

## EVALUATION OF SOCIAL SKILLS FROM MOTHERS OF CHILDREN WITH ONCO-HEMATOLOGICAL DISEASE TREATMENT

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### Abstract:

Assessments of the social skills of mothers whose children are undergoing treatment for chronic illnesses can help design strategies to improve the quality of relationships between mothers and other people involved in the treatment (the child being treated, healthcare professionals, and other mothers) and thereby increase children's adherence to treatment. This study aimed at providing a descriptive analysis of the social skills illustrated by the responses of 20 mothers of children who were aged 5 to 11 years, suffered from blood cancers, and showed a good level of adherence to treatment. Adherence to treatment was evaluated using the ATG-BC tool and the social skills illustrated by mothers' answers were evaluated using the "If... then you..." questionnaire; both methods were designed by the researchers. The "If... then you..." questionnaire measured levels of empathy and assertiveness in nine hypothetical conflictive situations during treatment, including interactions with children, the medical team, and others. Results indicated a predominance of assertive/empathetic answers in interactions with children, non-assertive and assertive answers in interactions with the medical team, and non-assertive, assertive, and emphatic/assertive answers in interactions with others. These discrepancies between interactions confirmed that evaluations of mothers' social skills should be situation-dependent. Future studies should test the hypothesis that serious chronic illness can significantly affect the maternal repertoire of social skills.

**Key words:** social skills; mother-child relationship; blood cancers.

### INTRODUCTION

Blood and blood marrow cancers are characterized by alterations in blood production and the rapid proliferation of malignant cells throughout the body. Acute leukemia, chronic myeloid leukemia, myelodysplasia, non-Hodgkin's lymphoma, Hodgkin's disease, and others belong to this class of cancers<sup>1</sup>. The most common treatments are chemotherapy, radiotherapy, surgery, and in some cases, bone marrow transplants<sup>2</sup>.

Diagnosis of these conditions and the limitations imposed by treatment have serious effects on daily family life, thereby increasing risks that affected families will develop social and emotional problems<sup>3</sup>. Families and parents in particular are often the most strongly affected by the diagnosis, since in addition to coping with

emotional stress and losses they must also attend to the physical, psychological, and social needs of a sick child<sup>4,5</sup>.

Mothers typically assume most responsibility for taking care of these needs<sup>6,7</sup>. For this reason, recent studies have focused on the mothers of children suffering from chronic diseases, both as participants in and subjects of research<sup>8,9</sup>.

The stress caused by chronic, life-threatening illness in a child interferes with parents' interpersonal relationships and affects their educational habits<sup>8,10</sup>. Researchers who studied difficulties in parent-child interactions in treatment situations via semi-structured interviews of 37 caregivers of children ranging from 5 to 13 years old and suffering from sickle-cell disease found that of the 356 problems interviewees mentioned the most common were helping children comply with

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dietary restrictions (n = 35), feeling helpless to alleviate episodes of pain (n = 34), and responding to children's negative feelings regarding their illness (n = 33)<sup>9</sup>.

Various authors have examined the effect of educational habits and parent-child communication skills on children's adherence to treatment of chronic illnesses such as cancer<sup>11</sup>, juvenile rheumatoid arthritis<sup>8</sup>, diabetes<sup>12,13</sup>, general chronic illnesses<sup>14</sup>, and others.

This research has shown that the strongest adherence to treatment occurs in children whose parents are supportive during children's socialization process with peers<sup>13</sup>, use non-coercive methods to educate children<sup>8,15</sup>, play together with their children, have skills that allow them to be emotionally expressive<sup>16</sup>, and are capable of responding to children with empathy<sup>12</sup>. Studies with diabetic children that used observational methods to examine family function have shown that factors such as empathy and problem-solving skills are significantly associated with adherence to medical treatment<sup>12,13</sup>.

