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Parental engagement in caregiving activities and its association with socioeconomic and child-rearing environment at home in Vietnam

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ABSTRACT

Quality caregiving practices facilitate early childhood development. This study examined the levels of parents' engagement in caregiving activities with children aged 36–59 months and the socioeconomic and child-rearing environmental factors. A total of 1035 children and their caregivers were analysed using the Vietnam Multiple Indicator Cluster Survey 2014. Multivariate logistic regression was performed separately for each following outcome caregiving activity: reading books, telling stories, singing songs, naming/counting, taking the child outside, and playing with child. Results showed that fathers' engagement levels were substantially lower than the mothers' in all caregiving activities. Reading books and telling stories was among the least frequent activities engaged in by both parents. Results from the logistic regression model showed that parental high education level, richest household wealth, and having adequate learning resources at home were positively associated with parents' engagement in caregiving activities. These findings provide important evidence for promoting positive parental caregiving.

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KEYWORDS

Parental engagement; early childhood development; caregiving practices; home environment

Introduction

Early childhood development sets the foundation for lifelong learning, behaviour, and health (Grantham-McGregor et al., 2007). However, an estimated 250 million children under five years of age in low- and middle-income countries (LMICs) are at risk of not achieving their developmental potential because of inadequate nutrition and nurturing care (Britto et al., 2017; Lu, Black, & Richter, 2016). Nearly 38% of children aged 3–4 years in South Asia were estimated to experience low cognitive and/or socio-emotional development (McCoy et al., 2016). Parents are the primary caregivers for young children. Care practices provided by parents, including health, nutrition, security and safety, responsive caregiving, and early learning are essential for child development during the earliest years of life (Black et al., 2017; Yousafzai et al., 2016). Results from global systematic reviews and meta-analysis showed that interventions on parenting improved developments in cognitive, language, motor, and socio-emotional functions, as well as attachment, and reduce behaviour problems in early childhood (Jeong et al., 2021; Pedersen et al., 2019; Zhang et al., 2021). A study analysed data from 26 LMICs reported that literacy-numeracy and learning development of children

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were significantly associated with parents' caregiving activities such as reading books, telling stories, singing songs, naming/counting, taking the child outside, and playing with child (Frongillo, Kulkarni, Basnet, & de Castro, 2017). A study in Vietnam reported that parents of the children who had a normal developmental trajectory were more likely to engage with four or more caregiving activities among the list of six (Duc, 2016).

Associations between child-caregiving practices of parents and some personal factors had been studied. Examples of such factors were children's characteristics (e.g. age, gender), caregivers' characteristics (e.g. age, education), family environment (e.g. wealth level, marital status), and immense social context (e.g. cultural beliefs, country's human development index) (Sun, Liu, Chen, Rao, & Liu, 2016). Socioeconomic status (SES) was associated with parenting practices. Parents of high SES provided a wider range of experiences, more learning resources, quality caregiving and social interactions than those of low-SES (Baker, Kainz, & Reynolds, 2018; Liu, Wu, & Zou, 2016; Sun, Lau, Sincovich, & Rao, 2018; Tazouti & Jarlégan, 2019). Both paternal and maternal educational levels were independently associated with paternal and maternal engagement behaviours with children in 44 LMICs (Jeong, McCoy, & Fink, 2017). However, child-rearing environment factors at home, such as availability of learning materials, child's attendance in early childhood education (ECE) programs, and child left in inadequate care, had rarely been examined. A comprehensive understanding of the personal, environmental, and contextual factors associated with parents' caregiving is required to support quality parenting.

There are limited studies on parental caregiving activities with children in early years, particularly in LMICs. Moreover, while a large number of studies have focused exclusively on maternal practices or have examined maternal and paternal caregiving practices as a whole, few studies have acknowledged differences between the two (Bornstein & Putnick, 2012; McCoy et al., 2018). Therefore, the present study aimed to examine the levels of mothers' and fathers' engagement in caregiving activities with children aged 36–59 months and their socioeconomic and home environment-associated factors using Vietnam's nationally representative data. Our hypothesis was that high education level of parents, household's wealth status, and home environment with availability of learning resources such as books and playthings are positively associated with both mothers' and fathers' engagement in caregiving activities with their children.

Materials and methods

Data and sampling

The Multiple Indicator Cluster Survey (MICS) programme is a nationally and internationally standardized household survey programme developed by the United Nations Children's Fund (UNICEF) that captures information about children in LMICs (UNICEF, 2023). The survey included three sets of questionnaires: a household questionnaire, a questionnaire administered only to women 15–49 years of age living in the household, and a questionnaire regarding under-five children living in the household. The present study used data from the representative, cross-sectional round-fifth of the Vietnam MICS during 2013–2014, conducted by the Vietnam General Statistics Office (GSO) with a method designed by UNICEF.

