

Development and Evaluation of a Shaken Baby Syndrome Prevention Program

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Keywords

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ABSTRACT

Objective: To evaluate parents' and nurses' opinions regarding the adequacy of an educational program on shaken baby syndrome: the Perinatal Shaken Baby Syndrome Prevention Program (PSBSPP).

Design: Qualitative and quantitative assessments in the form of interviews and questionnaires administered in French.

Setting: Two birthing institutions in Montréal, QC, Canada: a university hospital and a regional center.

Participants: Two hundred and sixty-three parents (73.8% mothers, 26.2% fathers) received the intervention after the birth of their child, and 69 nurses administered it.

Methods: Parents' and nurses' assessments of the adequacy and relevance of the program and nurses' assessments of the training they received to administer the program were evaluated.

Results: Both parents and nurses supported this initiative. Most parents appreciated the usefulness of the information. Nurses believed the program was adequate, and their training to deliver the program was satisfactory. All participants reported that the program was highly relevant, especially for new parents.

Conclusion: The Perinatal Shaken Baby Syndrome Prevention Program achieves the goals of (a) increasing parents' knowledge about infant crying, anger, and shaken baby syndrome and (b) helping parents identify coping strategies. The relevance of introducing the PSBSPP in all birthing institutions is supported. Future studies should focus on vulnerable and culturally diverse populations, and longitudinal follow-up could help determine if the PSBSPP reduces the incidence of shaken baby syndrome.

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(Continued)

Shaken baby syndrome (SBS) is a shocking phenomenon that is increasingly recognized as one of the most severe forms of child abuse, with very high rates of morbidity (more than 50%) and mortality (15%-38%) among children under 1 year (American Academy of Pediatrics [AAP], 2001; King, MacKay, Sirnick, & the Canadian Shaken Baby Study Group, 2003; Ward, Bennett, & King, 2004). Shaken baby syndrome is responsible for the majority of deaths that are due to child abuse (King et al.; Morad et al., 2004). About 75% of survivors suffer neurological, cognitive, developmental, or psychological sequels, and severe functional cerebral palsy-type sequel occur in 60% of survivors (Bonnier et al., 2003; Karandikar, Coles, Jayawant, & Kemp, 2004; King et al.; Perez-Arjona et al., 2003; Ward et al.). These

sequels are often diagnosed in the long term (Bonnier et al.; Karandikar et al.; King et al.; Perez-Arjona et al.).

Definition and Incidence

Shaken baby syndrome results from violently shaking a child, usually while he or she is being held by the trunk (Duhaime, Christian, Rorke, & Zimmerman, 1998), shoulders, or limbs (Conway, 1998). The extreme whiplash movements result in a sudden acceleration-deceleration of the head and all the internal structures of the cranium. The shaking movements are multidirectional and rotational, with or without external impact (AAP, 2001; Case, Graham, Corey-Handy, Jentzen, & Monteleone, 2001; Fortin & Maisonneuve, 2008).

About 25% to 50% of parents or future parents do not know that shaking a baby can lead to serious brain damage and death.

Because there is no centralized database and the diagnosis is not always obvious, it is very hard to assess the incidence and prevalence of SBS. Out of 600 possible cases reported to child-protection agencies in Canada in 1998, 354 were substantiated ($n = 189$) or suspected ($n = 165$). A study by Trocmé et al. (2001) revealed a more morbid situation: 46% of SBS victims appeared to have suffered previous abuse before diagnosis. Studies on the incidence of SBS must be interpreted cautiously, bearing in mind that there are children whose abuse goes unnoticed, children who die before their abuse is reported, and children whose abuse is reported or diagnosed under another category of child abuse, making it all the more important that health professionals be vigilant. The incidence reported in the literature is certainly an underestimate (Carbaugh, 2004).

Contextual Dynamics

The incidence of SBS peaks between 2.5 and 4 months, and it is estimated that the first episode likely occurs around 6 weeks, the average age at which crying peaks (Barr, Trent, & Cross, 2006). Indeed, a child's uncontrollable crying is reported to be the main trigger of parental violence (Barr, Paterson, MacMartin, Lehtonen, & Young, 2005), exacerbating anger and causing an adult to lose control. Infant crying is a very common reason for parents to consult health professionals because they often do not understand its cause and sometimes do not know how to react. Such situations are a major source of parental stress and often give rise to feelings of powerlessness, irritation, and being overwhelmed, especially during a crucial stage of transition and adaptation for couples. Anger is often an expression of profound confusion and dismay, which can lead to a loss of control.

Many parents have insufficient knowledge of the dangers of shaking a baby and the fragility of the infant brain. From 25% to 50% of parents or future parents do not know that shaking a child can result in brain damage or death (Showers, 1992). Many experts stress the importance of early intervention because the consequences of abuse are more severe and permanent for very young children (less

than 1 year) (Dias et al., 2005; DiScala, Sege, Li, & Reece, 2000; Showers, 1992, 2001).

Canadian Background

In 2001, Canada developed its own SBS guidelines with the publication of the *Joint Statement on Shaken Baby Syndrome*, which recommended the development of prevention programs (Health Canada, 2001). In Quebec, Sainte-Justine University Hospital became the leader in SBS prevention when it started its Shaken Baby Syndrome Prevention Project in 2001. Since then, among the more than 100 children younger than the age of 5 who have been hospitalized each year for abuse, almost 12% have been victims of SBS. Of these, as many as 3 younger than 1 year of age have died annually from SBS-induced brain injuries.

