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## **Medicine Use, Behaviour and Children's Perceptions of Medicines and Health Care in Madrid and Tenerife (Spain)**

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The Spanish team participated in the COMAC Childhood and Medicine Use from the very first planning meetings in 1989. Two different locations were selected, Madrid and Tenerife (Canary Islands). The studies were accomplished in parallel, despite important geographical barriers which required frequent coordination meetings between the two locations for the design of common protocols, instruments and data management. The Spanish team also handled a major portion of coordinating the codification and analysis of most of the Project Level quantitative data along with the National Coordinator from Greece. The team was coordinated by a clinical pharmacologist [1] and its members were from the fields of child psychology and education [2], psychiatry [3] and medicine [4]. The National Coordinator has been working in pharmaco-epidemiological research and the rational use of drugs, with a focus on children for fifteen years. The main investigators in Tenerife and Madrid were both PhD Candidates with dissertation subjects related to the Project. They added a number of scientific instruments and concepts to their local studies as part of their dissertations which resulted from the Project. The studies in both Madrid and Tenerife were carried out through university affiliations and a number of students were involved in data collection and management [5]. In addition, financial support was provided through the Spanish Government [6].

### Context of the Medical Care in Spain

The Spanish medical care system combines a public and a private health care. More than 95% of the population is covered by the National Health System (Seguridad Social); however, some people also have private health insurance programs. The National Health Institute (Instituto Nacional de la Salud) manages the public health. The system is organized in two levels: primary health care centers, where general practitioners and specialists work together in the community, and specialized care provided by hospitals. Each patient is assigned to a health center and a general practitioner. It is necessary to go to a general practitioner before visiting a specialist.

In Spain, there are around 9000 commercial medicines (different presentations) which are available only through pharmacies. There are no generic medicines, only brand names are used. Doctors can prescribe all medicines; however, the public health care system covers only those prescribed by the doctors working on the public system. Retired people get all medicines free at the pharmacies. All the others in the public health system pay 30% to 40% for each prescribed medicine purchase. Medicines are free for people with chronic conditions that require long-treatment and some special medicines such as AZT. Private medical plans do not cover the purchase of medicines. Since January 1993, a group of 800 medicines no longer covered by the public system (some of which are among the most prescribed, such as AAS, cough and cold preparations, vitamins, and laxatives).

In most pharmacies, most prescription medicines can be purchased without doctor's prescription (these drugs have been labelled UTCs, "under-the-counter", by the team). This practice is very uncommon with psychotropics and narcotics. There is a small group of commonly used medicines that are not covered by the public system (e.g., aspirin and some vitamins, which are over-the-counter -OTC-). The prices of the medicines in Spain are around the mean rate for the European Union, and, frequently, are moderately expensive. For this reason it is quite usual for patients from private doctors to try to get another prescription for the same medicine from a doctor working in the public health system. However, this "non-official" method is decreasing in use.

The use of natural, herbal and homeopathic remedies is not very common in Spain, but their consumption is increasing slowly. It is important to note that almost of all these types of products are not considered as "medicines", and are not evaluated or controlled by the Health Authorities who regulates medicines. Many of these are included in the group of "food and supplements". They are frequently sold in pharmacies, together with other non-medical assortments, and there are special shops for this kind of products without any health control or supervision.

The advertisement of drugs is restricted to professional journals and magazines. The amount of advertisements in the mass-media (television and newspapers) has increased during the last few years, but only for medicines classified as OTC. There are many advertisements for "natural products" and special substances pretending weight reduction, which are sold without any controls, and most frequently supporting more curative properties than the clearly demonstrated for them.

Every pharmacy is run by a pharmacist who is often assisted by other personnel without any special training. It has become more frequent for the pharmacist to be present at all times in the office when the pharmacy is open to the public, and they are available for consultations with the customers. But it is also frequent that the customer is attended exclusively by non-pharmacists.

Most schools do not require a note when the child is absent; however, some parents send a note to the teacher, specially when the absence is longer than one day. In general, it is considered enough that the child explains to the teacher what happened when (s)he goes back to school. However, teachers know most of the times when the child is sick through the comments of her/his peers.

### **Methodology**

The schools were randomly selected, according to the criteria of the COMAC Protocol, from two middle class neighborhoods located in the center of Madrid and Tenerife. There was a large difference in the response of schools, parents and children between Madrid and Tenerife. In Tenerife, the refusal rate was negligible: both schools selected to participate agreed, all teachers cooperated and less than 2% of the parents refused to participate. In Madrid refusals were common. One school refused to participate; from those that accepted, half of the teachers did not cooperate. The refusal rate among children in these classes was approximately 15%. The children who accepted took a letter to their parents asking for permission to participate, and approximately 73% of their parents accepted. Once parents signed the informed consent there were no refusals for complete participation. In this study, as a whole, 75% of parents signed the permission, but 22% of them did not continue with the follow-up interview in their homes. All children were highly motivated and cooperative.

