

COHORT PROFILE

Cohort Profile: The Young Lives Study

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Summary Young Lives is an international longitudinal study investigating the changing nature of childhood poverty in four low-income countries [Ethiopia, India (Andhra Pradesh), Peru and Vietnam] over a 15-year period. In each country, the cohort is comprised of ~2000 children aged between 6 and 18 months and up to 1000 children aged between 7 and 8 years, recruited in 2002 and sampled from 20 sentinel sites. The first survey data collection from primary caregivers and older children took place in 2002, the second in 2006–07 and the third in 2009–10. Data on the community contexts were collected to complement the household surveys. To elaborate and extend the quantitative data, longitudinal qualitative research with a subgroup of the children was carried out in 2007, 2008 and 2010–11. Topic areas covered included nutrition, health and well-being, cognitive and physical development, health behaviours and education, as well as the social, demographic and economic status of the household. Survey data from the study are archived in the International Section of the UK Public Data Archive.

Why was the cohort set up?

The Young Lives study (hereafter Young Lives for brevity) is an international longitudinal study investigating the changing nature of childhood poverty in four low-income countries over a 15-year period. The time-frame over which Young Lives is being conducted corresponds to the period set to assess progress towards the United Nations Millennium Development Goals (MDGs).¹ Young Lives grew out of a need to improve understanding of the causes and consequences of childhood poverty, and aims to provide evidence to support the development of effective policies. Since the mid-20th century large childhood cohort studies have been running in the UK, USA and other high-income countries, and more recently in a few low-income countries.^{2–4} However, no such research has previously

been conducted across low-income countries. Young Lives is the first multi-country study of its type with Ethiopia, India (Andhra Pradesh), Peru and Vietnam selected to represent the key regions in the developing world and to reflect a wide range of cultural, political, geographical and social contexts (Figure 1). Young Lives is currently co-ordinated by the University of Oxford's Department of International Development with partners from leading national research institutes, government statistics departments and Save the Children. It is core-funded through the period 2001–17 by the Department for International Development (DFID) and co-funded from 2010 to 2014 by the Netherlands Ministry of Foreign Affairs. Substudies are currently funded by the Bernard van Leer Foundation and the Oak Foundation.



Figure 1 Map of the world with Young Lives study countries marked in black [Ethiopia, India (Andhra Pradesh), Vietnam, Peru]

What does the study cover?

From the outset, Young Lives was planned as a multi-disciplinary policy-relevant study aimed at examining multiple and interlinked dimensions of childhood poverty. Since 2002, the study has tracked child welfare outcomes, including physical health, growth, nutritional status, cognitive development, social and emotional well-being and life skill development (e.g. educational progress). In order to examine interrelations and pathways, Young Lives has collected a wide variety of explanatory variables for each outcome at the individual, household and community levels. Additionally, each country included country modules to investigate specific policies and social protection programmes. For example, in Ethiopia, the data were collected on the Productive Safety Net Programme (a cash or food for work scheme), in Peru on Juntos (a conditional cash transfer programme) and in India on the National Rural Employment Guarantee Scheme (a programme that entitles rural households to 100 days of waged employment a year). To elaborate and expand on the survey data, longitudinal qualitative research with a subsample of 50 children in each country has complemented the surveys since 2007. In 2010, we added a new school component to the existing survey to gain a better understanding of children's experiences of school. Core to Young Lives is a commitment to engage with policy concerns at national and international levels, to increase the uptake of research evidence and to include future policy-relevant research questions.

Who is in the cohort?

In each of the four study countries, the cohort comprises 2000 children aged between 6 and 18 months (younger

