

Baseline report to CONAFE's "Early Childhood Education Program"



Centro de Investigación y Docencia Económicas, A.C.

Executive summary

The *Early Childhood Education Program (ECEP)* provides training to parents and caregivers of children between 0 and 4 years in highly marginalized communities in the country, in order to improve them with skills and parenting practices, so that children are better able to enter the schooling system at the end of a course. The program curriculum uses a competency approach focusing on different dimensions, such as language, protection and care, personal and social skills and medium exploration.

The program's evaluation seeks to measure the impact on the physical, cognitive and social development of minor beneficiaries. At the same time, it seeks to identify changes in parents' and caregivers' habits and reading practices. For this purpose, communities were selected in the program's last expansion stage (2011), randomly assigned to treatment and control groups and matched by a propensity score to ensure that pairs of locations were similar in context. The control group communities remained without the program for a period of two years, while treatment groups are currently receiving benefits. During this period the development of children in both groups will be evaluated.

The assessment looks for evidence of the effects of both direct children stimulation and parents and caregivers training sessions. Thus, it is possible to isolate the effects of each program element and identify the most important actions. The main instrument to measure the child's development is the Ages and Stages Questionnaire-3, which evaluates five different areas: communication, gross motor activities, fine motor, problem solving and social and individual development. This is complemented by a household background questionnaire and questionnaires on habits and breeding practices to male primary caregiver and parent of each child, as well as pregnant women.

These instruments were compared between groups to ensure that there were no significant differences that could contaminate the future measurement of impact. The baseline data suggest that groups keep balance in the variables of interest, especially in the level of cognitive development of children. The context questionnaires and parenting practices suggest that most practices are similar, the living conditions and marginalization at community levels are the same. In cases where there are differences, we can make adjustments in future surveys considering the

baseline results. So that, in future surveys, any observed differences in parental behavior and children development would be attributable to the program's effects.

Work team

The institutions collaborating on the impact assessment of Early Childhood Education Program are:

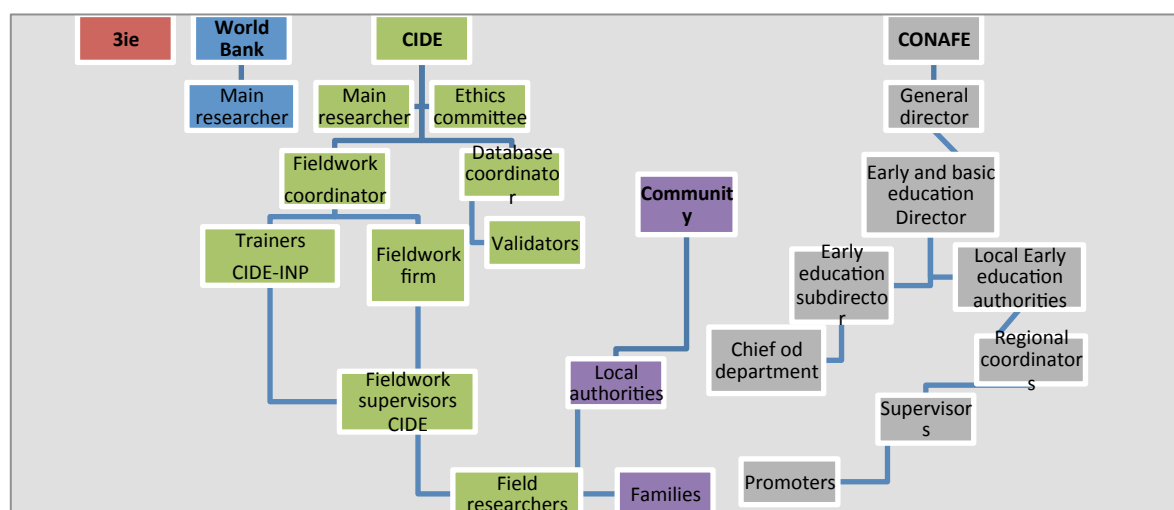
- **World Bank**

Collaboration with the World Bank has been through the contact of David K. Evans, experienced economist in early childhood education projects and expert in the development of impact assessments in African, Central and South American countries, as well as with Peter Holland, specialist in education and coordinator of early childhood education activities in Latin America

- **Educational Promotion National Council (CONAFE)**

CONAFE authorities have supported the project and they have maintained constant communication with CIDE. Their support has facilitated information exchange with state delegations, as well as the chain of operations that implements *ECEP* at local level.

Close collaboration with CONAFE was essential to select community samples. Through this dialogue we obtained information about those communities that have not yet served by *ECEP* at least in the last four years.



1. Project presentation

Since 2011 CIDE and the World Bank developed an impact evaluation in order to estimate the effects of *ECEP* intervention which CONAFE implements. With funding from the International Initiative for Impact Evaluation (3ie), this study aims to generate rigorous evidence useful for decision makers, researchers and policymakers, particularly in education.

Based on an experimental methodology we sought to estimate the program's causal effect between October 2011 and October 2013. CIDE and The World Bank will evaluate the intervention that is implemented by CONAFE.

Collected data is representative of the program's target population: i.e. mothers, fathers, and children from 0-4 years in Puebla, Oaxaca, Veracruz, Chiapas, Mexico and Querétaro. *ECEP* is working with populations with high and very high marginalization, e.g. indigenous and bilingual people usually seated in semi-rural and rural areas.

1.1 Background

There is evidence of the positive impact *ECEP* has in children's development and academic performance (UNESCO, 2010; Barnett, 1996). Research results in various disciplines have shown that children's experiences of 0 to 5 years set the stage for future development of their cognitive, linguistic, emotional, social and behavioral capabilities (UNESCO, 2010, Shonkoff and Phillips, 2000).

Early education also makes children better prepared for the first year of school and increases their likelihood to better perform academically. These positive effects have been observed in various contexts (UNESCO, 2010). Moreover, the effects of an early intervention program in vulnerable populations can be seen decades later, as demonstrated by the longitudinal preschool study High / Scope Perry, who drew benefits to participants and society such as reduced requirements for special education services, increased earnings and reduced crime rates (Barnett, 1996).

Although there have been studies on the effects of various types of childhood education and care, there is no sufficient evidence on the outcomes of interventions focused on parenting practices , specifically from fathers. Although there have been several studies showing that investment in

these programs generate high rates of return for both individuals and governments (UNESCO, 2010; Barnett, 1996), there are no cost-benefit studies in contexts such as the Latin America and Mexico, and less about interventions focused on fathers. This study seeks to address the lack of information in these areas.

1.2 Early Childhood Education Program in Mexico

ECEP aims at populations of high and very high marginalization concentrated in rural and semi-rural areas. It consists of a non-formal education program that provides training to community workers and families for the upbringing of children of 0-4 years, as well as care during pregnancy, in order to promote both the development of children and their school readiness. The intervention includes the introduction of early stimulation practices to promote cognitive development of children and emphasizes the participation of men in the training sessions. The project begins with the training of promoters who run weekly information sessions with parents, caregivers and children through a program based on the development of skills on the following four areas (called curricular axes): care and child protection, personal and social development, language and communication, and exploration and knowledge the medium.

1.3 Impact assessment

3ie has promoted the development of research that generates solid evidence for the design and implementation of large-scale public policies that contribute to improving the quality of life of the population.

According to the World Bank,

Impact assessments are a particular type of evaluation that seeks to answer questions of cause and effect type. Unlike general evaluations that seek to answer many types of questions, impact assessments are structured around a type of question: What is the impact (or causal effect) of a program to a particular outcome of interest? [...] An impact evaluation seeks to identify changes in the results that can be directly attributed to the program. [...] To be on the possibility of estimating the causal effect or impact of a program on the

results, any method chosen should include a counterfactual, that is, what would have been the outcome for program participants if they had not been part of it? In practice, the impact evaluation requires the evaluator to find a comparison group to estimate what would have happened to beneficiaries without their participation in the program (Gertler et al. 2011, 8).

CIDE, through its Public Administration Department, contributes in generating evidence and rigorous research. Its findings are useful to decision makers and policymakers in formulating initiatives that contribute to improving the quality of life of the most disadvantaged people in our country.

3 Study Research and Development

3.1 Study's objectives

The research questions for this project are:

- What is the impact of early education program in the physical, cognitive and social-emotional in children of 0-4 years?
- What is the impact of early education program on knowledge and behavior of parents of children aged 0-4 years, especially the fathers?
- What is the cost and cost-effectiveness of this community program, which is intended to be low cost but effective, compared to other programs that are currently being evaluated in other places?

3.2 Target population

Participants range around 2000 families in 160 communities. The communities selected for study should have children between 0 and 4 years old including pregnant women. Participating communities must not have received early education services from CONAFE in the four years prior to the period 2011-2012. Through CONAFE data was collected from communities that could expand the service which were around 300. Given its characteristics and feasibility, these

communities are in the states of Chiapas, Querétaro, Puebla and Veracruz, in a first stage, State of Mexico and Oaxaca in a second. They are all located in municipalities with high and very high marginalization.

From the list of 300 communities selected as potential beneficiaries of CONAFE, we selected those that had at least 10 households willing to participate in the study in order to ensure an adequate number of child beneficiaries during the two years of data collection. In addition, information was collected from the National Institute of Statistics and Geography (INEGI) on the conditions of the locations, such as the percentage of children between 0 and 4 years and the level of marginalization of the town to assign pairs with similar characteristics.

3.3 Sample Validation

To validate the sample, two meetings were held in each of the selected states. In the first, we gave a document to supervisors and promoters to fully understand the characteristics of their communities. So that it may validate that randomly selected communities met basic assumptions under which they were chosen by the databases.

Información General de Localidades		
Localidad:	Municipio:	Estado:
Nombre del Supervisor:		
Teléfono:		Correo:
Nombre del Delegado:		Teléfono:
Domicilio:		
Población Total:	Niños de 0 a 4 años:	Número de familias con niños de 0 a 4 años:
Programas operando en la comunidad: Oportunidades [] Otro: [] Seguro Popular [] Educación Inicial []		Medios de transporte mas comunes para llegar a la localidad: Autobús [] Camioneta [] Automóvil [] Bicicleta [] Bestia [] A pie [] Lancha [] Otros []
Infraestructura: Centro Escolar [] Otro: [] Centro de Salud [] Espacios deportivos []		
Distancia en kilómetros desde la cabecera municipal:		
Tiempo de traslado en horas y min. de la cabecera municipal a la localidad:		
¿Se requiere transbordos o bajar en algún paradero en específico?		Sí [] No []
¿Cuáles?		
¿Se realizan Asambleas Comunes?		Sí [] No []
		¿Con qué frecuencia?
Horarios de transporte de ida: Costo:		Horarios de transporte de regreso: Costo:
Instituciones de Salud: IMSS [] SSA [] DIF []		Servicios en la localidad: Luz [] Otro: [] Agua [] Drenaje [] Teléfono []
¿Se posibilita la entrevista domiciliaria o en algún lugar común?		
Domiciliaria []		Otro lugar (especificar)
Observaciones y comentarios:		

Based on the collected data and the review and validation meetings with CONAFE local staff, it was possible to note that not all of the sample communities were eligible to remain in the study. Identified families were asked if they were really interested in participating, if the town had the minimum of 10 families with children between 0 and 3 and a half years to perform the lift, if they had received some early education program in the last four years or the adjoining town with another to offer the service. These requirements were defined in order to avoid contamination of the sample, especially when the evaluation period is extended for a period of two years. When applying this new filter, the sample was reduced to 130 locations, from which was obtained more accurate information on each.

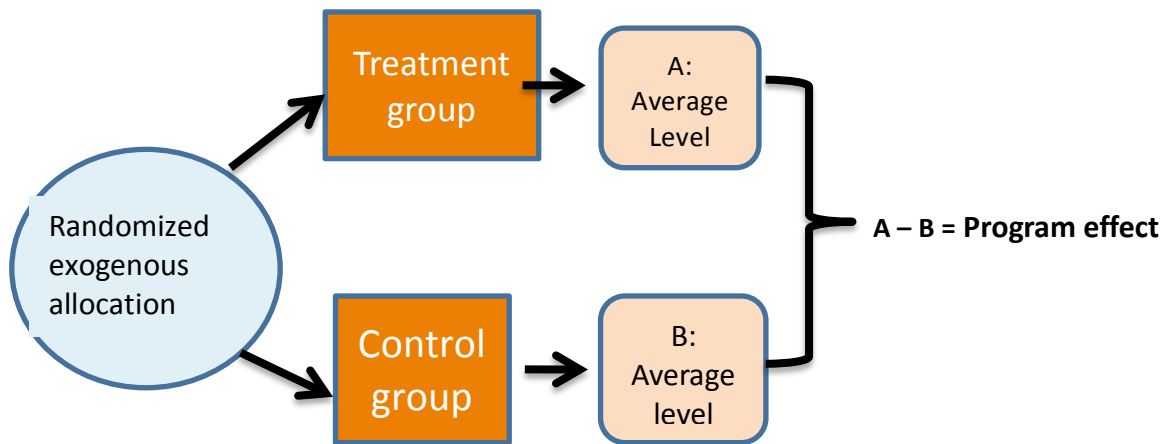
For the selection of the sample, originally considered using a random system in which each potential community, within 6 states selected for the study, had the same probability of being

selected. However, given the low number of observation units in the sample and in order to increase the statistical power of the study and possible sources of error decrease was decided a non-probabilistic sample units pairing. Since it is possible that in a random sampling with few observations, the characteristics of other variables that may be influencing the effect is distributed so that it is they who explain this effect rather than the intervention itself, it was decided to "match up" localities to obtain the experimental groups which will be similar the specific variables of interest for the study. The goal is to obtain pair-treatment control units that are not significantly different in the variables that can influence the outcome and the only difference is the presence or absence of treatment, in this case, the presence of early education program.

