

Culturally Appropriate Information, Education  
and Communication Strategies for  
Improving Adolescent Reproductive Health  
in Cusco, Peru

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## Executive Summary

The project Culturally Appropriate Information, Education and Communication Strategies for Improving Adolescent Reproductive Health in Cusco, Peru was designed in response to the evident lack of information and education on adolescent reproductive health in the country and, in particular, in the rural areas of the department of Cusco. After analyzing the problems of adolescents in the Andean highlands, where childbearing rates, sexual activity, and induced abortions are on the rise and use of contraception is low, researchers found a demonstrated need for reproductive and sexual health education developed specifically for indigenous adolescents in this region. The Ministry of Education has implemented a Sexual Education Project at the national level, but lamentably, this program does not reach many rural schools. Very few teachers are trained to implement the national project and many do not have the materials necessary to use with their students.

Comunicación Andina conducted an operations research study using a quasi-experimental separate sample pre-test and post-test design. Researchers conducted baseline and endline surveys of indigenous adolescents living in the Quispicanchis and Canchis provinces in the rural areas of the department of Cusco, Peru. The adolescents were third, fourth and fifth year students attending 13 high schools (ninth, tenth, and eleventh grade U.S. equivalent). Participant communities were selected that had a high school and were within the broadcast area of a local radio station. Most of the selected communities were district capitals.

Researchers measured the knowledge and attitudes of adolescents living in the broadcast range of an educational radio series. The radio program was transmitted every weekday for 10 months by a network of five radio stations in the selected communities for a total of 185 programs. Information gathered through the needs assessment in the pre-test provided the framework for the production and development of the radio programs.

Parallel to the radio programs, the research team identified and trained “peer promoters” in each of the schools. Researchers and resource people conducted training workshops for these adolescent leaders to deepen their understanding of many sexual and reproductive health topics and to get information from them about their most relevant problems. The trained adolescents served as promoters of the radio program in their schools and suggested many topics to be developed into radio programs.

The key research instruments designed and implemented by the project team included two surveys to collect general descriptive data about the adolescent sample and information on knowledge, attitudes and practices of sexual and reproductive health. The self-administered, structured questionnaires asked about demographic characteristics, sex and sexuality, parts and functions of the male and female genitals, developmental changes during adolescence, attitudes and behavior related to sexuality, adolescent pregnancy and how to avoid it, consequences of pregnancy for girls, family planning

concepts, and sexually transmitted infections (STIs) and HIV/AIDS transmission and prevention.

The Regional Office of the Ministry of Education in Cusco City authorized the development of this operations research project and collaboration was received from specialized staff.

### **Results**

While questionnaire irregularities make statistical comparisons on specific items difficult, data suggest that following the intervention, students were better able to articulate reproductive health concepts and spontaneously mention reproductive organs, negative consequences of early pregnancy, contraceptive methods and modes of HIV/STI transmission, among others. Anecdotally, parents and students expressed great satisfaction with the radio program and workshops as a source of information and social support, allowing them to raise and discuss difficult issues.

### **Recommendations**

The results of this research effort reveal that a great need for sexual and reproductive health information still exists among indigenous adolescents in the rural areas of the region and that sexual education programs have to be sustainable. The Ministry of Education should train more teachers in sexual and reproductive health topics, taking into account the special characteristics of the rural adolescent population. Appropriate curriculum, methodologies and materials should be developed taking into account cultural and gender differences.

Radio program production and broadcast should be encouraged using community stations that allow transmissions. Educational authorities should promote supplementary sexual education through radio programs during the school period and also during school vacations.

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## **Background**

In many parts of the world, adolescents have been a neglected group largely because of cultural sensitivities and gender disparities regarding sexuality. Adolescents may be reluctant to ask for help from adults in their families, communities, or in professional settings. Girls, in particular, are often kept from learning about sexuality and health issues because of cultural and religious beliefs. Adolescents are not expected to be sexually active before marriage, even though they may be. As a result, information and services are often not accessible to them, and health providers, teachers, and other potential sources of support are often discriminatory or not adequately trained to deal with adolescent issues. Even if adolescents have the information they need, they may find it impossible to take action unless services are available to them. This is particularly true of adolescent girls, who face major obstacles due to their low status in society and the strict social mores regarding their sexuality (UNFPA 2000).

There are approximately 4 million Quechua speaking people in Peru, especially in the Inca Region located in the Department of Cusco. The population in this region is predominantly rural and a large percentage are adolescents under 20 years of age. Indigenous rural children and adolescents are often the last to be reached by education and social service programs as a result of discrimination, isolation, low education levels, and language barriers – all associated with poor living conditions. These factors make this group particularly vulnerable to economic crisis, lack of employment, alcoholism, domestic violence, poor health, and low self-esteem, which perpetuate the cycle of poor quality of life and human underdevelopment in rural areas. The presence of a large number of children in poor families facilitates the intergenerational transmission of poverty. This population group has less access to information and family planning services to permit them to realize their reproductive expectations, which are much lower than actual fertility rates.