The differences in acceptance between the cooperation of the schools, parents, and children in Tenerife and Madrid are not fully understood. Perhaps the schools in Madrid are exposed to a larger number of programmes and research projects; whereas in Tenerife these kinds of studies are seldom promoted and the teachers are willing to cooperate. In Tenerife, the director of the schools sent a letter to the parents to obtain their consent for participating in

the research. Teacher's cooperation may be more important in promoting children's and parent's full participation than the agreement of the director of schools to allow for the circulation of permission letters to parents.

### *Study Population*

In Madrid the study population is composed of a group of 100 school children (51 seven year olds and 49 ten year olds) from four public elementary schools, and their primary caregivers. The team in Tenerife had a sample of 115 school children (44 seven year olds, 71 ten year olds) from two elementary schools and their primary caregivers (88 parents participated). Results of both local studies are reported together, unless otherwise noted.

Eleven interviewers worked (in the two locations) with the children for approximately three hours divided between two interviewing sessions, and for approximately three hours with the parents in one session. Interviewers were unknown to the children and their parents; however, the relationship established was generally kind, warm and open.

### *Instruments*

The Drawing-Interview was used according the Project guidelines. Each child made a drawing of the last time they were sick, and were interviewed in the schools on the same day. The interview focussed on the description of the drawing, and it was taped in a cassette recorder. Children were asked to describe the drawing and to talk about the illness episode. The interviewer asked the child questions related to his/her description of the illness episode, including his/her likes, ideas and attitudes about medicines and their use.

The Medicine Cabinet Inventory was used in accordance with the COMAC Protocol. A complete record was made for each medicine in the home, including the name, therapeutic category, prescription versus OTC, form, days since acquired, for whom and where was it acquired, days since last use, who used it last, place of storage, purpose of last use, expiration status and future use intention. Therapeutic categories for coding the information were not defined by a standard pharmacological classification, but by one developed for the study.

The Fever Interview for Parents and the parallel one for children were used, with some additions regarding health and medicines in general. They used open-ended questions; answers were later codified for quantitative analysis. They were administered in the homes. The primary caregiver, the respondent for the parental questionnaires, was identified by asking parents "Who is the main health care provider when the child is sick?".

A questionnaire about the socioeconomic characteristics and health history of families was also used.

In addition to the Project data collection instruments, several others were developed and used in the Spanish study for comparison with those used in the US study.

- Medicine Knowledge and Attitude Questionnaire for Children (similar to questionnaire of health and medicines for parents).
- Autonomy Questionnaire for Children, an self-reported measure of children's autonomy in the use of medicines and in decisions
- Scales on Health Locus of Control for children and parents: Locus of control based on the concept that individuals have beliefs which could be placed along a continuum that varies from a conviction that one can significantly effect (or is responsible for) the state of one's health (internal) to the idea that one is helpless, that the state of one's health is largely out of the individual's control (external). The health locus of control scale used for the children was the nine-item Children's Health Locus of Control (CHLC) Scale shortened and adapted by Bush et al. (1982) from a longer version developed by Parcel and Meyer (1978). The CHLC requires dichotomous (yes/no) responses. The stability of the factor structure of the nine-item version has been shown (O'Brien et al 1989). The Multidimensional Health Locus of Control (MHLC) Scale consisting of 18 items measured on a six-point Likert Scale (Wallston et al 1978) was administered to the adults.
- Questionnaire on family environment for parents and children: A nine-item questionnaire on affection and parent-children relationship at home, when healthy and sick.

### **Illness / Sickness**

The contents of the children's drawings represent objects, persons, actions, and concepts that are significant to their idea of illness. The main role of the mother and the doctor, the feeling of isolation, the negative (e.g., pain) and positive (e.g., watching television) aspects of being sick, and the extended use of medicines and home remedies are clearly depicted in the pictures. The majority of the children did not include caregivers in their pictures or they presented one caretaker, the mother. Most drawings showed children lying in or sitting on their own bed or on a sofa in the living room.

Some drawings included written explanations of what is happening to the child (e.g., "I've got a headache, mom") and written complaints or crying. The

most often represented objects were televisions, books, comics, toys, music players, and pets. Some children (7%) drew a thermometer or medicines (16%) in their drawings (mainly syrups and injections). Home remedies such as food, hot pads, hot milk with honey, and hot water bottles were also present in some pictures (8%).

### *Childrens Definitions of Illness*

Almost all children were able to give an explanation about what happens when a person becomes ill. Most indicated that a sick person feels bad or strange, or they associated illness with pain, isolation and feeling bored. A significant group of children pointed out that a sick child is in need of care (mother, doctor, resting, and medicines). The hypotheses that children use for explaining to themselves what is happening to them probably generates anxiety. This may be relieved once a diagnosis is made by the mother or the doctor, therefore, the information they give to the children appears to be very beneficial in the illness process.