In an ideal pairing, group units have identical values of the variables of interest, which rarely happens. So that, the procedure is to minimize the differences between groups for each variable. To achieve this, we used a matching method, which consists in calculate scores based on observable characteristics and thus find a group of beneficiaries of the program (treatment) with a comparable group of non-beneficiaries (control). Each control unit-treatment will be the one with the score (propensity score) closest of these (matching). Thus, the final composition is fairly homogeneous groups in terms of baseline characteristics or pre intervention.

Variable	Source
Level of margination	CONAPO
Total population	INEGI
Population 0-3 years	INEGI
Population older than 3 years	INEGI
Population older than 3 years that speaks an indigenous language	INEGI
Illiterate population of 15 years and older	INEGI
Population of 15 years and older without scholarship	INEGI
Population of 15 years and older with incomplete primary education	INEGI
Population of 15 years and older with completed primary education	INEGI
Population of 15 years and older with incomplete secondary education	INEGI
Population of 15 years and older with complete secondary education	INEGI
Economically active population	INEGI
Economically inactive population	INEGI
Occupied population	INEGI
Unoccupied population	INEGI
Social Security environmental-right population	INEGI
Social Security non environmental-right population	INEGI
Total households number	INEGI
Habitable households	INEGI
Particular households	INEGI
Habited particular households	INEGI
Particular household occupants	INEGI
Mean of particular household occupants	INEGI
Habited particular households with steady floor	INEGI
Habited particular households with dirt floor	INEGI
Locality's size	INEGI
Random assignment between zero and one	Propio

Once the probability values were obtained for each locality, the allocation to treatment and control groups followed the minimum differences criteria. Thus, the average characteristics of the localities in both groups are equal in statistical terms, so that differences in the average performance of children in the treatment group can only be attributed to the effects of early education program.



During the writing of this report, 104 communities remain in the study. The main reason for which localities were removed from the selection of the sample at the end of the first survey was the presence of less than 10 local families that met the requirements to remain in the study. It was also necessary to suspend the uprising in some localities because they posed a risk to field researchers. Finally, a locality was removed from the study because of the presence of a parallel program of early education, which was driven by the state government, so it was not possible to estimate the impact of the program of interest.

4 Activities

The evaluation activities carried out in this research include:

1. Sample design, definition of treatment and control groups using databases provided by CONAFE.
2. Design tools for collecting data from participants. The instrument design was based on an analysis of existing literature as well as the documentation provided by CONAFE.
3. Pre-piloting instruments in a sample of communities.
4. Managing the participation of indigenous language interpreters when necessary.
5. Data collection to establish a baseline with the indicators of interest and hiring a firm to collect information. CIDE is in charge of the training of interviewers, who were to communities and conducted the interviews either in the centers where the program is offered or in the homes of the participants (parents / caregivers).
6. Monitoring data collection in June 2013 and 2014.

Assignment	Date
I. Sample Identification	
1) Integrate databases to identify potential universe	July 2011
2) First simple	July 2011
3) First sample review	July 2011
4) Preliminary sample definition	August 2011
5) Communities validated by state authorities	September 2011
6) Final sample and definition of treatment and comparison groups	September 2011
II. Assessment instruments	
1) Questionnaires	
a) Identification of home item (INEGI included)	July 2011
b) Validation of participation in the program	July 2011
c) Identification of child development item	
Cognitive	July 2011
Behavior	July 2011
Anthropometry / Oportunidades	July 2011
Parents practices	July 2011
Mother TVIP	July 2011
d) Item Review of child development and parental practices	July 2011
e) Supervisor item	July 2011
f) Preliminary Module Delivery	July 2011
g) Integrating questionnaires	July 2011
h) Questionnaires approval meeting	July 2011
i) Final questionnaire	September 2011
2) Pilot	
a) Pre pilot	October 2011
b) Pilot	October 2011
3) Indigenous languages	
a) Identify languages in sample populations	September 2011
c) Hiring interpreters	October 2011
III. Documents for independent ethics committee	
1) Questionnaires	August 2011
2) Informed consent forms	August 2012
a) Fathers / Caregivers	
b) Pregnant women	August 2013
3) Final Application Protocol	September 2011
4) Document delivery	September 2011
IV. Training	
1) Interviewers	January 2011
2) Promoters	January 2011
V. Sensitization sessions (treatment and comparison groups)	
1) Supervisors training	October 2011- January 2012

2) Promotion (information) and self-diagnostic (caregivers sample)	October2011-January 2012
VI. Baseline data collection	
1) Promoters	march 2012
2) Fathers	march 2012
3) Children	march 2012
4) Supervisors	march 2012
VII. CONAFE workshops in communities (self-diagnostic included)	march 2012
<p>*CONAFE activities cycle normally starts every year in October. However, given starting conditions, as the incorporation of new communities, resources for staffing and materials came delayed. Thus, data collection was made at the same time the start of sessions.</p>	
VIII. Making observations	
1) Workshop to define issues, questions and methods. Define 2012 work plan.	april 2012
IX. Collecting monitoring data	
1) First monitoring	april-may 2013
2) Second monitoring	October 2013
XI. Diffusion and review of assessment seminar	
1) Identify and disseminate aspects to strengthen intervention	february 2013

5 Evaluation instruments: Design and development / selection, translation and adaptation.

During the summer of 2011, questionnaires were designed to capture the context in which the child develops. Thus, three models were drawn, whose application depends on the role played by the interviewee, "male parent", "caregiver", "pregnant", and one for home conditions of the children (called "home").

These instruments are used to collect quantitative and qualitative information on each of the sample localities. (Most of the information to be collected is quantitative.) Questionnaires contain two types of questions: closed and open.

The processes for the designed and construction of the instruments were different in all cases. In the "home", "caregivers", "pregnant women" and "fathers" questionnaires there was a phase of

design and development of instruments, but, in the case of the “caregivers” questionnaire, beyond the item designed by CIDE’s team, the contents of the “home” test were contemplated, which is the test broadly used for evaluating upbringing practices, the reason why a phase of translation took place.

The selection and constructions of the instrument to gauge the children’s cognitive and motor developments consisted in a more complex process, because different options that could capture the topics of interest were evaluated. The instrument chosen by consensus between CIDE and the World Bank was Ages & Stages Questionnaire (ASQ). This was built by researchers at the University of Oregon, which is recognized by various organizations, including the American Academy of Neurology, the Child Neurology Society or the First Sings, like a high quality instrument for the detection of the strengths and weaknesses of social and emotional development in children. The choice of this questionnaire involved getting the materials needed for the application. Thus, it delivered a package of educational materials to each field worker who conducted the interviews (approximately thirty packages).

Home, caregivers, fathers and pregnant women questionnaires had two versions: one for treatment communities and another one for the comparison ones. The reactions of both instruments are identical except for some startup questions. Specifically, the comparison questionnaires omit references to participation in Early Education Program. Participants should not have access about the group they do not belong to (either treatment or comparison).

Treatment questionnaires were applied in communities that receive CONAFE service. Comparison questionnaires were applied in communities that will not receive the service. Ages & Stages Questionnaire is applied identically in all communities, whether to treatment or comparison.

Below are the objectives of each instrument as well as sections that integrate them.

- Home questionnaire: To capture demographic and contextual information about the children’s household. The number of Home questionnaires depended on total applied caregivers and pregnant women, and in the case of the comparison group, of those that eventually would. However, the maximum number of Home questionnaires for each community applied should not exceed 20.

<i>Sections</i>	<i>Number of items Treatment</i>	<i>Number de items Comparison</i>
Home members general data	8	8
Household characteristics	14	14

- Caregivers' questionnaire: This instrument is used to capture parenting practices that primary caregivers perform, as well as to explore their beliefs about how best to care for children. In many cases, the primary caregiver is the mother, but in others, this responsibility falls to a different family member, like grandmothers, sisters, fathers or other male members.

It was important to fully identify the primary caregiver before applying the survey (family members who spend more time on this activity and assume such responsibility, including certain decisions in this regard). The number of evaluations of this type per household depends on the number of caregivers caring initial education sessions or, in the case of the comparison group, which eventually would, but never exceed the number of three per household. The instrument has a section for children between 0 and 35 months, and another for children between 36 and 42 months.

<i>Sections</i>	<i>Number of items Treatment</i>	<i>Number of items Comparison</i>
General data and relationship with the children	3	3
Approach to Early Education program	4	6
Participation in other programs	4	4
Parenting practices	30	30

- Pregnant women's questionnaire: Aims to identify the practices, attitudes and beliefs of pregnant women attending or intending to attend early education sessions. This component represents a smaller proportion compared to the rest. In general, we expected minimum number of instruments to apply to pregnant women. The survey has specific information for pregnant women, as household information to which it belongs.

<i>Sections</i>	<i>Number of items Treatment</i>	<i>Number of items comparison</i>
Personal and household members general data	6	6
Approach to Early Education Program	5	6
Households characteristics	14	14
Participation in other programs	4	4
Pregnancy practices	10	10
Attitudes and beliefs	4	4
Expectations on educational attainment	3	3

- Fathers' questionnaire: Aims to detect the conditions of participation of fathers in the care and education of their children. On special occasions, the male parent may also be primary caregiver, so that he could engage in different early education sessions (children, parents and caregivers). In these cases the interviewer should apply as many questionnaires as roles of the father.

<i>Sections</i>	<i>Number of items Treatment</i>	<i>Number of items Comparison</i>
General data	3	3
Approach to Early Education Program	3	3
Parenting practices	4	4
Social behavior	2	2
Expectations on educational attainment	2	2

- Supervisors' and promoters' questionnaire: Used for work experiences of these educational figures, around early education program.

<i>Sections</i>	<i>Number of items Promoters</i>	<i>Number of items Supervisors</i>
General data	6	6
Schooling	2	2
Previous labor	5	6
Experience in Early Education	8	12

- **Ages and Stages Questionnaire:** These assessment tools are designed to collect information on cognitive development and behavior of children. One of the advantages of the ASQ over other options is that it can be applied by anyone with experience in the child care; i.e. parents or caregivers themselves can administer the questionnaire. In addition, the test is flexible to monitor the skills expected in children, depending on their age. An additional advantage is that this instrument is a version applicable to Spanish-speaking contexts.

The questionnaire is different depending on the specific age at which the child is two, four, six, eight, ten, twelve, fourteen, sixteen, eighteen, twenty, twenty-two, twenty-four, twenty-seven, thirty, thirty-three, thirty-six, or forty-two months old. There is no significant difference regarding the number of item of each instrument. The number of evaluations of this type per household depends on the number of children attending preschool sessions or, in the case of the comparison group, that eventually would be done, but that never would surpass the number of three per visited home. The questionnaire was applied directly to children, with support of the principal caregiver.

<i>Sections</i>	<i>Number of items</i>
Communication	6
Gross motor	6
Fine motor	6
Problem resolution	6
Social – Individual	6

6 Indigenous Languages

According to the population's characteristics by interview, particularly in the case of Chiapas and Oaxaca, it was necessary to identify those communities in which most or part of the population spoke an indigenous language interview. Thus, at a later stage, performers were hired to conduct the interviews, along with field investigators hired by the Mexican Organization of Translators and Interpreters, A. C.

In Chiapas, the main languages used were Tzotzil, Tzeltal and Chol, with two variations in the case of Tzeltal, so the support of diverse interpreters was necessary. In the case of Oaxaca, the languages found in certain communities were Mazatec (three variants), Zapotec and Mixtec.

Chiapas	Oaxaca
Tzotzil	Northwestern Mixtec
Tzeltal	Mazatec
<ul style="list-style-type: none">• Western• Northern• Southern	<ul style="list-style-type: none">• Dam• Southwest• Eloxochitlan
Chol	Sierra Zapotec

7 Geography

Given the size of the states visited, validation meetings were also an essential part in designing the routes of survey, so that the field research teams could meet in time the data collection.



The states and the number of locations (treatment and control) that make up the sample for the impact assessment are as follows:

State	Number of localities (Treatment)	Number of localities (Comparison)
Puebla	4	5
Veracruz	10	8
Chiapas	8	8
Querétaro	7	10
Mexico	17	18
Oaxaca	4	5
Total	50	54

8 Comparison between “Early Education” curriculum and assessment instruments

To show the relevance of the impact assessment, the guiding principles of the curriculum of the program will be reviewed, in order to identify convergences between them and the elements captured by the instruments used for the collection of information.

Thus, the following tables present the components that direct the pedagogical intervention "Education" and how the questionnaires attempt to capture these components.

	Objective
Care and protection	Encourage free-risk environment to promote the healthy development of the child
Social and personal development	Develop a sense of belonging, identity and autonomy
Language and communication	Develop diverse ways of communicative expressions and languages (visual, musical, graph, plastic and corporal)
Exploration and environment knowledge	Recognize and use available resources in child's context. Understand his environment

Now, observing the sections comprising ASQ questionnaires is possible to notice that some of them are aligned with the axes of the program.