The hospital's Shaken Baby Syndrome Prevention Project comprises four strategies: (a) promoting awareness among all new parents, (b) supporting health professionals in detection and diagnosis, (c) promoting awareness in the general population, and (d) encouraging research and the creation of a database on SBS and other forms of child abuse. The current study relates to the first objective of the hospital's Shaken Baby Syndrome Prevention Project, that of promoting parental awareness. The purpose of the study was to evaluate the relevance of introducing an education program, called the Perinatal Shaken Baby Syndrome Prevention Program (PSBSPP), to all parents at the birth of the first child.

The PSBSPP

Many theoretical models were considered, analyzed, and discussed with experts over a period of 2 years to conceptualize a model supporting the PSBSPP. The stress theory of Lazarus and Folkman (1984) served as the basis for this study's theoretical model. Lazarus and Folkman emphasized the relationships among individual characteristics, environment, a stressful event, and coping. The stress theory allows consideration of the main concept behind the PSBSPP (i.e., stress and coping). The potential stressor is a baby's uncontrollable crying; this can trigger psychological and physiological reactions, namely anger. Violence can ensue as the expression of an increasing level of anger, leading to SBS. These links are neither linear nor static. Accordingly, the theoretical model on which the program is based has both cognitive (knowledge) and adaptive (coping strategies) dimensions (Figure 1). The left part of Figure 1 shows the methods

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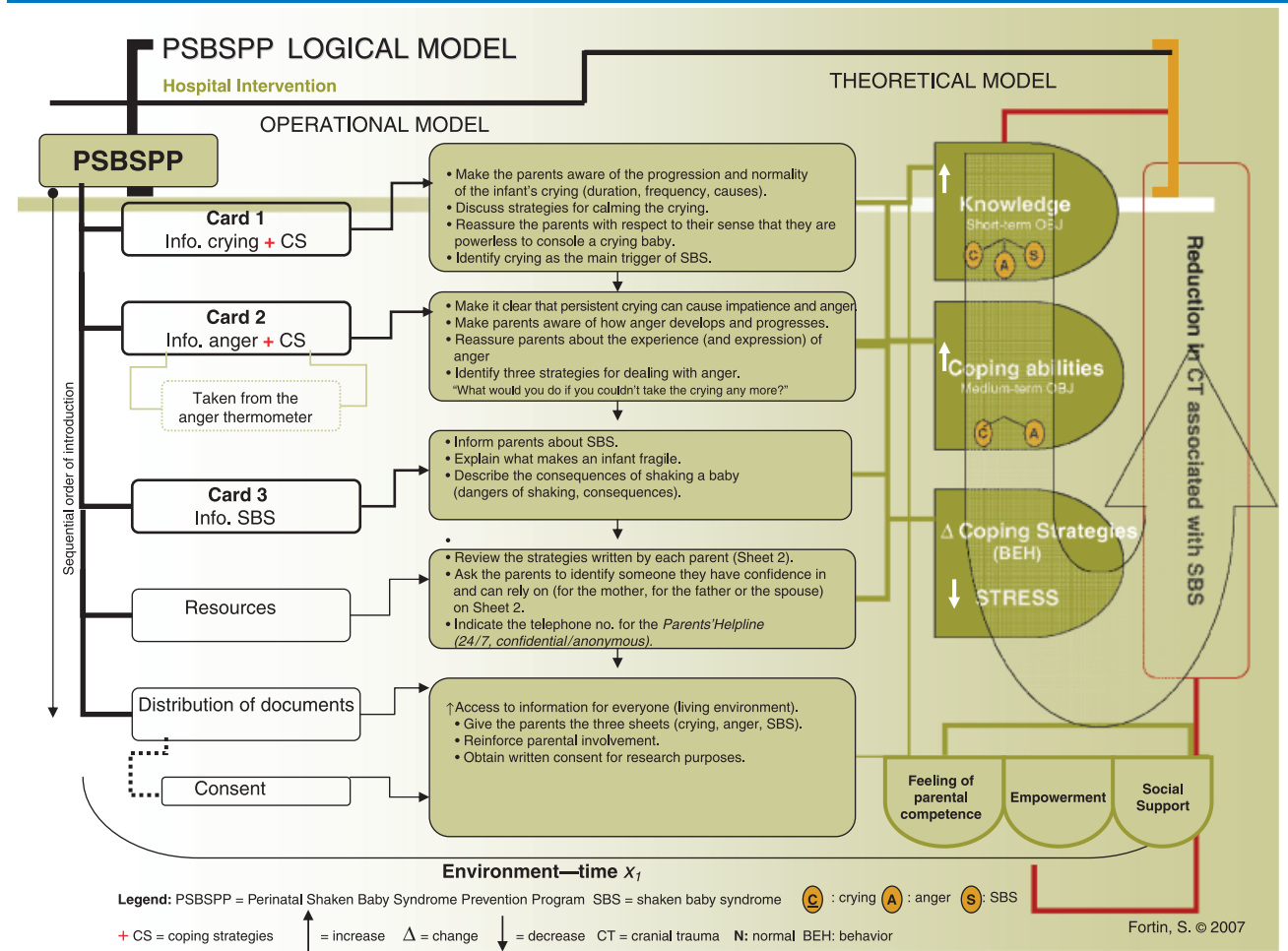


Figure 1. The logical model of the Perinatal Shaken Baby Syndrome Prevention Program.

and educational tools of the intervention. The middle part of the figure describes the specific objectives related to the use of those educational tools.