For many children, illness appeared suddenly, with its beginnings associated sometimes with a previous activity or circumstances (e.g., "after I stopped running"). In other cases it was described in connection with the appearance of the symptoms (mainly headache, bellyache, fever, and itchiness), and even with the place where they were when symptoms appeared (mainly at home). A significant number of children made reference to the night time, as if there was something mysterious about it, perhaps because it is the time when they feel less in control.

The children used about two symptoms to describe their illnesses. The inventory of bodily symptoms presented by children is realistic and it includes the main indications for which children go to the paediatrician's practice. Fever and headache are the most common symptoms they reported, followed by stomach ache, sore throat, vomiting, cough, dizziness, tiredness, earache, pimples, itchiness, lack of appetite and hallucinations. When asked "what did you feel first when you were sick?", children referred to the same symptoms mentioned above. Being able to recognize symptoms is important since children associate the beginning of the illness with the appearance of the symptoms.

### *Causes*

According to children, the cold weather was the most frequent cause of illness and fever. They used expressions such as: "I got a cold by walking without my shoes", and "I ran a lot wearing my jacket, and then I didn't put on anything". The inventory of the children's ideas about causality also include

eating or drinking bad food, contagion, viruses, and accidents. Therefore, in their opinion, their own actions seem to be the main cause of illness. Adults did not completely agree with that, since, for example, they referred directly to diseases (influenza, infections) when asked about the cause of the child's last episode of fever.

Some children spontaneously expressed their ideas about contagion. They used the terms "germs" and "viruses", and concepts like "being near a sick person", sneezing, coughing, "germs getting into the body". For example, a second grader said:

Someone coughs and he gives me his germs; when you breathe, germs get into your body through your nose and your mouth; germs are little animals that get inside and make you sick... colds and things like that.

Contagion was interpreted by children as isolation, since they had to be apart from others to avoid "catching it" from others or "pass it on" to others. Children's attributions of the cause and the source of the contagion were realistic. Their theory explained that behaviours change into symptoms, and symptoms are transformed into syndromes or illnesses. Moreover, a few children had learned that a carrier has the infectious agent but (s)he does not transmit it to others.

### ***Social Process of Becoming Ill and Healing:***

Children presented themselves as alone in most drawings; when there was a caregiver, it was usually the mother, independent of whether or not she appeared in the picture. A small group of children mentioned both parents, but only one child mentioned exclusively the father.

Even though children considered themselves as an important source of diagnosis for their own illness, the role of the mother was more relevant. In fact, the real source of diagnosis in most cases appeared to be the mother, who acted as a vicar of the doctor's functions. In other cases the mother confirmed a diagnosis that had been partially arrived at by someone else, or her diagnosis was confirmed by the doctor. In that sense, children seemed to consider the mother's diagnosis as important as the doctor's, and they associated them with each other.

Children's autonomy in the process of becoming sick is reflected by the fact that most of them realized, themselves, that they were sick and then told it to someone else (mainly the mother). This is significant because the sick role is formed through the consciousness of the illness, and this has a great impact on the treatments, the compliance, and the expectations for recovery. A smaller group of children did not say anything to their parents, but their parents noticed it. For example, "I didn't say it to anybody, I held it; my father asked me what



was happening to me", and, "My mother noticed it because my face became reddish". Most of the time, parents did not agree with their children: e.g., when asked about how they knew that the child had a fever, most responded that they noticed it first, and a smaller group answered that the child announced it. It is possible that children see themselves as more autonomous than their parents perceive them to be.

In general, children were able to specify the time when they began to feel better (normally one to three days after the symptoms were identified). Most attributed the beginning of the healing process to their visit to, or by, the doctor, the use of medicines and the abating of the symptoms. This means that the doctor is an important source of help in the relief of anxiety, as Balint (1973) has already noticed. The child locates the control of what is happening to her/him in a person that s/he perceives as more knowledgeable in that topic. By trusting the doctor the child's anxiety is relieved. However, the child's perception of efficacy and healing seems to be a causal chain of interaction between the visit to/by the doctor, the use of medicines, and the suppression of the symptoms.

When and how to return to normal has to be defined and negotiated at some point during the recovery process. For children the point of negotiation is the return to school, playing outside the home and meeting with friends. In the interviews it was observed that a large number of children perceived the mother as the one who decides when the recovery is complete. Most of the time she does it herself, although in some cases, the father, the child and the doctor may be involved.

Most children described receiving special privileges while sick, such as getting more attention from their caregivers and their siblings, and more permissiveness in their social behaviour. One child, for example, said:

They spoiled me; they told me: "Now you have to rest in bed and I'll bring you some juice"; and I said: "I don't want juice, I don't like it"; and I didn't have to drink it.