Early Education curricular axis	ASQ sections
Care and protection	
Social and personal development	"Social-Individual", captures child's skills to realize activities alone and with other children with toys Captura la capacidad del niño para realizar actividades de manera solitaria y actividades con juguetes y otros niños o personas.
Language and communication	"Communication", capture babbling, vocalizing, ability to listen and understand instructions.
Exploration and environment knowledge	
	"Gross Motor", focus on arms, legs and body movements "Fine Motor", assess hands and fingers movements "Problem Resolution", captures child's ability to resolve problems according the age

In the previous table it can be noted that some of the guiding principles of the curriculum of "Education" are not captured by the components of the ASQ ("Care and Protection" and "Exploration and environment knowledge"). However, as will be seen in the following table, these items are collected by the context questionnaires also used for this evaluation. Another point to note is that axes not contemplate some factors ("Gross Motor", "Fine Motor", "Troubleshooting") that the ASQ is designed to collect to assess cognitive and motor development of children.

Early Education curricular axis	Home Questionnaire	Caregivers Questionnaire	Pregnant women Qestionnaire	Father Questionnaire	Promoter and supervisor Questionnaire
Care and protection		Parenting practices	Pregnant practices	Parenting practices	
Exploration and environment knowledge	Household characteristics		Attitudes and beliefs	Social behavior	Available materials for sessions (environment and didactic)

It is possible to observe that the instruments used in the first survey are designed to capture the pillars supporting CONAFE's intervention. The congruence between the objectives and components of the program and the instruments that aim to assess their impact is fundamental to this research. For questionnaires that will be used in follow-up surveys will take care to maintain the connection.

9 Pre-pilot and pilot

The pre-piloting stage was developed in two ways. The first one was through the application of questionnaires among CIDE team members to detect application sequence, identification of question jumps and correction of instructions. The second stage was concluded with CONAFE; it was the opportunity to attend a community that was not part of the sample, but that will feature similar characteristics to conduct interviews with questions about more complex content designed instruments, in order to adaptations of language and context (see Annex interview format).

9.1 Pilot

From October to November 2011 the piloting of instruments was conducted. Questionnaires focused on child development were translated and tested. At this stage, we required support from CONAFE in Hidalgo and Chiapas to go to communities with similar characteristics to those found in the sample. All instruments were applied to families and children in the municipalities of Acaxochitlán and Tenango de Doria, both developed by CIDE, because most of them had not been used before in Mexico. We applied about 100 pilot questionnaires.

10 Ethics Committee documents

Once the instruments were designed, we developed the research protocol and the necessary documentation for the ethics committee. The protocol was approved by the ethics committee of CIDE. As a prerequisite for beginning the assessment, we delivered to the committee all the questionnaires, as well as informed consent forms from parents and pregnant women

11 Training

Due to the complexity of the instruments and the interest of CIDE in maintaining the design during the implementation, we developed a manual for field researchers, and were trained in four sessions of eight hours over the course of four days. In the first session the researchers were given an introduction to the objectives of the project and it was supported by two researchers from the National Institute of Perinatology, who trained 20 field investigators for the ASQ assessment application.

In the second day we worked on the recognition of the questionnaires home and family and practiced applying full battery of instruments between the same field researchers, and talked about the protocols to be followed at all times, always attached to the codes of ethics established and identified in the letters of consent. This point is particularly important because a large number of communities are governed by customs and traditions.

In the third day we visited a community that did not belong to the sample so that the researchers knew the characteristics of the population and make application prior to the interviews in the selected states. Such tests were carried out in the states of Querétaro, Chiapas and Mexico.

In order to avoid sample contamination and the faithful implementation of the evaluation design, sensitization meetings were conducted with supervisors and promoters in the states, who explained how they should inform families about their participation, identifying potential beneficiaries of the program to form the listings parents, as well as their accompanying role when it carried out the survey.

These meetings discussed issues such as the length of the instruments and it was agreed with supervisors and promoters to deliver printed thanks to participating families at the end of the interview.

12 Interviews

The survey was done in the second week of March 2012 (Chiapas, Veracruz, Puebla and Queretaro) and the second week of October 2012 (Mexico and Oaxaca). The lack of state resources to start the program in new communities was one of the main challenges to overcome. The second and perhaps greatest challenge was the making of the final lists of beneficiaries in order to begin the visits to the communities. The states' Information systems in many cases are poor and we had to work together to create solid databases to allow data lifting..

At this stage, CIDE staff remained in constant communication with the field researchers. We monitored state supervisors, field researchers, field researchers and their route design and distribution by state and community. We gave instructions to those groups working with indigenous language interpreters to follow the dynamic, ever vigilant to respect the space, customs and traditions of the families.

12.1 CIDE monitoring

During the course of data lifting, CIDE sent six field supervisors to accompany the work of interviewers, to observe the development interviews and answer questions that arise about the application, and to identify and correct errors. Supervisors posted by CIDE were of great help, to the extent that they also supported the clarification of doubts of the community authorities and supervisors. CIDE staff reported any incident to the city staff.

As an interview quality control element, families were asked permission to be recorded during the interviews, and about two hundred audio recordings were compiled, among which we have several bilingual interviews recorded in Chiapas.

The geography and distance between towns and communities in all states represented challenges well taken care of. Accompanying to CONAFE supervisors and promoters, it was fundamental that selected families agree to be interviewed. The data lifting began in the state of Chiapas, with timely monitored communities, especially those requiring the support of interpreters.

The main incidents were due to difficulties in access to visited communities: the distance between them, the lack of roads and access to public and private transport, and the distance between the municipal capitals and the localities. Moving could take 30 minutes from the capital of a state up to eight hours commute.

13 Final numbers

In the first collection of data we conducted 2,683 interviews with 1,260 households in 104 localities. The breakdown by state is presented in the following table:

State	Households	Interviews	Localities
Chiapas	158	363	16
Veracruz	206	431	18
Puebla	83	175	9
Queretaro	246	479	17
Mexico	472	1027	35
Oaxaca	95	208	9
Total	1,260	2,683	104

13.1 Interviews to supervisors and promoters

The tools for developers and supervisors of the first stage were applied in subsequent meetings. CIDE team collected this data, which seems relevant because the information could be captured on the roles, challenges and development of educational figures during the program and in their communities.

14 Capture and validation

Finally the capture step and validation was done in two stages; the first one in charge of the firm hired to collect data, and the second one in charge of CIDE's staff monitored by the responsible for the project's database.

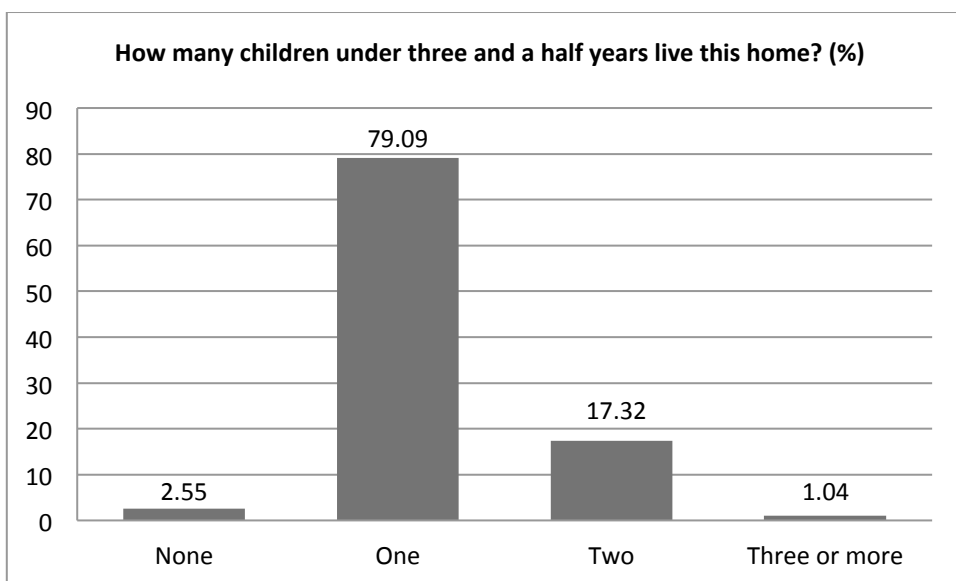
15 Baseline results

The results of this section are intended to show the conditions of the interviewed households. The fact that communities were selected with more than 10 households willing to participate and with children in the age to be benefited by the program, caused that the average population is higher to the average of the locations assisted by CONAFE. Thus, it is expected that the physical conditions and infrastructure are better than those of smaller and remoter towns that are not subject of this evaluation. However, household composition and practices of parenting should be similar to the rest of the target population.

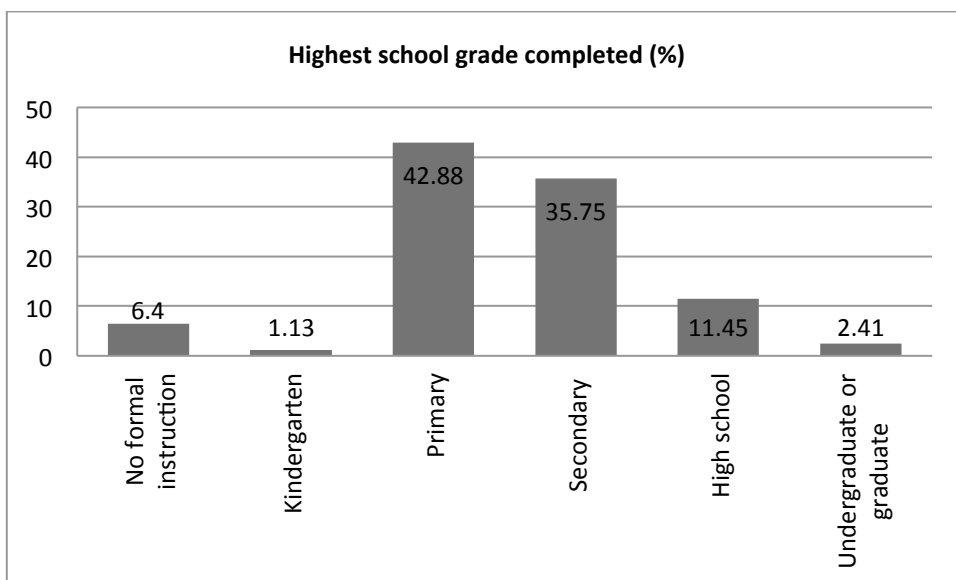
15.1 Home results

A home is defined as all persons living in the same household and sharing the same income to meet their needs. The sample households on average consist of five members, including the child, parents, siblings and other relatives. The distribution of children in the household is presented in the following graph. Almost 80% of the households have a child old enough to be a beneficiary of the program, 17% have two children and only 1% have three or more of them. The non-

responding households have younger children (2.5%) correspond to the cases where the mother is in her first pregnancy.



The last grade level completed by household members over 18 years is the measure of human capital of the family. We found that nearly 80% of the members have elementary education, while 6% did not have any instruction. 11% of the members have high school education and only 2.4% have bachelor's degree or higher education.

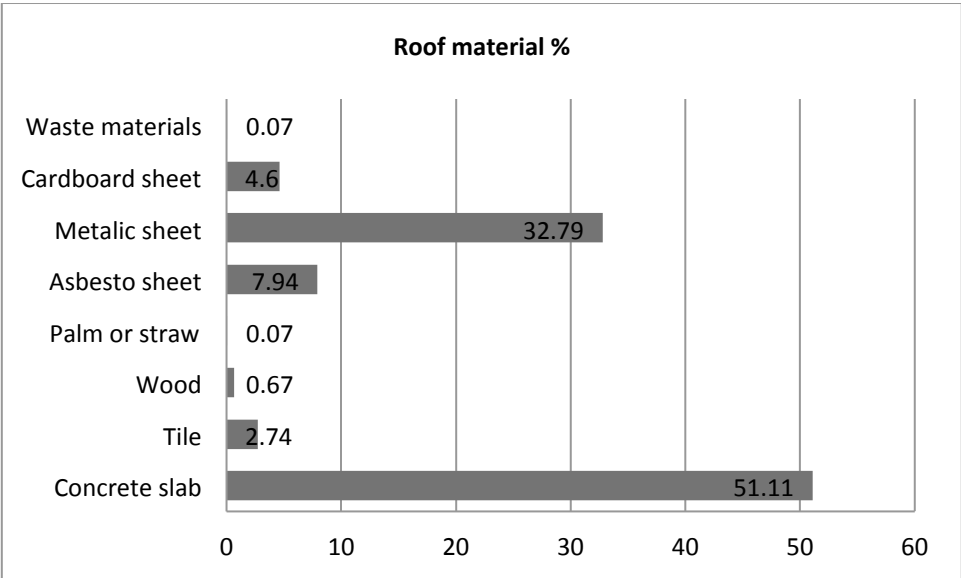


To capture the marginal conditions of households we asked about the home building materials and access to basic services. On average, households in the sample have three rooms, including

the kitchen. Households where there were 2 or 3 bedrooms accounted for just over half of the sample. Of these, the average rooms used mainly for sleeping is 1.7% and more than 80% is concentrated in one or two rooms, suggesting the need to share sleeping spaces and even overcrowding in households with more members.

Regarding the soil conditions of homes, about 80% said it was made of cement, another 10% said it was dirt and the rest belonged to other coatings, such as wood or tile. The high percentage of solid floor can be partly explained by the presence of a federal program dedicated to building floor in highly marginalized municipalities. However, the percentage of households with dirt floors will be greater in the smaller and remote towns far away from urban centers.