The sample for Vietnam MICS was designed to provide estimates for a large variety of indicators on the situation of children and women at the national level for urban and rural areas, as well as the six geographic regions in the country. Urban and rural areas within each region were identified as the main sampling strata, and the samples were selected in two stages. Within each stratum, a specified number of census enumeration areas (EAs) were selected systematically with a probability proportional to size. Using systematic sampling, a sample of 20 households was drawn for each sample EA after a household listing was conducted within the selected EAs. A total of 510 EAs belonging to 510 communes were selected and visited during the fieldwork period, which led to a final sample of 10,200 households for the survey (UNICEF & GSO, 2015).

The questionnaire for children was administered to all mothers or caregivers who cared for children under five years of age living with them. Only information on children aged 36–59 months and their caregivers were used for the analysis, with a final sample size of 1035 caregiver-child dyads.

Measures

Parental engagement in caregiving activities

Within the under-five children's questionnaire, the primary caregivers were asked to report information on whether mothers, fathers, and/or other household members over 15 years old were engaged in six caregiving activities with their child at home in the past three days. Specifically, the questionnaire assessed the following activities: (a) reading books or looking at picture books, (b) telling stories to the child, (c) counting or drawing with the child, (d) singing songs, (e) taking the child outside the home, yard, or enclosure, and (f) playing with the child. These caregiving activities have been found to show adequate validity and test-retest reliability (Hamadani et al., 2010; Kariger et al., 2013) and to be correlated with various children's developmental domains as measured by the MICS (Alam, Mansur, & Barman, 2022; Behrman & Urzúa, 2013; Yildirim & Roopnarine, 2019; Jeong, McCoy, Yousafzai, Salhi, & Fink, 2016; Ong'ayi, Dede Yildirim, & Roopnarine, 2020; Rollè et al., 2019; Sk, Banerjee, Mishra, & Barua, 2020).

This study separately examined mothers' and fathers' caregiving behaviours with their children in each caregiving activity as outcome variables: reading books, telling stories, singing songs, naming/counting, taking the child outside, and playing with child. Each of the listed activities was coded as a binary variable, where a value of 1 was assigned to the variable if the mother or father engaged in the listed activities; otherwise, a value of 0 was assigned.

Child-rearing environment factors at home

The MICS questionnaire measures the child-rearing environment at home using the Family Care Indicators Survey (FCIs) developed by UNICEF and validated (Hamadani et al., 2010; Kariger et al., 2013). Learning materials at home had two indicators: children having three or more books (yes, no), and children having two or more types of playthings, either homemade, store-bought, or household objects used as toys (yes, no). Attendance at an early childhood education (ECE) programs was defined according to the report on attendance to some form of early childhood education programs by the children (yes, no). Inadequate care for a child is assessed through the measures of whether a child is left alone or in care of another young child aged less than 10 years for more than one hour at least once in the previous week (yes, no).

Socioeconomic characteristics

For analysis, we included the following socioeconomic characteristics: age group (36–47 months, 48–59 months), and sex (male, female) of the child; mother and father's education level were categorized into three groups: primary or none, secondary, and higher; residential area was categorized as rural or urban; and ethnicity was categorized into two groups: belonging to the majority (Kinh group) or to the minority (non-Kinh group). The wealth index included in the MICS dataset, which captures the household wealth status based on the ownership of certain items at their households. The items included televisions; bicycles; materials used for housing construction; types of water access; and types of sanitation facilities. The wealth index represented the component scores of the first principal component based on the standard principal component analysis (PCA). The component scores for the wealth status were then divided into quintiles: poorest, second, middle, fourth, and richest.

Statistical analysis

The characteristics of study participants were analysed by percentages of individual socioeconomic and child-rearing environmental characteristics, and the levels of mothers' and fathers' engagement in six caregiving activities with their children. Since the sample in MICS data is not self-weighting, available sampling weights in the dataset were used to assure that computed statistics for the current data are representative of the population of interest. The percentages of engagement in caregiving activities by fathers and mothers were calculated and tested the differences were analysed by chi-squared test. To assess the associations between maternal and paternal engagement in caregiving activities and socioeconomic and child-rearing environmental factors at home, multivariate logistic regression analyses were performed for each outcome variable where the binary response was obtained whether the mother or father engaged with their child in six caregiving activities during the past three days. The multicollinearity of independent variables included in the model was tested by the variation inflation factor (VIF) values, and they ranged 1–5 showing statistical rationality to be included in the model. The adjusted odds ratio (aOR) was estimated to assess the strength of the associations, and the 95% confidence interval (CI) was used for significance testing. SPSS Statistics software (version 22.0) was used for the analyses and $p < 0.05$ was applied to consider the statistically significant level.