The term 'social skills' encompasses various classes of behaviors individuals use to cope with interpersonal demands in an appropriate fashion<sup>17</sup>. The most relevant classes can be organized into classes and subclasses, of greater or lesser scope depending on the context, as follows: communication skills (asking and answering questions, asking for and giving feedback, thanking and praising people), social manners skills (thanking or complimenting people), work-related social skills (organizing groups, speaking in public, solving problems, making decisions, and mediating conflicts), assertive coping skills (expressing opinions, agreeing, and disagreeing; making, accepting, and refusing requests, asking forgiveness and admitting faults, establishing caring sexual relationships, ending relationships, expressing anger and requesting changes in behavior, interacting with authorities, coping with criticism), and emphatic skills for expressing positive feelings (showing appreciation of another person's feelings, offering consolation and reducing tension, showing a willingness to share difficulties, and minimizing feelings of worthlessness, shame, or blaming others)<sup>18</sup>.

When interacting with children, parents who have a diverse repertoire of social skills are better at being assertive and empathetic, firmly sticking to rules and establishing limits with a maximum of positive reinforcement and a minimum of punishment<sup>18</sup>.

In the case of child cancer, caregivers who show attitudes of coping with the diagnosis are those with the greatest capacity for remaining committed throughout a child's treatment<sup>19</sup>. This suggests that the social skills of caregivers may in part determine how they cope with their children's illness and treatment<sup>5</sup>. During treatment, it appears that more skillful parents who show empathy

towards their child's suffering, recognize when they are upset, set firm limits, propose activities for the child that are consistent with doctors' recommendations, are assertive in their relationships with doctors and other healthcare professionals, and inquire about the illness and the treatment whenever necessary help children cooperate with the treatment more effectively, thereby achieving higher levels of adherence.

Studies of the social skills of parents in their interactions with children suffering from chronic illnesses have in recent years been the focus of qualitative research<sup>20</sup>. The objective of this study is to assess the social skills of mothers of children being treated for cancer.

## METHODS

Data were collected in an institution in Curitiba, Paraná state, Brazil, that offers support for children from throughout Brazil who are suffering from blood cancers, including lodging and supervision by nurses during the treatment period (hereafter referred to as "the support house").

After authorization was granted by the Committee for Ethics and Research on Human Subjects (Nº 36/2007) and by the director of the support house, all mothers lodged at the support house with children between the ages of 5 and 11 in different stages of treatment for blood cancers were invited to participate in the study. The study originally focused on 25 mother-child pairs for which the mother had signed a statement of consent (as required by CNS Resolution 196/96), and data collection began when both mothers and children agreed to reply to the following exercises individually:

**The Adherence to Treatment Game for Blood Cancers (ATG-BC, version for mothers and children)** is a game based on the Adherence to Treatment Game (ATG) developed by Ribeiro e Lör<sup>22</sup>.

The ATG-BC consisted of seven hypothetical problematic situations, each of which was presented verbally to the interviewee (mother or child, in separate interviews) in order to quantify the degree of children's adherence to treatment. Each hypothetical situation (see the full list in Table 1) was accompanied by a set of five cards with drawings indicating the situations.

The interviewee pointed at the card that they felt most closely matched the child's actual behavior in the given situation. The card chosen by the interview subject was recorded in a data form and scored on a scale from 1 to 4. If a particular procedure had not been experienced by the child in question, the corresponding hypothetical situation was not presented and no answer scored.

Based on this numerical classification for each hypothetical situation, a mean was calculated from the seven situations and this served as a