Some kids got presents such as sweets and toys; and some had visitors. In a behavioural learning model of illness these would be considered reinforcers, helping children to learn appropriate (adult) illness behaviour. The answers of some children reflected that the reinforcement depends on the degree of severity of the illness; very sick children get more reinforcement than slightly sick children. Social reinforcers (e.g., getting more attention, being spoiled, having visits) could be considered as the most important ones for sick children.

During the illness, children amused themselves by playing, watching television, reading and sleeping or resting. The way children spend their time while sick is important. A child can reduce the frustration caused by the time

spent in bed by playing and doing other activities, which will help her/him coping with illness and recovering.

### *Isolation*

In general, the children did not like to be sick, and parents agreed. However being sick had both positive and negative aspects, as expressed by one child:

I couldn't play, be with my friends, or be amused by doing the homework; I couldn't do anything; the pain was the worse part.

The way children responded to illness often implied frustration and limitations; it was something that was imposed by the illness. An important group of children mentioned that being sick did not have anything positive. Children interpreted disease as "not being able to do this or that", for example, not being able to go to school, although there was an ambivalence in this matter, since children also said -and parents agreed- that something good about being sick was not having to go to school and do homework. In fact some children mentioned positive aspects of being sick, for example, resting, having a special care, staying home, playing, and watching television. Parents also expressed this ambivalence in their response to the question "Do you think that your child minded being absent from school and being kept from other activities?". The answers were divided into four groups with a similar frequency for each: 1) no, 2) a little, 3) quiet a lot, and 4) a lot. However, it seemed clear that what most bothered children was the isolation and the restrictions associated with being ill. The reason given by most of the parents for the children's dislike of being ill did not coincide with the children's opinion. Parents reported that children liked being healthy; however, none of them used this expression.

According to parents, children with a fever usually stayed home from one to three days; if they rested in bed, they did so for one or two days. Not being able to go to school is what bothered children the most while sick. Moreover, when asked what did they like the most about getting well, the largest groups of responses mentioned seeing their friends again, and going back to school. This suggests that, for the majority of the children, recovery represents going back to normal life and breaking the isolation. However, even after recovery, and according to parents, a small group of children still had some restrictions in order to prevent relapse, such as not going out to the street to play.

Most parents reported that children are not left alone while away from school; however, children still perceived isolation as a reality. Even though the mother or some other caregiver was at home with the child, (s)he felt isolated because there were restrictions. About one third of the children in the samples

reported visits from relatives and friends during the illness episode described in the drawing interview. Nine percent of the children were not kept away from normal activities, but only one percent of those had fever. Fever seemed to be an indicator of the need to be kept at home. Contagion was also a reason why children thought they were isolated. However, being kept at home does not mean total isolation, because most children reported that someone (siblings, friends, parents and other relatives) came to play with them. The social isolation was associated with being sick in a radical way, as if it was a trauma. According to children, there is more social reinforcement when the illness is more serious, meaning the having visits or someone to play with is an indicator of how serious the illness is. Games were part of this social reinforcement, since the sick child shared them with others.

### *Boredom, Sadness, Anxiety*

The feelings expressed by most children during the drawing interview were boredom and sadness, usually related to the lack of activity, and more specifically to having to rest in bed, not playing with friends, and not going to school. Other children associated the illness with tiredness, fear, and nervousness at the time the symptoms appeared and before going to the hospital. A few children reported that they were happy because they did not have to go to school, and they got extra attention from parents and siblings. Even though most kids had these "benefits", they still associated being sick with the type of negative feelings mentioned above. Children would clearly prefer not to be sick, and they enjoyed very much going back to their normal activities. Recovery, then, means something positive, since it is the door to normal life. The following expressions were also used by some children: "I felt strange", "I was sad and happy at the same time", "I was in a bad mood", "I didn't feel like doing anything".

In fact, there are three types of feelings relating to illness, as expressed by children both in Madrid and Tenerife: boredom, sadness, and anxiety. Illness means a journey from boredom to sadness and back. There is a reason for that. On one hand children have moved away from activities, which characterizes them; their normal life is interrupted, and they experienced illness as something annoying because there are restrictions. Illness is imposing -- "having to", "not being able to"-, and restrictive because it keeps away the child from the school which is her/his natural environment, and it limits social relations. Feelings of anxiety were very common. Children did not know what happened to them, and they were scared and nervous. The cognitive attributions might generate anxiety because children suffer more imagining what could happen to them than with what is really happening.

The ambivalence of the child was present again in the child's reaction to illness. There seems to be a conflict since the child wants to be at home and away from school, but also wants to avoid being sick; (s)he wants to be away from school but wants to see peers. The positive and negative aspects imposed by this conflict make an appropriate context for experiences such as boredom and sadness.

