BABIES IN THE PICTURE

The effect of video home training and video interaction guidance for parents with babies who excessively cry

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The crying behaviour of 518 babies was the subject of this project. Of the babies' parents, 97 (18.7%) believed their child cried excessively during the initial five months of their lives. Only 9.1% of these parents asked for guidance at the health centre for parents and babies or consulted the hospital paediatrician. Therefore, 9.6% did not signal their concern or were not heard by the professionals. This sample of parents was given guidance by the health visitors from the health centre or by the nurses or social workers from the paediatric ward of the hospital. Part of the group (n= 39) received support by means of Video Home Training (VHT) provided by youth health care or Video Interaction Guidance (VIG) provided by clinical health care. The other part of the group of parents (n= 58) received the regular guidance for their crying babies. The parents' feelings about the crying behaviour of the babies and about their contact with the babies were measured at four points over one and a half years. The first measuring point was prior to any form of support. The second measurement was conducted one month after the support was concluded, the third measurement three months afterwards and the fourth measurement one and a half year afterwards. All parents, including those of normally developing infants, experienced an increase in crying in the initial five months. The extent to which the crying increased differed significantly between the groups. The increase in crying was less for those parents who were supported using Video Home Training or Video Interaction Guidance, compared with the parents who had regular guidance. The difference was particularly significant in the long term (18 months).

All parents indicate that they feel increasing contact with the baby during the first few months. However, the increase in the contact between parent and child who were guided with VHT/VIG was significantly larger than the increase in the contact between parent and child who received regular guidance. An independent t-test showed that the difference between the two intervention groups occurred immediately after VIG/VHT intervention in the first 3 months of the treatment. It did not matter whether the guidance was given from youth health care or clinical health care.

The difference in the satisfaction of the parents about the support they received was also measured. Parents who had been supported with VHT/ VIG were more satisfied about the support than parents who had been supported with the regular methods.

The use of medical services for both groups was also recorded during the first 18 months. The VHT/VIG group made less use of medical services than the regular group.
Nevertheless, the group of babies who cry excessively remain vulnerable, being more at risk of later problems. Parents of excessively crying babies say that they have more problems with their babies compared with the parents of normal crying babies. This applies to eating and sleeping behaviour and to the temperament of the children.

Introduction

Parents and babies want to make contact with each other from the beginning. This longing for good mutual contact is lifelong. The quality of contact suffers when the baby is crying all the time during the first months or is very restless with no clear explanation. That's why it is important to give support as early and as lightly as possible when early contact is difficult. Parents search for support in their families, but often also from medical professionals because they think there's something physical wrong with the child. The family doctor, the doctor of the youth care centre and the paediatrician are often focussed on physical causes or feeding causes and pay less attention to the interaction.
Since the beginning of the 1990's video-hometraining (VHT) has been offered by the Youth Health Care and video interaction guidance (VIG) has been offered by the clinical care. A short video-tape will be made of the parent and the child during a daily moment of care-taking (change diaper, bathing). A specially trained healthcare worker reviews the video-tape with the parents. An analysis from the pattern of the interactions follows based on a basic communication schedule. The guidance consists of one to five sessions over one till three weeks. So the guidance is short and intensive.

Background and Literature

VHT in Healthcare
In Healthcare there was a need, not only to refer parents for help to the Youth Care, but to help at once. Especially the parents who were not (yet) at crisis point, but already had some questions about the education of their children.

> *VHT is a form of educational support to parents of children aged 0-4 year, where parents are helped as quickly and lightly as possible in their own (home)situation with videotapes. The support is suitable in the regular support of the caretaker and takes maximal 3 to 4 video-tapes. VHT is used when parents sign that they are becoming overwhelmed. (Eliëns, 1996, 2000).*

VHT in Healthcare is indicated when families can be helped in a short time in a maximum eight home visits, in which the parents gets support in caring, basic communication, development of the language and supporting the handling of the baby (Willems-Goethals & Verhagen, 1999).