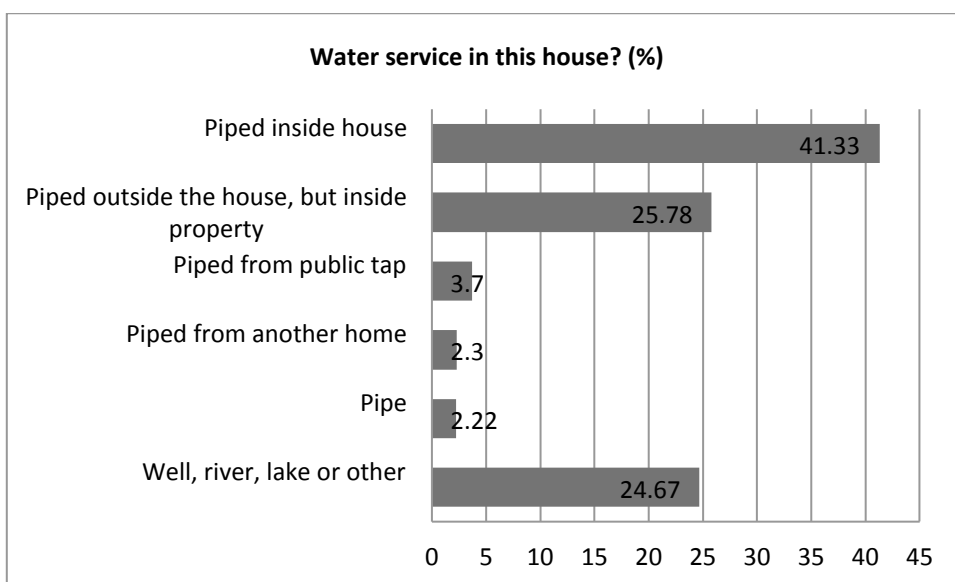
Regarding the walls materials, almost three quarters of the households responded that they are made of brick, stone or quarry, another 14% were wooden walls, 7%were adobe walls and the remaining 3% were less durable and insulating materials, such as cardboard or sheet metal, palm, bamboo or waste materials. Regarding roofs materials, conditions are less favorable and they reflect more faithfully the type of community in which the program works. Just over half had concrete ceiling or joist firm while almost a third of households have sheet metal, 8% of households had asbestos sheet. Another 8%had other materials such as cardboard sheet, tile, wood or palm.



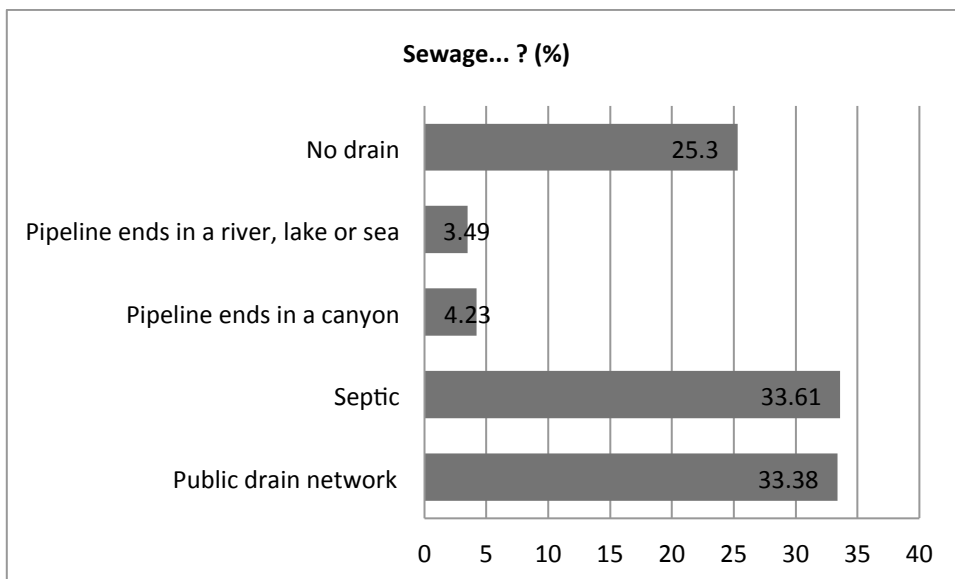
Access to basic services is another way to assess the condition of homes, as the costs of provision are very different as well as the potential for households to benefit from them. First, access to

electricity is almost universal, as 93% of households reported having service in the seven days preceding the interview for at least three hours a day. 3.75% of respondents replied that they had access to it for four days or less and, and 1.5% had no service at all.

Regarding to the provision of drinking water, two-thirds of households had piped water on the property where they live, whether in the house (41%) or outside of it, e.g. the yard (25%). A quarter of households is supplied by a natural spring nearby, such as rivers, lakes or streams and the remaining 8% used pipes to carry it to another house or a public key.



The distribution of households by type of drainage is presented in the following graph. 90% of households reported having some mechanism to manage their waste, as toilets, latrine or black holes. However major differences were in the final disposition thereof. Since the public sewer is the service with the highest cost, it is also the one with less coverage: only a third of the interviewed households connected to the public network, while another third had a septic tank. The remaining third was facing a serious problem of health by managing their waste: 25% do not have any drainage, and only 8% had connection that leads to a stream or gully. Despite the efforts of local authorities, the poor infrastructure conditions of these locations will result in health problems of infants and, therefore, lower than expected performance.



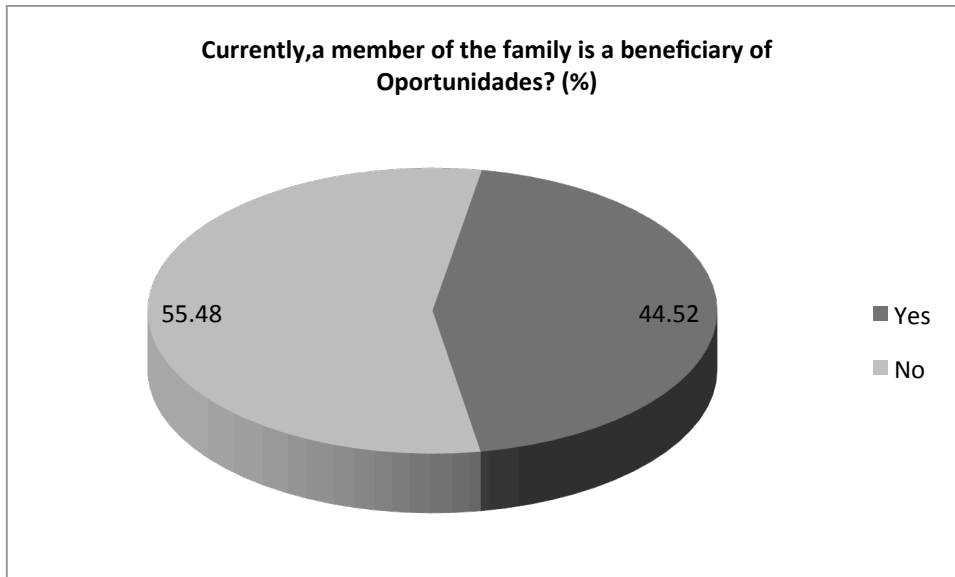
Due to the unreliability of reactions directly looking to meet people's income, as households in high poverty localities often have non-monetary income, respondents were asked if they have a range of goods. In this way, we can approach the level of household welfare regardless of the infrastructure of the town. Thus, we find that 68% of households had a gas stove, but only 20% of them had a water heater. 23%% of households had a car. Travel to urban areas became more complicated. Regarding access to information and communication technologies data scored poorly, like use of devices such as phones (50%), telephone (10%), computer (5%) or internet (2%).

15.2 Caregivers results

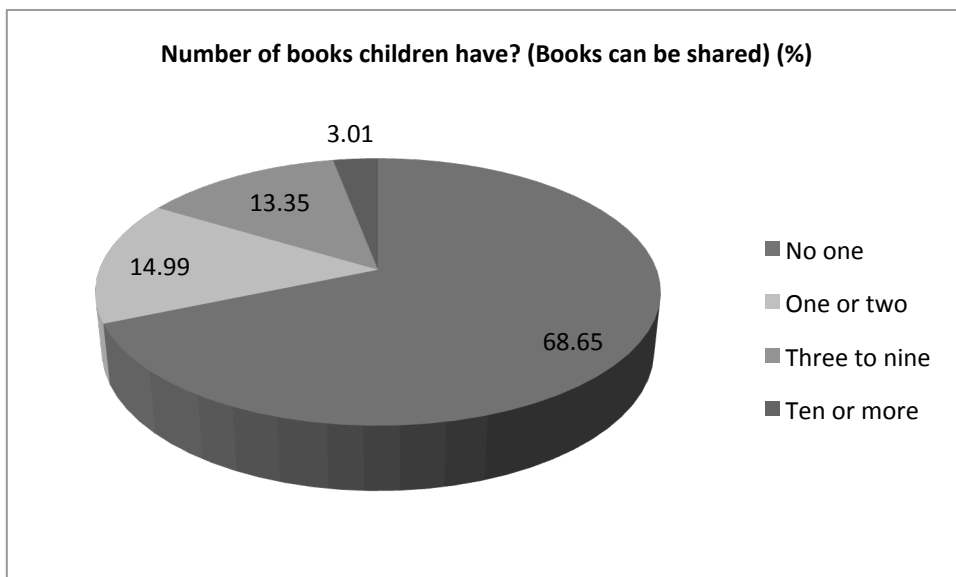
After identifying the main conditions of a home, primary caregiver was identified: mainly children's mothers (91%), and to a lesser extent, grandparents (5%) and other relatives, such as father or siblings. Three-quarters of caregivers (73%) reported that they were the only person responsible for a child's care, while the remaining respondents mentioned one or more secondary caregivers. Regarding household composition, 85% of children had a father and mother living in the same place, while 15% did not.

To determine the degree of homes' protection, we asked respondents whether any household member was the beneficiary of a number of federal programs: just under half (45%) of households received resources from *Oportunidades*. In the case of *Seguro Popular*, coverage was slightly

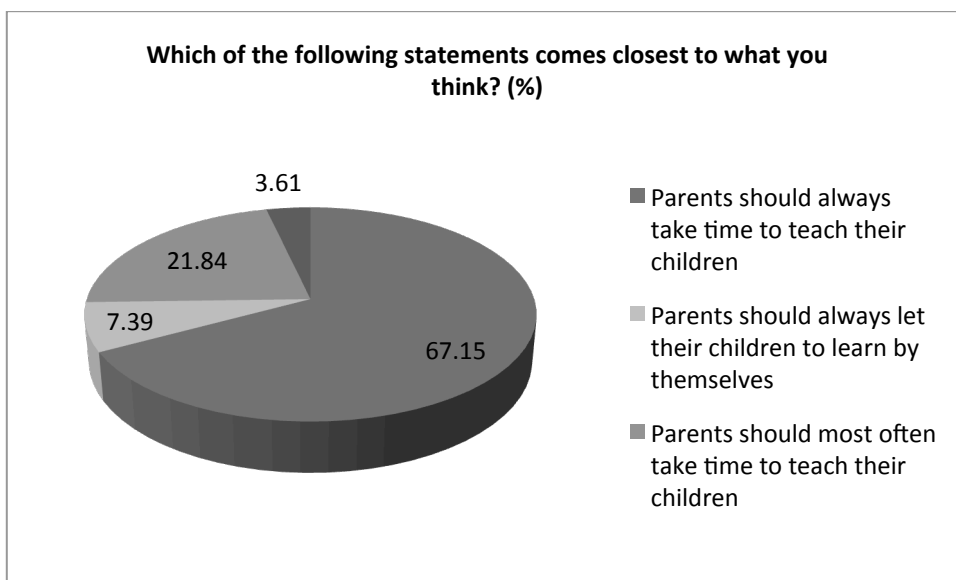
higher (60%). Other programs such as *Procampo* have much less coverage, suggesting a significant shortage of public resources to help alleviate the conditions of marginalization of these locations. It was also investigated whether households received resources from household members or relatives who resided elsewhere, e.g. if the father worked in any city in the country or abroad. It was found that 6% of caregivers said they receive resources from people living in the country, while 3% do from people living abroad.



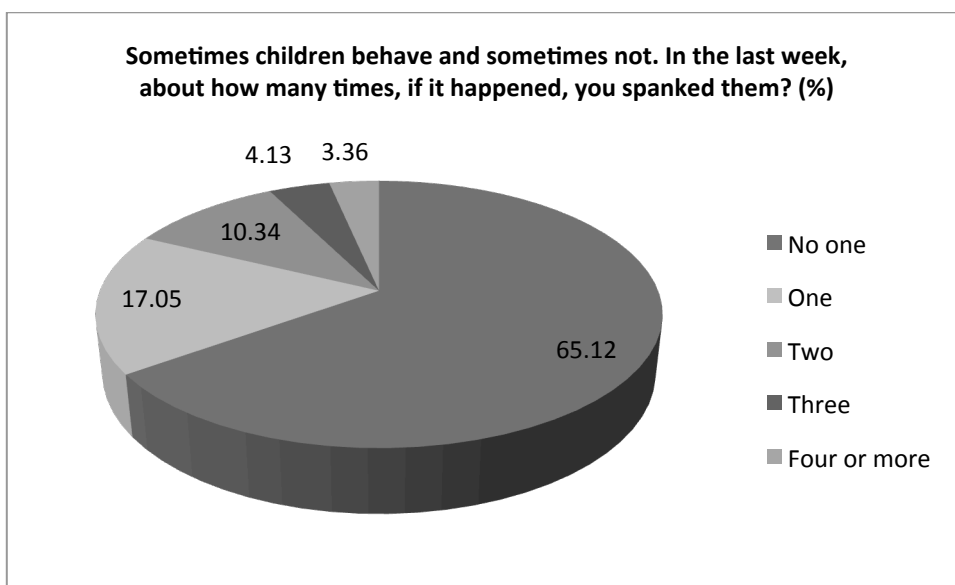
Regarding parenting practices of the primary caregiver, we obtained information on the number of children's books available for the child. Just over two-thirds of caregivers (68%) responded that they have no children's book, 15% said they had one or two books for the lower and 16% say they have more than three. Obviously, the availability of teaching materials depends largely on household resources, so they caught other dimensions of child rearing. For example, the frequency with which the caregiver reads or tells stories to child: one-third said never do, 21% suggested that do once a month or less, 22% do so once a week, 11% say do it three times a week and almost 10% usually do it every day. This suggests that, beyond available resources, an important part of caregivers has not acquired the habit of communicating with the child for recreation or education.