Peru has historically been, and continues to be, divided along linguistic and class lines. Lima is the apex of the hierarchy and smaller settlements and rural areas form the base. Seventy percent of Peruvians in urban areas have higher incomes, on average, and more access to resources, government services, and other amenities than do rural residents. According to the 2000 Demographic and Health Survey report (ENDES 2000), over 90 percent of urban households have electricity and less than one-third of rural households do. Only seven percent of females age six and above living in urban areas have no education, whereas 24 percent of rural females have no formal schooling. The percentage of females with at least a secondary education in urban areas is 22, compared to five percent in rural areas.

Regional and urban variations in fertility and mortality are also pronounced. For instance, infant mortality is three times higher in rural areas than in Lima (71 versus 23), and the total fertility rate (TFR) is twice as high (4.3 versus 2.2). Child mortality in Lima is about one-half the level in other large cities and one-fourth the level in rural areas (85 per 1,000 in rural areas versus 23 in 1,000 in Lima). Child mortality rates in some rural areas, including Cusco, are as high as 108 per 1,000. Over 90 percent of urban women in

need of prenatal care received such care from a trained health professional, but fewer than three-quarters of rural mothers did. Similarly, two out of three urban births were attended by a doctor or nurse, compared to only one out of five rural births (ENDES 2000). The maternal mortality ratio in Peru is 240 per 100,000 live births (UNDP 2003), which is one of the highest in Latin America. This rate is undoubtedly higher in the rural areas at about 400-600 deaths per 100,000 live births.

In reference to contraceptive use, 2000 DHS data showed that rural and less educated women have lower contraceptive prevalence rates than other women, and they rely more heavily on less effective, traditional methods. Although the practice of family planning is growing, the unmet need for contraception is still high. Apart from the health risks, there is evidence that women are bearing an average of one child more than they desire. Some of these pregnancies could have been avoided with family planning.

Although Peru has made significant progress in expanding access to services and improving the quality of care, the Ministry of Health does not yet have client-oriented services. It does not fully incorporate gender concerns and cultural perspectives into its programs, nor does it always respect the reproductive and sexual rights of adolescents. Health personnel have received training to improve their sensitivity towards clients who need “quality and warmth,” but do not put the training into practice. Because most health care providers do not speak Quechua, the cultural gap between them and the populations they serve in heavily indigenous areas seriously affects the quality of care. Cultural misunderstandings are also a major obstacle to reducing, for example, maternal mortality as indigenous women prefer to give birth at home because the health posts do not follow traditional practices (for example, giving mothers soup after childbirth, returning the placenta to them to be buried in a field, among others) (The Policy Project, Occasional Papers, Futures Group International. September 1998, “Post Cairo Reproductive Health Policies and Programs: A Comparative Study of 8 Countries”).

Youth between 15 and 24 years old make up one of the largest groups in the rural Cusco region and have special reproductive health and educational needs. The Ministry of Health estimates that the most frequent reasons for hospitalization among this group are obstetric causes, abortion complications, and violence. A serious problem is early adolescent pregnancy, which occurs because young people are not adequately informed about reproductive health, sex, sexuality and gender issues. Patterns of early pregnancy restrict young people’s possibilities for acquiring and developing abilities, knowledge and capacities that enable their entrance into the labor market. Nationally, more than 13.4 percent (about 175,000) of girls between the ages of 15-19 are already mothers or pregnant. In the Inca region, 31 percent of the same age group are mothers (National Population Plan, Presidency of the Republic, 1998-2000). It is estimated that there are more than 270,000 induced abortions per year, five for every 100 women of reproductive age.

STI and HIV incidence is also a reproductive health problem, and many young people who suffer from these infections ignore it because they are not adequately informed. As of April 1997, Peru had registered 6,534 patients as HIV positive, and current estimated

adult HIV prevalence is 0.4% (UNDP 2003). Socio-cultural factors like sexual abuse and coercion increase health risks for adolescents, as do cultural norms regarding gender and sexual relationships. In some families, young men are expected to have their first sexual encounter with prostitutes. Young girls often experience forced sexual intercourse (National Program to Control STDs and AIDS).

To address these issues through educational efforts, the Ministry of Education started the National Program of Sexual Education considering the Law of Population Policies No. 346 (1985), the Program of Action from the 1994 International Conference on Population and Development in Cairo, Egypt, and the recommendations of the 1995 Conference of Women in Beijing, China. They also saw it as part of their national policies to fight against poverty and improve the quality of education through the National Population Plan. The Ministry of Education has implemented sexual education and reproductive health information programs for young people, but these programs are operating only in the main cities or provincial capitals. Additionally, they are designed and conducted by people in Lima, and are prepared for people living on the coast, which is a more developed zone. The functionaries in charge are not familiar with the special characteristics of the Quechua culture.

The mission of this program is “to develop students who live their sexual roles of male and female without fears and erroneous ideas; that they understand that sexuality constitutes a form of relationship and interpersonal communication, as much for men as for women; that (they are) conscious of the meaning of responsible paternity and maternity in the sense that all children (boys and girls) have rights to be loved, fed, and educated by their parents; as well as the repercussions that procreation has at the couple and the society level.” One of the action lines in the program is the incorporation of the topics of Family and Sexual Education in the curricular structures of the different levels and modalities of the educational system. However, these actions have not been completed for diverse reasons. For example, most teachers in rural areas were not trained in sexual education content, and those that were do not have the materials for teaching or did not master the corresponding methodology.