Early signals for risk groups of babies

There is no explanation needed to express the importance of supporting parents in an early stage of life. VHT in healthcare is used mainly in prevention. VHT can be offered in a great range of the population and is very suitable as it can identify the first signals of the parents of educational problems (Hermanns, 2001). Attention to feeding, clean water, living, hygiene, safety, etc. is still very important in the consultations; however attention to emotional problems is growing. For parents and carers it is important to know that the prognosis for an excessively crying child in the first three months can be positive. The negative behaviour decreases or even disappears when parents succeed to keep a high level of responsivity and sensitive interactions. Parents with questions about the crying behaviour of their baby should be helped as early as possible(Van der Wal & Pauw-Plomp, 1998).
Elliot et al. (1997) pointed out the importance of early postnatal visits by health centre-workers to support parents in managing the crying baby and in feeling competent. The parents are in this stage of life are still receptive of information and it is crucial to support them in the first few years for the sake of bonding and the development of attunement between parent and child (Bowlby & Ainsworth, 1969 in: Acebo & Thomas, 1994; Brazelton, 1985; Donovan et al., 1998; Papoušek & Papoušek, 1990; Riksen-Walraven, 2002).

VIB in the clinical setting of the hospital
From 1990 video-interaction guidance (VIG) has been used in the Netherlands as a clinical guidance for parents of premature babies and parents of crying children in the Dutch hospitals. Parents end up in a medical environment with their child, while nurses and doctors are often not educated to give social-emotional support. VIG in the children's ward is used especially for parents who come to the hospital with a crying baby for which no physical cause is found. The method of VHT is adjusted to fit with the specific needs and tasks of the workers in clinical healthcare.

> *VIG is a method for nurses in the clinical setting and for pedagogic workers in the psychological setting, that can be used for prevention and guidance to support the attunement and positive in the contact between parent and child during their stay in hospital (Eliëns, 1990, 2001).*

One of the most important goals for the children's department is to guide the child towards a healthy life as possible. During the stay in the hospital , experiences should be as positive as possible for the child so the development of the child can continue. Thus, concern for the wellbeing of the child means not only attention to the disease. The nurse has not only the "sick" part to work on, but will also have to consider the "healthy" part in the

context of the total (Van der Bruggen, 1989). Health and recovery are closely connected with the emotional situation of the child and his parents. A crying baby has strong initiatives to develop. It is important that the parents keep seeing these "healthy" initiatives and support them. With "stills" on video one can focus on the healthy moments, so they are a good counterbalance for the thoughts parents have about their "sick" child (Biemans, 1991). This way parents can be helped to keep seeing the healthy side of their child, despite the extreme crying.

Children seek contact with their parents right after birth

The basic principle of VHT and VIG is the fact that the child shows in his behaviour that he constantly seeks contact with the parent. These initiatives to make contact are very obvious and one can show these initiatives to the parents with stills. Videotapes, often in slow motion, give the opportunity to look at and to analyse the initiatives to make contact between the parent and the child. Children need parents who are alert to the constantly changing desires of children for development. Responses to these initiatives are the basis for development of children (Dekker & Biemans, 1994). This is the fundamental to the method, whose beginnings are found in the research done in the 1970's by different ethologists. The dynamic of the interaction turn out to be the fact that parents are capable of attuning to the developmental needs of the child, again and again. At each moment of caring, parents are occupied with getting to know the baby and are constantly attuning themselves with the child. They use their intuition and their sensitivity to catch the signals of the child (Papoušek en Papoušek,1990; Trevarthen, 1989). It is the period where attunement between the parent and the child is experienced by the parent at an emotional level. The period where one is exploring and where one is getting to know each other. Body language plays a very important role, because it transfers feelings and meanings. The self esteem of the child is based on the countless messages the child receives through the communication between the parent and the child throughout each day.

By reviewing the video-tapes and the use of 'stills' the parents can see that their child still has a lot of initiatives to seek contact with him or her. This gives a process of awakening in the parent.

In recent years considerable research has been done on the neurobiological processes in babies' brains. In the first years of life there are more connections between brain cells made than in what other period of life (Riksen-Walraven, 2002). One can therefore propose that the intuitive, unaware and subtle process of making contact with the baby , maybe influenced by neurobiological factors, which represents itself in the right half of the brain. It is the non-verbal emotional communication via expressions of the face, gestures and intonation of the voice that are important. The exchanges between parents and child are very intense in these first years of live and offer a great variation of information: eye contact, facial expressions, vocalisations, hand-, arm-, and head movements and tactile exchange (Feldman et al.,1996; Riksen-Walraven, 2002; Trevarthen, 1993a). Especially "well-tuned" interactions are proved to be conducive for early brain development (Riksen-Walraven, 2002). On the videotapes one can locate moments when there are good attuned interactions. VHT/VIG has an awakening effect for the parent of the positive initiatives of their child, which are still there, even if the child is crying a lot.