cohort) and up to 1000 children aged between 7 and 8 years (older cohort), recruited in 2002. It was decided not to select a birth cohort because attrition rates among pregnant women and those with children in early infancy were expected to be high due to infant mortality and mobility of mothers.⁵ Moreover, the costs and time required to recruit birth cohorts would have exceeded the available budget and would have made it necessary to focus on well-populated areas. Table 1 presents the characteristics of the samples at baseline. Sample selection for a longitudinal study in low-income countries can be challenging because of incomplete or unavailable population data, geographical or social infrastructure factors and high mobility of populations.⁵⁻⁷ After consideration of the overall aims of the study, national priorities related to poverty, available budgets and logistical concerns, the study opted to employ a sentinel site sampling approach, whereby each country team selected 20 sites with oversampling of sites covering poor areas.⁵ The sites include both urban and rural areas, representing a range of regions, policy contexts and living conditions that reflect the ethnic, geographical and religious diversity of the countries. Within each sentinel site, households with a child in the required age range were identified and, from these, 150 households (100 for the younger cohort and up to 50 for the older cohort) were randomly selected; the exact procedures used varied between sites because of topographical and administrative differences within and between countries and were documented (see Young Lives country reports Round 1 for further details).⁸⁻¹¹ Refusal rates among the selected households at baseline were very low (<2% in all four countries) and, in such cases, replacement sampling was used.⁸⁻¹¹ The low refusal rates might be explained by the involvement of local field-workers of both sexes and different ethnicities that facilitated acceptance by the communities. Young

Table 1 Baseline characteristics of children born in 2001–02 and children born in 1994–95

| | Ethiopia | | India | | Peru | | Vietnam | |
|--|-------------|------------|-------------|------------|-------------|------------------|-------------|------------|
| | YC | OC | YC | OC | YC | OC | YC | OC |
| Number of children | 1999 | 1000 | 2011 | 1008 | 2052 | 714 ^b | 2002 | 1000 |
| Age in months, mean (SD) | 11.7 (3.6) | 7.9 (0.3) | 11.8 (3.5) | 7.9 (0.3) | 11.5 (3.5) | 7.9 (0.3) | 11.6 (3.2) | 7.9 (0.3) |
| Male, <i>n</i> (%) | 1050 (52.5) | 511 (51.1) | 1081 (53.8) | 495 (49.1) | 1026 (50.0) | 386 (54.1) | 1030 (51.4) | 502 (50.2) |
| Urban residence, <i>n</i> (%) | 700 (35.0) | 401 (40.1) | 505 (25.1) | 251 (24.9) | 1362 (66.4) | 529 (74.1) | 400 (20.0) | 200 (20.0) |
| Socio-economic status, ^a <i>n</i> (%) | | | | | | | | |
| Very poor | 1420 (71.0) | 711 (71.1) | 814 (40.5) | 417 (41.4) | 439 (21.4) | 102 (14.3) | 439 (21.9) | 187 (18.7) |
| Poor | 338 (16.9) | 189 (18.9) | 477 (23.7) | 214 (21.2) | 474 (23.1) | 151 (21.1) | 368 (18.4) | 185 (18.5) |
| Average | 234 (11.7) | 98 (9.8) | 578 (28.7) | 308 (30.6) | 696 (33.9) | 278 (38.9) | 932 (46.6) | 504 (50.4) |
| Non-poor | 7 (0.4) | 2 (0.2) | 142 (7.1) | 69 (6.9) | 443 (21.6) | 183 (25.6) | 261 (13.0) | 124 (12.4) |

^a Based on wealth index. The wealth index was constructed from three different indices: housing quality, consumer durables and services. ^b The older cohort in Peru includes fewer children as only 25 children were recruited in some of the provincial sites. SD, standard deviation; YC, younger cohort; OC, older cohort.

Lives participants also described how they felt empowered by the study because it offered them a unique opportunity to speak about their lives and concerns. In accordance with Young Lives' strict ethical standards, we only collected data on household characteristics after a household had agreed to participate and had given informed consent. Given the unavailability or insufficient quality of recent household census data in the study sites (as is common in low-income countries), a comparison of characteristics of the households that agreed to participate with households that either refused to take part, or the general population in each study community, was not possible. In addition, comparisons were made between the study samples and nationally representative samples using the Demographic and Health Survey (DHS) 2000 and the Welfare Monitoring Survey (WMS) 2000 in Ethiopia, the DHS 1998/99 in India, the Living Standard Measurement Survey (LSMS) 2001 and the DHS 2000 in Peru and the LSMS 2002 and the DHS 2002 in Vietnam.^{12–15} The comparisons of several living standard indicators (e.g. access to public services and caregiver's education) showed that the samples in Young Lives were similar to nationally representative samples in Peru, slightly poorer in Vietnam and slightly better off in Ethiopia and India. These differences might be partly explained by differences in the years in which the nationally representative surveys were conducted, and in the cases of India and Ethiopia substantial decreases in national poverty rates over this period.