Results

Sample participants

The socioeconomic and child-rearing environmental characteristics of the unweighted and weighted sample are shown in [Table 1](#). Among the 1035 children in this study, slightly more than half were female (51.6%) and belonged to the older age group (56.0%). Over two-thirds of the respondents were from rural areas (69.9%). The majority of both mothers and fathers had a secondary education level (39.4% and 41.3%, respectively). Nearly a quarter of the children came from the poorest household, and over three-quarters belonged to Kinh, the majority ethnic group. Of the children, 40.9% had three or more books and 64.4% had two or more playthings at home. 72.4% of children attended some form of ECE programs and 11.8% experienced inadequate care.

Levels of parental engagement in caregiving activities

[Figure 1](#) shows that the percentage of mothers' engagement in caregiving activities with their children was significantly higher than the percentage of fathers' engagement in all six activities. Specifically, the percentage of mothers engaged in singing songs and story-telling activities (63.5% and 44.1%, respectively) was nearly three times higher than that of fathers (21.3% and 17.2%, respectively). Both parents were more likely to engage with their children in activities like taking children outside or playing with children, rather than reading books and telling stories. Specifically, only approximately one-sixth of fathers and one-third of mothers engaged with children in the reading books activity, which is the lowest percentage among the six caregiving activities for both mothers and fathers. Mothers engaged with their children the most in playing (63.9%), singing songs (63.5%), and naming/counting (62.7%), while fathers engaged the most in taking children outside (49.8%) and playing (49.5%) activities in the previous three days.

Association between parental caregiving and socioeconomic and child-rearing environmental characteristics

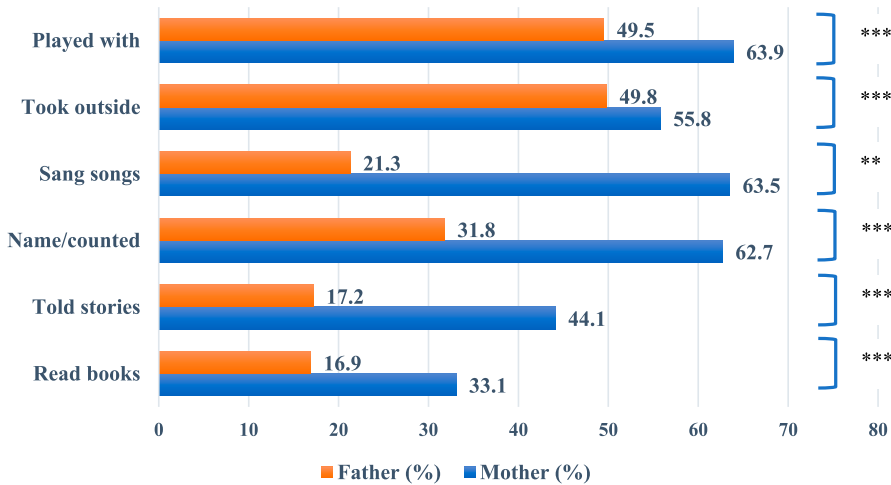
[Table 2](#) shows the association between mothers' caregiving and socioeconomic and child-rearing environmental characteristics by the results of the multivariate logistic regression. Having mothers

Table 1. Characteristics of study participants ($n = 1035$).

| Characteristics | Percentage (%) | |
|-------------------------------|----------------|------------|
| | Weighted | Unweighted |
| Child sex | | |
| Male | 48.4 | 48.8 |
| Female | 51.6 | 51.2 |
| Child age | | |
| 36–47 months | 44.0 | 44.4 |
| 48–59 months | 56.0 | 55.6 |
| Area | | |
| Rural | 69.9 | 61.1 |
| Urban | 30.1 | 38.9 |
| Mother's education | | |
| Primary or none | 23.8 | 25.1 |
| Secondary | 39.4 | 37.8 |
| Higher | 36.7 | 37.1 |
| Father's education | | |
| Primary or none | 19.5 | 21.7 |
| Secondary | 41.3 | 38.6 |
| Higher | 39.2 | 39.7 |
| Wealth index quintile | | |
| Poorest | 22.0 | 25.9 |
| Second | 18.8 | 16.7 |
| Middle | 20.4 | 18.8 |
| Fourth | 19.0 | 19.9 |
| Richest | 19.8 | 18.6 |
| Ethnicity | | |
| Non-Kinh | 18.2 | 24.6 |
| Kinh | 81.8 | 75.4 |
| Attend ECE program | | |
| No | 27.6 | 26.7 |
| Yes | 72.4 | 73.3 |
| Have 3 or more books | | |
| No | 59.1 | 59.9 |
| Yes | 40.9 | 40.1 |
| Have 2 or more playthings | | |
| No | 35.6 | 36.5 |
| Yes | 64.4 | 63.5 |
| Child left in inadequate care | | |
| No | 88.2 | 87.7 |
| Yes | 11.8 | 12.3 |

