school attendance, studying, and leisure, potentially impacting their human capital accumulation and future trajectories.

It is important to acknowledge the limitations of this study. Time-use surveys, while valuable, have inherent limitations in capturing the full complexity of time allocation. Furthermore, it is important to note the challenges in directly comparing Colombia and Mexico due to differences in their time-use survey methodologies, including variations in question phrasing, activity categorization, and data collection approaches. This highlights the need for greater standardization in cross-national time-use research, but also the importance of developing specialized methodological tools tailored to capture the unique aspects of children's caregiving roles, including both quantitative and qualitative approaches that can provide a more nuanced understanding of this phenomenon.

Finally, the evidence presented in our article underscores the need for targeted policy interventions to address child caregiving in Latin America. Expanding and improving access to early childhood education and care services could significantly reduce the care burden on children, particularly girls. Educational policies accommodating student caregivers, such as flexible attendance options or additional academic support, may also be helpful. Awareness campaigns and educational programs addressing gender norms could help challenge the disproportionate care burden placed on girls. Social protection measures, including cash transfers or in-kind support for families with high care needs, could alleviate economic pressures leading to children's caregiving responsibilities.

In sum, our findings reinforce the need for both defamiliarization and defeminization of care in Latin America. While defamiliarization would shift care responsibilities from families to public services, defeminization is equally crucial to address the gendered nature of care work that begins in childhood. This dual approach is essential to break the cycle of gender inequality in care work that our study shows begins at an early age.

Annex 1

Table 8 Definition of care activities in Colombia and Mexico

Colombia	Mexico
El día […], sin que por ello le pagaran, ¿a qué persona(s) de este hogar<…>alimentó o le(s) ayudó a hacerlo? (Horas y minutos) / El día […], sin que por ello le pagaran, ¿a qué persona(s) de este hogar<…>bañó, vistió o le(s) ayudó a hacerlo? (Horas y minutos) / El día […], sin que por ello le pagaran, ¿a qué persona(s) de este hogar<…>suministró medicamentos, realizó terapias, rehabilitaciones o dio tratamiento a enfermedades? (Horas y minutos)	Si hay integrantes de 0 a 5 años: Durante la semana pasada, ¿usted a (NOMBRE(S)) le(s) dio de comer (amamantó) o dio de beber? ¿usted a (NOMBRE(S)) lo(s) bañó, aseó (cambió pañales), vistió o arregló? ¿usted a (NOMBRE(S)) lo(s) cargó o acostó? (Horas y minutos) / Si hay integrantes que necesitaron cuidados especiales: Durante la semana pasada, sea en la casa, hospital u otro lugar, ¿usted le(s) dio de comer o ayudó a hacerlo? Sea en la casa, hospital u otro lugar, ¿usted lo(s) bañó, aseó, vistió, arregló o ayudó a hacerlo? Sea en la casa, hospital u otro lugar, ¿usted lo(s) cargó, acostó o le(s) ayudó a hacerlo? (Horas y minutos) / Si hay integrantes que necesitaron cuidados especiales: Durante la semana pasada, sea en la casa, hospital u otro lugar, ¿usted le(s) preparó remedios caseros o algún alimento especial? ¿usted le(s) dio medicamentos o checó sus síntomas? ¿usted lo(s) llevó, recogió o esperó para que recibiera(n) atención de salud (exámenes, visitas al médico, etc.) o alguna terapia especial? ¿usted le(s) dio terapia especial o ayudó a realizar ejercicios? ¿usted lo(s) llevó y/o recogió de clases, trabajo u otro lugar? ¿usted lo(s) ayudó o apoyó en las tareas de la escuela o trabajo? (Horas y minutos)

Table 9 Gender norms index (UN)

Country	Period	Share of people with at least 1 bias			Share of people with no bias
		Total	Women	Men	
Nicaragua	2017–2022	93,17	92,80	93,55	6,83
Venezuela	2017–2022	92,35	91,28	93,52	7,65
Ecuador	2017–2022	92,33	91,55	93,19	7,67
Bolivia	2017–2022	91,29	90,41	92,19	8,71
Colombia	2017–2022	91,18	92,76	94,01	8,82
Mexico	2017–2022	90,18	88,81	91,53	9,82
Guatemala	2017–2022	89,59	88,94	90,31	10,41
Peru	2017–2022	89,07	88,68	89,46	10,93
Brazil	2017–2022	86,32	85,97	86,75	13,68
Chile	2017–2022	79,90	77,19	82,91	20,10
Uruguay	2010–2014	78,60	79,36	77,75	21,40
Argentina	2017–2022	74,28	72,01	76,70	25,72