How often have they been followed up?

The first data collection took place at or shortly after recruitment in 2002 using questionnaires for the

primary caregiver and the older cohort children. In Rounds 2 and 3, both the younger and older children had their own questionnaires. Additionally, a community context questionnaire was administered to key informants such as community leaders, teachers and health workers in each study community. The second round of data collection took place in 2006–07 and the third in 2009–10. The qualitative research was carried out in 2007, 2008 and 2010–11. Additional qualitative substudies were conducted around social protection programmes in India and Ethiopia in 2009. The new school component started in 2010. In each round, informed consent was taken from the caregivers and the children themselves.¹⁶ For further details regarding the research ethics in Young Lives, visit our website (www.younglives.org.uk).

What has been measured?

Table 2 outlines the data collected in the three survey rounds. Topics covered reflected the different life stages of the children in each round. In Round 1, we focused on the social and economic contexts of the households and on early childhood health, nutritional status and related topics for the younger cohort and for the older cohort, schooling and cognitive development, mental health and children's daily activities. In Round 2, the survey instruments were expanded and pre-school education and childcare, child growth and development and access to health-care services were explored in the younger cohort. For the older cohort, more detail about schooling, work and time use was included. In Round 3, children in the younger cohort had reached the same age as children in the older cohort at the beginning of the study (8 years). Consequently, many of the questions asked

Table 2 Health data and other data collected in Rounds 1, 2 and 3 of the Young Lives study (older and younger cohort)

| Data | Round 1 (2002) | Round 2 (2006–07) | Round 3 (2009–10) |
|---|-------------------|----------------------|----------------------|
| Health/development of child | | | |
| Subjective health status | • | • | • |
| Reported serious injuries/illnesses | • | • | • |
| Reported long-term health problems | • | • | • |
| Cognitive development | • | • | • |
| Physical functioning | | • | |
| Health of HH members | | | |
| Long-term health problems that affect ability to work | • | • | • |
| Health behaviours | | | |
| Immunization | • | • | |
| Health service access and utilization | • | • | • |
| Nutrition | | | |
| Dietary diversity of child | | • | • |
| Meal frequency of child | | • | • |
| HH food security | | • | • |
| Anthropometry (height, weight) | | | |
| Child | • | • | • |
| Biological mother | • (only Peru) | • | • |
| Younger cohort only | | | |
| Pregnancy, reported birthweight, delivery and breastfeeding | • | | |
| Recall of morbidity in last 24 h | • | | |
| Caregiver's mental health | • | • (only Peru) | • (only Peru) |
| Older cohort only | | | |
| Adolescent risk behaviours | | | • |
| Child's mental health | • | | |
| Social, economic, education and demographic variables | | | |
| HH composition | • | • | • |
| HH education | • | • | • |
| Parental background | • | • | • |
| Child's education history | | | • |
| Socio-economic status | • | • | • |
| Livelihood and assets | • | • | • |
| HH consumption and expenditure | • | • | • |
| Economic changes and shocks | • | • | • |
| Social capital | • | • | • |
| Child care and education | • | • | • |
| Child's daily activities | • | • | • |

HH, household.

in Round 1 for the older cohort were now included for the younger cohort. A section on unintentional injuries and a new component on access to and quality of healthcare were added for both the younger and older cohort. In India, Peru and Vietnam, data on health insurance schemes were also collected. Another new

area of interest for the older cohort was adolescent health behaviours including reproductive health, substance misuse, violence and emotional well-being. In all rounds, detailed demographic, social and economic data were collected. Anthropometric measurements were carried out for all children in all rounds, and

for the biological mothers in Rounds 2 and 3. In Peru, maternal anthropometry was assessed in all three rounds and paternal anthropometry in Rounds 2 and 3.

What is the attrition like?