with high education levels were significantly associated with mothers' engagement in all caregiving activities (except taking children outside), especially in reading books (aOR = 4.589, 95% CI 2.419–8.705), telling stories (aOR = 3.430, 95% CI 2.103–5.595), naming/counting (aOR = 3.522, 95% CI 2.194–5.653), and singing songs (aOR = 3.596, 95% CI 2.246–5.759). Household's wealth level was significantly associated with mothers' engagement. Mothers from the richest household more likely to engage in taking the child outside (aOR = 2.275, 95% CI 1.215–4.261) and playing with the child (aOR = 2.166, 95% CI 1.120–4.188) compared to mothers from the poorest household. Having three or more books at home was significantly associated with mothers' engagement in reading books (aOR = 4.839, 95% CI 3.370–6.948), telling stories (aOR = 2.490, 95% CI 1.783–3.478), naming/counting (aOR = 1.928, 95% CI 1.359–2.736), and singing songs (aOR = 1.667, 95% CI 1.177–2.360), while having two or more playthings at home were not associated with mothers' engagement. Child left in inadequate care was less likely to have mothers engage in telling stories activity (aOR = 0.618, 95% CI 0.392–0.973).

Table 3 shows the association between fathers' caregiving and socioeconomic and child-rearing environmental characteristics by the results of the multivariate logistic regression. Fathers were less likely to engage with older children (48–59 months age) in naming/counting activity (aOR = 0.718, 95% CI 0.538–0.957) compared with younger children (36–47 months age). Having fathers with



** $p < 0.01$; *** $p < 0.001$

Figure 1. Caregiving activities provided by mothers and fathers with their child in the past three days. ** $p < 0.01$; *** $p < 0.001$.

high education were significantly associated with fathers' engagement with children in five out of six activities (except taking children outside), especially in reading books (aOR = 2.983, 95% CI 1.190–7.476), and telling stories (aOR = 3.026, 95% CI 1.433–6.388), while mothers' education was not associated with fathers' engagement. Household's wealth level was significantly associated with fathers' engagement, with fathers from the richest household more likely to engage in telling stories (aOR = 3.050, 95% CI 1.281–7.262), and in taking the child outside (aOR = 2.603, 95% CI 1.387–4.885) compared to fathers from the poorest household. Fathers who have children attending the ECE programme were more likely to engage with the child in naming/counting activities (aOR = 1.649, 95% CI 1.141–2.382). Having three or more books at home was significantly associated with fathers' engagement in reading books (aOR = 2.898, 95% CI 1.811–4.640), naming/counting (aOR = 1.544, 95% CI 1.091–2.187), and playing with the child (aOR = 1.487, 95% CI 1.076–2.056). Having two or more playthings at home was significantly associated with fathers' engagement in singing songs (aOR = 1.404, 95% CI 1.005–1.962), and taking the child outside (aOR = 1.422, 95% CI 1.089–1.858). Meanwhile, being female, living in urban area, and being Kinh ethnic showed no significant association with both mothers' engagement and fathers' engagement in caregiving activities with children.

Discussion

The family – in particular, the parents – often provides the first learning experiences in a child's life. Therefore, the caregiving practices adopted by parents have a significant influence and deserve closer attention, especially in families that are vulnerable to various socioeconomic and environmental risk factors (Sawada & Katayama, 2022). Mothers and fathers should be investigated separately because of their different roles in caregiving (Pakaluk & Price, 2020). The MICS questionnaire asks the primary caregivers whether mothers, fathers, and/or other household members had been engaged in six different caregiving activities with their children at home in the previous three days. While most studies often form a count index for the number of activities each caregiver engaged in with their children (Cuartas, Jeong, Rey-Guerra, McCoy, & Yoshikawa, 2020; Jeong et al., 2016; Sun et al., 2016), our study revealed differences in the levels of mothers' and fathers' engagement with their children in their respective caregiving activities. Furthermore, a study

Table 2. Association between mothers' engagement in caregiving activities and socioeconomic and child-rearing environmental characteristics, Results of multivariate logistic regression analysis.