Reproductive health information, education, and communication programs and projects can contribute in many ways to increase knowledge, change attitudes, and enable action and mutuality, which are important goals for adolescents’ well-being. Public education through radio can promote appropriate action in the home and community and can discourage unsafe practices that harm adolescents’ health. Students in the schools in the rural areas of the Quispicanchis and Canchis provinces have an urgent need to receive information about their sexual and reproductive health, keeping in mind their social and economic situations, educational levels, and attitudes and practices related to their sexual behavior. Comunicación Andina, with the support of the Frontiers in Reproductive Health Small Grants program, developed the project “Culturally Appropriate Information, Education and Communication Strategies for Improving Adolescent Reproductive Health in Cusco, Peru.” This project targeted students of secondary education in the rural areas of the provinces of Quispicanchis and Canchis, in the department of Cusco. The project began in July 2000 and concluded in April 2002.

## **Objectives**

The primary objectives of this study were:

- 1) To gather information about adolescents' knowledge, attitudes and behaviors regarding reproductive health and sexuality in the rural area of Cusco, and
- 2) To design and test a new, culturally-appropriate educational and communication strategy using radio to spread information on sexual and reproductive health to adolescents in order to promote responsible and healthy decision-making for their personal, family, and social well-being and to encourage use of existing health services.

This was to be accomplished by evaluating changes in adolescents' knowledge and attitudes about sexuality and reproductive health after a series of educational radio programs.

Outcomes to be measured were:

- 1) Knowledge of reproductive health concepts,
- 2) Knowledge about reproductive anatomy and physiology,
- 3) Knowledge about pregnancy and contraceptive methods,
- 4) Knowledge about sexually transmitted infections (STIs) and HIV/AIDS, and
- 5) Attitudes related to sexuality and gender roles.

## **Study Area**

Cusco is a department with a total poverty rate of 75.3 percent and an extreme poverty rate of 53.3 percent, with the higher levels in the rural areas. The population of Cusco is predominately young: 58 percent of the population is younger than 25 years old and 40 percent is under 15. Over two-thirds of the population (67%) inhabits rural areas (ENDES 2000). Five districts were selected within the province of Quispicanchis, which is located east of Cusco city and has a total population of 84,067 inhabitants. Six districts were chosen within the Cuzco province, which has a total population of 100,934 inhabitants.

## **Methodology**

Comunicación Andina conducted the operations research study using a quasi-experimental separate sample pre-test and post-test design with no control group. While inclusion of a comparison group could have strengthened the design, we did not consider it feasible with a mass media intervention. The radio program was transmitted by regional and local radio stations that cover most of the region, so it would have been difficult to ensure that the comparison group was not exposed. In fact, some students living outside the broadcast area sent letters to the program and asked to be included in training workshops.

Researchers conducted baseline and endline surveys of indigenous adolescents living in the Quispicanchis and Canchis provinces in the rural areas of the department of Cusco, Peru. The adolescents were third, fourth and fifth year students attending 13 high schools (ninth, tenth, and eleventh grade U.S. equivalent).

The study sample was selected through cluster sampling from a universe of in-school adolescents between 12 and 18 years old. Researchers used a simple random procedure to select one third, fourth and fifth year classroom in each of the participating schools for both the baseline and endline surveys. The total number of adolescent study participants was 239 in the baseline survey and 235 in the endline survey, including both males and females. However, only students in the third and fourth years were given the initial baseline survey because those in the fifth year were concluding their studies and would leave their schools shortly.

Pilot tests were conducted in two districts not selected for the intervention to evaluate the questionnaires and allow the interviewers to practice.

The pre-test and post-test surveys were conducted in the same way. The questionnaires were self-administered with an interviewer present in the classroom, who addressed any doubts that adolescents had when they were filling in the survey. Interviewers explained to students that participation was voluntary, and that they could leave any questions blank that they did not want to respond to. They were told they were not allowed to consult with others and that all surveys were anonymous and information obtained would be kept confidential. The questionnaires were returned to the interviewers and placed in sealed envelopes at the end of each session. All students elected to participate; however, non-response on individual items ranged from almost zero to over 20 percent, with lower response rates on open-ended questions.

The questionnaires sought to measure aspects of sex and sexuality, identification and function of the male and female reproductive organs, changes during adolescence, definition of reproductive health, pregnancy during adolescence,



family planning and contraceptive methods, STIs and HIV/AIDS, access to sexual and reproductive health services, and questions related to media preferences.

There are several limitations to the methodology that should be noted, in particular related to comparability of pre-test and post-test samples. The pre-test survey sampled third and fourth year students only, while the post-test included third, fourth and fifth year students. While the proportion of fifth year students was low (13%), their inclusion does nevertheless introduce the possibility that maturation played a role in differences between pre-test and post-test responses.

In addition, the two questionnaires were similar but not identical. Inconsistencies in item construction between baseline and endline surveys make direct comparisons difficult or impossible, and thus analysis of statistical changes in knowledge or attitudes is not presented for many of the outcomes in the results section of this report. Rather, the report attempts to characterize post-intervention levels of knowledge in the context of rural Peru.

In addition, because the questionnaires were self-administered, it was not possible to distinguish whether high rates of non-response were because students did not know, or chose not to answer certain questions.