These two parts represent the operational aspect of the model and are linked to the theoretical concepts of the model on the right of the figure; that is, if knowledge can be increased about the stressor (infant crying), the triggered reaction (anger), its potential progression to violence, and SBS, while working on practical strategies to cope with anger, this could decrease stress and ensuing violence. The model emphasizes parental competencies, empowerment, and social support to decrease violence leading to the SBS.

Although inspired by existing programs, the PSBSPP has some innovative features. Whereas most child abuse prevention programs target at-risk parents, people caring for children, or even children

themselves, the PSBSPP considers SBS a public health problem. To this end, the program is intended for all parents of newborns, focusing directly on behaviors and attitudes that give rise to violence without considering risk factors. The PSBSPP provides specific tools to educate and support parents and professionals and is enhanced by adding the dimension of anger management and a framework that centers on the development and use of parental coping strategies.

The PSBSPP intervention focuses on the three main factors that contribute to SBS: infant crying, parental anger, and lack of knowledge about SBS (see Figure 1). Information that is provided focuses on the normalcy and progression of crying (frequency, duration, causes), the potential for crying to trigger anger and shaking, the dangers of shaking, and the importance of coping strategies when confronted by increasing anger. The PSBSPP is based on the principle that education

could reduce parents' recourse to violence, particularly considering that coping strategies are understood.

The objectives of the current study were to evaluate the suitability of the PSBSPP for widespread use by:

1. Determining parents' and nurses' assessments of the adequacy and relevance of the program.
2. Determining nurses' assessments of their training to deliver the program.

Methods

Evaluation of the intervention program was conducted in two hospitals: Sainte-Justine University Hospital in Montréal, which has approximately 3,500 births annually, and Pierre Le Gardeur Hospital in suburban Montréal, with about 2,000 births annually. Data were collected over a 6-month period.

All nurses working in the perinatal units of the two institutions were invited to participate in the prevention program. The nurses received 3 hours training and materials aimed at increasing their knowledge and improving their skills in educating parents about SBS. A questionnaire was distributed to all eligible nurses by a research assistant at least 2 months after the nurses had been trained to administer the intervention and after they had completed at least five interventions with parents. This questionnaire and the consent form were collected separately to protect anonymity.

Between July and December 2005, parents at both institutions received the SBS educational intervention during their postnatal hospital stay and were asked if they wanted to participate in the study. After consent was obtained, participants were asked to complete a brief sociodemographic questionnaire. Between 6 and 9 weeks after discharge, the parents participated in a telephone interview that was timed to coincide with the peak period of infant crying (Barr & the National Center on Shaken Baby Syndrome, 2002; Barr et al., 2005). This interview had been previously tested in a pilot study, and no revision was needed. In addition, 1 parent participant in 10 was recruited for a longer, qualitative, taped interview by telephone.

Intervention

The parents received the SBS education program from a nurse who used three double-sided cue

cards to address the three main factors: crying, anger, and lack of knowledge about SBS (Figures 2 through 4). Since the study, monitoring data have shown that the intervention was given to both parents in 80% of the cases. The first card described what to expect in terms of crying at various stages of the baby's early development, the second card dealt with parental anger and strategies to manage it, and the third card informed parents about the dangers and consequences of shaking a baby. Last, the nurse verified that parents knew about the prevention hotline for parents available 24 hours a day, 7 days a week.

After ensuring that the parents understood the information, the nurse asked them to formulate an action plan for dealing with incessant crying. The parents were left alone for a few minutes so that they could think about their strategies and write them down. The nurse then discussed the plan with them, answered any questions, and asked the parents to sign the plan, adding her own signature. The purpose of the signatures was to add moral weight to the plan for the benefit of the parents only. No official copy of the signed action plan was kept by the institution and it carried no legal implications.

The study combined qualitative and quantitative measures. This approach served both the formative and summative purposes of the study, allowing for the acquisition of information needed to improve the intervention before it is more widely introduced as well as assessing the achievement of the program goals and satisfaction of the participants.

There were two study groups: the parents receiving the intervention and the nurses delivering it. Eligible parents met the following criteria: (a) mother or father of a term infant, (b) had spent at least 24 hours in the hospital, (c) had received the SBS-prevention intervention, and (d) spoke and read French. Eligible nurses met the following criteria: (a) had been trained to administer the SBS intervention and (b) had delivered the intervention to at least five families.

Measures


The parents' baseline questionnaire contained sociodemographic questions regarding country of birth, education, age, and relationship with baby (mother, father, mother's partner, other). The subsequent telephone questionnaire, at approximately 6 weeks, comprised closed questions, including several Likert-type questions. The telephone questionnaire dealt with the relevance and usefulness of the information given in the intervention, the timing

“ He cried and cried without stopping
At first, it was mostly at night. Later, it seemed like he cried all the time!
I did everything I could think of, but nothing would comfort him. WHY? ”

1

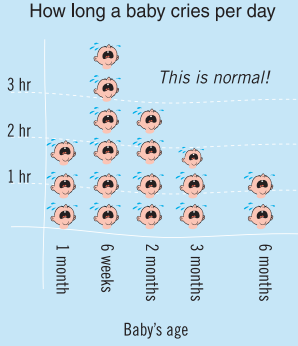
∴ the baby's cries

what to know ∴



No
to violence!