| | Reading books aOR (95% CI) | Telling stories aOR (95% CI) | Naming/counting aOR (95% CI) | Singing songs aOR (95% CI) | Taking outside aOR (95% CI) | Playing with aOR (95% CI) |
|-------------------------------|-------------------------------|---------------------------------|---------------------------------|-------------------------------|--------------------------------|------------------------------|
| Child sex | | | | | | |
| Male | 1 | 1 | 1 | 1 | 1 | 1 |
| Female | 1.065 (0.775–1.464) | 0.968 (0.737–1.272) | 0.958 (0.730–1.258) | 1.065 (0.816–1.390) | 1.014 (0.789–1.302) | 1.030 (0.793–1.337) |
| Child age | | | | | | |
| 36–47 months | 1 | 1 | 1 | 1 | 1 | 1 |
| 48–59 months | 1.064 (0.760–1.491) | 0.950 (0.712–1.269) | 0.867 (0.650–1.157) | 0.780 (0.588–1.034) | 0.927 (0.712–1.207) | 0.915 (0.695–1.206) |
| Area | | | | | | |
| Rural | 1 | 1 | 1 | 1 | 1 | 1 |
| Urban | 1.252 (0.877–1.786) | 1.100 (0.802–1.510) | 0.898 (0.650–1.241) | 0.919 (0.670–1.262) | 0.920 (0.683–1.238) | 0.926 (0.679–1.263) |
| Mother's education | | | | | | |
| Primary or none | 1 | 1 | 1 | 1 | 1 | 1 |
| Secondary | 2.582 (1.423–4.687)** | 2.086 (1.372–3.171)** | 1.900 (1.307–2.761)** | 2.233 (1.539–3.241)*** | 1.071 (0.744–1.543) | 1.356 (0.940–1.958) |
| Higher | 4.589 (2.419–8.705)*** | 3.430 (2.103–5.595)*** | 3.522 (2.194–5.653)*** | 3.596 (2.246–5.759)*** | 1.305 (0.834–2.041) | 1.837 (1.160–2.910)* |
| Father's education | | | | | | |
| Primary or none | 1 | 1 | 1 | 1 | 1 | 1 |
| Secondary | 1.156 (0.639–2.090) | 1.109 (0.719–1.712) | 0.936 (0.631–1.388) | 0.976 (0.660–1.444) | 0.895 (0.613–1.307) | 0.817 (0.557–1.197) |
| Higher | 1.384 (0.739–2.592) | 0.844 (0.513–1.387) | 1.031 (0.644–1.650) | 0.780 (0.488–1.247) | 0.767 (0.490–1.200) | 1.083 (0.684–1.713) |
| Wealth index quintile | | | | | | |
| Poorest | 1 | 1 | 1 | 1 | 1 | 1 |
| Second | 1.289 (0.667–2.490) | 1.114 (0.671–1.847) | 0.963 (0.604–1.536) | 1.335 (0.838–2.126) | 1.364 (0.869–2.142) | 1.167 (0.739–1.842) |
| Middle | 1.374 (0.683–2.762) | 1.158 (0.664–2.022) | 0.668 (0.396–1.129) | 1.069 (0.636–1.798) | 1.408 (0.852–2.328) | 1.518 (0.908–2.536) |
| Fourth | 1.494 (0.737–3.027) | 1.655 (0.931–2.939) | 0.683 (0.392–1.190) | 1.245 (0.717–2.160) | 1.945 (1.144–3.308)* | 1.566 (0.909–2.695) |
| Richest | 1.884 (0.849–4.183) | 1.760 (0.896–3.458) | 1.112 (0.552–2.239) | 1.399 (0.717–2.728) | 2.275 (1.215–4.261)* | 2.166 (1.120–4.188)* |
| Ethnicity | | | | | | |
| Non-Kinh | 1 | 1 | 1 | 1 | 1 | 1 |
| Kinh | 1.378 (0.791–2.402) | 0.917 (0.586–1.435) | 2.158 (1.431–3.256)*** | 1.136 (0.752–1.715) | 0.800 (0.537–1.190) | 0.826 (0.549–1.241) |
| Attend ECE program | | | | | | |
| No | 1 | 1 | 1 | 1 | 1 | 1 |
| Yes | 1.278 (0.823–1.984) | 1.287 (0.907–1.827) | 1.199 (0.858–1.675) | 0.947 (0.679–1.322) | 0.730 (0.532–1.004) | 0.946 (0.683–1.310) |
| Have 3 or more books | | | | | | |
| No | 1 | 1 | 1 | 1 | 1 | 1 |
| Yes | 4.839 (3.370–6.948)*** | 2.490 (1.783–3.478)*** | 1.928 (1.359–2.736)*** | 1.667 (1.177–2.360)** | 1.379 (0.996–1.910) | 1.054 (0.750–1.482) |
| Have 2 or more playthings | | | | | | |
| No | 1 | 1 | 1 | 1 | 1 | 1 |
| Yes | 1.174 (0.834–1.653) | 1.191 (0.890–1.592) | 0.985 (0.738–1.314) | 1.259 (0.952–1.665) | 1.086 (0.834–1.416) | 1.257 (0.956–1.654) |
| Child left in inadequate care | | | | | | |
| No | 1 | 1 | 1 | 1 | 1 | 1 |

| | | | | | | |
|-----|---------------------|----------------------|---------------------|---------------------|---------------------|---------------------|
| Yes | 1.231 (0.724–2.093) | 0.618 (0.392–0.973)* | 0.851 (0.562–1.288) | 0.855 (0.569–1.285) | 0.836 (0.566–1.235) | 1.150 (0.771–1.717) |
|-----|---------------------|----------------------|---------------------|---------------------|---------------------|---------------------|

* $p < 0.05$; ** $p < 0.01$; *** $p < 0.001$.