Source: Human Development Report Office based on data from the World Values Survey, accessed April 2022

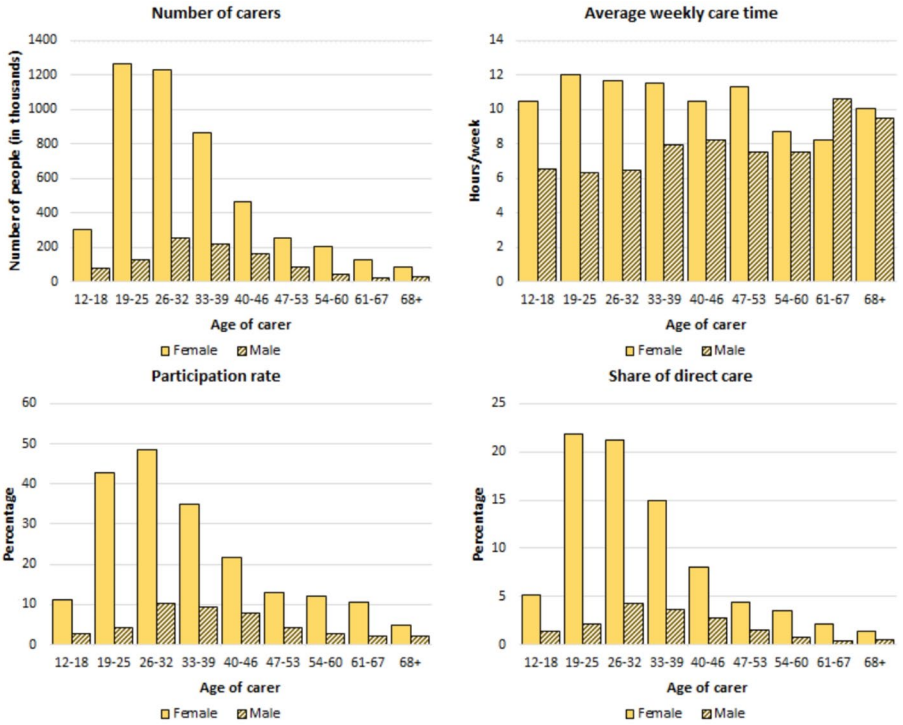

Fig. 5 Key charts on direct care by sex, Colombia (2016). *Note:* Direct care includes 5 activities: feeding assistance, bathing or helping other to put on their clothes, giving drugs or rehab exercises, helping others with their homework, and taking other household members to their medical appointments. *Source*: ENUT 2016