**Table 1:** Description of the seven problematic situations presented to mothers and childrens in the ATG-BC test.

	<b>Version for mothers</b>	<b>Version for children</b>	<b>1</b> (does not cooperate)	<b>2</b> (is passively encouraged to cooperate)	<b>3</b> (is actively encouraged to cooperate)	<b>4</b> (cooperates on own initiative)
<b>Staying in the isolation unit</b>	Your child is in the isolation unit because she/he recently underwent a bone marrow transplant. When you leave to do housework, what does he/she do?	You are in the isolation unit because you recently underwent a bone marrow transplant. When your mother leaves to do housework, what do you do?	Leaves the unit and goes out to play without a care	Leaves the unit and only returns when he/she is carried back	Asks to leave the unit and obeys his/her mother's request.	Remains in the unit without any maternal pressure.
<b>Using a mask</b>	The doctor recommends that your child wear a mask during part of the treatment. What does he/she do?	The doctor recommends that you wear a mask during part of the treatment. What do you do?	Does not wear the mask.	Wears the mask when his/her mother insists.	Only remembers to wear the mask when his/her mother reminds him/her.	Remembers to wear the mask and does so for as long as necessary.
<b>Going to a doctor's appointment</b>	Your child is called in for an appointment with his/her doctor. What does he/she do?	You are called in for an appointment with your doctor. What do you do?	Refuses to go and doesn't	Doesn't want to go in, but is carried in by his/her mother.	Doesn't want to go in, but is convinced by his/her mother.	Goes in without his/her mother having to ask.
<b>Undergoing an invasive procedure</b>	Your child is about to undergo a chemotherapy procedure (or immunoglobulin or a blood tranfusion). What does he/she do?	You are about to undergo a chemotherapy procedure (or immunoglobulin or a blood tranfusion). What do you do?	Hides his/her arms so that the needle can't find his/her vein.	Undergoes the procedure because his/her mother is holding his/her arm.	Doesn't want to undergo the procedure, but does so after talking with his/her mother.	Lets the nurse carry out the procedure without pressure from his/her mother.
<b>Taking pills</b>	It's time for your child to take his/her pills. What does he/she do?	It's time for you to take your pills. What do you do?	Hides, throws the pills in the trash, and refuses to take them.	Doesn't want to take the pills, but does once his/her mother obliges him/her.	Takes pills when his/her mother reminds him/her.	Remembers to take pills by himself/herself.
<b>Respecting dietary restrictions</b>	One day at home or at the clinic, volunteers offer sweets to the children. Your child loves those sweets, but cannot eat them due to doctors' recommendations. What does he/she do?	One day at home or at the clinic, volunteers offer sweets to the children. You love those sweets, but cannot eat them due to doctors' recommendations. What do you do?	Eats sweets because he/she forgets the restrictions or because he/she sees no problem with it.	Accepts the sweet until his/her mother takes it away and reminds him/her that it is not allowed.	Accepts the sweet and asks his/her mother if he/she can eat it.	Tells the volunteer that he/she can't eat the sweet and goes to do other things.
<b>Respecting playtime restrictions</b>	The doctor says your child cannot exert himself/herself because he/she has a low platelet count. When his/her friends ask him to play a tiring game he/she loves, what does he/she do?	The doctor says you cannot exert yourself because you have a low platelet count. When your friends ask you to play a tiring game you love, what do you do?	Goes out to play. Says there is no problem and that he/she will be careful.	Goes out to play until his/her mother fetches him/her and explains that he/she cannot play certain games.	Asks his/her mother if he/she can play with the friends, and obeys her request.	Tells the friends that he/she cannot play, and seeks out less tiring games.

quantitative score reflecting each child’s adherence to treatment, according to the mother’s and the child’s own perceptions. In this study children’s adherence to treatment was classified into the following categories: low (e” 1), partial (2 to 3) or high (< 4).

The 20 mother-child pairs for which the ATG-BC test indicated high child adherence to treatment were invited to participate in the second phase of data collection: the “If... then you...” questionnaire. The mothers of mother-child pairs that showed a partial or low level of child adherence in the ATG-BC received a report on the exercise they had participated in and were invited to attend, together with the other 20 mothers, a lecture at the end of the data collection period on mother-child interactions and child adherence to treatment.

**“If... then you...” questionnaire (version for mothers):** We developed this tool, which consisted of nine incomplete sentences presented verbally to the mothers, in order to offer each mother an opportunity to describe how she had reacted or would react to certain situations in which treatment involves a risk of conflict with her child, with the medical team, or with other people in the support house.