## **Description of the Intervention**

In July 2000 researchers started the legal steps with the Regional Office of Education in Cusco to request authorization and support for the Pilot Project on Adolescent Sexual and Reproductive Health to be carried out. The Regional Office signed Resolution Number 1704-00-DREC-DITEP-UPPI in August 2000 to authorize the project.

In the same month Comunicación Andina staff made trips to both provinces to determine the schools with which to work and to contact the directors of the educational services units, the school directors, and the teachers responsible for the orientation and well-being of students to explain the project activities to them and to coordinate the pre-test survey. Researchers made more than 15 coordination trips to Quispicanchis and Canchis during August and September.

In most of the schools, there were no teachers responsible for the area of sexual education. Staff in the schools also reported a lack of educational materials. Another problem was the attitudes of the teachers and the population in general that perpetuate prejudices and taboos against speaking of sex and sexuality. In spite of these barriers, 13 schools were selected to participate in the project, with coverage of 8,625 third, fourth and fifth year students (see Table 1).

A reproductive health specialist conducted a two-day training for the interviewers administering the first survey. Immediately after the first survey, the researchers tabulated the results, especially concerning students' use of communication (i.e. preferred

radio stations and times students tune in). Based on these results, researchers chose the radio station and language preferred by the adolescents for production of the program. The majority selected a bilingual program in Quechua and Spanish.

Comunicación Andina staff met with the radio station administrators in order to contract the spaces and fix the schedules of transmission. The following stations were selected to broadcast the program:

- Radio QUISPICANCHI in the districts of Andahuaylillas, Huaró, and Urcos where the Luis Vallejo Santoni, Narciso Aréstegui, Nuestra Señora del Carmen, and Mariano Santos schools are located.
- Radio YANACOCHA has a scope for the district of Quiquijana where school José Carlos Mariátegui is located.
- Radio STEREO CONTINENTE's broadcast area is the district of Cusipata where school Túpac Amaru II is located.
- Radio MUNICIPAL of Checacupe whose transmission covers the Almirante Miguel Grau school.
- Radio SARITA COLONIA has the biggest reach for the districts of Combapata, Tinta, San Pedro, San Pablo, and Sicuani where the six other schools are located.

**Table 1. Distribution of participating schools**

School	District	Number of Classes			Males	Females	Total Students
		3 <sup>rd</sup> year	4 <sup>th</sup> year	5 <sup>th</sup> year			
<b>Quispicanchis</b>							
Luis Vallejo Santoni	Andahuaylillas	1	1	1	196	109	305
Narciso Aréstegui	Huaro	1	1	1	141	162	303
Nuestra Señora del Carmen	Urcos	3	3	2	228	285	513
Mariano Santos	Urcos	3	3	3	398	309	707
José Carlos Mariátegui	Quiquijana	2	2	2	245	159	404
Túpac Amaru II	Cusipata	2	2	2	195	120	315
<b>Canchis</b>							
Miguel Grau	Checacupe	2	2	2	213	185	398
Jerónimo Zavala	Combapata	3	3	2	337	243	580
Emancipación Americana	Tinta	3	3	3	370	334	704
San Pedro	San Pedro	1	1	1	120	107	227
Simón Bolívar	San Pablo	2	1	1	133	122	255
Inmaculada Concepción	Sicuani	8	7	6	778	795	1,573
Mateo Pumacahua	Sicuani	8	8	9	1,289	1,052	2,341
<b>Total</b>		<b>39</b>	<b>37</b>	<b>35</b>	<b>4,643</b>	<b>3,982</b>	<b>8,625</b>

The team began broadcasting the initial programs the last week of November 2000 and continued through August 2001. A total of 185 programs were produced and transmitted. To select the radio speakers a public announcement was made calling for adolescents from 15-19 years old who knew how to write and speak Quechua. A simple questionnaire was prepared to evaluate them and researchers selected two males and one female from 20 applicants, informed them of the project objectives and provided training.

The name of the program, “Adolescence and Sexuality,” was chosen in consultation with the students. The program had a duration of approximately 15 minutes and was transmitted daily Monday-Friday from 3:45 to 4:00 in the afternoon simultaneously by the five selected radio stations. Radio Sarita Colonia transmitted it twice daily, from 11:45 to 12:00 and from 3:45 to 4:00, because students in that district attend school in

two shifts, some in the morning and others in the afternoon. In the rest of the school systems, students only study in the morning from 8:00 am to 1:00 pm.

### Program structure and topics

The program was structured in the following way:

Initial pattern	1 minute
Greetings and news of the day	½ minute
Educational topic part 1	2 minutes
Quechua translation	2 minutes
Music	2 ½ minutes
Educational topics part 2	2 minutes
Quechua translation	2 minutes
Music	2 ½ minutes
Summary of the day	1 minute
Farewell	½ minute



Changes in the structure of the program were made during the project. Taking into account the interests of listeners, socio-dramas were included focused on topics such as pregnancy, sexually transmitted infections (STIs), and HIV/AIDS. These socio-dramas were performed taking into account the special idiosyncrasies of adolescents and the community taboos and prejudices.

Topics covered included gender roles, biological aspects of sexuality, psychological changes, masturbation, platonic versus romantic relationships, sexual morals, assertiveness, HIV/AIDS, birth control methods, early pregnancy, violence, and sexual and



reproductive rights, among others. Twenty-seven of the 185 broadcasts were devoted to answering questions from audience letters.