Emotional contact

Emotional development begins with the process of attunement between parent and child. When the need for love, affection, desire, empathy, acceptation and safety is not been seen or heard by the mother, there will be emotional shortcomings and "mis-tuned" babies later on (Gunnar, 1996 in: Hosking, 2001). Babies have a functional system that organizes the emotions. When the mutual interest and the pleasure in having contact is disturbed, the baby will immediately draw back in confusion and protest (Trevarthen,1992). That is why babies flourish on warmth, responsive and sensitive care in an early stage. However, there has not been much research done on the emotions of babies. There is some evidence to show that babies notice emotions in other persons and react to them. This skill can be discovered on video-tapes.

Empowerment

In VHT and VIG with excessive crying babies it is important that parents are increasing feeling "strong" in their behaviour with the baby and that they are capable of reducing the crying. Empowerment theory is important here. The problem solving capability of the parent , in other words "empowerment" , is greatly underestimated in healthcare. The process of empowerment increases the motivation , the self-esteem, the behaviour, the knowledge and the efficiency of the parent (Wels, 2001). To cope with a crying baby it is important to activate the parent to find his own solutions and feelings of competence. Parents, who have to cope with a crying baby report feelings of being overwhelmed, stressed and having negative feelings towards the child. These negative feelings are for instance incompetence, powerlessness, feeling rejected, depressive, lack of self-confidence in the care-taking, irritation and not being able to be responsive towards the child (Elliott et al., 1997). Keeping the self-confidence of the parent as high as possible is very important, especially with problematic crying.

Feelings towards the child; from negative to positive

When one looks at the video-tape together with the parents, there is almost always an emotional reaction in the first second. Parents are moved by the images of their own child and they are very vulnerable. Hormonal changes In this period play an important part in the emotional reactions of the mothers (De Boer, 1991). Parents in hospitals are very vulnerable and most of the time are worried about the well-being of their child. Emotions and feelings are dominant.

The positive experience of the review of successful moments enables parents able to hold on to and adapt to new situations and new phases of development in the child. The parent becomes more competent. When the

parent gets a different feeling about the child, it has more effect, than when the parent gets rules of behaviour or rules of education learned.
So the guidance-strategy does not have to be focussed on change of behaviour of the parent, but has to be focussed on a change of feelings about the child. Positive emotions have a destructive effect on negative emotions (Fredrickson, 2000). This method gives the parent (again) a positive idea of their child via the video. The carer is focussed on changing the feelings for the child, changing the atmosphere, changing the contact with the child . These are important in the bonding with the babies.

Previous Research
There has been too little research done in the Netherlands at the effects of the method. However the method was developed in the 1980's and used nowadays in different working environments, like youth care, foster care, teaching, disabled care, healthcare, day-care centre, research is a left behind area.
Within the youth care there is some research done to assess the effects (Van den Boogaart & Wintels, 1988; Ministerie van Welzijn, Volksgezondheid en Cultuur, 1988; Wintels, Van den Boogaart & Mensman Schultz, 1989) and some research on specific populations, like ADHD children (Wels, Jansen & Pelders,1994; Wels & Jansen, 1995;) and different methods are compared with each other (Vogelvang,1993). Besides this there have been attempts to look at how to analyse the video data (Janssens & Kemper,1996a en b; Kemper en Janssens,1997; Van der Linden, 2000; Muris, Vernaus en Van Hooren,1995; Simpson, Forsyth & Kennedy, 1995).
Within healthcare there is one research known in the EmmaChildhospital/AMC (Kat, 2002), which proves that parents are using the elements of the basic communication more after the VIG . Parents are in general positive about the way they were guided with VIG.