The questionnaire mainly examined the empathy and assertiveness behavioral classes, as defined by Del Prette and Del Prette<sup>17</sup>.

We classified mothers’ replies to the questionnaire questions as indicating one of the following categories: aggressiveness, non-empathy, non-assertiveness, assertiveness, empathy, and empathy/assertiveness. Our classifications were submitted to a panel of judges, who assessed their reliability. The judges agreed with our classifications 82% of the time.

**Data analysis:**

Based on mothers’ replies to the “If.. you...” questionnaire we calculated the relative frequencies of maternal replies showing aggressiveness, non-empathy, non-assertiveness, empathy, assertiveness, and empathy/assertiveness in interactions with their children, with the medical team, and with other people in the support house.

These replies were analyzed with a multivariate correspondence analysis<sup>23</sup> to test associations between the frequencies of these categories and the subjects with whom the mothers were interacting. All statistical tests were carried out in the XLStat2009 software program.

The statistical analysis was complemented with a descriptive analysis of the frequency of different types of maternal replies to each question in the “If... you...” questionnaire.

**RESULTS**

Mothers whose children showed high levels of adherence and who participated in the second phase of data collection (n=20) were aged 24-41 years old and most had finished middle or high school. The mother-child pairs were residents of small towns in Paraná state (n=13), the Federal District (n=3), Santa Catarina state (n=2), and São Paulo state (n=2). Characteristics of the children in the study are given in Table 2:

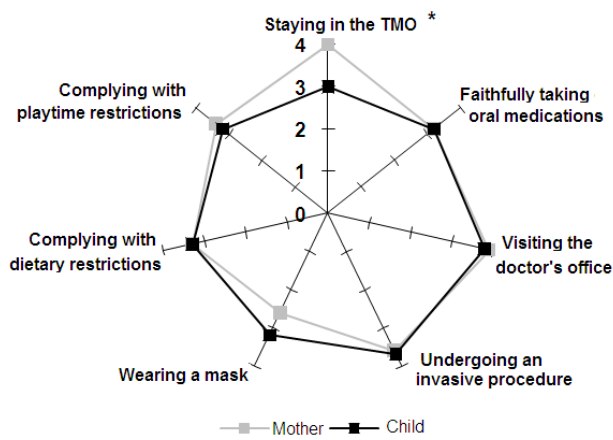
The clinical diagnoses of the children in the study included nine categories of blood cancers, the most frequent of which was acute lymphoblastic leukemia (55%). The most common age classes were five and eight years old, and 40% of children were in an intermediate stage of medical treatment.

**Table 1:** Characteristics of the children who took part in the study

Clinical diagnosis	Proportion of children	Children’s age (years)								Treatment stage*			
		5	6	7	8	9	10	11	Initial	Intermediate	Maintenance	Relapse	
Fanconi anemia	10%	5%			5%						5%	5%	
Left adrenal carcinoma	5%				5%						5%		
Acute lymphoblastic leukemia	55%	10%		5%	15%	15%	5%	5%	5%	20%	15%	15%	
Acute myeloid leukemia	5%		5%							5%			
Burkitt’s lymphoma	5%						5%				5%		
Medulloblastoma	5%	5%							5%				
Idiopathic thrombocytopenic purpura	5%	5%								5%			
Rhabdomyosarcoma	5%			5%									
Mixed cell tumor	5%			5%					5%			5%	
Total	100%	25%	0%	20%	25%	15%	10%	5%	15%	40%	25%	20%	

\* Treatment stages: Initial = the first six months of ambulatory treatment; Maintenance = the control and stabilization period following treatment; Relapse = the reappearance of the illness and the start of a new round of treatment.

Figure 1 shows the correlation between mothers' and children's data collected during the ATG-BC exercise.