## **Promotion of the program**

### **Student Leaders**

Researchers chose one male and one female in each school as correspondents for the radio program, or “peer promoters.” They were responsible for coordinating actions between their schools and the program producers and for organizing promotional contests and awarding prizes. These student leaders were the spokespeople for the radio program in each school. In larger schools, more than two student leaders were chosen.

### **Printed Materials**

Several printed materials were prepared for the promotion of activities. The first pamphlet was designed to introduce and promote the program, and 8,000 copies were printed and distributed among all the students in schools. Later, 5,000 copies of a flier were prepared to announce that the program would continue to be transmitted during school vacation in January and February. A second pamphlet was prepared when the students came back to school in April and 5,000 copies were distributed. Additional fliers were created and distributed to promote special events including poster contests, panels or work being done on any of the topics addressed by the radio programs. Three bulletins were also prepared and distributed covering topics tackled on the radio and including photos of the workshops and other school activities.



### **Mailboxes**

To make communication between the students and those producing the radio program easier and more fluid, mailboxes were placed in each school building and in shops in Urcos and Sicuani, where the student population is more numerous. Several weeks into the program producers decided to dedicate every Friday to audience questions received via letters, and subsequently the number of letters listeners sent increased. To motivate participation in the program, researchers offered prizes to the students who sent in letters. Three letters were chosen at random from the mailboxes every week and the winners received school materials such as notebooks, pencils, markers, folders, papers, backpacks, and music cassettes. More than 90 prizes were given publicly in the schools to the winners throughout the program.

Students often used the mailboxes to promote school activities via the radio program, including competitions, prizes, parades, and anniversary parties, among others. The total number of letters received surpassed 1,600. The organization also received letters from students in other communities requesting that they expand the project to other communities for other adolescents.

### **Workshops**

Throughout the duration of the program, researchers held workshops to train the peer promoters on topics developed in the radio program, including: Why Speak of Sex and Sexuality, Differences and Sexual Roles, STIs, HIV/AIDS, and Self-esteem, among others. The workshops included socio-dramas, group dynamics, and discussions on reproductive health matters, in addition to listening to the opinions and questions from the participants. The workshops were conducted with the help of several professionals including an anthropologist, a psychologist, a biologist, a social communicator and two professors, including the head of sexual education for the Regional Direction of Education.

Every Monday Comunicación Andina staff traveled to the radio stations to provide the tapes recorded of the week's programs. The adolescent radio producers also traveled every week to the 13 schools to pick up letters and student comments on the programs and to coordinate with the student leaders.

### **Competition**

In the last month of emission of the radio program, the team organized a competition of school assignments on the topics addressed in the Adolescence and Sexuality program. Students from all 13 intervention schools participated. The first place winner was a boy from the Narciso Aréstegui school in Huaró who presented a brochure explaining adolescent pregnancy and its consequences. The second place winner was a girl from the Jerónimo Zavala school in Combapata. She presented a panel mural explaining the changes that take place during adolescence. Student winners were presented with prizes including a tape recorder, clock and backpack with school supplies.



## Results

### 1. Socio-demographic Characteristics

Socio-demographic characteristics were similar between the pre- and post-intervention samples. The vast majority of students were between ages 14 and 17. Because the pre-test survey included only third and fourth year students, the median age in the pre-test was 15 and in the post-test was 16. The sample was split evenly between sexes (51% female at baseline and 50% female at follow-up) and urban/rural residence (52% urban at baseline and 51% urban at follow-up). It should be noted that “urban” refers to residence in a village or town in a rural area. The vast majority was Catholic. Most students lived with their parents and more than two-thirds self-identified as Quechua speakers.

**Table 2. Socio-demographic Characteristics of Participants**

	<b>PRE-TEST (%) n=239</b>	<b>POST-TEST (%) n=235</b>
<b>Age</b>		
13	5.4	5.5
14	35.6	15.3
15	28.0	24.7
16	13.4	30.6
17	10.5	18.7
18	5.0	3.8
19	1.3	0.9
20	0.8	0.4
<b>Year in School</b>		
3	41.8	34.5
4	58.2	52.8
5	0	12.8
<b>Religion</b>		
Catholic	85.4	96.6
Evangelical	6.7	2.1
Other/No Response	8.0	0.9
<b>Live with Parents</b>		
Yes	89.5	87.2
No	10.5	12.8
<b>Speak Quechua</b>		
Yes	73.2	69.8
No	26.8	30.6

## 2. Sexual and Reproductive Health Concepts

In separate questions, students were asked to define sex, sexuality and reproductive health. The number of students with a correct conception of sex rose from 66 percent in the pre-test to 82 percent in the post-test (see Table 3). The “correct” definitions for sexuality and reproductive health were those used by the Pan-American Health Organization and the World Health Organization, respectively.

Of the three concepts, correct responses were highest for “sexuality”: 78 percent in the pre-test, and 89 percent in the post-test. In the pre-intervention survey, 68 percent of adolescents correctly identified the concept of reproductive health, whereas 76 percent knew the correct definition in the post-test. Responses considered correct were either “The capacity of women and men to enjoy a satisfying sexual life without risk of pregnancy or contracting sexually-transmitted diseases” or “A general state of physical, mental and social wellbeing and not only the absence of disease, in all aspects relating to the reproductive system and its functions.”