VIG in (Youth) Healthcare
VHT and VIG in Healthcare is often applied when parents come to the healthcentre or the paediatrician with complaints about the crying of the baby. The literature gives outcomes on the occurrence of crying at one out of five children (Barr, 1996; St. James-Roberts & Plewis, 1998; Van der Wal en Pauw-Plomp, 1998). Besides that, excessive crying creates more risk of problems with eating, sleeping and temperament later on when the children reach the toddler stage (St, James-Roberts et al., 1998, Strassburg et al., 1990; Elliot et al., 1997). This also turns out to be the experience of healthcare workers. The parents of the crying babies are having more problems later on with their babies. This was the reason for this research looking at the effect of VHT/VIG about the effect of VHT/VIG for this parents at an early stage. Maybe it is possible both to reduce the crying and to prevent problems at the toddler stage.

Methodology

Design
All parents were asked how they feel about the crying of the baby. Two intervention groups has been selected:

- **VHT/VIG guided**- Children who cried excessive and which parents were guided with VHT/VIG
- **Regular guided** - Children who cried excessive and which parents were guided in the standard, regular way.

Some parents were asked to participate in the research before it was obvious that the child should start crying in a extreme way. The form of guidance that they received was not controlled. Beside that, a group of parents were asked to join the research at the moment the child was crying, but before any form of guidance had been offered. Parents filled in a form themselves agreeing to join the research project. They did not know it was a research about VHT/VIG guidance, nor did they know which group they were and the healthcare workers did not know which parents were participating. The children who cried for unknown reasons were included. The children who cried because of physical reasons, feeding problems or any other clear indication were excluded.

Research Questions
How does the VHT/VIG guided groups compare with the regular guided group and the normal crying group on the following 4 measures each at four moments.

- H1 The feelings of the parents about the crying of the baby
- H2 The feelings of the parents about their contact with the baby.
- H3 The satisfaction with the guidance received
- H4 The medical consumption
- H5 The feelings of the parents about the eating, sleeping behaviour and the temperament of the babies.

The measurements
Because the literature gives a peak of the crying between five and eight weeks (Barr et al.,1996), the first measure took place at the age of one month with all children. The parents of the babies who were crying excessively were asked to fill in the first form before they were guided. The second measurement took place at the age of three months or three months after guidance. The parents received only VHT/VIG guidance between the first measure and the second measure. The other parents received regular guidance in the standard way. In

literature (Barr et al.,1996; St. James-Roberts et al.,1998; Vomberg et al.,1995) is proved that a lot of babies become much calmer after three months. This is why a third measure was done at five months or with the crying group five months after guidance. A fourth measurement at the age of one and a half year with all children so that development over time could be charted.
The finally group excessive crying babies (n= 55) who formed the intervention group after one and a half year , were these babies which parents feel that they had a problem with the crying during the first five months after birth, but did not complain and the parents who came with complaints about the crying in the health centre or in the hospital. Some parents (with complaints) were guided with VHT or VIG (n=23) en some parents (with or without complains) were regular guided (n=32).

The method
VHT/VIG is focussed on the contact between parent and child. Therefore it was important to use a standardized and valid questionnaire, which contained questions about contact and feelings of the parent. The BABY-KIPPPI of Kousemaker (1999) was most attractive because it was meant for the age category 0-1 year and because it had an questionnaire for parents. There was a disadvantage. At that time is was still an experimental observation-instrument. The questionnaire has been replenishment with questions about use of video, contact with the baby and questions about the guidance the parents received. Beside this, some questions were adjusted to the stage of ages and the development. (for example at the age of one month there were no questions about babbling). At one and a half year the parents were asked to fill in the KIPPPI (Kousemaker, 1997), a valid instrument.

Composition of the intervention groups
Of 518 parents in this survey, 97 (18,7%) had the feeling that their child cried excessively during the initial five months of their lives. Only 9,1% of these parents asked for guidance at the health centre or went with their questions to the paediatrician of the children's department in the hospital. The intervention group is the group crying babies (n= 97), whose parents said that they had a problem with the crying in the first five weeks after birth and the babies whose parents came to the healthcare centre or to the hospital with complaints about the crying. By the time the babies were 18 months there were 55 babies left in the sample. The group "normal crying" babies (as the parents feel it) is used as reference (n= 282). The criteria for inclusion was that the parents felt that their baby was excessive crying with no apparent reason. The babies that cried because of a clear physical cause, eg reflux, or food allergy were excluded.