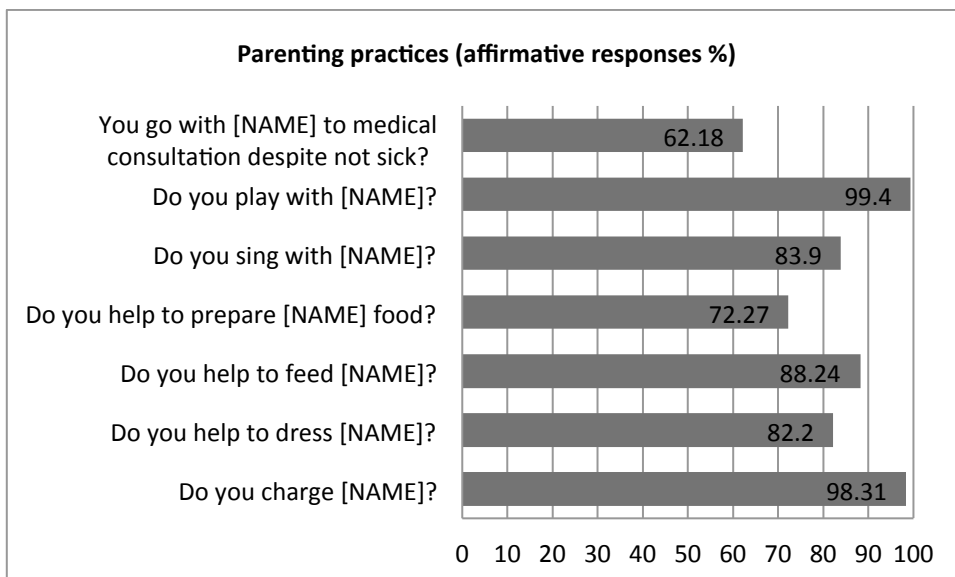
Caregivers were asked how much time should be devoted to teaching children as a measure of the closeness with which they must monitor the child's development. Nearly 90% of respondents suggested that the best thing is to spend time teaching children either always or most of the time. Only 10% felt that the best for the development of children is that they learn for themselves. At first glance, it appears that caregivers have a genuine concern for the development of their children and, by combining the information with the above reaction, a major constraint is the financial resources and information to get the materials needed to provide better attention to minor of age, which is why CONAFE intervention in this population becomes especially relevant.



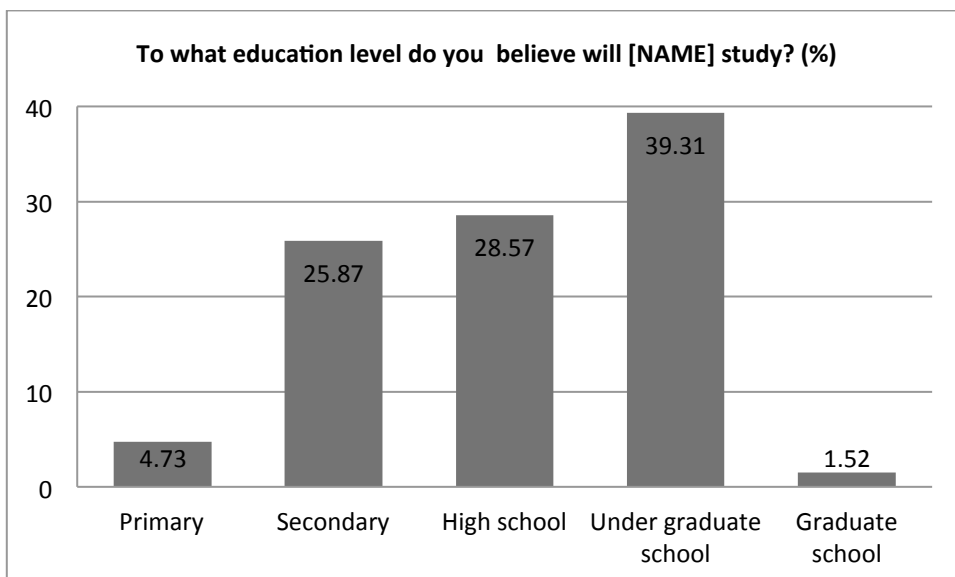
To capture the caretakers' tendency to discipline their children through physical means, it was asked how many times they had to spank their children to correct them. 65% of respondents say they have never used this resource, while 17% say they used it once. The remaining 18% spanked their children on two or more occasions in the week prior to the interview. Importantly, the percentage of caregivers who claimed to have never spanked the children may be overestimated, because of the caregivers' perception that any other answer could be badly judged by the researchers. To minimize this effect, it was stressed during the training of the researchers that they should not pass judgment or recommendation to the caregivers.



The study also captures everyday parenting practices in order to have a more accurate picture of the habits of the caregiver, as the graph below shows the percentage of positive responses from caregivers. Almost all caregivers perform simple tasks like carrying the child or playing with him, while activities that questioned the male parent involvement, such as preparing food or clothing have a lower percentage of positive answers. The low percentage of how often the caregiver takes their children to the doctor may be due to the low coverage of medical services in remote locations, as well as the costs of transport, consultations, and medicines taken, especially in homes that do not have access to *Seguro Popular*.

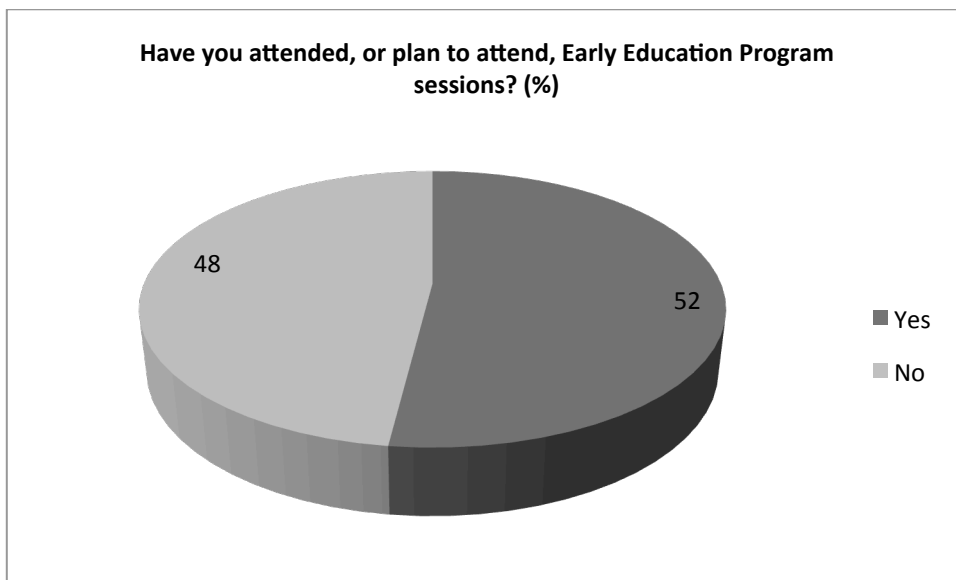


In most cases the primary caregiver is also the mother of the child. It is particularly important to know the expectations she had about her child's school achievement, because the evidence suggests that they may be an important predictor of achievement (UNDP, 2010). We can observe that expectations are quite high: 30% of caregivers expect their children to achieve some level of basic education. A similar percentage expected to reach the lower school education and 40% expected to reach an undergraduate or graduate education.



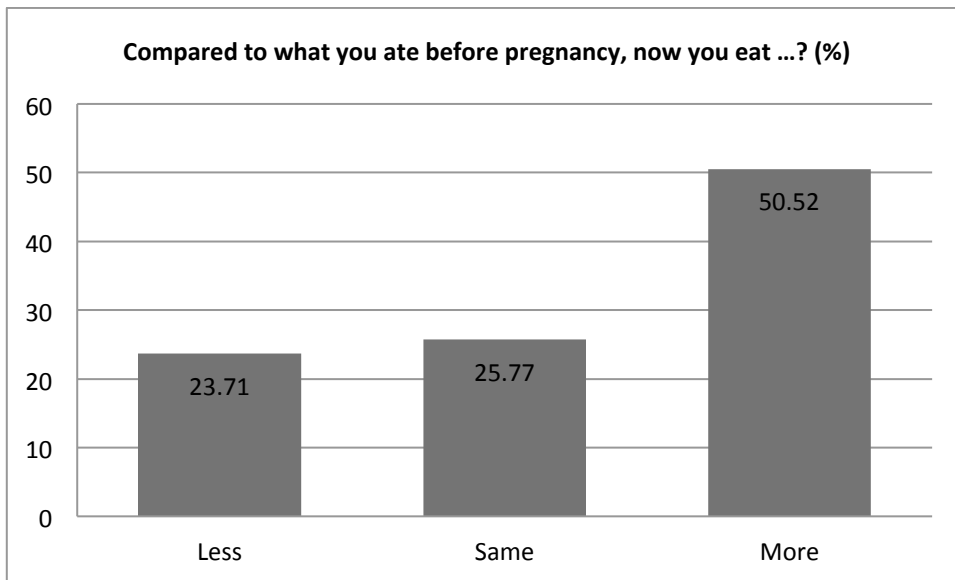
15.3 Pregnant women results

8% of the households interviewed had one or more pregnant women. These women were asked about their habits and the effects that pregnancy had. Only 15% of respondents were in their first pregnancy, whereas the remaining 85% have had at least one earlier. Among the latter, the average time since the last pregnancy was just over three years. Just over half (52%) have attended preschool sessions or plan to do it in the event that the program reaches its locality.



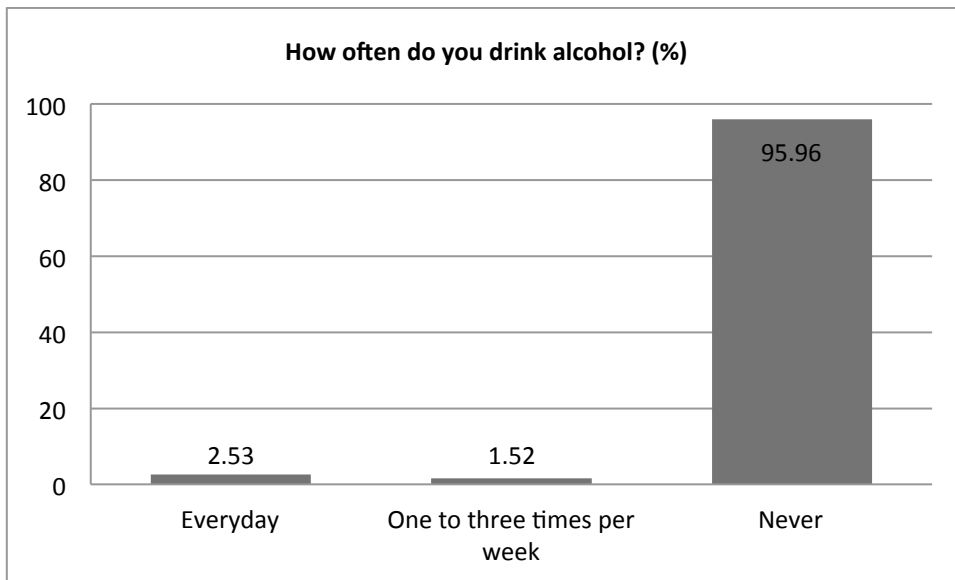
Regarding the health care pregnant women received during the time of the interviews, the number of times they attended medical visits was included. 4% of them did not have visited medical care during their months of pregnancy, while the rest did have at least one time; the mode was 5 visits and the average was 4.5. It was also asked if the baby's father had been present at any of them. 32% of the women said no and 65% said he had been present in at least one visit.

In terms of consumer habits, it was asked if they had change the type of food and the amount ingested, and compared to the pre-pregnancy period. 27% said they have changed the type of food consumed, while the remaining 73% did not. The diet changes are as follows: 50% said they eat more, while 25% said they eat the same while 23% said they eat less.



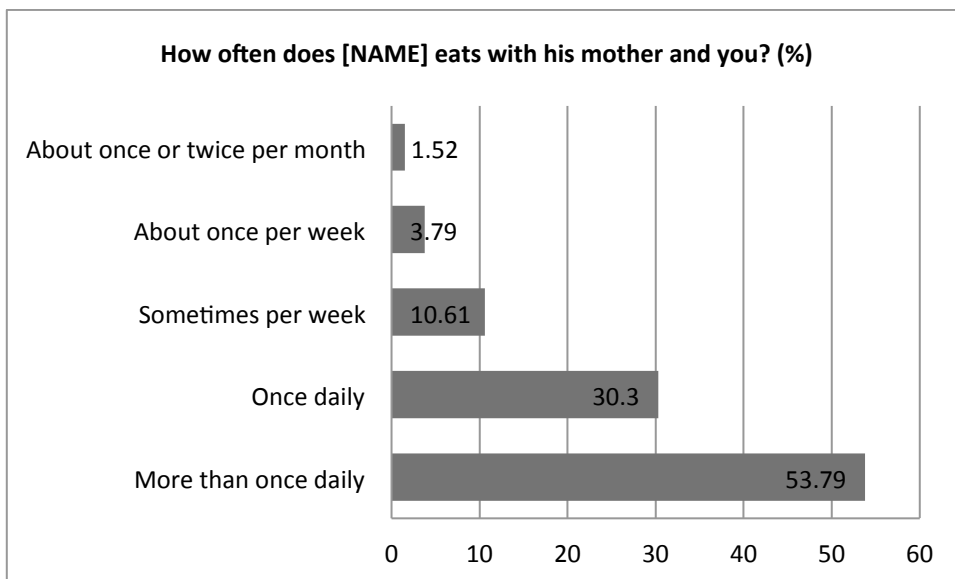
The habits of pregnant women also included other appropriate attitudes and behaviors for the baby's healthy development. The frequency with which the woman drinks alcohol of any type was asked: 96% said they never do, 1.5% said they do once to three times a week while 2.5% said they do so daily. Regarding cigarette consumption, 96% said they do not smoke while 4% said they do once to three times a week.