### *Care and Health Seeking*

According to parents in the Spanish sample, the most common therapeutic practice when the child is ill is seeking professional help (which usually includes the use of prescribed medicines), followed by the use of self-prescribed medicines that are already at home, and by the use of home remedies. Most children referred spontaneously to the use of medical services when describing the illness episode during the drawing interview. According to both children and parents, most went to the doctor's practice in case of illness. In some cases the doctor made a home visit or the child went to a clinic or to a hospital, depending on the type of illness, how serious parents perceived it to be, and what expectations they had about the progress of the illness.

Doctors were not contacted in one fifth of the illness episodes described by children. They reported that maternal knowledge and experience is one of the reasons for not consulting with physicians: "My mother, as she knows what, she gave me aspirins". According to the adults, doctors were the main source of drug prescriptions, followed by mothers, the last time the child had a fever. It is also the mother who most frequently accompanied the child to the medical centers or to the hospital. The father is present when the child is hospitalized, meaning the situation is serious.

Children indicated that when they went to see the doctor they did not talk to her/him spontaneously: they simply answered the doctor's questions. Instead, the mother talked to the doctor, she explained what was happening to the child, and she was informed about the therapy. Only one child reported being directly involved in the consultation:

He asked me, "What is happening to you?" Then he asked my mother, "What (medicines) is he taking?".

Another child stated "He wrote on a paper what I had to take and my father gave it to my mom who was at home".

Children did not seem to differentiate between general practitioners and specialists; only one child named a specialist (besides the dentist), while the others simply talked about doctors. Most children indicated that doctors are

nice ("He is very nice, but I don't like to go because the things he does are a little bit annoying"). A small group said that during the visit they were nervous and afraid of injections and suppositories. Injections seem to be adverse stimuli that might be associated with the visit to the doctor. This could be a consequence of the training, education and imitation from their own parents, since injections could be used to mould the child's behaviour for other purposes.

The use of home remedies for the treatment of childhood illness was common in the studied samples. Ninety six percent of the children described some other type of therapy, besides the pharmacological treatment, which could be either prescribed by a doctor or by caregivers. Resting was the most used therapeutical method of this kind. Children laid in bed or in a couch usually for two or three days, depending on the negotiation between mother and child. Other types of treatment included diet (soup, yoghurt, boiled jam, boiled rice, fish, vegetables) and beverages (fruit juice, teas, and hot milk with honey). It was also important to wear warm clothes and, for some parents, to prespire. Home remedies mentioned by children also included cold compresses in the forehead for fever, oil in cotton for ear sore, vapor for nasal congestion, hot water with salt for sprains, and cold water for tonsillitis. Very few children mentioned surgery. Home remedies are deeply inculcated in the Spanish culture, to the point that they are often supported by the doctor's advice. When parents were asked about how they learned about home remedies, most mentioned their own mother and family, and some others referred to the doctor.

Doctors prescribed medicines in the majority of the cases in which they were consulted. However, mothers become the second major prescribing source, since, they made decisions about what medicines their children should take before going to the doctor. In a study carried out in Tenerife by members of the team (Boada et al, 1989), 75% of children attending a primary health care center were already treated by the mother (50%) or other physician (25%).

### **Use of Medicines**

The use of medicines was very frequent among children in the study. There were medicines in all homes, except in one, ranging from one to 90, with a mean of 18 medicines. It is also shown in the Medicine Cabinet Inventory results that children between three and 14 years old were highly exposed to medicines. This age group, also represented in the study, had the highest number of medicines per 100 household members. No significant differences were found between females and males. Antipyretics, analgesics, antibiotics, and "bronchial syrups" were the most commonly used medicines in the homes, according to parents' responses in the general questionnaire on health and medicines. These are also the medicines that children recognized as the ones

they used most often ...? as well as the most frequent in the medicine cabinets in the homes.

### *Children's Knowledge about Medicines*

All children were familiar with medicines; there were spontaneous references to medicines in seventy percent of the interviews, and sixteen percent of the children included medicines in their drawings. Medicines were used in eighty-eight percent of the episodes discussed in the Drawing-Interviews. The identification and description of drugs were based mainly upon their external characteristics or their form. Syrups were most often mentioned, followed by "medicine" (unnamed, unspecified), and a generic name, mainly aspirin. When they described their medicines, most children referred to flavour, colour, instructions for use, form, type of container, and route of administration. They did not particularly like nor dislike medicines, in general. The majority reported that they like some medicines, the ones with a good flavor; nineteen percent clearly stated their dislike for medicines, while a smaller group indicated that they liked them, making references to their flavour.

Even though most children recognized that they got well mainly because of the medicines, they did not know how medicines work inside their bodies. Still, some children gave explanations such as the following:

- Medicines go to that place and they cure you little by little.
- Doctors make them with special things like vaccinations for fighting against microbes; a microbe is like a thief that gets into the body and it wants to get everything up side down. Medicines are the policemen that go to stop them, so they won't do bad things.
- Medicine advances and kills the microbes, which are bacteria. You get the bacteria and it harms your body; the medicine kills them.