How long a baby cries per day




Baby's age	1 hr	2 hr	3 hr
1 month	4	2	1
6 weeks	3	3	2
2 months	2	2	2
3 months	1	1	1
6 months	1	0	0


Babies often cry because they are hungry, cold, tired, in pain or bored. Sometimes a baby keeps crying for no apparent reason, even if you have tried everything. All babies cry—some just more than others. It's normal. Between 15% and 30% of healthy babies fuss or cry more than three hours a day. Here are a few characteristics of babies who cry persistently:

- They cry more in the evening.
- They often cry for more than 30 minutes.
- Their faces become red.
- They draw their legs up to their belly, but are not in pain.
- Nothing comforts them.

Babies cry the most at around the age of six weeks. This is an important period of their development and their crying is a symptom of this change. They start to cry less at around three months.



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∴

∴ what to do?

Crying is very rarely related to a health problem. However, if your baby has a fever or diarrhea, is vomiting or has other symptoms that appear suddenly, consult a health-care professional right away.

Crying is often a source of concern for the person caring for the baby. It can become very irritating—even unbearable. To calm down your baby:

- Hold or rock your baby, if you are in a calm frame of mind
- Feed and burp your baby
- Change your baby's diaper or clothing
- Take your baby's temperature
- Change position of your baby
- Sing a few lullabies or play soft music
- Take your baby out for a walk in the carriage or stroller
- Lay your baby down gently in the crib, on the baby's back
- Dim the light
- Leave your baby alone in the crib for about 10 to 15 minutes

Remember...

- It does not good to try everything at once. Do one thing at a time.
- Crying, even when it's very loud and intense, won't harm the baby.
- There is no magic cure... Patience, self-control and help from someone else will get you through this difficult time and calm you down.

Crisis intervention helpline for parents
PARENT'S HELPLINE: 1 800 361-5085
Free. Confidential. Professional. Available 24/7

This information sheet is given to all parents. By working with you to plan ways to react during difficult situations with your baby, we can together protect your child's health.




Figure 2. The cue card on crying.


“ I felt my heart racing and I didn't know what else to do!
I felt my body getting warmer and warmer. I couldn't listen to him anymore, I only thought of shutting him up!
So, I screamed. WHY? ”

2

anger

what to know






No
to violence!

Frustration, impatience and anger are normal emotions that all parents experience at one time or another.


Anger is stirred up by something unexpected, involuntary and seemingly uncontrollable, such as your baby's crying.

We don't become angry right away. Anger grows from our thoughts and causes our body to react.


Here is how a parent's anger can grow when faced with a crying baby who can't be comforted:

MY THOUGHTS		MY REACTIONS
<ul style="list-style-type: none"> - Why is my baby crying? - I don't know what else to do. - My baby has no reason to cry. - I am all alone. - I didn't know my baby could cry so much! - I can't deal with this! - Why is my baby doing this to me? - That's enough, it has to stop. 		<ul style="list-style-type: none"> - I frown. - I raise my voice. - My neck and shoulder muscles tense up. - My heart races, I am short of breath. - I feel warm all over. - I have a headache. - I scream!

It is important to recognize the thoughts and reactions that built up when you become angry. You have to know your limit.



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action plan

What will you do if you can no longer listen to cry?

Father/Partner/Friend

1-

2-

3-

Reliable person that you can call

Father's signature:

Mother

1-

2-

3-

Reliable person that you can call

Mother's signature :

Your nurse:

Date:

what to do?

If you are having a difficult time with your child, talk about it. Such emotions do not make you a bad parent. Other parents go through the same feelings.

When you can no longer stand listening to your baby cry:

- 1 Lay her down gently in her crib
- 2 Step away and leave the room
- 3 Call someone (parent or friend)

<ul style="list-style-type: none"> <input type="checkbox"/> Take at least five deep breaths <input type="checkbox"/> Cry or yell <input type="checkbox"/> Go outside for a few minutes <input type="checkbox"/> Drink a glass of cold water <input type="checkbox"/> Say NO several time out loud <input type="checkbox"/> Count of 10, 20, 30 ... 	<ul style="list-style-type: none"> <input type="checkbox"/> Write down everything you are thinking <input type="checkbox"/> Listen to music <input type="checkbox"/> Put a soft object in your hand and squeeze it <input type="checkbox"/> Take a shower <input type="checkbox"/> If you are about to explode, punch a pillow
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Remember...

- You have to know your limit. Know when to step away from your baby and when it is safe to go back to him.
- There is no magic cure. Patience, self-control and help from someone else will get you through this difficult time and calm you down.

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Figure 3. The cue card for anger.

“ It was 10 o'clock at night. I was alone. He cried non-stop! I tried everything. I picked him up, although I shouldn't have. I shook him so he would stop crying. I don't know how many times... I loved him but I was beside myself. ”
- New father

3

∴ shaken baby syndrome

What to know ∴

Shaken baby syndrome (SBS) happens when an adult violently shakes a baby. The baby's head bounces about in every direction, which causes his brain to bleed and swell. When brain cells burst, they never heal. One baby in five dies as a result of such rough shaking.

After being shaken, the baby may become irritable and drowsy. The baby may vomit, have difficulty breathing or have a seizure.

YOU MUST CALL 911 IMMEDIATELY IF THIS HAPPENS.

Be careful: you cannot always see the injuries as they happen inside the head.

There can be serious consequences. The baby could become disabled and:

- Go blind
- Paralyzed (not able to run or walk)
- Have mental disabilities (difficulty speaking, not able to go to a regular school)

Other problems could arise as the baby gets older.

In some cases, he will need special care for the rest of his life.

- Shaking a baby has a major impact on the whole family, and for a long time.

BE CAREFUL: a baby is very FRAGILE

- A baby's brain is soft and delicate since it is still developing.
- The baby's head is heavy and their neck muscles are not strong enough to handle being shaken.