**Table 3. Knowledge of Sexual and Reproductive Health Concepts**

	PRE-TEST %	POST-TEST %
<b>What is sex?</b>		
Correct response	66.1	81.7
Incorrect response	25.1	14.9
No response	8.8	3.4
<b>What is sexuality?</b>		
Set of behaviors, attitudes, values, cultural manifestations related to being a man or woman, through which we express desires and affection	77.8	88.9
For having children	6.7	1.7
Impulse that men have to satisfy their desires	6.7	0.9
Other/No response	8.8	8.5
<b>What is reproductive health?</b>		
Correct response	68.2	75.7
Incorrect response	17.3	11.9
Other/No response	14.6	12.3

Students were asked to name parts of the male and female reproductive systems in open-ended questions. The proportions of students who did not respond were much lower in the post-test than in the pre-test. Thirteen percent of pre-test respondents left the question about females blank, in contrast to six percent of post-test respondents. Non-response for the male reproductive system also dropped substantially, from 21 to 7 percent. While it is impossible to know why anyone did not respond, it seems likely that some of the change was due to increased knowledge. Students in the post-test were able to name on average 2.3 and 2.4 parts of the male and female reproductive systems respectively, and over half

knew three. Students in the post-test also gave a wider variety of responses (see Table 4) than those in the pre-test, where most mentioned vagina, ovaries, fallopian tubes, penis or testicles.

**Table 4. Knowledge of Female and Male Reproductive Systems**

	<b>POST-TEST % *</b>
<b>Female</b>	
Vagina	68.1
Fallopian tubes	44.7
Ovaries	35.3
Labia (major or minor)	33.7
Uterus	32.3
Other	34.5
<b>Male</b>	
Testicles	79.1
Penis	70.2
Scrotum	43.0
Foreskin	17.4
Sperm	11.5
Other	4.3

\* Percentages do not add up to 100 because of multiple responses

### **3. Knowledge and Attitudes about Adolescence**

An important component of the “Adolescence and Sexuality” intervention was to enhance the psychosocial wellbeing of youth, so themes for the radio program and training workshops included the emotional and intellectual changes of adolescence, self-esteem, communication and gender. In order to determine the extent to which students associated these broader issues with sexuality, they were asked several questions including, “What sexual changes occur during adolescence?” Either of two options was considered correct: “anatomical and biological changes” or “psychological, anatomical and sociocultural changes”. The proportion responding correctly remained fairly constant, between 86 and 89 percent, with approximately three-quarters of those choosing the response that included psychological and sociocultural changes.

In the post-test, students were asked to describe three of the developmental changes that adolescents undergo. A distribution of responses is shown in Table 5. Approximately four-fifths of students mentioned at least one change, while more than half mentioned two or three.

**Table 5. Developmental changes of adolescence**

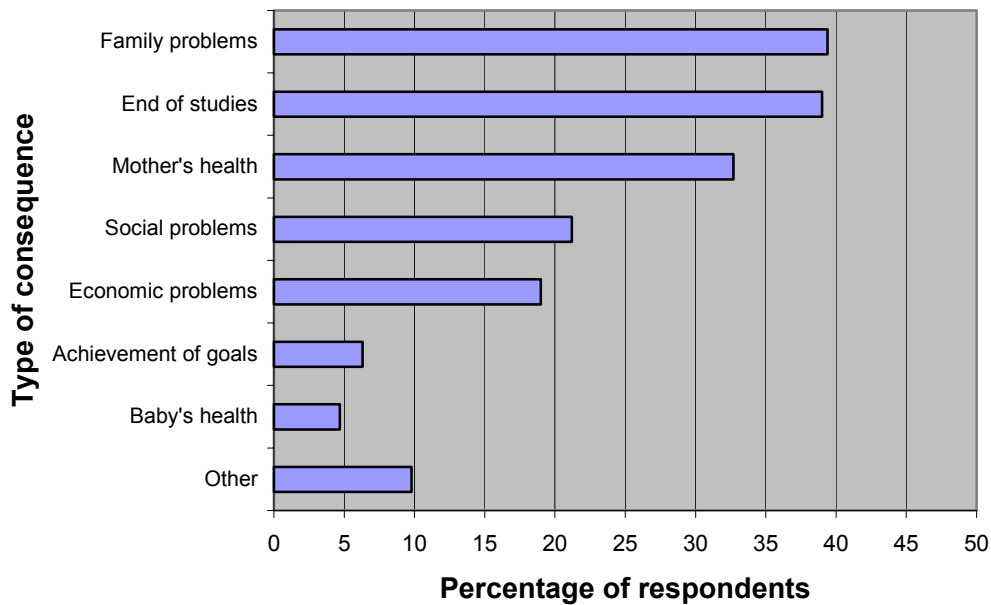
<b>Change Identified</b>	<b>POST-TEST* %</b>
<b>Female</b>	
Breasts grow	69.9
Pubic hair grows	66.6
Hips get wider	64.4
Voice becomes higher	42.5
Menstruation begins	34.8
Other	5.4
<b>Male changes</b>	
Pubic hair grows	90.5
Voice deepens	89.3
Shoulders/back/chest broaden	45.2
Genitals develop	29.9
First ejaculation	12.6
Physique/musculature changes	8.0
Other	0.6