No significant differences were found between the explanations of the seven and the ten year old children, indicating that knowledge about drugs did not significantly increase during these three years, which might be due to the lack of formal instruction about drugs. However the score of knowledge was somehow higher in the older group, as well as the perceived autonomy and self-care.

### *Children's Autonomy in Medicine Use*

According to children, medicines are accessible to them in almost all of their homes. Some parents reported that medicines are hidden or kept away

from children (e.g., in high places); however, they did not recognize that ten year olds move freely around the house, they know all the "hiding places", and they could open the medicine cabinets, which are not locked. In the fever questionnaire most parents indicated that medicines were kept in their usual place during a fever episode.

Children perceived themselves as somewhat autonomous in the use of medicines and other therapies. Sometimes they took part in the decision about when to get out of bed, when to go to the doctor, or they put a scarf around their neck before going to bed. According to children and caregivers, mothers are the main figure in charge of giving the medicines to children. Some indicated that sometimes they take medicine themselves while other times the mother gives it to them:

- Sometimes I take the pills by myself.
- My mother gives me the syrup because I can throw it down.
- My mother gives me the medicines, and I take them by myself in the afternoon when she is working.
- My mother puts the syrup in the spoon and I drink it by myself.

Five percent of the children pointed out that they would rather take the medicines on their own, but their mothers do not allow them to do so. Twenty-eight percent of the children indicated that their fathers gave them the medicine at some point during the described episode. Even children who never took medicines by themselves showed a certain autonomy by reminding caregivers about the time to take them, because, in their opinion, medicines are important and necessary. For this same reason most children did not refuse to take medicines. Children and parents agreed that most children take the medicines voluntarily.

When asked about who is their preferred person to give them medicines, most children chose their mother. Only in four percent of the cases children named both parents. Fathers were named in two percent of the situations. Only a small group said that they prefer to take it themselves. Doctors played an important role on deciding when to stop the pharmacological treatment. However, once more, mothers played the main role. Children indicated that most times mothers decided on their own, although, at times, it was together with the children, or with the fathers, as it is reflected in the following examples: "my mother asks me if I feel better, and if I say yes I stop taking them", "my parents made the decision, but I also felt it in my body". Only in one percent of the cases the father made the decision.

### *Role of Medicines in the Illness Process*

When asked about how they recovered from a specific illness, most children mentioned pharmacological treatment, e.g., "medicines go to that place and they cure you little by little". They also named other types of treatments such as diet, resting, passage of time, and being warm. A few children considered that they recovered by following the doctor's advice, depicting themselves as highly compliant.

In general, the children perceived the benefits of taking medicines. Sixty-seven percent of the children used the word "cure" to describe their effects. Most children indicated that they felt better after taking the medicine, and only two percent reported that they did not feel any better right after they took the medicine, but they felt better some time later. Others described them as "good". Some children made comments such as:

- Medicines are good when I have to take them and it is necessary; otherwise they are bad for you.
- They were going to give me the medicines and I knew I would go back to school.
- They can make you feel worse; I did not take any medicine in case I got worse.

Parents, in general, also recognize the therapeutic value of medicines. However, they do not perceive the benefit of taking medicines for preventive purposes in childhood. Prevention is better associated with healthy food and fresh air. Parents indicated that children can help preventing a fever by being careful not to get cold or sweat too much.

Children's comments revealed that they know medicines can have negative effects, which might be related to other characteristics that also showed up during the interviews. For example, children perceived themselves as cautious about drug misuse, they followed instructions and, in most cases, they did not take the medicines by themselves. Most children presented themselves as compliant with the pharmacological treatment. Only one child from a troubled home environment, living with relatives, reported misusing medicines by taking double or triple of what he was supposed to.

The same general cautious attitude could be observed among parents in the sample. Most parents indicated that they never gave medicines to others or received them, except from health professionals. A large group of parents mentioned that it is necessary to be cautious with all medicines because of their side-effects. When asked about their general opinion regarding medicines, caregivers reported that they are good and necessary, but they are also something to be careful about. The average length of time most medicines have



been in the homes is less than two years, and the majority of the parents indicated that they look at the expiration date periodically and/or before they use them.

### **Conclusions about Medicine Use**

In Spain, children's knowledge and attitudes relating to health, illness, and medicines are developed mostly through personal experience and family influence. There is no health education curriculum for children in the schools, but non-organized teaching of health concepts appear throughout school books, and television programs for youth and children. Health education for adults is very rare, limited, and does not include instruction about medicine use. This means that the information that children get from their parents depends on what their parents know. Drug advertising is also very limited. Moreover, children indicated that only the mother has an important role relating to health and illness, and medicine use. The father has a secondary role, to the point that most children did not even mention their fathers in the drawing interviews.