Shaken baby syndrome is not a resuscitation technique. The injury produced by shaking does not occur during normal play activities with your little ones.



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No to violence!

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NEVER EVER SHAKE A BABY, NO MATTER WHAT THE CIRCUMSTANCE!

AM I AT RISK?
Is my partner or spouse at risk?

- I am tired, I need sleep
- I'm having problems with those around me or in my relationship
- The baby has changed my life, but not as I had planned
- I am taking medication, or using alcohol or drugs
- I have financial troubles
- I feel that my baby is a burden
- My baby has a health problem
- My baby cries... for way too long
- None of the above, but "I've had it!"

The baby is crying. You changed his diaper, fed and burped him, he isn't too warm or too cold, and yet he is still crying! You don't know what else to do. You can't take it anymore!

∴ what to do?

- 1 Put the baby in a safe place, like in their crib.
- 2 Step away and leave the room.
- 3 Call for help: a friend, relative, someone you can rely on, CLSC nurse, telephone helpline, etc.
- 4 Check on the baby every 10 to 15 minutes.
- 5 WAIT until you have calmed down to pick the baby up again.

Remember...

- Tell EVERYONE who takes care of your baby (including babysitters) about shaken baby syndrome.
- Any person who is in contact with a crying baby is at risk.
- Draw up an action plan with them, just in case...
- Show them the information sheets on crying and anger.

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This information sheet is given to all parents. By working with you to plan ways to react during difficult situations with your baby, we can together protect your child's health.

Figure 4. The cue card explaining shaken baby syndrome.

of the intervention, and the parents' assessment of the information cards. The 20 minutes qualitative telephone interview, completed by 1 out of 10 participants, provided evidence to complement the data gathered in the questionnaire.

The nurses' questionnaire comprised closed questions regarding the nurses' sociodemographic profile, their assessment of the training they had received to administer the intervention, their assessment of the intervention and the relevance of the information given to the parents, and the setting in which the intervention was administered. All questionnaires and interviews were administered in French.

Data Analysis

Descriptive statistics were used for the demographic profile and to show trends. Bivariate analyses also allowed for the study of relationships

among parent gender, parity, and responses. Interviews were transcribed and analyzed. Only descriptive data from the interviews and direct quotes from taped interviews with parents are presented here. The study was approved by the Research Ethics Committees of Sainte-Justine University Hospital and Pierre Le Gardeur Hospital. Anonymity and confidentiality were ensured.

Results

Parent Profile

A total of 263 parents participated: 73.8% mothers and 26.2% fathers, including 34 couples. More than half (57%) of the respondents were age 27 to 35 years, 29% were 18 to 26, and 14% were over 35. About half (49%) of the families already had children. The majority (64%) of participants had a postsecondary degree, and most (90%) were born in Canada (Table 1).

Table 1: Sociodemographic Profile of Parents

Variable	Total Sample (N = 263)		Sainte-Justine (n = 99)		Pierre LeGardeur (n = 164)	
	n	%	n	%	n	%
Education						
Incomplete high school	20	8.4	10	10.1	10	7.1
Completed high school	43	18.1	13	13.1	30	21.3
Incomplete community college	22	9.3	6	6.1	16	11.3
Completed community college	51	21.5	13	13.1	38	27.0
Incomplete university degree	19	8.0	5	5.1	14	9.9
Completed university degree	82	34.6	49	49.5	33	23.4
Country of birth						
Canada	214	89.9	76	79.2	138	97.2
Other ^a	24	10.1	20	20.8	4	2.8
Country of birth of parent's mother						
Canada	209	87.8	71	74.0	138	97.2
Other ^b	29	12.2	25	26.0	4	2.8
Country of birth of parent's father						
Canada	203	85.3	67	69.8	136	95.8
Other ^c	35	14.7	29	30.2	2	4.2

Note.

^aOther countries included: Haiti (7), France (3), Algeria (3), Morocco (2), Switzerland (1), Belgium (1), Egypt (1), Germany (1), El Salvador (1), Bulgaria (1), Ivory Coast (1), Vietnam (1), Argentina (1).

^bOther countries included: Haiti (9), France (4), Algeria (3), Italy (2), Belgium (1), Egypt (1), Chile (1), Germany (1), El Salvador (1), Bulgaria (1), Finland (1), Togo (1), Vietnam (1), Argentina (1), Morocco (1).

^cOther countries included: Haiti (9), France (7), Algeria (3), Morocco (3), Italy (2), Egypt (2), Belgium (1), Germany (1), Cuba (1), El Salvador (1), Bulgaria (1), Togo (1), Portugal (1), Vietnam (1), Argentina (1).

Nurse Profile

A total of 85 nurses from Sainte-Justine and 72 from Pierre Le Gardeur were trained to carry out the intervention with parents; however, 69 nurses completed the study. They had from 0 to 37 years of nursing experience, with an average of 17.3 years ($SD = 11.9$) and a median of 18.5 years (Table 2). The nurses had somewhat less perinatal experience ($M = 10.4$, $SD = 9.4$; median = 7 years). Nearly 74% of the nurses had a community-college diploma, whereas 26% held an undergraduate degree. Chi-square analyses showed no differences between results for parents or nurses from each hospital; therefore, results from both institutions were combined.

Overall Assessment of the Intervention and of the Nurses' Role

Table 3 describes parents' overall assessment of the intervention and the nurses' role. The results indicate that the PSBSPP was highly relevant, especially for new parents. Almost all (98%) parents appreciated the intervention, and 99.6% agreed that it should be continued. Only 1.5% of parents considered the information they received to be of no use at all.