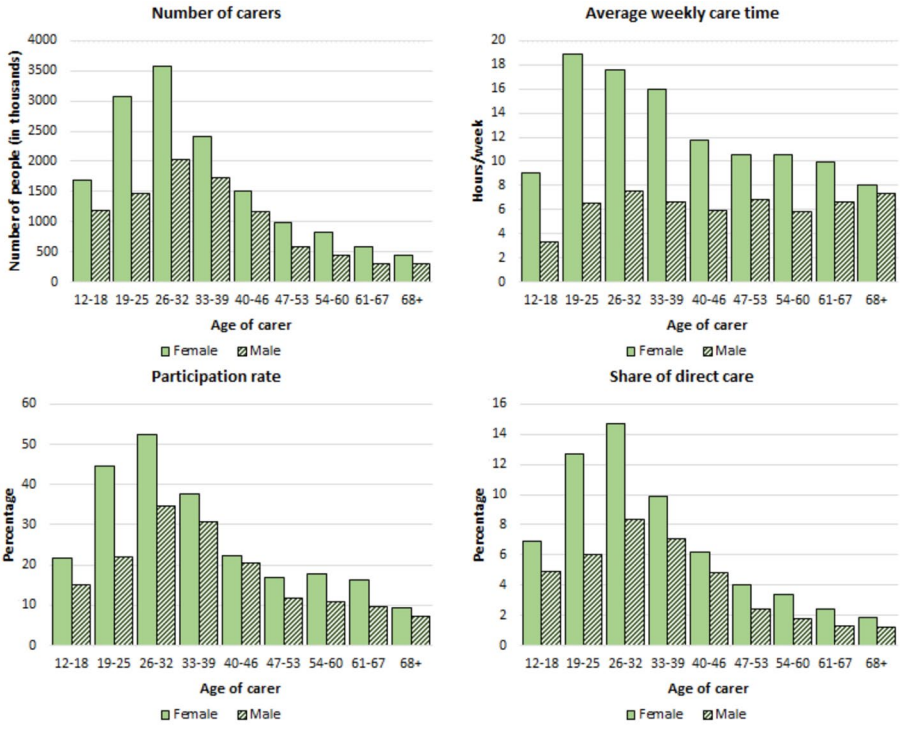

Fig. 6 Key charts on direct care by sex, Mexico (2019). *Note:* Direct care includes feeding assistance, bathing or helping other to put on their clothes, putting into bed, prepare home remedies or special food, giving drugs or rehab exercises, helping others with their homework, and taking other household members to their medical appointments, from classes, work or another place. *Source*: ENUT 2019

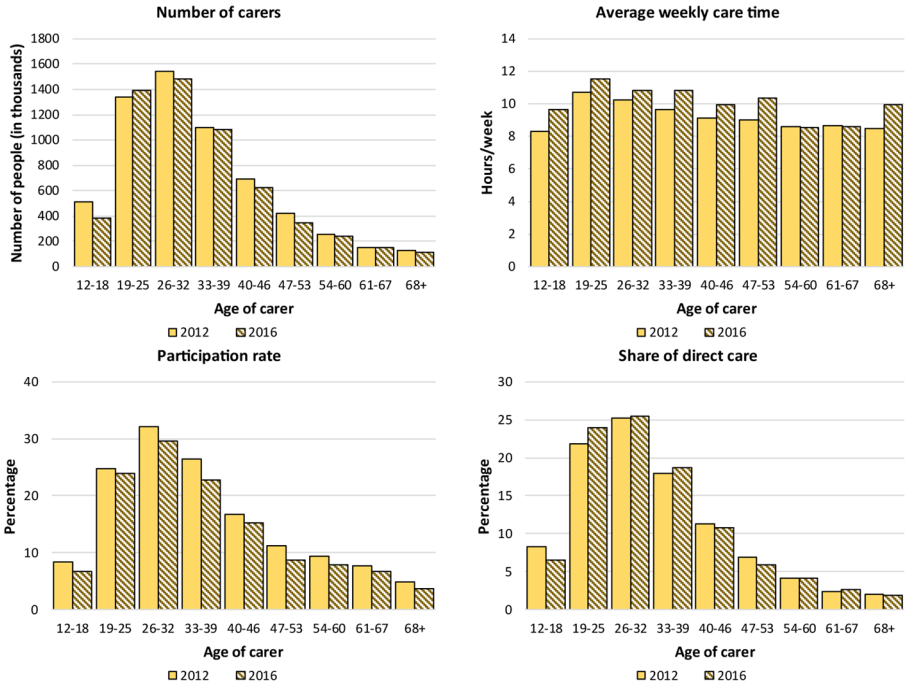

Fig. 7 Key charts on direct care, Colombia. 2012 and 2016. *Source*: ENUT 2012 and 2016