Note: All models were adjusted for child sex, child age, area, mother's education, father's education, wealth index quintile, ethnicity, attend ECE program, have 3 or more books, have 2 or more playthings, and child left in inadequate care.

Table 3. Association between fathers' engagement in caregiving activities and socioeconomic and child-rearing environmental characteristics, Results of multivariate logistic regression analysis.

| | Reading books OR (95% CI) | Telling stories OR (95% CI) | Naming/counting OR (95% CI) | Singing songs OR (95% CI) | Taking outside OR (95% CI) | Playing with OR (95% CI) |
|-------------------------------|------------------------------|--------------------------------|--------------------------------|------------------------------|-------------------------------|-----------------------------|
| Child sex | | | | | | |
| Male | 1 | 1 | 1 | 1 | 1 | 1 |
| Female | 1.174 (0.812–1.696) | 0.890 (0.635–1.247) | 0.835 (0.635–1.097) | 1.207 (0.889–1.639) | 0.991 (0.771–1.276) | 0.836 (0.650–1.075) |
| Child age | | | | | | |
| 36–47 months | 1 | 1 | 1 | 1 | 1 | 1 |
| 48–59 months | 1.274 (0.862–1.883) | 1.026 (0.718–1.465) | 0.718 (0.538–0.957)* | 0.967 (0.701–1.334) | 0.855 (0.656–1.116) | 0.866 (0.664–1.129) |
| Area | | | | | | |
| Rural | 1 | 1 | 1 | 1 | 1 | 1 |
| Urban | 1.236 (0.815–1.876) | 1.074 (0.728–1.583) | 1.112 (0.807–1.531) | 1.067 (0.748–1.522) | 0.872 (0.647–1.175) | 1.016 (0.755–1.366) |
| Mother's education | | | | | | |
| Primary or none | 1 | 1 | 1 | 1 | 1 | 1 |
| Secondary | 1.018 (0.485–2.137) | 0.759 (0.432–1.332) | 1.359 (0.884–2.089) | 0.917 (0.566–1.485) | 0.908 (0.627–1.316) | 1.033 (0.714–1.497) |
| Higher | 1.211 (0.550–2.667) | 0.851 (0.451–1.603) | 1.354 (0.817–2.246) | 0.965 (0.550–1.694) | 0.916 (0.584–1.437) | 1.247 (0.796–1.952) |
| Father's education | | | | | | |
| Primary or none | 1 | 1 | 1 | 1 | 1 | 1 |
| Secondary | 1.691 (0.690–4.149) | 2.412 (1.215–4.789)* | 1.054 (0.674–1.649) | 2.252 (1.294–3.917)** | 1.211 (0.824–1.778) | 1.177 (0.801–1.729) |
| Higher | 2.983 (1.190–7.476)* | 3.026 (1.433–6.388)** | 1.882 (1.145–3.093)* | 2.626 (1.414–4.879)** | 1.194 (0.761–1.874) | 1.733 (1.107–2.714)* |
| Wealth index quintile | | | | | | |
| Poorest | 1 | 1 | 1 | 1 | 1 | 1 |
| Second | 1.695 (0.685–4.198) | 1.340 (0.655–2.739) | 0.732 (0.439–1.222) | 1.044 (0.584–1.865) | 1.310 (0.830–2.065) | 0.963 (0.610–1.520) |
| Middle | 0.873 (0.326–2.342) | 1.242 (0.568–2.718) | 0.531 (0.299–0.943)* | 0.769 (0.403–1.466) | 1.344 (0.810–2.229) | 0.997 (0.601–1.656) |
| Fourth | 1.313 (0.505–3.410) | 1.917 (0.882–4.167) | 0.596 (0.332–1.071) | 0.816 (0.421–1.581) | 1.713 (1.006–2.914)* | 0.717 (0.421–1.223) |
| Richest | 2.141 (0.773–5.930) | 3.050 (1.281–7.262)* | 0.691 (0.353–1.354) | 1.118 (0.530–2.356) | 2.603 (1.387–4.885)** | 0.902 (0.482–1.689) |
| Ethnicity | | | | | | |
| Non-Kinh | 1 | 1 | 1 | 1 | 1 | 1 |
| Kinh | 2.046 (0.964–4.344) | 0.935 (0.513–1.704) | 1.224 (0.784–1.911) | 1.282 (0.765–2.149) | 1.197 (0.802–1.785) | 1.088 (0.729–1.622) |
| Attend ECE program | | | | | | |
| No | 1 | 1 | 1 | 1 | 1 | 1 |
| Yes | 1.784 (0.989–3.219) | 1.110 (0.699–1.763) | 1.649 (1.141–2.382)** | 1.071 (0.715–1.602) | 0.966 (0.702–1.329) | 1.232 (0.896–1.695) |
| Have 3 or more books | | | | | | |
| No | 1 | 1 | 1 | 1 | 1 | 1 |
| Yes | 2.898 (1.811–4.640)*** | 1.087 (0.710–1.663) | 1.544 (1.091–2.187)* | 1.255 (0.853–1.848) | 1.171 (0.846–1.620) | 1.487 (1.076–2.056)* |
| Have 2 or more playthings | | | | | | |
| No | 1 | 1 | 1 | 1 | 1 | 1 |
| Yes | 1.257 (0.844–1.873) | 1.321 (0.914–1.908) | 1.006 (0.753–1.345) | 1.404 (1.005–1.962)* | 1.422 (1.089–1.858)* | 1.136 (0.870–1.482) |
| Child left in inadequate care | | | | | | |
| No | 1 | 1 | 1 | 1 | 1 | 1 |