Regarding their will to breast feeding the baby once born, 97% said they will do it while only 3% said they did not intend to do it. Among those who answered that they will breast feed their babies, the average number of months they thought they should do it was 11.5, while the most common cases were 6 and 12 months.



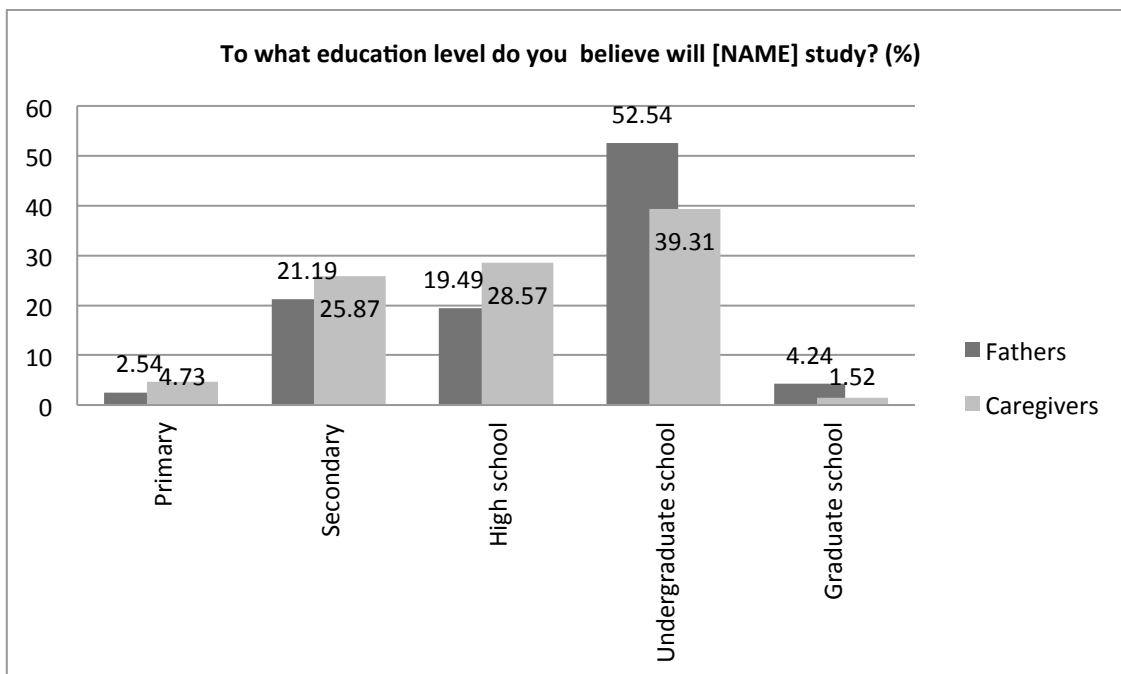
15.4 Fathers results

Finally we included a specific questionnaire for fathers in order to identify their parenting practices, as fathers tend to distance themselves from this parenting process. First, it was asked how often did the child eat with both parents: 84% said they eat with their child at least once a day, 10% said they do it a few times a week while the remaining 5% did it once a week or less. Again, the cases in which the father is closer may be overrepresented by parents' perception of what is expected of them to respond. Something similar happens in the questions regarding activities in which they engage, like helping to prepare their children's food (72% said they do), feeding him (88% said they do) or dressing him (82% said they do).



We obtained information about the way the father relates to other people, how he behaves at the home, and how he talks about tough issues. 11% said they smoke, whether indoors or outside, 95% of said they often talk to their families to solve everyday problems, 84% are looking to talk to someone in moments when they feel sad, while just 55% do so when angry. Regarding money administration, almost half of parents said they have money problems, while just over a third of them (37%) said the issue does not require consulting it with other household members.

As mentioned in the caregivers' section, mothers' expectations on their children's school achievement are a good predictor of future school performance. However, according to the Human Development Report (UNDP, 2010), parents' expectations of their children's educational achievements are usually more important when reaching higher levels, as they are usually the ones who make the greatest contribution to the household economy, and they are those who can support their children to continue studying. Therefore, it is noteworthy that, compared with the caregivers' reaction questionnaire, fathers have higher expectations: 30% of caregivers (which is almost always the mother) believes that the child will achieve basic education, while 23% of fathers estimated to reach this level. 28% of caregivers believed that their children will reach school education, while only 20% of fathers believe this will be the achievement of their children. Finally, 41% of caregivers considered that their children will come to higher education, in contrast with 57% of fathers who shared this expectation of achievement.

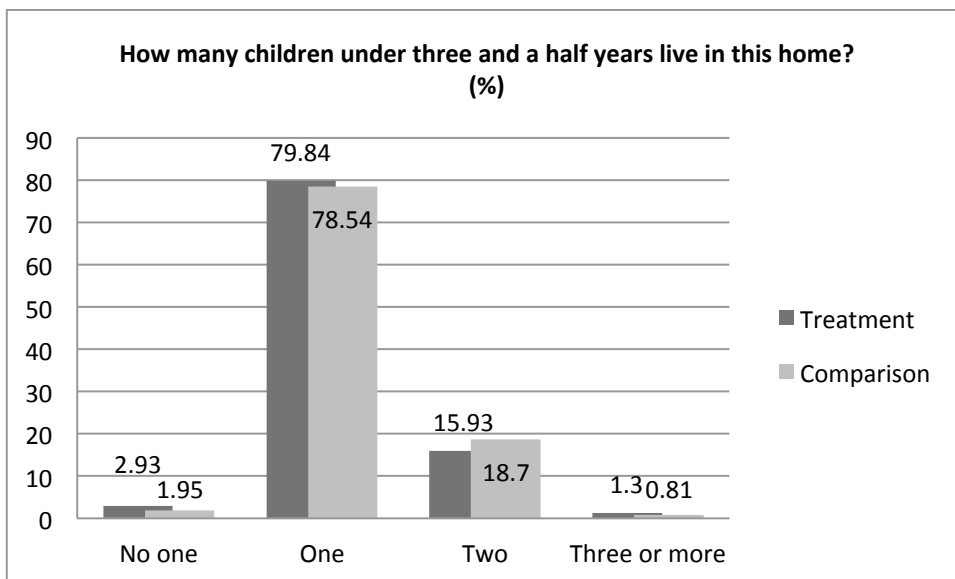


16 Equilibrium between treatment and control groups

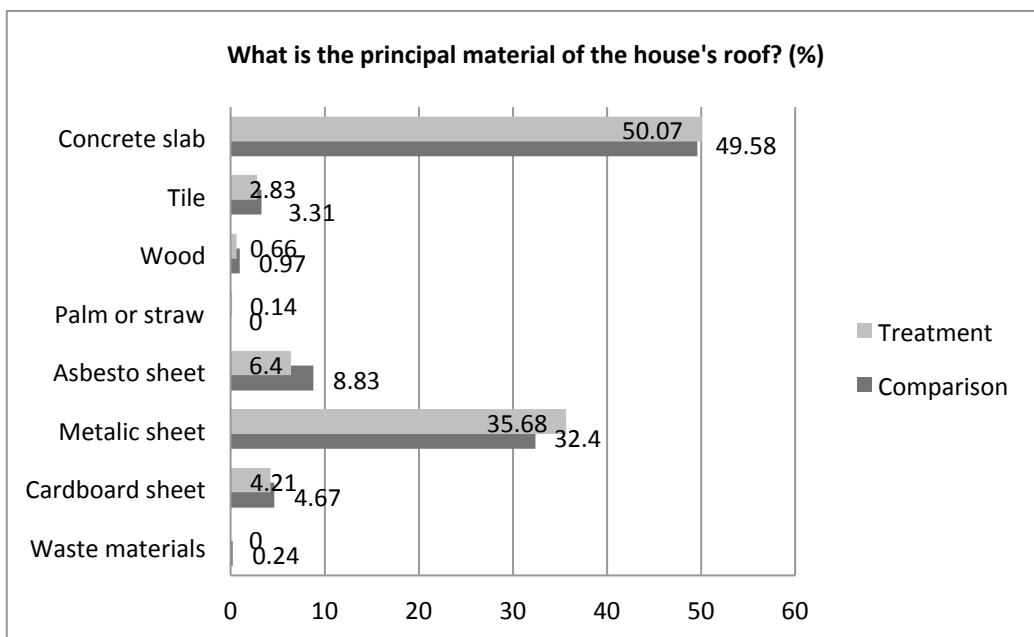
16.1 Home

As mentioned above, localities were randomly assigned to treatment and control groups, and then pairs were formed of localities in each group, so that each location had a similar treatment control group. In this pair assignment it was sought that localities were as similar as possible to each other based on a series of exogenous variables of interest to the study, so that any difference in the performance of children at the conclusion of the study would be attributable to the initial education program. In this section we show that, indeed, the conditions of treatment households are similar to those of the control groups. At the end of each subsection is a table with the differences between groups of the important questions of each questionnaire.

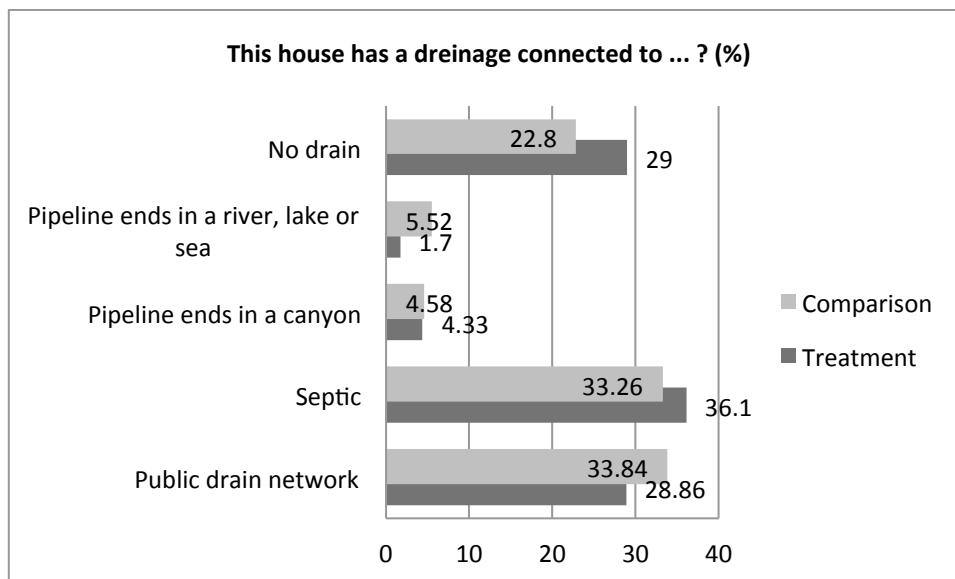
In terms of household composition, treatment group members have a higher average (6.1) than the comparison group (5.4), a result significant at 1%. Also, households have an average participation slightly higher under three years and a half, although the difference in the number of children who attend the preschool sessions are not significant. In the rest of the variables, like the number of pregnant and members who can read and write, the differences are not significant.



With regard to home conditions, the construction materials of walls and ceilings, as well as the total number of rooms, are not relevant. However, participation household conditions on the floors' material are more favorable than those of comparison households, although the results are significant only with a 90% confidence interval.

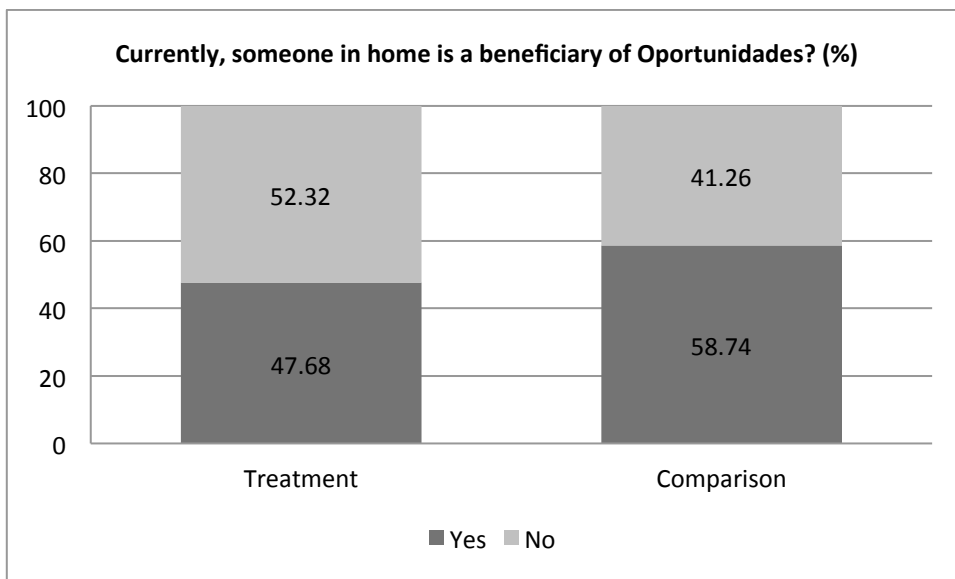


In contrast, drinking water supply seems to favor comparison households, with a 95% confidence interval. The results are similar for drainage conditions.