That the crying peak is at six weeks, well . . . when my little boy was six weeks old, you could say I focussed on that . . . You could say it reassured me to know it was normal . . . Like we don't feel we're bad parents for all that . . . feeling a little overwhelmed by the situation and saying, "So quit crying!" . . . It doesn't take much, and there's an injury.

There was less agreement on the time chosen for the intervention. Although 60.5% of parents preferred receiving the intervention in the hospital, 21.7% would have preferred to receive it during the postnatal home visit by the nurse, and 17.9% would have preferred dealing with the subject before the birth of their infant. However, there was no doubt as to the relevance of the nurses' participation; the majority (94%) of parents agreed that simply receiving the information cards without the nurses' participation would have been insufficient.

I thought it was good . . . It wouldn't have been right to say, okay, take the cards and read them, and that's that . . . I found we weren't left on our own, so there was no risk that we would not read the cards.

Table 2: Sociodemographic Profile of Nurses

	Total Sample ($N = 69$)	Sainte-Justine ($n = 42$)	Pierre LeGardeur ($n = 27$)
Variable	n (%), \bar{x}	n (%), \bar{x}	n (%), \bar{x}
Years of nursing experience			
$M \pm SD$	17.3 \pm 11.9	20.3 \pm 12.5	12.8 \pm 9.3
Median	18.5	25.5	14.0
Range	37.0	36.8	32.0
Years of perinatal nursing experience			
$M \pm SD$	10.4 \pm 9.4	2.2 \pm 10.0	7.8 \pm 7.9
Median	7.0	9.0	3.8
Range	36.0	36.9	25.0
Degree obtained			
College diploma	51 (73.9)	28 (66.7)	23 (85.2)
Undergraduate	18 (26.1)	14 (33.3)	4 (14.8)
Status of nurse			
Regular staff	44 (74.6)	31 (73.8)	23 (85.2)
On-call staff	3 (5.1)	1 (2.4)	2 (7.4)
Assistant unit head	10 (16.9)	8 (19.0)	2 (7.4)
Other	2 (3.4)	2 (4.8)	0 (0.0)

The information on the cards concerning infant crying and parental anger helped almost half of the parents in situations of an infant’s intense crying.

As for the nurses, they were unanimous that the intervention was appropriate and that its continuation was very important. Almost all of them agreed that the intervention was well received by the parents (53% somewhat agree; 45% strongly agree). The nurses felt comfortable intervening with parents about SBS, but 28% believed that not all nurses could perform this type of intervention. On the other hand, very few of the nurses ($n = 2$) felt that the intervention had failed to meet the parents’ needs.

Information Cue Cards

According to the majority of the parents, the cue cards were appreciated, highly relevant, and easy to understand. Almost all (99.6%) parents emphasized the importance of giving the cards to every parent at the birth of their child. They also noted the quality of the cards, particularly the quantity of information they provided and their visual presentation (see Table 4).

Yes, it was good . . . I think that’s the main thing. If it’d been a document with lots of writ-

ing, I think it might have been discouraging. But you can read short cards like that quickly, and you’ve got the point.

Graphically it looks good . . . The information is really clear, well laid out. I remember that, it was very clear. I liked the little lines where we could write in our solutions.

A total of 57% of the parents said they learned either a great deal (51%), or a very great deal (6%) from the card about crying, and 52% said they learned either a great deal (46%) or a very great deal (6%) from the card about anger. The card on SBS had the greatest impact in terms of disseminating new knowledge: 61% of parents reported learning either a great deal (45%) or a very great deal (16%) from it.

I think it made me aware of the fact that, basically, we have to have our resources ready . . . like, exactly who’s going to help us get through these times that everyone experiences?

Almost 80% of parents said they thought about the information cards after returning home; however, the majority (55%) did not think about them often. Most parents (63.5%) did not look at the cards again, and among those who did, 59% did so only once, 30.5% did so two or three times, and 10.5% did so four times or more.

Table 3: Overall Assessment of the Intervention and the Role of the Nurse (%)

Variable	1 <i>Not At All^a</i>	2 <i>Not Very Much</i>	3 <i>Somewhat</i>	4 <i>Very Much</i>
Parents ($n = 263$)				
Appreciate nurse’s intervention	—	2.3	35.0	62.7
Information given is useful	1.5	8.7	41.4	48.3
Nurses ($n = 69$)				
Recommended intervention seems appropriate	—	—	43.1	56.9
Intervention does not seem to meet parents’ needs	60.9	35.9	1.6	1.6
Nurse feels comfortable intervening with parents about SBS	—	7.9	50.8	41.3
Not all nurses can perform this SBS intervention	32.4	39.7	19.1	8.8
Nurse’s intervention is well received by the parents	—	1.6	53.1	45.3
It is important that the program continue	—	—	26.9	73.1

Note.
^aResponse categories ranged from 1 = appreciate not at all/not at all useful/agree not at all/not at all important to 4 = appreciate very much/very useful/very much agree/very important.
 SBS = shaken baby syndrome.