The role played by the mother as the primary caretaker is traditional in the Spanish culture, despite the fact that most middle class women with children work outside the home. Even so, she is responsible for the health and care of the entire family group: from children to grandparents (when they live together with the nuclear family). The children and parents agreed that the mother has a primary role as main caregiver in relation to medicine use. She is the one who first notices that the child is sick, or to whom the child announces that (s)he is not feeling well. She is the first to take the child's temperature with the thermometer, confirm that the child is sick, applies the first therapeutic measures such as sending the child to bed and taking a medicine, calls the doctor or takes the child to the medical centre, gets the information about the pharmacological treatment from the doctor, and gets the medicines and gives them to the child. She, as much as the doctor, decides when to stop taking the medicine as well as to when the child can go back to normal activities. While all this happens, the father's figure almost gets lost in the picture. He mainly appears when the mother is absent from the home or when the illness episode is considered more severe such as in the cases in which children had to be hospitalized. It is important to notice that mothers think that this is, in general, a correct division of labour and believe that the care for their children is one of their most important "duties" in the family.

In terms of knowledge and attitudes about medicines, there were no significant differences between second and fifth graders. In general, children and caregivers recognized the therapeutical value of medicines, and they accept

to use them. Children present themselves as cautious about misuse: they follow the doctor's and/or the mother's instructions for using the medicines, and they know the time of the day when they have to take them. Most of the times children do not take medicines by themselves, and they show some knowledge about side-effects, which can be considered as an approximation to an attitude of cautiousness. Parents also consider themselves as in favour of being cautious regarding the use of medicines in general, and they appeal to the side effects to justify their attitude, even though self-prescribing is very common.

The constructions developed by children to explain the therapeutical efficacy of the medicines, and their causal attributions of that efficacy are medically sound. Only one child presented clear indications of medicine abuse, but this case presented a complex family situation and lack of supervision. In general, children show conformity about the use of medicines. If they have to take them, they do it, and it is not necessary to force them, because the figures of authority (mother and doctor) tell them to do it, and because they know by themselves that they need to take them.

Medicines are the most highly used therapeutical resource according to children and caregivers. Children consider that medicines are what help them the most to recover from illness. However, home remedies are also very common. Besides resting in bed or on a couch -which is done in most illness episodes- some of the most often used home remedies are cold compresses for fever, hot milk with honey for colds, water with lemon for indigestion, as well as teas and diet. These remedies are among the most effective recognized therapies for many common disturbances, especially those caused by viruses, and should be promoted within the self-care programs.

Children are quite familiar with the use of medicines. Identification and description of medicines is mainly based upon the external characteristics (e.g., form and type of container). They also show some knowledge about generic names, route of administration, indications for use and type of medicine. Children's preference about medicines depends on the flavour: strawberry and fruit flavours make the fact of taking medicines into a pleasant, not only necessary, action.

Given the importance that children assign to medicines in the recovery process, it is not surprising that the majority of them made spontaneous references to medicines in the interviews or that most of them felt better immediately after they took the medicines. Even though children reported that their recovery from illness was mainly due to the use of medicines, they were unable to explain how they work inside the body. The explanation of the process of being sick -- taking medicines -- recovery -- is superficial and not rigorous. Children do not have any doubts about such relationship, although they have difficulties explaining it. The lack of instruction about medicines is

obvious once more. Schools do not teach about medicines, and parents do not seem to have rigorous knowledge on this topic.

Although children recognize mothers are responsible for the use of medicines, they still perceive themselves as somewhat autonomous. Their active participation is limited, at least by certain external factors. However, children can still remind their parents when they have to take the medicine. Sometimes they even take it by themselves. Parents are not often aware of the relative autonomy children have regarding the use of medicines, which shows the need to study this topic from the children's perspective in her/his cultural context: what do children know, what attitudes and expectations they have, and what are their behaviors regarding the use of medicines.

### **Policy Suggestions**

Seven and ten year old children reproduce information that has been obtained mainly through the family interaction and personal experience. This information is not merely linguistic or factual; some processes of reflection are already observed in these age groups and children begin to internalize the external data. They begin to use the cognitive tools that are necessary to analyze and assimilate the new contents. The level of the child's intellectual development interacts with his own experience and with the information that he has (mainly from the family) in the construction of the phenomena of recovery and treatment. All children are able to provide a lot of information about treatment and medicine use, and the analysis of the answers reveals how much that information is organized in the child's mind. The information about treatment and medicine use does not automatically mean understanding, because it depends on the interaction between information and cognitive level.

### ***Health Education***

- The behaviors involved in the use of medicines are educable. Therefore, it is expected that health education actions will help provide a more adequate and healthy use of medicines among children and caregivers. Changes in attitudes and behaviours can not be reached just by changing and imposing laws. Each individual has to be responsible for her/his own health.
- Intervention should take into account the age of the children, their understanding of the information, and their own representations of what is happening (or "construction of illnesses"). The developmental changes in the way children perceive the medical procedures should also be taken into consideration. This means that the age of the children will determine

if the best approach should include pre-operational, concrete or physiological descriptions of how the body works, when a person is healthy and when sick. This educational approach is not the exclusive responsibility of the schools, but it should be extended to any context in which there is transmission of information regarding health.