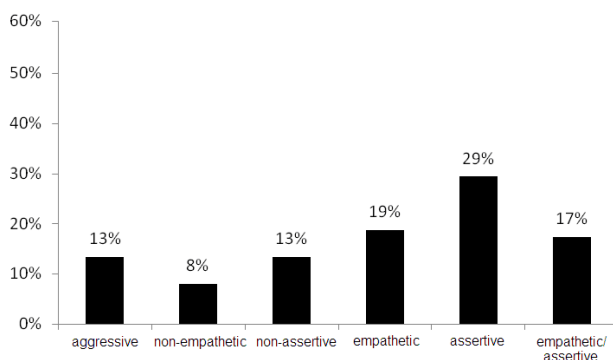
\* TMO = the isolation unit where the child must remain following a bone marrow transplant.

**Figure 1:** Mean frequencies of child adherence levels as indicated by mothers and by children in the ATG-BC test.

The data show a close correspondence between the perceptions of mothers and children regarding children's adherence. For all seven situations studied, a high level of adherence was the most common category.

The next phase of research focused on the questionnaire replies illustrating the social skills of mothers whose children showed high levels of adherence to treatment.

Figure 2 shows the relative frequencies of different categories of social skills shown by the 20 mothers in interactions with their children.



**Figure 2:** Relative frequencies of the categories of maternal social skills in interactions with their children.

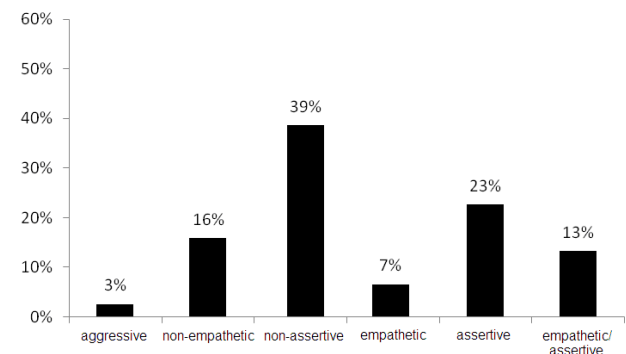
During mothers' interactions with children, the most frequent types of social skills apparent in their responses are assertiveness (29%), empathy (19%), and the combination of the two (assertiveness/empathy; 17%).

In discussing replies to the "If... then you..." questionnaire, we first report the most common type of reply and then provide some sample replies given by mothers. For the question "If your child cried during chemotherapy (transfusion of blood or

immunoglobulin) and said that he/she felt a lot of pain, then you..." the most common type of reply (41%) was empathetic. A typical reply was: "I cry a lot. I try to console him and say it will be over soon. I give him a massage" (M25). For the question "If your child is very aggressive with you for no reason, then you..." the most common type of reply (47%) was assertive. A typical reply was: "I try to talk to him, I ask what's going on, and later I decide what to do" (M16). The second most common type of reply (25%) was empathetic-assertive. A typical reply in this category was: "We have to be patient about everything they're going through. I tell her to calm down, I play with her, I make up a game" (M23).

For the question related to medication ("If your child says he doesn't need to take the medicine because he's feeling good, then you..."), the most common type of reply (30%) was empathetic/assertive. A typical reply was: "Sometimes she asks me to wait for five minutes and I wait. Then I start negotiating. If the medicine tastes bad I give her a sweet afterwards" (M5).

Mothers' skills shown in interactions with the medical team differed from those shown in interactions with children. Thirty-nine percent of mothers replied in a non-assertive manner. However, 23% of mothers replied in an assertive manner and 16% in a non-empathetic manner (Figure 3).



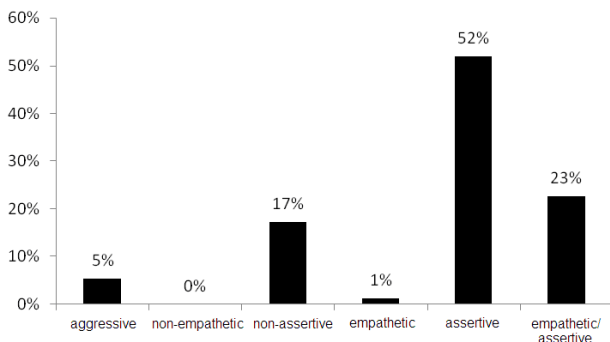
**Figure 3:** Relative frequencies of the categories of maternal social skills in interactions with the medical team.