Table 4: Information Cards

Criterion	Parents' Component (n = 263)				Nurses' Component (n = 69)			
	Strongly Disagree	Somewhat Disagree	Somewhat Agree	Strongly Agree	Strongly Disagree	Somewhat Disagree	Somewhat Agree	Strongly Agree
Relevance								
Information on the cards is interesting	—	1.5	36.3	62.2	1.5	—	14.7	83.8
Information on the cards is useful	0.4	3.4	34.4	61.8	NA	NA	NA	NA
Cards support the intervention well	NA	NA	NA	NA	—	—	19.7	80.3
Comfortable with information on cards	98.1	1.9	—	—	—	1.5	38.8	59.7
Specific criteria								
Amount of information is appropriate	—	3.8	38.2	58.0	4.5	—	35.8	59.7
Visual presentation is not pleasing	—	1.9	40.8	57.6	68.7	25.4	3.0	3.0
Information provided is hard to understand	98.1	1.9	—	—	73.1	26.9	—	—
Educational characteristics								
Cards allowed us to acquire new knowledge	5.0	17.9	42.0	35.1	—	1.5	28.4	70.1

Although these results cannot show whether the information cards helped reduce parental stress, which was not measured, they nonetheless indicate that almost half (44.5%) of the parents found the cards about crying and anger helpful in situations where the baby's crying was particularly intense.

Yes, but there was one day when the baby cried all day for no reason . . . or for no reason we could find. You might not think it, but a baby crying for a whole day gets to be hard to take . . . Just to say, well, that's it, that's where you're vulnerable.

For their part, all the nurses agreed on the importance of giving the three information cards to the parents. They agreed that the information on the cards was relevant and easy to understand and that the amount of information and the visual quality of the cards were adequate (see Table 4). All nurses reported having benefited from the support of the information cards in their meetings with the parents. Furthermore, they were almost unanimous in saying that they learned something new.

Action Plan

Almost every (98%) parent wrote an action plan at the hospital and confirmed that it was useful. Only 1.6% did not consider it useful (see Table 5). The parents' action plans included about 20 different actions, including listening to music, doing cross-words, taking a drive, or doing yoga. The actions parents identified most often to respond to stress brought on by their baby's crying were as follows: putting the baby to bed and leaving the room (32%), calling a family member or friend for help or support, or taking a walk and letting their spouse take over. The first two coping strategies were given as examples on the information card. Six to eight weeks after returning home, nearly half the participants (47%) remembered one or two actions from their plan, and only 8% did not remember any at all.

But in practice, I think I applied it anyway . . . Calling a friend or relative, I did that . . . Putting the baby in a safe place and, on my part, venting for the anger, I did that. No, I didn't get into an extreme situation, but

Table 5: Relevance of Action Plan and Signatures

Item	Parents' Component (n = 269)				Nurses' Component (n = 69)			
	1 <i>Not at All</i>	2 <i>Not Very</i>	3 <i>Somewhat</i>	4 <i>Very</i>	1 <i>Not at All</i>	2 <i>Not Very</i>	3 <i>Somewhat</i>	4 <i>Very</i>
Usefulness of action plan	1.6	8.1	35.7	54.7	3.0	13.6	39.4	43.9
Relevance of signing the action plan	13.8	37.0	30.1	19.1	4.6	24.6	32.3	38.5
Relevance of nurse's signature	18.6	29.4	36.7	15.3	10.8	27.7	29.2	32.3

Note. Response categories ranged from 1 = *not at all useful/relevant* to 4 = *very useful/very relevant*.

I've given you the answers I wrote down two months ago, so it's still fresh in my mind.

The relevance of the parents' and nurses' signatures was not convincingly demonstrated. Most of the parents (93.5%) supported signing the plan, but only 19% considered the exercise very relevant, and 51% thought it had either little (37%) or no relevance at all (14%). Moreover, 29.2% of the nurses believed the parents' signatures had no relevance.

As for the nurses' signatures, 26% of parents did not recall if the nurse had actually signed, and 6% said she had not. Furthermore, 48% of parents and 39% of nurses thought the nurses' signatures had little relevance or no relevance at all.

Parents' Suggestions for Improving the Program

The parents' two most frequent suggestions for improving the program were for follow-up after their return home, particularly during the peak crying period (6 weeks), and more detailed information on SBS. In particular, they wanted more information about the injuries and consequences for babies who are victims of SBS and were interested in examples from daily life of parents who were at the end of their tether because of persistent crying.

A few more—perhaps more explicit—pictures . . . And with pictures, as I say, pictures explain everything.

Differences According to Parent Gender and Parity

Bivariate analyses suggested that new parents found the information more useful than those who already had children, $\chi^2(3, N = 259) = 9.01, p = .029$. New parents also thought more about the information after returning home, $\chi^2(3, N =$

259) = 13.29, $p = .004$, and learned more from the cue cards, particularly the ones on crying, $\chi^2(4, N = 259) = 10.02, p = .040$, and SBS, $\chi^2(4, N = 259) = 16.69, p = .002$. The only differences by gender pertained to the degree of satisfaction. More fathers than mothers qualified their answers as *somewhat agree*, whereas more mothers said they strongly agreed with the statements regarding the usefulness of the cue cards.

Assessment of the Training Given to the Nurses

All of the nurses were either somewhat satisfied (27.5%) or highly satisfied (72.5%) with the training they received and felt that the information given during their training was interesting (see Table 6). The majority agreed with the following statements: "The information given is easy to understand," "there is good balance between the quantity of scientific information and the practical exercises," "the learning activities foster the appropriation of knowledge," "the training is good preparation for intervening with parents," and "the length of training is well suited to the content."

Furthermore, the nurses said the support materials they received in the form of a quick-reference card and guide booklet were relevant and facilitated their administration of the intervention. The majority of nurses believed that the quick-reference card helped them understand the prevention program and adequately supported them in preparing for the intervention and almost all of the nurses said it should be given during their formal training. Furthermore, they said the nurses' guide booklet facilitated their participation in the training and agreed it should be given to every nurse as part of the training.