Sex
There were 276 (53,3%) boys and 242 (46,7%) girls in the research. This is a normal proportion, there are 52% boys and 48% girls born (source: Central Bureau for Statistic, StatLine, 2003). In this research were 63 (64,9%) boys and 34 (35,1%) girls whose parents felt that they cried excessively. The boys are overrepresented. However there is no research known that prove that there is a relation between sex of the child and excessive crying (Vomberg et al., 1995, Van der Wal & Pauw-Plomp, 1998). So, this could be a coincidence.

The place in the child in the family
Excessive crying is more often seen with firstborns than with children who are second of later born (Van der Wal & Pauw-Plomp, 1998). It is possible that the mothers of firstborns feel more concerned about the same volume of crying. Fish and Stifter (1993) have measured the various aspects of mothering with a crying baby. The measured aspects were the sensitivity of the mother, the way she feels about being a mother, the effects on the caring and the negative emotions of the child according the mothers. Mothers with more children had more self confidence, while the mothers of firstborns had ambivalent feelings after the child was born. Mothers of firstborns reported negative feelings with excessive crying of the baby. Mothers with more children scored higher in sensitivity and were better capable to compensate the negative feelings when the baby cried (Fish & Stifter, 1993). The findings of Van der Wal & Pauw-Plomp (1998) also point that way. They describe that mothers of firstborns are more easily irritated by the crying, possibly as a consequence of inexperience. However, Fish and Stifter (1993) are suggesting that the mothers of firstborns have more time to build up a relationship and therefore to bond. Mothers of firstborns have more interaction with their only child compared to mothers who have two or more children. Since the family system changes when a second child is born and the attention has to be shared (Fish & Stifter, 1993). This looks like a contradiction. Mothers of firstborns have more interaction with their child, but at the same time the child is crying more. This suggests that the quality of the interaction is more important then the quantity. In this research there were most firstborn children (49,5%) and secondborn (42,3%). It is remarkable that within the "normal crying" group, there were mostly firstborns and secondborns also (respectively 49,2% en 40%). Maybe parents with third, fourth or fifth children do not want to participate in research even when the child is crying a lot because they do not see the crying as a problem. In this case there could be a possible selection-bias for the prevalence of excessive crying and the birth order of the child in the family.

Age parents
There is research that says that the age of the parent plays a role in the excessive crying of the baby (Beebe et al., 1993 in Van der Wal & Pauw-Plomp, 1998). Young parents seem to have less self confidence which is linked

to more crying. In this research the mean age of the parents with excessive crying babies did not differ from the mean age of the parents with normal crying babies. An independent t-analyse gives no significant differences for the fathers [t(459)= 1,20, p< 0,5] and the mothers [t(461)=1,08, p< 0,5]. The mean ages of the groups are given in table 1.

Table 1 Mean ages of parents

group	n	min	max	range	mean	sd
Excessive crying regular guidance						
age fathers	56	25	49	24	32,5	4,39
age mothers	56	25	42	17	30,9	3,77
Excessive crying VHT/VIG guidance						
age fathers	40	25	49	24	32,8	5,07
age mothers	41	23	39	16	30,0	3,74
Normal crying						
age fathers	365	23	48	25	33,3	4,36
age mothers	366	21	44	23	31	3.9

social economic groups (Hide & Guyer, 1982 in Van der Wal & Pauw-Plomp, 1998). In contrast, other studies prove that the crying–incidence is higher in the low social class, with parents with little education. The idea is that parents with a low educational level will have less strength than those parents with a high educational level. Also, the sensitivity and the responsivity of highly-educated women should be higher than the sensitivity and the responsivity of the less educated women (Van der Wal & Pauw-Plomp, 1998).
In this research, the differences in education of the parents of the excessive crying and the parents of normal crying babies are compared. The differences between the VHT/VIG group and the regular guided group have also been analysed. In table 2 is the mean educational level and the differences given .