Designed to assess mothers' interactions with the medical team, the question "If you did not like the way you were treated by nurses in the hospital or the clinic, you..." was answered by 66% of mothers in a way considered non-assertive. Typical replies included "I just ignore it and don't let it bug me. There's no point in arguing" (M6) or "I prefer not to say anything because I know the treatment takes a long time. I don't want to make a fuss. And we're really going to need the nurses' help in the future" (M14).

The question "If a nurse needs to inject some intravenous medication but is nervous and having trouble finding your child's vein, then you..." was mostly answered in an assertive fashion (43%). A typical reply was "I ask her to call another nurse"

(M23). The question "If you discovered that the doctor treating your child in the hospital is himself suffering from a serious disease, then you..." was mostly answered with non-assertive replies (41%) such as "I wouldn't mention it. He knows how serious his own problem is" (M1), and non-empathetic replies (37%) such as "I would ask her why she hadn't told me she was sick. How can she take care of children?" (M2).

Figure 4 shows the mean frequencies of different categories of mothers' behavior in their interactions with other people. Most mothers (52%) were assertive or empathetic/assertive (23%). Few replies indicated non-empathetic (17%) or aggressive (5%) behavior.



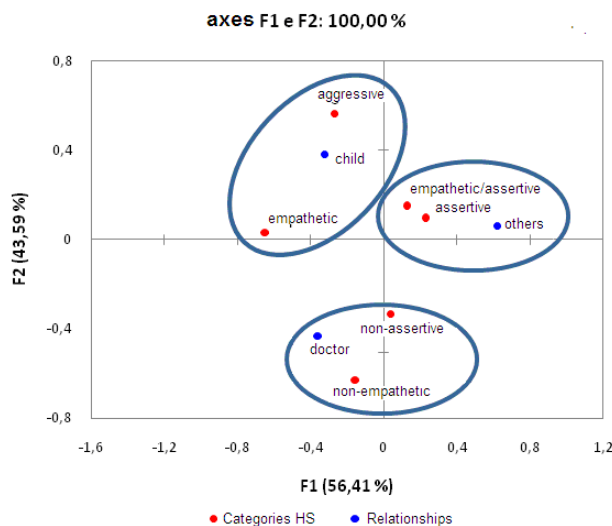
**Figure 4:** Relative frequencies of the categories of maternal social skills in interactions with other people.

Designed to assess mothers' interactions with other people, the question "If another mother is worried because her child is hospitalized and very sick, then you..." was most commonly answered (47%) in an assertive fashion. A typical reply was: "I talk to her. I tell her to be calm and trust in God" (M1).

The question "If you see a child who has recently undergone a risky surgery back in the support house, you..." was replied by 47% of mothers in an empathetic/assertive fashion ("I say: how nice to see you're well, strong, and playing. I always say hi to see how they handled it" M8). Finally, the question "If you're unhappy with the way one of the other mothers in the support house treats your child, then you..." was answered by 65% of mothers in a non-assertive fashion ("I don't say anything because not everyone accepts what I say", M10).

Figure 5 shows the results of a multivariate correspondence analysis exploring the relationships between the categories of maternal social skills and mothers' interactions with their children, with the medical team, and with others.

The correspondence analysis (Figure 5) shows that mothers' interactions with their children are associated with aggressiveness and empathy; mothers' interactions with the medical team are associated with non-assertiveness and non-empathy; and mothers' interactions with others are associated with assertiveness/empathy and assertiveness.