\* Percentages do not add up to 100 because of multiple responses

#### **4. Pregnancy and Contraception**

A high percentage of adolescents were aware of the problems that an early pregnancy can bring. An important result is that the six percent non-response in the pre-test was reduced to zero in the post-test, perhaps indicating that all students perceived some negative consequence of pregnancy and were better able to articulate it. Before the intervention, more than half of respondents mentioned that a pregnancy could prevent an adolescent girl from achieving her goals. Loss of her parents' trust and an end to her studies were also important concerns. Following the intervention, students mentioned a wider range of potential problems, shown in Figure 1, below. The category "social problems" includes such responses as physical violence or abandonment of the girl by her parents or partner and being stigmatized or ostracized by friends and community.

**Figure 1. Perceptions of Negative Consequences of Pregnancy**



\*Percentages do not add up to 100 because of multiple responses

Students were asked at what age a boy can get a girl pregnant, and at what age a girl can become pregnant. In the pretest, the questions were open-ended. Many students left the question blank, and those who did respond gave ages in years, rather than the desired response of “after menstruation” or “after he begins producing sperm”. A full 60 percent of pre-test respondents indicated that a boy could not impregnate a girl until he was 20 years old—a belief that has somewhat alarming implications. In the endline questionnaire, researchers gave respondents the options of ages 10 through 13, or the correct response. Ninety percent of students responded correctly with regard to boys, and 87 percent with regard to girls.

Most students—seven out of ten in the pre-test and eight out of ten in the post-test—knew that contraceptives could be used to prevent pregnancy (see Table 6). However, a large percentage did not respond to a question asking them to identify any methods they know, suggesting that one-fifth of students do not know any specific family planning methods. In the pre-test, students were given a list of methods, grouped by type (hormonal, barrier, natural, IUD, surgical) and students checked responses. Even given these options, non-response ranged from 16 percent (barrier) and 38 percent (surgical). The post-test question was open-ended, and the mean number of modern methods mentioned was 2.4. A percentage distribution of methods named is shown in Table 7. The category of “other barrier methods” includes diaphragm, sponge, spermicides and vaginal tablets. Natural methods named were rhythm and Billings, and folk methods were various herbal teas and douches.

**Table 6. Knowledge about Contraception**

	PRE-TEST %	POST-TEST %
<b>How to avoid pregnancy during sexual relations</b>		
Use contraceptives	69.9	78.7
Take antibiotics	6.3	8.9
Vaginal washing	8.0	6.4
Other	10.0	5.1
No response	5.9	0.9

**Table 7. Contraceptive Methods Known**

Method	POST-TEST %*
Condom	70.6
Pills	68.5
IUD	38.8
Injectable/Implant	17.4
Male or female sterilization	14.0
Other barrier methods	18.7
Natural methods	16.2
Folk methods	3.8

\* Percentages do not add up to 100 because of multiple responses

### 5. Sexually Transmitted Infections and HIV/AIDS

According to the 2000 DHS (ENDES 2000) both adolescents nationwide and women in Cusco have low levels of knowledge about HIV/AIDS and STIs. Twelve percent of girls aged 15-19 nationally had not heard of HIV/AIDS and 51 percent did not know of any other STIs. Among women of reproductive age in Cusco province, 33 and 67 percent did not know of AIDS and other STIs, respectively. In comparison, adolescents surveyed in Comunicación Andina's post-test had a reasonable level of knowledge on these topics. When asked to list diseases that could be transmitted through sexual relations, 86 percent were able to mention at least one unprompted, and 40 percent listed three (see Table 8 for specific responses.) When asked more specific questions, both pre-test and post-test respondents demonstrated a mix of correct knowledge and misinformation: while many knew that HIV is transmitted through sexual relations and contaminated needles, many also believed kissing and other casual contact could spread the disease. However, 43 percent of post-test respondents were able to correctly define AIDS unprompted and a further 13 percent gave incomplete but correct information, while 30 percent gave an erroneous definition.

**Table 8. Knowledge about Sexually Transmitted Infections**

<b>STIs known</b>	<b>POST-TEST %</b>
AIDS	81.8
Syphilis	36.4
Gonorrhea	37.3
Chancre	25.8

Students were asked to describe advantages and disadvantages of condoms in the post-test. By far the most frequent advantage was that condom use can prevent unwanted pregnancy, followed by prevention of HIV/AIDS or STIs. The other main advantage noted was the accessibility of condoms in comparison to other methods. Disadvantages mentioned included breakage but also tended to reflect a lack of knowledge. Indeed, some cited not knowing how to use a condom or where to buy one as a disadvantage. Others said that they were harmful to the health, particularly if used often.

## **6. Sources of Health Information**

Researchers asked students in the post-test if they had ever heard a radio program on sexual and reproductive health. Eighty-two percent responded that they had, with 69 percent of all students saying they had listened to “Adolescence and Sexuality.” There were few significant differences in demographic characteristics between those who had listened to the radio program and those who hadn’t. Students who reported ever listening to the radio program were more likely to be aged 15 or 16, although there were no differences in grade. Listeners were significantly more likely than non-listeners to be female (55% compared to 43%) and to speak Quechua (75% compared to 60%). Virtually all students before and after the intervention had a radio in their home.