On the households' welfare conditions, both groups had similar percentages of assets ownership like gas stove, water heater, car, internet, phone, refrigerator or television. Only two significant differences were presented at the 10%: treatment households have a higher proportion of coal stoves and light meters.

Regarding Oportunidades program coverage in these locations, there is a small difference in favor of the treatment towns, as 47% of these households reported that at least a member is beneficiary, versus 41% of comparison households. The difference is significant with a 99% confidence interval. However, the rest of programs do not show significant differences, as in the case of *Seguro Popular* (58% of comparison households are beneficiaries, and 59% of participation households), Procampo (5% comparison households and participation households 6%) and scholarships (9% of the comparison groups and participation groups 8%). In terms of individual remittances, either within or outside the country, no important differences were reported.



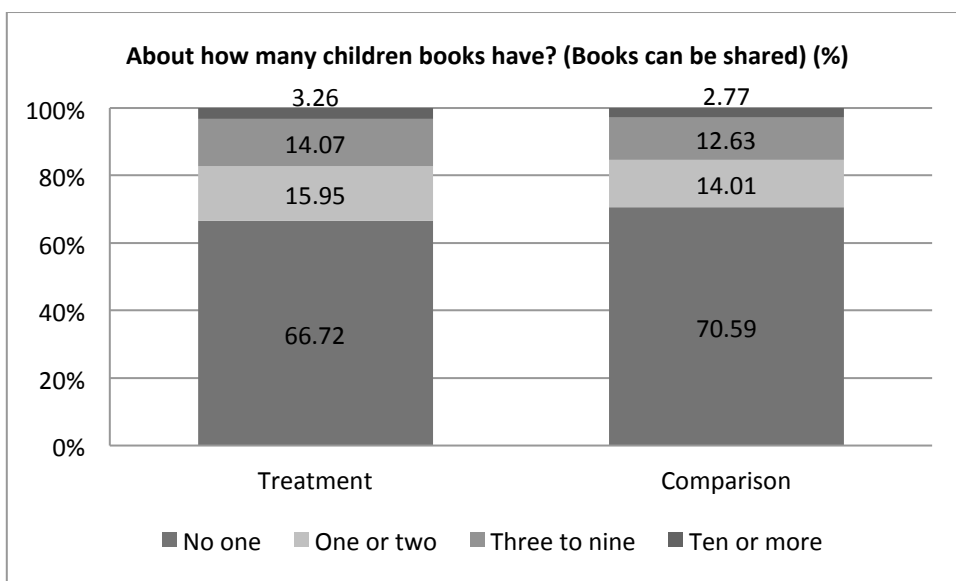
Below are the averages of most important variables of the questionnaire and compared between groups. The table contains two types of variables: continuous and dichotomous. The differences are simple arithmetic extracted and significance was obtained by a linear regression in which the dependent variable is the treatment or control group. Continuous variables, by their nature, are not difficult to obtain and interpret this difference between groups. For dichotomous variables, such as possession of goods, take the value of 1 if the answer is yes and 2 when negative. Thus, the average represents the percentage of negative responses, for example, 30.1 percent of respondents in the comparison group said they do not have a gas stove, compared to 33.55 percent of group participation. Since the percentages also behave as a continuous, difference and its interpretation does not pose problems.

	Comparison	Treatment	Difference
Children under three and a half years old	1.2030	1.2365	0.0336***
Children who will assist to Early Education sessions	1.1734	1.1776	0.0042
Pregnant women	0.0767	0.0816	0.0049
Home memebbers	5.4328	6.1506	0.7178***
Home members who spkeak spanish	1.1230	1.1228	0.0002
Literate home members	1.8997	1.8996	0.0001
Household conditions			
Total romos	3.0100	3.0532	0.0431
Sleeping romos	1.6003	1.7554	0.1551***
Days with electricity	6.8669	6.8763	0.0094
Goods			
Gas stove	1.3010	1.3355	0.0345
Carbon stove	1.4499	1.3943	0.0556*
Water tank	1.5168	1.5316	0.0148
Water heater	1.7936	1.8106	0.0170
Cistern	1.8468	1.8638	0.0170
Shower cabin	1.7282	1.7637	0.0355
Electricity meter	1.2295	1.1860	0.0434*
Car	1.7542	1.7874	0.0332
Internet	1.9715	1.9800	0.0085
Computer	1.9447	1.9617	0.0170
Landline	1.9125	1.8987	0.0138
Cellular pone	1.4916	1.5083	0.0167
Washing machine	1.6689	1.6750	0.0061
Refrigerator	1.4783	1.4775	0.0007
Television	1.1522	1.1611	0.0090
Radio	1.3735	1.3804	0.0069

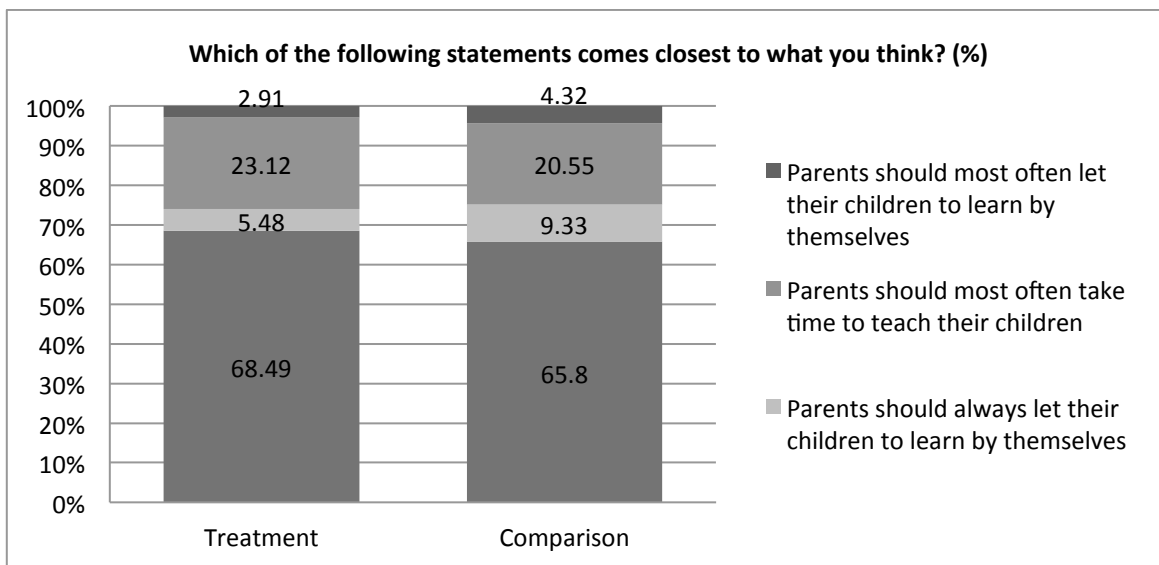
16.2 Caregivers

The household available resources in a child's upbringing also have very similar distributions between groups. 70% of comparison households do not have children's books, compared to 66% of the participation group. However, participation group caregivers said they read or tell stories to their children more often than those of comparison group, with a 99% confidence interval. These

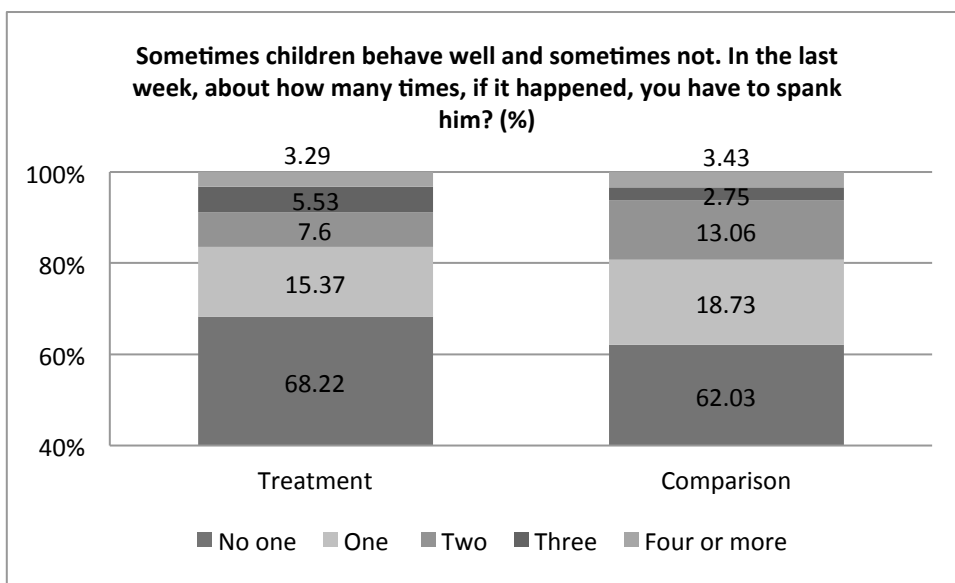
results are constant among children between 0 and 36 months old, and between 36 and 42 months old.



Caregivers' rearing practices, as expected, did not show significant differences between groups: 65% of respondents in the comparison groups said it is best to always take the time to teach their children, compared with 68% of caregivers of treatment groups, a 3% point difference that is not significant. In terms of household composition, we find that treatment households with children of 36 to 42 months old have a higher percentage of both parents living together, significant at the 5% confidence interval. In the same age group, the comparison group caregivers have better breeding practices as allowing their children to choose their food or take them to places of historical or cultural interest, both significant at the 95% confidence interval.



Below is the number of times that caregivers resorted to beating their children to correct them. For comparison households, 68% say it has never been done, while 62% of treatment household caregivers share the same answer. The difference between groups is a 6% points, although not statistically significant.



The other parenting practices, such as the frequency with which the male parent and the child eat together, or support the child to learn colors and shapes, or the caregiver's disposition to talk with the child when busy, presents no significant differences between groups. The same applies to the expectations of educational attainment, health status of the child and intends to enroll in preschool.

	Comparison	Treatment	Difference
Child age	1.2942	1.3175	0.0233
Residence time in the community	17.4288	18.3641	0.9353

How did you find Early Education Program?

Informative meeting	1.7649	1.7898	0.0249
Local authorities	1.8622	1.8803	0.0181
CONAFE staff invitation	1.5018	1.2749	0.2269***
Mobile broadcast	2.2790	1.9575	0.3215
Flyers and posters	1.9607	1.9520	0.0087

Attendance (or plan to assist) to Early Education sessions	1.7799	1.3676	0.4122***
Second caregiver	1.2796	1.2492	0.0304
Oportunidades beneficiaries	1.6000	1.5237	0.0763***
Seguro Popular beneficiaries	1.4150	1.4029	0.0121
Procampo beneficiaries	1.9440	1.9345	0.0095
School grants beneficiaries	1.9112	1.9232	0.0120
Elderly programs beneficiaries	1.9556	1.9493	0.0063
Financial support of people in Mexico	1.9656	1.9690	0.0033
Financial support of people outside Mexico	1.9378	1.9394	0.0016

0 to 36 months

Children's books	1.4820	1.5430	0.0610
Caregiver tell stories	2.5208	2.9218	0.4009***
Soft toys	2.8232	2.8484	0.0252
Pull toys	1.7992	1.8795	0.0803
Both parents live together	1.1499	1.1565	0.0066
Frequency with which the child eats with his father	2.0600	2.1449	0.0849
Frequency with which the caregiver talks with the child when busy	1.7879	1.8815	0.0936
Child's emotional closeness to his father	1.7235	1.7476	0.0241
Child's emotional closeness to his mother	1.2008	1.1832	0.0176
Spanking	0.6515	0.7323	0.0808

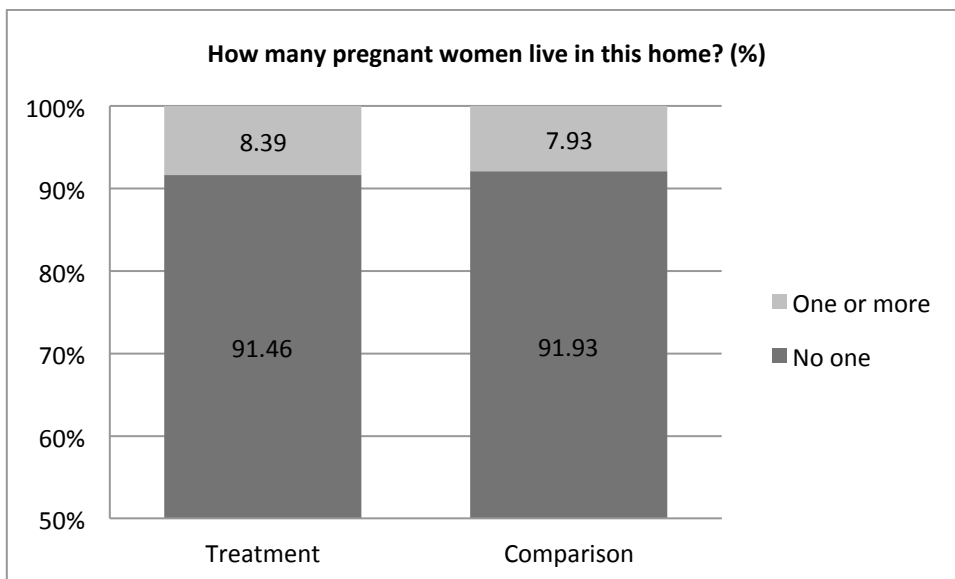
36 to 42 months

Children's books	1.7500	1.8444	0.0944
Caregiver tell stories	2.6627	3.2955	0.6328***
Magazines	2.0250	2.1023	0.0773
Music device	1.5823	1.5568	0.0255
Caregiver help the child to learn	1.1500	1.1591	0.0091