**Figure 5:** A graphical representation of the two correspondence functions of social skill categories and maternal interactions with children, medical teams, and others.

erall health, and their tolerance of certain medications typically determine the type of treatment followed<sup>2</sup>. However, independent of specific treatment protocols, it is common for children with blood cancers to also have restricted diet and play activities, and to be subjected to occasionally painful procedures during treatment. Although the children who participated in our study had been subjected to a variety of specific treatments, all of them had diets and play activities restricted to some degree, and all had undergone invasive medical procedures. These factors are interference with adherence to treatment. Understanding how adherence is perceived by mothers and by children helps improve treatment, especially in moments when mother or child is feeling exhausted and less likely to comply with medical regimes.

The ATG-BC interviews with mothers and children revealed a correlation between their individual perceptions of the child's adherence to treatment for most procedures. In other words, in our study population children assessed their behavior during treatment and adherence to treatment in a fashion that was very similar to that of their mothers.

In the population we studied children's levels of adherence to treatment were high (20 of 25 mother-child pairs showed high levels), which is probably explained by the fact that our sample consisted of children who were in treatment and adhering to it either voluntarily or against their will. The way our study sample was designed, based on contacts with the mothers of children residing in a special support house for children with cancer, naturally excluded cases of weak adherence. The few children in our sample who did show partial levels of adherence (5 of 25 children) characterize one of the extremes on the normal curve. Since

our aim was to analyze the social skills of mothers of children who adhere to treatment, we opted in the second part of the study to focus on the subset of mother-child pairs showing a high level of adherence.

After determining the degree of children's adherence to treatment, maternal social skills were assessed during interactions with the children, with the medical team, and with other people. We observed that mothers whose children showed strong adherence to treatment showed equivalent answer, sometimes showing social skills and sometimes showing a lack of social skills when interacting with their children. However, the trend in mothers' interactions with their children was toward assertive, empathetic, and empathetic/assertive replies.

This corroborates reports in the literature indicating that socially skillful parents who construct a welcoming family environment establish encouraging, protective conditions when faced with threats to their children<sup>25</sup>. By contrast, children exposed to non-constructive parental behavior or lacking affectionate parental involvement are at risk in their development and may develop behavioral problems<sup>25</sup>.

While the small size of our sample makes it difficult to extrapolate more generally, the group we studied does suggest that assertive/empathetic maternal behavior is an important strategy that allows mothers to both sympathize with their children's pain and remain firm regarding compliance with rules, adhering dependably to medical regimes while at the same time setting an example and inspiring their children to do the same.

Empathetic replies that demonstrate a caring attitude towards children and help brighten the emotional climate were identified in the mother-child interactions we studied, in children with strong adherence to treatment. Through this type of behavior, mothers showed their children that they understood the children's feelings, cared for them, and would not place any more restrictions on them than the situation required.

Maternal empathy when interacting with children undergoing treatment was also observed in a qualitative analysis of eight mothers of children suffering from cancer and ranging in age from 3 to 9 years old<sup>4</sup>. In that study, interviews with the mothers revealed that their own composure regarding the illness was directly related to their children's feelings and wellbeing. The mothers reported that despite the limitations imposed by the treatment, they tried to involve the child in activities that would please them, as a way of ensuring their wellbeing, and consequently, the mothers' own peace of mind. Studies show that empathy is the primary behavioral class that offers quality in positive interactions<sup>27</sup>.

Assertiveness is another class of social skills that can strengthen family relationships, among them mother-child relationships<sup>21</sup>. In our study,

mothers offered assertive replies more often than empathetic replies during interactions with their children. By acting in an assertive fashion, it appears that mothers sought to show firmness in respecting rules, thereby convincing their children of the need to comply with treatment despite the short-term unpleasantness it required.

Of the maternal replies reflecting a lack of social skills, 13% of mothers showed aggressiveness, while 8% showed a lack of empathy and 13% a lack of assertiveness. When mothers treat children in a coercive fashion, on the one hand, the child is obliged to comply strictly with treatment in order to avoid maternal punishment. On the other hand, the child may resist adherence to treatment in the absence of the punishing agent (the mother), since coercion does not help children understand why they should change their behavior<sup>25</sup>. Research indicates that mothers rarely punish ill children in a physical fashion, in order to avoid causing them additional suffering, but rather punish them verbally, in the belief that this is the only way to make children comply with the restrictions involved in treatment<sup>15</sup>.