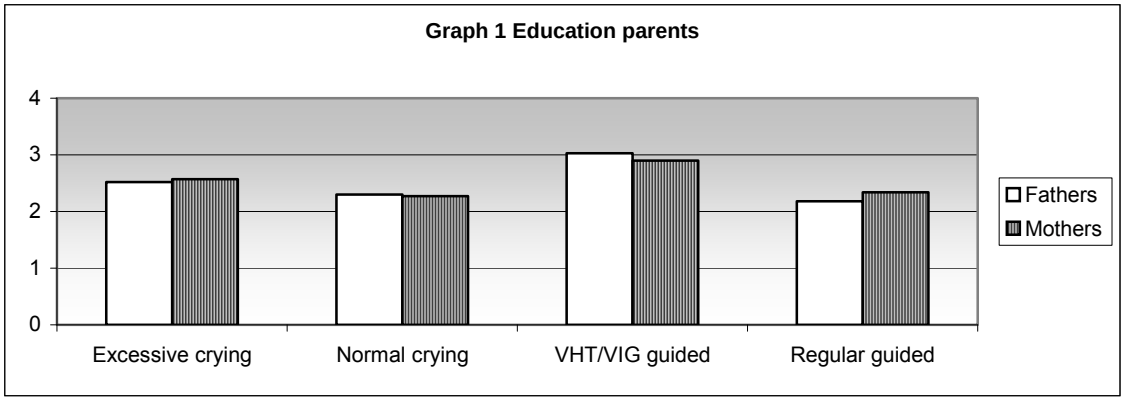
Table 2 Scores of the mean educational level

	Excessive crying	Normal crying	VHT/VIG guided	Regular guided	t	p
Fathers						
N	94	362			1,61	0,107
M (SD)	2,52 (1,33)	2,30 (1,18)				
N			38	56	3,19	0,002***
M (SD)			3,03 (1,39)	2,18 (1,18)		
Mothers						
N	96	365			2,54	0,011*
M (SD)	2,57 (1,04)	2,27 (1,06)				
N			40	56	2,68	0,009**
M (SD)			2,90 (1,01)	2,34 (1,01)		

*** Significant p<0,05, ** Significant p<0,01, *** Significant p<0,005**

Difference in fathers' education:
* There are no differences found in education between the fathers of excessive crying and normal crying babies.
* There are differences found in education between the VHT/VIG guided fathers and the regular guided fathers [t(92)=3,19, p<0,005]. The VHT/VIG guided fathers were higher educated.

Difference in mother's education:
* There are differences found between the mothers of excessive crying and normal crying babies [t(459)=2,54, p<0,05]. The mothers of the crying babies are more high-educated.
* There are differences found between the VHT/VIG guided mothers and the regular guided mothers [t(94)=2,68, p<0,01]. The VHT/VIG mothers were more educated.



The mothers of excessively crying babies are more high-educated than the mothers of normal crying babies. Parents of extreme crying babies who are guided with VHT/VIG are more highly -educated compared with the parents of extreme crying babies that are regular guided, especially the fathers.

Results

H1 The feelings of the parents about the crying of the baby

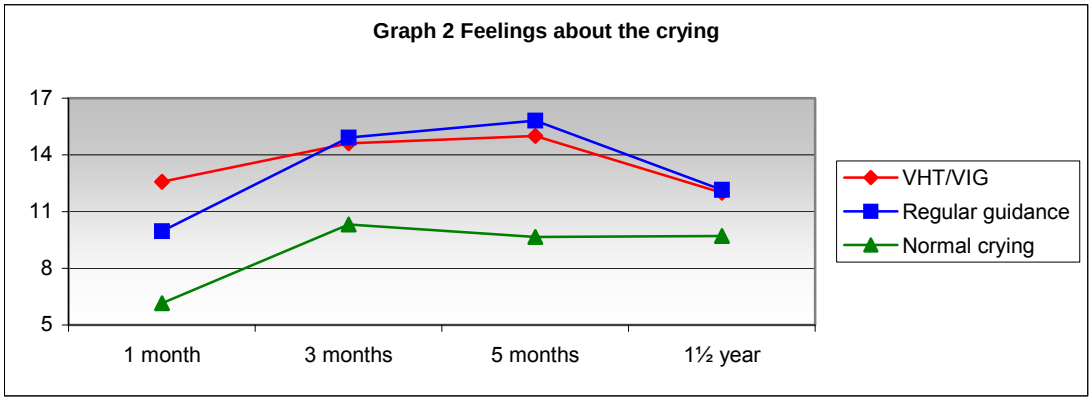
The feelings of the VHT/VIG guided parents were compared with the feelings of regular guided parents about the crying of their children. References were the feelings of the parents with normal crying babies. The volume of the crying is measured at four moments (one month, three months, five months and one and a half year). An analysis of variance with repeated measures gave the differences between the two groups. The reliability of the variable was α=0,91 met N=337 and 25 items.