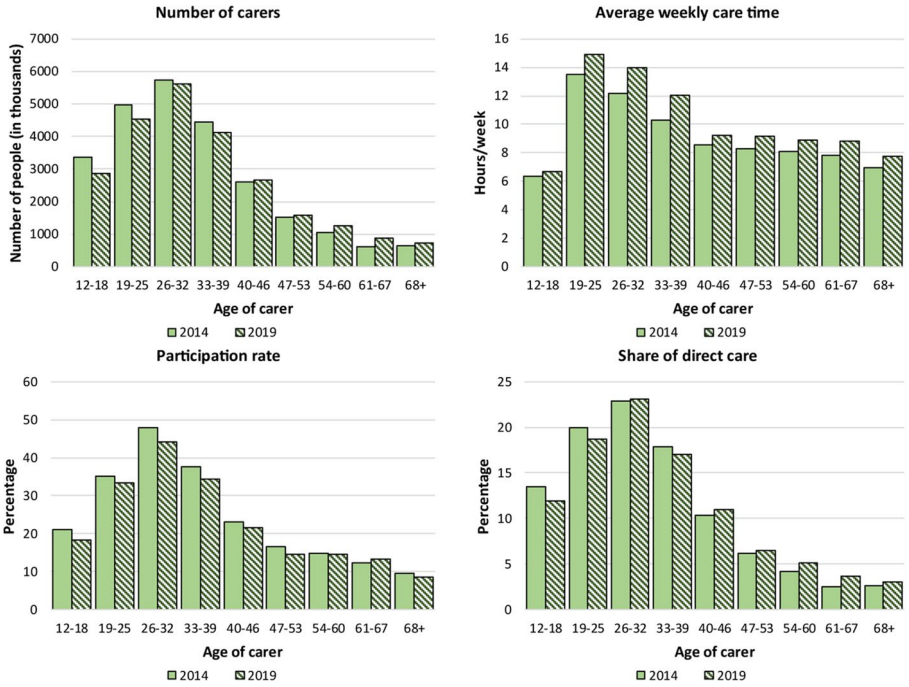

Fig. 8 Key charts on direct care, Mexico. 2014 and 2019. *Source*: ENUT 2014 and 2019

Annex 2

Table 10 Care activities among children aged 10 and 11 in Colombia

	Number of carers	Participation rate	Average weekly care time
Boys	22	1,0%	6,0
Girls	78	3,8%	4,2
Total	100	2,4%	5,1

Source: ENUT 2016

Table 11 Direct care determinants for children aged 10 and 11 in Colombia, 2016

	Dependent variable: provides direct care			
	(1)	(2)	(3)	(4)
Per capita household income (logs)	-3.80e-05	1.12e-05	-0.000354	-0.000373
	(0.000610)	(0.000689)	(0.000716)	(0.000733)
Age	0.00706	0.00952*	0.00956*	0.00981*
	(0.00461)	(0.00516)	(0.00516)	(0.00517)
Sex (female)	0.00891*	0.0101*	0.0102*	0.0101*
	(0.00525)	(0.00587)	(0.00587)	(0.00588)
Children under 5 at home	0.0185**	0.0217**	0.0233**	0.0234**
	(0.00910)	(0.0102)	(0.0103)	(0.0103)
Children under 5 at home * Kindergarden	-0.00552	-0.0154	-0.0168	-0.0170
	(0.00951)	(0.0108)	(0.0108)	(0.0108)
Children under 5 at home * Female	0.0728***	0.0762***	0.0760***	0.0763***
	(0.0108)	(0.0122)	(0.0122)	(0.0122)
Gender norms (conservative index)		0.0122***	0.0123***	0.0125***
		(0.00442)	(0.00442)	(0.00443)
Presence of inactive/ unemployed female adults in hh			-0.00912*	-0.00927*
			(0.00542)	(0.00549)
Presence of inactive/unemployed male adults in hh			-0.00561	-0.00642
			(0.00719)	(0.00732)
Female head of hh				0.000303
				(0.00547)
Remunerated homecare (RH)				0.0155
				(0.0190)
Voluntary homecare (VH)				-0.00416
				(0.0129)
Presence of people with disabilities or over 80 in hh				0.00717
				(0.0132)
Type of urban setting	0.00875	0.0127**	0.0134**	0.0137**
	(0.00573)	(0.00640)	(0.00643)	(0.00649)
Regional controls	Yes	Yes	Yes	Yes
Constant	-0.0731	-0.134**	-0.125**	-0.129**
	(0.0502)	(0.0576)	(0.0577)	(0.0581)
Observations	4,218	3,552	3,552	3,552
R-squared	0.044	0.047	0.048	0.048

Standard errors in parentheses

*** $p<0.01$, ** $p<0.05$, * $p<0.1$

Source: own estimation based on ENUT 2016

Table 12 Relationship between providing care and educational and wellbeing outcomes, children aged 10 and 11. Colombia, 2016