Mothers' replies to the medical team were non-assertive (39%) more often than assertive (23%). The prevalence of non-assertive replies appears to reflect mothers' concerns that assertive replies might lead to a conflict with the medical team and compromise their child's treatment. While assertive replies yield positive consequences to an individual (such as increased self-confidence, personal fulfillment, and the achievement of goals), the fear or experience of being scolded or humiliated after expressing one's opinion can cause anxiety and lead to individuals staying quiet in order to avoid uncomfortable situations<sup>28</sup>.

There was also a significant frequency of non-empathetic replies (16%) to the medical team, which would appear to indicate a professional relationship between the healthcare professional and the caregiver (mother), reflecting the mother's hope that the doctor will treat the child without himself showing any suffering or illness. While previous studies have demonstrated the importance of good communication between parents and healthcare professionals in facilitating children's adherence to treatment<sup>29</sup>, our study suggested that even when mothers are not socially skilled in the relationship with healthcare professionals, their skillfulness in dealing with children and others around them helps facilitate their children's adherence to treatment.

During interactions with others in the support house, and specifically in cases where their children had undergone similar experiences in their treatment, mothers' replies were primarily assertive and empathetic/assertive. In situations in which mothers witnessed other mothers behaving inappropriately with their children, they primarily replied in a non-assertive fashion (65%), preferring not to express their concerns with the other mothers.

One recent study has shown that mothers not only feel a need for support from other mothers to cope with situations related to their children's illness, but also offer their support to others in similar situations<sup>4</sup>. According to the study, the support of a social network is critical in such situations, and having someone with whom one can chat and share one's feelings about experiences helps minimize the suffering caused by illness. Another study carried out via interviews tried to determine what sort of help parents need during the adaptation process that follows once they have been informed that their child has cancer. Results showed that formal and informal support networks and the communication skills needed to seek the support of others were essential for parents to acquire experience in coping with the illness<sup>30</sup>. These studies show that parents' skills in communicating with others and seeking help in social networks are important for coping with their children's illness. However, these studies did not assess the specific social support networks available to the mothers nor explore connections between that support and children's adherence to treatment.

Interpersonal relationships take place in a variety of contexts (e.g., among family, while relaxing, and at work). Each context requires that an individual use a broad repertoire of social skills to cope in an appropriate and satisfactory fashion with the situation at hand<sup>25</sup>. The different socially skillful replies of mothers in contexts involving treatment indicate that assessments of social skills should take into account: a) the person with whom the mother is interacting (e.g., her child, a nurse, a doctor, other mothers); b) the context in which the situation takes place; and, c) the mother's history

of learning with respect to the hypothetical situation presented. These considerations reflect reports in the scientific literature which have shown that social skills are learned and involve personal, situational, and cultural dimensions<sup>17,26</sup>.

It is also important to remember that the behavioral classes that include social skills involve both verbal components (asking and answering questions, praising, requesting changes in behavior) and non-verbal ones (visual contact, smiles, facial expressions) during interaction<sup>24</sup>. The design of the "If... then you..." exercise did not allow us to assess non-verbal components of interaction, nor of some behavioral classes of social skills (e.g., saying please and thank you, greeting people, continuing conversations or bringing them to a close), but it did allow for an assessment of interviewee's verbal performance, especially in terms of assertiveness and empathy.

We observed that mothers whose children showed strong adherence to treatment favored assertive/empathetic replies when interacting with their children, non-assertive (and next most commonly assertive) replies when interacting with the medical team, and non-assertive, assertive, and assertive/empathetic replies when interacting with other people.

This diversity in types of replies confirm that assessments of social skills should be carried out in a situational fashion that takes into account the context in which each reply is given, to whom it is given, and the condition of the occurrence of severe and chronic illness.

Our results offer a descriptive analysis of the social skills of mothers whose children showed high levels of adherence to treatment.

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