With few exceptions, no significant differences were seen between listeners and non-listeners in any of the outcomes measured. Students who listened to the program were more likely than non-listeners to cite radio as one of their primary sources of information about sex and sexuality. Other sources frequently mentioned were school, parents, magazines or newspapers, and television.

## Discussion

In addition to the more explicit reproductive health knowledge described in the previous section, Comunicación Andina sought to effect changes in the less tangible aspects of a healthy transition to adulthood, such as interpersonal relationships, self-esteem, and gender equality. According to the 2000 DHS, more women in Cusco than any other province report being physically abused by their husbands (57%), with over one-fourth experiencing frequent (rather than occasional) violence, the second highest level of any province. Verbal abuse and attempts by husbands to control their wives are higher in the Andean region than in other parts of Peru. In this context, Comunicación Andina emphasized the importance for young people to respect the rights and wishes of others in their radio program, printed materials, and workshops for peer promoters, and attempted to promote change in community norms and gender roles. While such transitions are not easily measured, anecdotal evidence in the form of letters and comments to researchers and peer promoters suggest that the program did benefit many adolescents in this way, changing their interactions and the way they viewed one another.

For most of these students in the selected schools, this was the first time they received sexual education in a clear and simple way in their maternal language of Quechua. More importantly, they had opportunities to consult on the problems they suffer. Adolescent girls in the workshops were able to speak with clarity face to face with their male classmates about male behaviors without being discriminated against or belittled.

The physiological changes that occur during adolescence may contribute to increased sexual motivation in teens, apart from an indirect effect on pubertal development (Udry et al., 1986; Udry and Billy, 1987). The period of adolescence is unique in the sense that it is a developmental period of physical transition, identity formation, and autonomy development. During this time, boys and girls construct a personal definition of what it means to be a man or woman. It may also be a stressful period of time when teens attempt to achieve separation and autonomy from their parents (Webb, 1994). Knowledge on the changes that occur in their bodies and psychology are very important in the construction of adolescents' personalities.

This operations research study focused on information, education and communication to reach indigenous adolescents in high schools in the rural areas of Cusco, Peru. As UNFPA states, targeting specific segments of the population, such as men and youth with particular characteristics, challenges IEC planners to use innovative and motivational approaches, such as: telephone help-lines, entertainment through folk or mass media, and unconventional distributors and motivators (e.g. peer leaders, street vendors, commercial outlets, clubs.) (UNFPA 1993).

Comunicación Andina designed an approach that uses a network of community radios to transmit a live daily program for the adolescent audience in both Spanish and Quechua. (Quechua is often spoken at home with parents but not in school.) The preparation, production and transmission strategy of a daily specialized radio program on sex and sexuality is a valuable experience for the realization of campaigns on reproductive health

and health in general, that could not only be directed to young people but also to other population segments like mothers, women, men, and children.

The radio program also served adolescents as a public tribune to express their actions, thoughts, yearnings and feelings on reproductive health and their problems of adolescence. The program, apart from giving informational support, also gave social and emotional support to adolescents because in it they found empathy, love, trust, aid for those who needed it, and advice and suggestions.

## **Conclusions and Recommendations**

In general terms, the project has completed its objectives of information, education and communication addressed to indigenous adolescents in the secondary schools of 13 rural districts in the department of Cusco. This project mobilized the attention of local authorities, teachers, students, parents and members of the community in the beneficiary schools and districts. The educational authorities now understand the necessity to educate adolescents about their reproductive health. The teachers of the participant schools congratulated *Comunicación Andina* on the content of the radio programs and said they contributed to supplementing the teaching in the school classrooms. Parents of many communities have expressed their satisfaction for the radio programs that not only served their children, but also helped them learn.

Participation of adolescents in the radio program was remarkable. Listeners sent suggestions and questions in letters, and they participated in the competitions organized. A great number of them requested to attend the workshops. Other adolescents from non-participating schools have also benefited from the information because they had the possibility to listen to the radio programs. Many requested to include their schools in the project.

Student leaders have learned with more depth the problems facing adolescents and are prepared to guide their peers. In fact, many of them are already aiding others in their communities and continue to consult with the *Comunicación Andina* personnel.

Based on the formative research and experience implementing and evaluating this intervention, *Comunicación Andina* offers the following recommendations for improving adolescent reproductive health in rural, indigenous areas such as Cusco.

- Ministry of Education and local authorities should pay more attention to the sexual education of adolescents. The regional educational authorities should adapt the national program to the reality of the rural area, keeping in mind the special characteristics of the indigenous students who are different in their appreciations of sexuality and behaviors, attitudes and practices from their urban counterparts. On the other hand, local authorities and mayors of municipalities should also worry about the reproductive health of adolescents: several municipalities have radio stations and they could transmit programs for young people.

- National and international organizations should give more support to develop programs and projects on reproductive health directed to the residents of the rural areas, where a real need for information exists.
- More teachers should be trained in the area of sexual and reproductive health because they are unprepared to discuss sexuality with adolescents and sometimes they feel uncomfortable or disapprove of students who express interest in sexuality.
- There is also a need to educate parents who should assume their primary role in the sexual education of their children, rather than relying on the schools to provide the appropriate orientation.

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