	Attends school		Study time		School lag		Leisure time		Time with friends	
	(1)	(2)	(1)	(2)	(1)	(2)	(1)	(2)	(1)	(2)
Per capita household income (logs)	0.000844	0.000838	0.0152	0.0153	0.00282	0.00273	-0.00242	-0.00248	-0.0376**	-0.0376**
	(0.000709)	(0.000710)	(0.0139)	(0.0139)	(0.00555)	(0.00555)	(0.00158)	(0.00158)	(0.0172)	(0.0172)
Age	-0.00126	-0.00126	0.0386	0.0386	-0.0117	-0.0117	0.0314***	0.0314***	-0.0317	-0.0317
	(0.00532)	(0.00532)	(0.104)	(0.104)	(0.0416)	(0.0416)	(0.0118)	(0.0118)	(0.129)	(0.129)
Sex (female)	0.00553	0.00576	-0.351***	-0.353***	0.0906**	0.0939**	-0.0492***	-0.0471***	-0.300**	-0.303**
	(0.00533)	(0.00538)	(0.105)	(0.106)	(0.0417)	(0.0421)	(0.0119)	(0.0120)	(0.129)	(0.130)
Children under 5 at home	-0.0121*	-0.0121*	-0.0249	-0.0256	-0.0541	-0.0531	0.0512***	0.0518***	-0.617***	-0.618***
	(0.00636)	(0.00636)	(0.125)	(0.125)	(0.0497)	(0.0498)	(0.0142)	(0.0142)	(0.154)	(0.154)
Provides direct care	**0.0201**	**0.0304**	**0.266**	**0.160**	**-0.130**	**0.0174**	**0.0102**	**0.101**	**-1.033****	**-1.167**
	(0.0172)	**(0.0355)**	**(0.338)**	**(0.696)**	**(0.135)**	**(0.278)**	**(0.0383)**	**(0.0790)**	**(0.417)**	**(0.859)**
Provides direct care * Female		-0.0135		0.139		-0.192		-0.119		0.175
		(0.0404)		(0.793)		(0.316)		(0.0900)		(0.978)
Gender norms (conservative index)	-0.00913**	-0.00916**	-0.162*	-0.161*	-0.0399	-0.0402	0.0302***	0.0300***	-0.283**	-0.282**
	(0.00455)	(0.00456)	(0.0894)	(0.0894)	(0.0356)	(0.0357)	(0.0101)	(0.0101)	(0.110)	(0.110)
Type of urban setting	-0.00556	-0.00555	-0.111	-0.111	-0.0706	-0.0705	0.0637***	0.0638***	-0.885***	-0.885***
	(0.00658)	(0.00658)	(0.129)	(0.129)	(0.0515)	(0.0515)	(0.0147)	(0.0147)	(0.159)	(0.159)
Regional controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Constant	1.001***	1.001***	2.724**	2.724**	1.076**	1.076**	-0.276**	-0.276**	19.17***	19.17***
	(0.0593)	(0.0593)	-1.164	-1.164	(0.464)	(0.464)	(0.132)	(0.132)	-1.435	-1.436
Observations	3,552	3,552	3,552	3,552	3,552	3,552	3,552	3,552	3,552	3,552
R-squared	0.012	0.012	0.013	0.013	0.016	0.016	0.025	0.025	0.065	0.065

Standard errors in parentheses

*** $p<0.01$, ** $p<0.05$, * $p<0.1$

Source: ENUT 2016

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Data Availability The data that support the findings of this study are derived from time use surveys available from national statistical offices.

Declarations

Informed Consent This study utilized secondary data from existing time use surveys and did not involve direct interaction with human participants. As such, individual informed consent was not required or obtained for this specific research.

Ethical Approval This study involves the analysis of secondary data from existing surveys, so it did not require formal ethical approval. However, we affirm that our research adheres to all applicable ethical principles and guidelines for scientific research.
Specifically, the data used in this study were obtained through legitimate channels and in compliance with all relevant data usage agreements. All data were anonymized prior to our access, and we have made no attempt to identify individual respondents. We have been transparent about our methodology and the limitations of our study.

Statement Regarding Research Involving Human Participants and Animals Not applicable.

Competing Interests The authors declare that they have no competing interests that could have appeared to influence the work reported in this paper. This includes, but is not limited to, financial interests as well as non-financial interests in the subject matter or materials discussed in this manuscript.

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