| | | | | | | |
|-----|---------------------|---------------------|---------------------|---------------------|---------------------|---------------------|
| Yes | 0.575 (0.268–1.230) | 1.307 (0.751–2.275) | 0.833 (0.529–1.311) | 0.984 (0.594–1.631) | 0.676 (0.451–1.013) | 1.184 (0.799–1.756) |
|-----|---------------------|---------------------|---------------------|---------------------|---------------------|---------------------|

* $p < 0.05$; ** $p < 0.01$; *** $p < 0.001$.

Note: All models were adjusted for child sex, child age, area, mother's education, father's education, wealth index quintile, ethnicity, attend ECE program, have 3 or more books, have 2 or more playthings, and child left in inadequate care.

examined the association between socioeconomic characteristics and parental caregiving behaviours (Sun et al., 2016), but few studies have examined home environmental factors, such as the availability of learning resources at home. Using Vietnamese MICS data, this study investigated the levels of mothers' and fathers' engagement in caregiving activities for their preschool children and the associations with the socioeconomic and child-rearing environment at home.

Levels of parental engagement in caregiving activities

Overall, the percentage of mothers' engagement in caregiving activities with their children was significantly higher than the percentage of fathers' engagement in all six caregiving activities, especially in singing songs, reading books, and telling stories. Both mothers and fathers tended to engage more in activities like playing with children, taking children outside, and singing songs rather than activities like reading books, telling stories, and naming/counting. These findings are consistent with prior studies: taking a child out and playing was the most prevalent form of caregiving, followed by singing and naming, while telling stories and reading books were the least frequent activities engaged in by both mothers and fathers (Bornstein & Putnick, 2012; Giallo, Treyvaud, Cooklin, & Wade, 2013). While parent-child book reading has been shown to be effective in improving young children's language, literacy, and cognitive development (Dowdall et al., 2021; Ong'ayi et al., 2020; Xie, Chan, Ji, & Chan, 2018), this study revealed that only one-sixth of fathers and one-third of mothers read books with their children during the prior three days. Some studies also highlighted significantly lower levels of fathers' engagement than mothers' in caregiving activities with children in LMICs (Cuartas et al., 2020; Yildirim & Roopnarine, 2019; Jeong et al., 2016; Schoppe-Sullivan, Kotila, Jia, Lang, & Bower, 2013), considering the predominantly patriarchal norms and expectations regarding women's households and caregiving responsibilities in LMICs (Bornstein & Putnick, 2016). The similar patterns are also seen in Vietnam, as the father remains ultimately responsible for providing the family and making family decisions while mothers are expected to engage more in domestic work and child-rearing (Mestechkina, Son, & Shin, 2014).

Association between parental caregiving and socioeconomic and child-rearing environmental characteristics

Our results showed that for both mothers' and fathers' caregiving, child sex was found not to be a significant predictor, while child age was found to be only significantly associated with fathers' engagement in naming/counting, as fathers tend to engage more with younger children. Meanwhile, a study showed that young children were more likely to receive stimulating care from their mothers than their fathers (Kitamura, Cappa, Petrowski, Pandolfelli, & Mizunoya, 2023). Prior results from 39 LMICs also showed small, inconsistent differences in caregiving activities by child gender (Bornstein & Putnick, 2016). Although prior studies indicated that parents often accommodate their caregiving approaches according to their children's specific characteristics (Lee, 2022; van Polanen, Colonesi, Fukkink, & Tavecchio, 2017), our findings suggested that child-related factors are not as influential when other factors are also considered.