Introduction of the Program

More than three fourths of the nurses mentioned that implementation of the program was well

Table 6: Assessment of Nurses' Training

Assessment variable	Strongly Disagree	Somewhat Disagree	Somewhat Agree	Strongly Agree
Various aspects of training				
Information provided in the training is interesting	—	—	10.1	89.9
Information provided in the training is hard to understand	76.8	18.8	—	4.3
Training is well balanced in terms of the amount of scientific information and practical exercises	—	2.9	42.6	54.4
Learning activities (quizzes, simulations, role playing) do not make the appropriation of knowledge easy	59.7	28.4	9.0	3.0
Overall, training prepares a nurse well for intervening with parents	—	1.4	40.6	58.6
Length of the training is well suited to the content	2.9	8.7	37.7	50.7
Educational tools distributed during training				
Nurse's guide booklet and quick reference card help the nurses adequately	3.1	4.7	50.0	42.2
Quick-reference card supports the intervention adequately	—	1.4	31.9	66.7
Quick-reference card does not help one understand the prevention program	69.1	25.0	4.4	1.5
Quick-reference card should be given to all nurses as part of the training	—	1.4	18.8	79.7
Nurse's guide booklet makes it easier for her to take part	—	—	38.1	61.9
Nurse's guide booklet does not have to be given to all nurses as part of the training	65.6	26.6	3.1	4.7

received. Although nearly two thirds of them agreed that the intervention fit well with their regular activities, approximately 70% felt that it was not easy to find an appropriate time for the intervention, particularly because it involved both parents.

Discussion

The PSBSPP achieved its goal of increasing parents' knowledge about infant crying, anger, and SBS. The educational tools were highly appreciated. Another goal of the program was also attained in that parents had identified and used anger management skills and personal coping strategies for infant crying. Nurses were satisfied with the training they had for this intervention, and they found that the intervention was well received by parents. This study supports the relevance of introducing the PSBSPP in all hospitals, community centers, and community health departments. Both parents and nurses embraced the initiative and stressed its significance.

Nurses also mentioned it was a sensitive but realistic intervention (5-10 minutes), although it was sometimes difficult to find a time where both parents were present. However, during the usually

short length of stay in the hospital, the nurses could find the time to deliver the intervention to both parents most of the time. An ongoing monitoring program in the two hospitals reveals that more than 85% of parents are now receiving the intervention.

Comparing the 3 hours training session for nurses with the cost of caring for a child victim of SBS, this program is a cost effective intervention, and similar interventions have been proven effective in reducing SBS (Dias et al., 2005; Shower, 1992). Moreover, this intervention relied on a sound theoretical framework that incorporated anger as a factor between infant crying and SBS and the practice of reflecting and writing in advance one's own coping strategies.

The timing of the intervention has been extensively discussed with public health authorities in this region. Most parents (61%) agreed with the in-hospital intervention, and very few (18%) would have preferred a prenatal intervention. It was mentioned that in the prenatal phase mothers and fathers were not preoccupied by these topics and infant crying became a reality when they were in contact with their baby. Prevention programs that have shown a positive effect on parents' knowledge

Both parents and nurses confirmed that the program was relevant and that its introduction would be important at all birthing institutions.

and a decrease of SBS emphasize early and in-hospital intervention (Dias et al., 2005; Shower, 1992). The intention in this study was to add a second phase to the PSBSPP, with a follow-up during the postnatal home visit or a follow-up during the first vaccination session at 2 months. This would reinforce the parents' coping strategies and provide a "booster" to the hospital postnatal intervention.

This study has some limitations. An important restructuring of nursing work at one site during the study explains the low participation rate of nurses. The intervention was given 24 to 48 hours postbirth, and parents' readiness and receptivity could have been less than optimal, although 61% of the parents mentioned they preferred to receive the intervention at that time. The study did not measure actual knowledge; it relied on perception of increased knowledge, although in the verbatim transcripts, it was clear that parents learned about infant crying, anger, coping strategies, and SBS. In the interviews, parents indicated that stress was reduced in some cases, but it is difficult to assess objectively if stress was reduced during all episodes of infant crying. However, almost half of parents mentioned the information was helpful in situations where the baby's crying was particularly intense. The study did not measure whether the intervention actually decreased the incidence of SBS. To do so, one would need a national register of cases of SBS. The results also do not allow the authors to state that a one-time intervention is sufficient to decrease SBS. At a time of intense stress, it is possible that parents will forget their coping strategies. However, Dias et al. (2005) did a one-time intervention and found a decrease in SBS.

Future studies are needed to ensure that this intervention is as powerful as it seems. Even though the program is intended for universal application and has been developed to educate all parents, future studies could evaluate its implementation and outcomes with more vulnerable populations. In addition, might the program be suitable to specific groups (e.g., linguistic, ethnic, etc.) to provide a culturally congruent approach? It also is important to develop a national SBS registry so that a randomized trial or a longitudinal follow-up study could determine if implementation of the PSBSPP reduces the incidence of SBS.

All men and women who feel powerless when faced with a crying infant are at risk of losing control over their emotions and actions, whether at home or in a child care environment. The reduction of death and sequelae resulting from SBS depends on implementing preventive measures, particularly with parents but also with others who care for an infant. To this end, information on SBS should be provided to all families, like information on breastfeeding, car seats, and vaccination. This program should be part of the educational training of all health professionals.

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