Attrition is a major concern for longitudinal studies. In developing country contexts, attrition is often increased by high population mobility and lack of formal addresses.⁶ To reduce attrition, the country teams employed various retention strategies including collection of contact details of key friends and relatives of participants, regular tracking between rounds and coordination with local authorities. The country teams also organized regular local activities to maintain interest and awareness of the study and motivate the population by providing feedback. As a result, attrition rates were kept at very low levels in absolute terms, but also when compared with attrition rates of other longitudinal studies in low-income countries.¹⁷ Attrition rates ranged from 2.2% (Vietnam) to 5.7% (Ethiopia) in the younger cohort, and from 2.4% (Vietnam) to 5.0% (Peru) in the older cohort (Table 3). Most attrition was due to household mobility. Attrition due to mortality was very low in the older cohort ($n=18$ across all four countries). In the younger cohort, 72 children died between Rounds 1 and 3 in Ethiopia, 36 in India, 20 in Peru and 11 in Vietnam. Analyses by Outes-Leon and Dercon¹⁷ indicated that attrition in the Young Lives samples was to some extent non-random. In particular, it was found that households leaving the study tended to be richer and more educated than households that were retained (Table 4). However, an assessment of the attrition based on two alternative child welfare models found very limited evidence of attrition bias and it was concluded that the current attrition was highly unlikely to bias research inferences.¹⁷

What has been found? Key findings and publications

With >15 publications in academic journals, as well as the study's own working paper series (with >70 publications), Young Lives has made an important contribution to the understanding of the dynamics of childhood poverty and education, the importance of social protection strategies and health. In our method guide series, we share fieldwork experiences, tools and practical lessons learned while designing, carrying out, analysing and managing a complex, multi-country cohort study in resource-poor settings. A complete list of publications, working papers and method guides is available on the Young Lives website (www.younglives.org.uk). To date, the key findings in health relate to child nutrition and development, cognitive development, child well-being and the impact of social protection policies and programmes.

Child nutrition and development

Stunting (low height-for-age) represents a child's accumulated health and nutrition experience and is known to be a determinant of future health, cognitive development and economic productivity in adulthood. Not surprisingly, many studies used stunting as an outcome measure or investigated the long-term consequences of stunting. Stunting in early childhood was related to low maternal education,¹⁸ but also to education of the broader family and community.¹⁹ A comparison of longitudinal data across all four countries found a strong association between low household wealth and child stunting and underweight.²⁰ Other studies investigated the effect of undernutrition on psychosocial competencies.^{21,22} Determinants of child undernutrition, including the role of maternal social capital,^{23,24} physical health²⁵ and maternal mental health,²⁶ were examined in a large number of studies.

Table 3 Attrition rates between survey rounds for the younger cohort and older cohort

| | Ethiopia | | India | | Peru | | Vietnam | |
|---------------------|----------|------|-------|------|------|-----|---------|------|
| | YC | OC | YC | OC | YC | OC | YC | OC |
| Round 1 | | | | | | | | |
| No. of children | 1999 | 1000 | 2011 | 1008 | 2052 | 714 | 2002 | 1000 |
| Round 2 | | | | | | | | |
| No. of children | 1912 | 980 | 1950 | 994 | 1963 | 685 | 1970 | 990 |
| Attrition (%) | 4.4 | 2.0 | 3.0 | 1.4 | 4.3 | 4.1 | 1.6 | 1.0 |
| Round 3 | | | | | | | | |
| No. of children | 1884 | 971 | 1930 | 976 | 1940 | 678 | 1958 | 976 |
| Attrition (%) | 1.5 | 0.9 | 1.0 | 1.8 | 1.1 | 1.0 | 0.6 | 1.4 |
| Total attrition (%) | 5.7 | 2.9 | 4.0 | 3.2 | 5.4 | 5.0 | 2.2 | 2.4 |

Table 4 Comparison of households that were retained between Round 1 and Round 3 and households that were lost to attrition for both cohorts, by country

| | Ethiopia | | | India | | | Peru | | | Vietnam | | |
|--|--------------------|-------------------|-------|--------------------|-------------------|--------|--------------------|-------------------|--------|--------------------|------------------|-------|
| | Retained N=2855 | Attrited N=144 | P | Retained N=2906 | Attrited N=113 | P | Retained N=2620 | Attrited N=146 | P | Retained N=2934 | Attrited N=68 | P |
| Urban residence, n (%) | 1035 (36.3) | 66 (45.8) | 0.020 | 701 (24.1) | 55 (48.7) | <0.001 | 575 (19.6) | 25 (37.8) | <0.001 | 1779 (68.0) | 107 (71.8) | 0.335 |
| Wealth index, ^a mean (SD) | 0.174 (0.16) | 0.198 (0.18) | 0.055 | 0.338 (0.21) | 0.409 (0.23) | 0.252 | 0.429 (0.23) | 0.543 (0.29) | 0.007 | 0.475 (0.23) | 0.487 (0.25) | 0.280 |
| Education of caregiver (years completed), n (SD) | 2.3 (3.5) | 2.7 (3.8) | 0.256 | 2.9 (4.2) | 4.2 (5.3) | <0.001 | 6.4 (3.6) | 7.2 (3.7) | 0.744 | 7.6 (4.3) | 7.8 (4.3) | 0.976 |