- Health education programmes should take into account the spontaneous ideas that children have about illnesses and recovery. They should acknowledge the children's previous concepts, and they should make them conscious of their own contradictions. Children's ideas about illness and recovery are sometimes unexpected and amazing, and they have a very clear internal logic. These ideas prevail over the biological, scientific concepts that they have from school.
- Health education programmes for children should use strategies such as role playing, modeling, and breaking down complex behaviours into specific tasks that can be mastered by children,
- It is necessary to encourage parents to permit age-appropriate, active decision-making by the child with regard to self-care and seeking assistance for a health problem.

#### *Child-Doctor Communication*

- The relationship with the doctor would be better if the child could feel that he understands and that he is understood. As a result of this communication, the child will participate more in the treatment. This interest is sometimes blocked off by the doctor's hermetic attitude. If children learn to avoid questioning, this behaviour will probably remain with them throughout their adult life. Doctors should make sure that children understand what is said to them. For that, they have to listen to the children.
- Children who are able to communicate with their health care providers will grow into adults who can do the same (Igoe, 1987). Physicians who believe that children can be responsible and participate in the decision-making processes related to their own care will interact with their pediatric clients in a manner that encourages children's participation. They will talk directly to the child in a sincere supportive tone that indicates that they appreciate the effort required to follow the treatment plan. For example, an honest statement regarding the distastefulness of a medication versus the benefits of taking it for the entire number of days required will be more likely to persuade the child to join the physician as a partner in care. Similar honest disclosures will make it easier to complete other types of treatments.

### Endnotes

- [1] The National Coordinator was Emilio J. Sanz, MD, PhD. Associate Professor (Reader) in Clinical Pharmacology, Department of Pharmacology, School of Medicine, University of La Laguna.
- [2] Pilar Aramburuzabala, MSc, PhD, School of Education, Complutense University of Madrid. She developed the study in Madrid. As a pedagogue, she is interested in studying children's knowledge, attitudes and behaviors regarding medicine use in order to develop health education programs.
- [3] Aquilino Polaino-Lorente, MD, PhD and Psychiatrist, coordinated the research in Madrid. He is Professor and Chairperson, Department of Psychopathology, School of Education, Complutense University of Madrid. He has written various books and journal articles on Health Education. He is interested in defining the role of the pedagogue in Health Education.
- [4] The study in Tenerife was conducted by Marcelino García, MD, PhD, Unit of Clinical Pharmacology, Department of Pharmacology, School of Medicine, University of La Laguna. He is a Clinical Pharmacologist on-training, and expert in pharmacovigilance. As a physician, he is interested in how concepts and attitudes to medicines in children may influence the use of drugs and their effects (beneficial and deleterious).
- [5] In Madrid the senior and graduate students who helped with data collection, codification, and parts of analysis: María José Vivas Guisado, Ana Isabel Senderos González, Ana García de Castro, Pilar Martínez López and Celia Navarro de la Madriz. In Tenerife, Juan Manuel Bethencourt Pérez, Associate Professor of Psychology at the University of La Laguna, helped to coordinate the students and graduate students: Adela Rodríguez Almeida, Rosa María de León Villalba, Teresa Sánchez Fernández and Miriam Fraga Barroso.
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## References

Balint E

1973 *Six Minutes for the Patient: Interactions in General Practice Consultation*. Tavistock, London.

Boada J, Duque J, Sanz E

1989 Parent drug prescription in children. IV World Conference on Clinical Pharmacology & Therapeutics. Mannheim-Heidelberg July 23-28, 1989 (*Eur J Clin Pharmacol* 1989; 36 (Supp):A155)

Bush PJ, Parcel GS and Davidson FR

1982 Reliability of a Shortened Children's Health Locus of Control Scale. ERIC ED#223354.

Igoe JB

1987 Teaching youngsters to care about health care. *Hygie* 6: 26-27.

Lewis MA and Lewis MA

1990 Consequences of empowering children to care for themselves. *Pediatrician* 17: 63-67.

Moore TS, Bush PJ and Iannotti RJ

1991 Families and medicines: A survey of household medicine cabinets. Presented 8th National Conference of the National Council on Patient Information and Education, Washington, D.C. (April).

O'Brien RW, Bush PJ and Parcel GS

1989 Stability in a measure of children's health locus of control. *Journal of School Health* 59 (4):161-164.

Parcel GS and Meyer MP

1978 Development of an instrument to measure children's health locus of control." *Health Education Monographs* 6 (2):149-159.

Wallston KA, Wallston BS and DeVellis R

1978 Development of the Multidimensional Health Locus of Control (MHLC) Scales." *Health Education Monographs* 6 (2):160-170.1.