Mothers' high education were significantly associated with mothers' engagement with children, and fathers' high education were significantly associated with fathers' engagement with children in five out of the six activities (except taking children outside). Maternal education has been consistently identified as key to quality maternal parenting (Scherer et al., 2019; Walker et al., 2011), while there is still a shortage of evidence on the association between fathers' education and fathers' caregiving. A prior study also indicated that maternal education significantly associated with both maternal and paternal engagement in caregiving activities with their children at home (Sun et al., 2016). However, our results revealed that maternal education was only significantly associated with mothers' engagement, but not with fathers' engagement.

Household with higher wealth level was significantly associated with fathers' engagement in naming/counting and taking children outside, and was significantly associated with mothers' engagement in taking children outside and playing with children. A study with data from 62 LMICs also showed that parents' engagement levels were lower in the poorest households than in the richest households (Cuartas et al., 2020; Lu et al., 2020). Results from another study revealed that family poverty had a more consistent negative association with fathers' caregiving than mothers' caregiving (Baker et al., 2018). Meanwhile, our study found that household wealth status was associated with both mother's and father's engagement in two out of six caregiving activities. This finding can be explained by the rising women labour force participation rate in Vietnam, which leads to the participation gap between men and women has averaged only 9.5 percentage points over the last decade, compared to 32 percentage points in the whole of Asia and the Pacific (International Labour Organization, 2021). One potential mechanism underlying the association between household's wealth status and parental caregiving practices is that parents from low-income families encountered a wide range of difficulties, which made these parents more likely to experience parental stress, thereby constraining their caregiving capacity or shifting their priority to illness prevention and health care seeking than engaging in caregiving activities (Ho et al., 2022; Walker et al., 2011).

Regarding child-rearing environment factors at home, having three or more children's books at home was significantly associated with mothers' engagement in four out of six caregiving activities (reading books, telling stories, naming/counting, and singing songs). Notably, mothers were approximately 5.0 times more likely to engage with their children in reading books activities when books were available at home. The association of having three or more books available at home was independent of the household's wealth index, meaning that parents were more likely to engage in caregiving activities with their children when books were available at home, regardless of the household's socioeconomic status. The availability of books at home has also been significantly associated with child literacy, numeracy, and cognitive development (Frongillo et al., 2017; Landry et al., 2012; Roopnarine & Dede Yildirim, 2019; Sk et al., 2020). A study included 29,792 children aged 36–59 months found that not having books at home had the largest associations with risk of children's cognitive delay (Salhi et al., 2021). Despite almost two-thirds of the participants' households had at least two playthings compared to only 40.9% of those that had at least three books, having playthings at home showed no significant association with mothers' engagement, while only significantly associated with fathers' engagement in singing songs and taking children outside activities. Having children attending ECE programs was found to be only significantly associated with fathers' engagement in naming/counting activity, while was not significantly associated with mother's engagement. Some earlier studies revealed a positive association between enrolment in ECE programs and children's cognitive, language, and socio-emotional development (Frongillo et al., 2017; Johnstone et al., 2022; Rao, Richards, Sun, Weber, & Sincovich, 2019). However, our results showed a weaker link between ECE participation and parental engagement, indicating that it may not have a crucial role in maternal and paternal engagement in caregiving activities with their children, in Vietnam.

Strengths and limitations

This study is the first to provide evidence of different levels of mothers' and fathers' engagement in different caregiving activities and their socioeconomic and child-rearing environmental associated factors using a nationally representative Vietnamese dataset. Results of this study offer valuable insights into enhancing our comprehension of and advocating for maternal and paternal caregiving practices in a low- and middle-income country. By establishing a home environment that promotes family interactions with adequate children's learning resources, parents can be better equipped to engage in more caregiving activities, with the potential to nurture the development and overall well-being of children during their early years. This study has certain limitations. First, the study

design was cross-sectional, thereby cannot addressing the causal inference. Second, data on parental engagement in caregiving practices were based on caregiver responses, raising the possibility of recall bias. Lastly, the study's results are of children 36–59 months of age, therefore findings might not be generalizable to other age groups. Therefore, future studies should include a broader age range of children and further examine not only the quantity, but also the quality, of mothers' and fathers' engagement in particular caregiving activities with their children in different cultural settings.

Conclusion

The present study revealed different levels of mothers' and fathers' engagement in particular caregiving activities, with an overall lower level of fathers' engagement than mothers in all six caregiving activities. The study also showed that reading books and telling stories was among the least frequent activities engaged in by both parents. The study also highlighted the crucial role of parental education level, household wealth, and adequate learning resources at home on engagement in caregiving activities by both mothers and fathers with their children. These findings present important implications for promoting parental caregiving practices. Further longitudinal study is required to identify potential factors that might impede or encourage parents' engagement in various caregiving activities with their children, which would contribute to the design of an efficient programs to support positive caregiving and promote child development, especially in LMICs.

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Data availability

The dataset supporting findings from this study can be accessed at MICS surveys. Website: <https://mics.unicef.org/surveys>.

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Disclosure statement

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