^aBased on wealth index. The wealth index was constructed from three different indices: housing quality, consumer durables and services.

Factors affecting cognitive development

Stunting in early childhood was consistently associated with lower cognitive achievement at the age of 5 years.^{27,28} However, longitudinal analyses of children in Peru who recovered from linear growth deficit in early childhood and experienced catch-up growth, found no significant difference in cognitive achievement scores, compared with children who were not stunted at either round (based on verbal vocabulary and mathematical test scores).²⁹ Other studies examined the association between cognitive achievement and psychosocial³⁰ and socio-demographic variables.³¹

Well-being in the context of poverty

Much is still unknown about the concepts and experiences of well-being in low-income countries and even less is known about well-being among children. Young Lives research provided in-depth insights into children's experiences of poverty and how poverty can affect their perceptions of well-being.^{32–34} A number of papers also discussed challenges, opportunities and tools for the assessment of well-being among children in developing country settings.^{35–39}

Social protection policy and child health

Social protection policies can provide effective support to impoverished and vulnerable families and are an increasingly important approach to reducing poverty in low-income countries. Papers examined the impact of social protection programmes such as the Midday Meal Scheme in India,⁴⁰ an early child development programme (Wawa Wasi) in Peru⁴¹ and the Productive Safety Net Programme in Ethiopia⁴² on child health and well-being. A recent policy paper summarized and discussed the direct and indirect, as well as the intended and unintended effects of social protection policies and programmes on children in Ethiopia, India and Peru.⁴³

What are the main strengths and weaknesses?

The main strengths of the Young Lives study are the prospective, multidisciplinary nature of the data and the mixed methods research design. The prospective design facilitates analyses of changes over time and the combination of quantitative and qualitative methods enables a more in-depth understanding of the nuances behind the numbers. The broad geographical base and the diversity of the populations included in each country also make this cohort study unique. The data on country-specific policies and social protection programmes allow us to study their impacts on health and well-being. The innovative sampling approach, the meticulous survey design and the careful changes made between survey rounds, without compromising

the overall integrity of the longitudinal data, are also strengths of the study.

The Young Lives' samples were selected to reflect the breadth of the population and to allow for examination of the complex interrelations of childhood poverty. The diversity of factors covered in the surveys could be considered a limitation, but breadth and scope were intended to provide the baseline from which more in-depth studies could be designed, and this has been the case. The enrolment of children aged 6–18 months and reliance on maternal reports of early infancy, including birth-weight, is a disadvantage in the analyses of long-term health and nutrition-related issues. The translation and construct validity of the survey instruments has been a challenge, but also an opportunity to advance the field in validating measures (e.g. psychosocial measures), otherwise limited to developed country contexts.

Can I get hold of the data? Where can I find out more?

Data from the Young Lives surveys are archived in the International section of the UK Public Data Archive. Data are also available on CD-ROM in our study

countries, on request from the Principal Investigators. The Young Lives study is interested in collaborations with other research institutes, stakeholders and policymakers. The initial contact point for collaborations is the Young Lives team in Oxford (younglives@younglives.org.uk). Further information can also be found on the study website (www.younglives.org.uk).

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KEY MESSAGES

- An innovative sampling approach, very low attrition rates, a child-focused mixed method approach combined with policy analysis, allow the examination of complex interrelations between health, education and poverty in four low-income countries.
- Undernutrition in early childhood is related to low cognitive achievements and psychosocial competencies in later childhood.
- Social protection policies and programmes have direct and indirect, as well as intended and unintended effects on child health, nutrition and well-being.
- Children's experiences and understandings of poverty have strong influences on their perceptions of well-being.

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