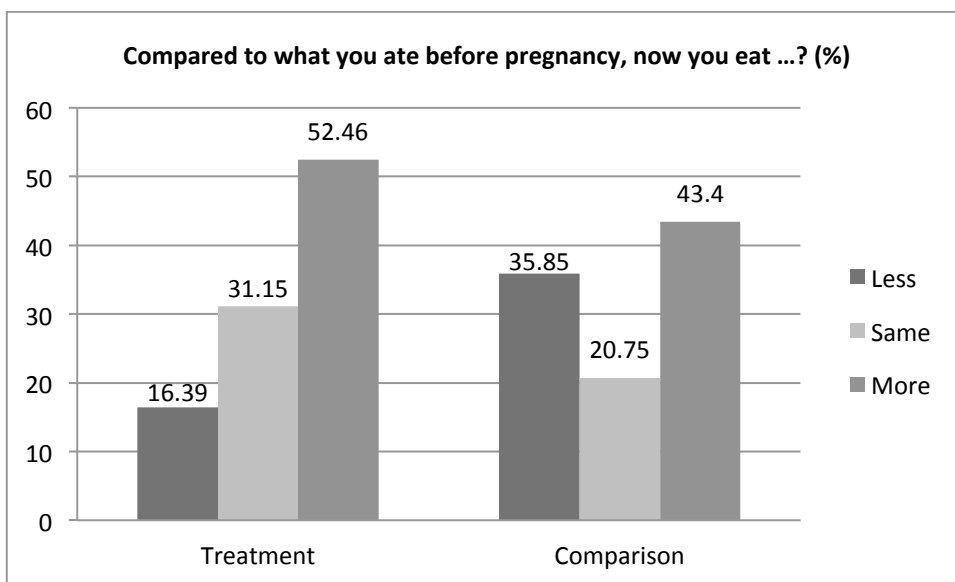
numbers			
Caregiver help the child to learn letters	1.1875	1.1705	0.0170
Caregiver help the child to learn colors	1.1500	1.1932	0.0432
Caregiver help the child to learn shapes and sizes	1.3375	1.2791	0.0584
The child chooses what to eat	2.3625	2.7159	0.3534**
Visits to museums or historic places	1.5625	1.2614	0.3011**
Both parents live together	1.1882	1.0778	0.1105**
Frequency with which the child eats with his father	2.2716	2.0795	0.1921
Frequency with which the caregiver talks with the child when busy	1.9277	1.9000	0.0277
Child's emotional closeness to his father	1.6296	1.5795	0.0501
Child's emotional closeness to his mother	1.2593	1.1136	0.1456**
Spanking	1.0952	1.1124	0.0171
Parenting practices			
Medical consultation	1.4918	1.4796	0.0122
Play with the children	1.0575	1.0425	0.0150
Sing with the children	1.2414	1.2137	0.0277
Musical instrument	1.6382	1.6324	0.0058
Child illness	1.5623	1.5204	0.0419
Expectations of educational attainment	3.1036	3.0370	0.0665
Kindergarten enrollment	1.0082	1.0147	0.0065

16.3 Pregnant women

The distribution of pregnant women and their habits does not change between groups: the number of household members, education levels and housing construction materials do not yield relevant differences. About 8% of households had one or more pregnant women; of these, the comparison group had 13% of pregnant women in their first pregnancy, compared to 18% of pregnant women in participation group, although the difference is not significant.



Regarding the care they have taken during pregnancy, pregnant women in comparison groups reported an average of 4.27 doctor visits, while the treatment groups did 4.43 visits. Risk behaviors also exhibit similar behavior: 87% of pregnant women in comparison group have never taken drugs that were not prescribed, while 90% in the treatment group did. Almost all of the interviewees said that they have never consumed alcohol. Regarding eating habits, 83% of treatment group eat the same or more during their pregnancy, while in the comparison group this response lowers to 64%, although the difference is not statistically significant. There is a similar case for food-specific reactions, such as eggs, meat or vegetables consumption.

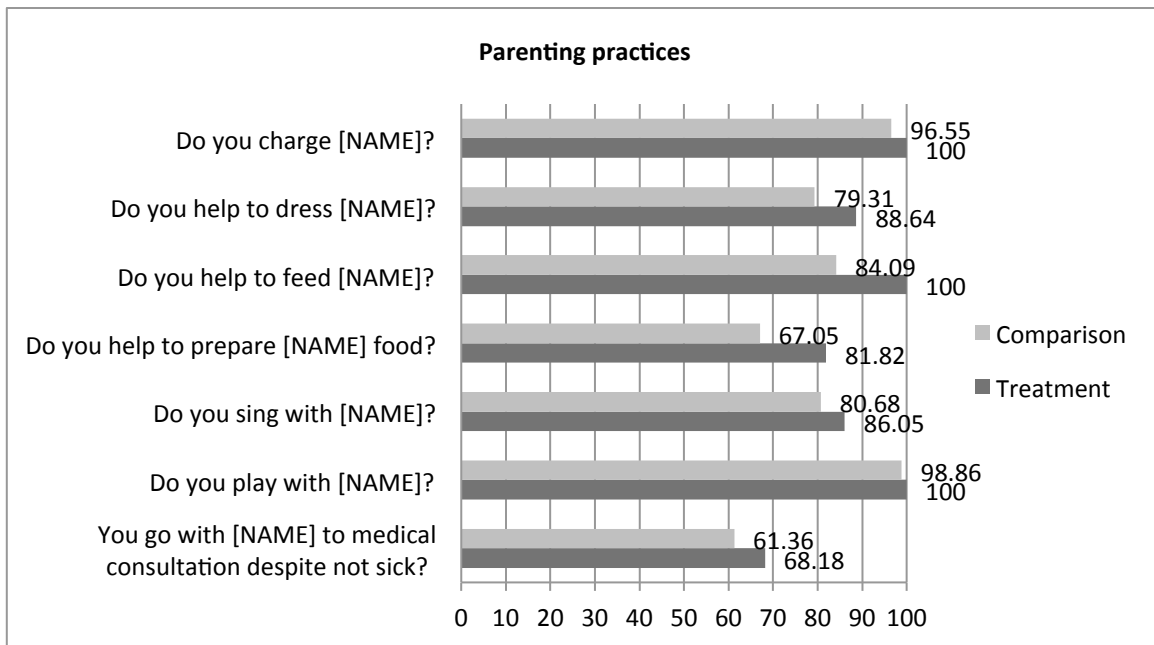


The opinion of the respondents about breastfeeding also behaves very similar between groups: 98% of them breastfeed her baby. Of these, those in the comparison group plans to do so for 10.5 months on average, while treatment pregnant women will do it for one more month, although this difference is not significant. The only relevant difference in this questionnaire is the residence time in town, as the participation group has over four years of residence on average, with a confidence interval of 99%.

	Comparison	Treatment	Difference
Home			
Total members	3.870	4.056	0.186
Average age	18.518	20.745	2.227
Literate members	1.646	1.814	0.168
Total rooms	2.583	2.647	0.064
Sleeping romos	1.667	1.353	0.314
Pregnant women			
Residence time in the community	13	17.652	4.652***
Oportunidades beneficiary	1.581	1.563	0.019
Pregnancy months	5.681	5.691	0.010
First pregnancy	1.872	1.818	0.054
Years between pregnancies	2.575	2.227	0.348
Medical consultations	4.277	4.436	0.160
Non prescribed drugs	1.872	1.909	0.037
Phisical changes	1.133	1.212	0.078
Emotional changes	1.214	1.271	0.057
Breastfeeding	1.022	1.019	0.004
Months of breastfeeding	10.488	11.462	0.974
Expectations of educational attainment	3.116	2.942	0.174
Kindergarten enrollment	1.022	1	0.022
Diet			
Changes in food consumption	2.130	2.345	0.115
Eggs	3.170	3.145	0.025
Vegetables	2.574	2.582	0.007
Fruit	2.174	2.091	0.083
Meat	3	3.055	0.055
Alcohol	3.979	3.927	0.051
Coffee	2.723	2.636	0.087
Soda	3.178	2.909	0.269
Cigarettes	3.979	4	0.021

16.4 Fathers

The fathers' conditions are also very similar between groups, although there are some differences in parenting practices. Specifically, all treatment group fathers say they helped feed their children, compared to 83% of the comparison group, significant difference at the 99% confidence interval. Treatment fathers also reported greater links with their children, with a significant result of 1% margin of error. The differences between groups are lower, although it is important to note that, at the time of the interviews, various localities had begun participating in the program.



None of the social behaviors, such as talking with other parents, discuss the allocation of household expenditures, or talk with the couple, presented relevant differences. All parents interviewed said they enrolled their children in kindergarten at 3.8 years of age on average for the two groups. The expectations for the academic achievement of their children also remain constant between groups.

	Comparison	Treatment	Difference
Residence time in the community	23.578	24.944	1.366
Medical consultation	1.373	1.389	0.015
Play with the child	1	1	0
Sing with the child	1.169	1.143	0.026
Help to prepare child's food	1.313	1.194	0.119
Help to feed the child	1.169	1	0.169***
Help to dress the child	1.207	1.111	0.096
Charge the child	1.024	1	0.024
Child's emotional closeness	1.542	1.167	0.376***
Expectations of educational attainment	3.301	3.457	0.156
Kindergarten enrollment	1	1	0

Social behavior

Smoking	1.928	1.861	0.067
Smoke inside home	2	1.714	0.286
Decide home expenses without consultation	1.638	1.657	0.020
Has financial problems	1.568	1.417	0.151
Talk with his family to solve problems	1.061	1	0.061
Talk with his family when feels sad	1.134	1.167	0.033
Talk with his family when feels angry	1.444	1.361	0.083
Alcohol consumption	3.807	3.806	0.002
Discussed with his wife	3.735	3.771	0.036
Talk about his children with other parents	3.084	2.861	0.223

16.5 Ages and Stages Questionnaire 3

Like the instruments described above, performance of minors in ASQ is very similar between the treatment groups and control groups. In most cases the differences are not statistically significant and, in cases where there are differences, they are quite small, so that there are only significant confidence intervals of 10 and 5%. Since questionnaires were applied to 17 age groups, and each of them assesses 5 different areas that cannot be aggregated into an overall rating, this section only presents the results of three age groups by development area as examples from the rest of the questionnaires.

As mentioned in previous sections, ASQ-3 seeks to measure the level of development of the minor on 5 different areas: Communication, Gross Motor, Fine Motor, Problem Resolution and Social

individual skills. Each assessment area consists of six questions with three possible responses: The child is capable of perform the exercise (10 points), Sometimes is capable of perform the exercise (5 points) or Can't do the exercise yet (0 points). Therefore scale of each assessment area is 0 to 60 points.

In general, the results of ASQ were high, considering that the program is aimed at families living in highly marginalized localities. These results also seem high when compared to studies in Latin America, such as Chile (Gómez, et al., 2011) and Ecuador (Handal, et al., 2007). This is due to the way the questionnaire was administered: ASQ-3 is a test designed to assess the child's parents without development expertise, so in principle the interviewer should rely on caregiver's response. However, to control possible upward bias in responses, some questions required that the interviewer was sure that the child really was able to perform the exercise. Data analysis suggests that, indeed, the questions that were answered directly by the caregiver have higher scores than those in which the interviewer made sure that the child was able to perform the activity. For the present purposes, the most important thing is that the comparison and treatment groups behave similarly, as they have few significant differences. At this time we are reviewing assessment alternatives in the application of the questionnaire to reduce bias.

Among children 2 months old, significant differences exist in the exercises that assess gross motor development and problem solving skills. In both cases, the comparison group showed a better performance than its treatment similar, though only for a confidence level of 10%. In the three remaining areas there were not significantly different.

	Treatment	Comparison	Difference	Significance
Communication	43.87	48.18	-4.31	No
Gross motor	47.58	52.58	-5.00	10%
Fine motor	44.35	46.56	-2.21	No
Problem resolution	30.81	37.66	-6.85	10%
Social-individual	47.74	49.70	-1.96	No

The six months old group has no significant differences in any of the five areas of evaluation, although the treatment group has a slightly higher performance in problem-solving and social individual skills.

	Treatment	Comparison	Difference	Significance
--	-----------	------------	------------	--------------

Communication	47.63	47.02	0.61	No
Gross motor	35.79	35.83	-0.04	No
Fine motor	47.63	47.02	0.61	No
Problem resolution	47.00	45.60	1.40	No
Social-individual	45.92	42.74	3.18	No

In contrast, children who belong to the comparison group in the range of 12 months show superior performance in average 6 points compared to their treatment counterparts in fine motor activities, a difference that is significant at the 5%. In the rest of the areas evaluated are not significant differences, although the average scores of the comparison group are slightly higher.

	Treatment	Comparison	Difference	Significance
Communication	48.38	48.82	-0.45	No
Gross motor	38.51	41.62	-3.10	No
Fine motor	37.84	43.85	-6.02	5%
Problem resolution	41.76	42.35	-0.60	No
Social-individual	40.68	44.41	-3.74	No