Table 3 Difference feelings of parents about the volume of crying

	N	1 mth M (SD)	3 mth M (SD)	5 mth M (SD)	1½ year M(SD)	mean difference 1mth en 1½jr	F p
VHT/VIG guided	23	12,57 (2,43)	14,61 (4,21)	15,00 (3,13)	12,00 (3,33)	-0.57	
Regulier guided	32	9,97 (3,35)	14,91 (3,61)	15,81 (4,45)	12,16 (3,33)	2,19	
Normal crying	*282*	*6,16 (2,13)*	*10,33 (2,89)*	*9,66 (2,65)*	*9,72 (2,26)*	*3,56*	
Between groups 0,657							0,20
Within groups 0,002*							5,70

***significant p< 0,005**

The crying increases during the first three months. This goes for all babies. The increase holds on at the excessive crying babies, while the normal crying babies get calmer after three months. After five months the crying of the extreme crying babies decreases , while the group normal crying stays equal. (see Graph 2)



Difference between the groups
There is a great difference found between the group excessive crying (VHT/VIG guided and regular guided) and the group normal crying [F(1,335)=229,88,p<0,001]. At all measure moments the parents of the crying babies feel the crying worse then parents of normal crying babies. The crying group (VHT/VIG group as well as the regular group) are much calmer with one and a half year , but still not so calm then the normal crying group. So, the excessive crying group stays a vulnerable group and the difference stays.
There is no significant difference between the VHT/VIG guided group and the regular guided group [F(1,53)=0,20,p<1,0]. There is a difference with the measurement at one month, but this is not significant.

Difference within the groups
There is an evident difference found within the group normal crying and the group abnormal crying. The feelings about crying of normal crying babies increases during time and those of extreme crying babies (only the VHT/VIG group) decreases during time [F(3,333)=20,46,p<0,001]. There are differences in feelings about the crying [F(3,51)=5,70,p<0,005]between the VHT/VIG guided and the regular guided group The crying of all babies increases, but the increase in the VHT-VIG guided parents is less then the increase in the regular guided group. Regular guided parents have babies who cry more at three months, at five months and at one and a half years than the VHT/VIG guided parents, whose those babies cried most at the age of one month. The mean crying of the VHT/VIG group is at the age of one and a half year below the level of the mean crying with one month. The babies of the regular guides group are also calmer, but they still cry more then at the age of one month.

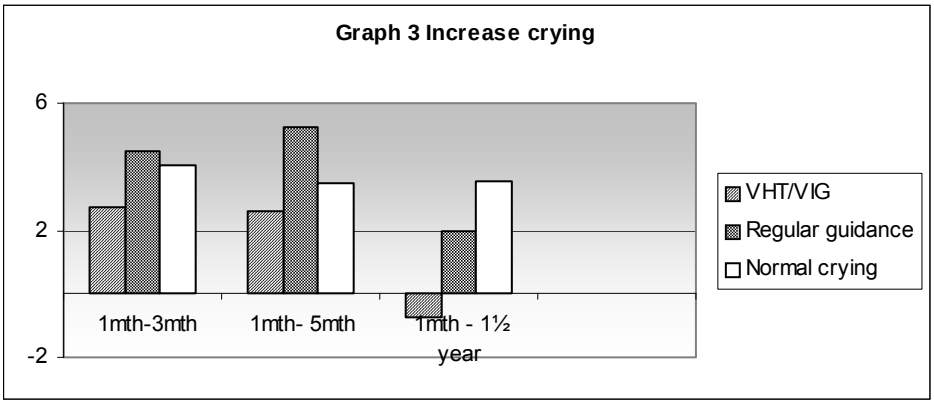
The increase of the crying according the parents
The difference found is significant at one and an half years, when the parents received the support between the first and the second stages of the measurement. If the differences originated after the guidance, after the first measurement and before the second measurement, some additional analyses were add. An independent analysis of the difference between the mean increase of crying in both groups during the period one month and three months, during the period one month and five months and during the period one month and one and an half year proved that the mean increase of the crying is the least in the VHT/VIG group, according the parents.

Table 4 Mean increase of crying according the feelings of parents

	VHT/VIG guided parents M(SD)	Regular guided parents M(SD)	mean difference	t	p
N	33	49			
increase crying 1 and 3 months	2,73 (4,09)	4,51 (4,10)	1,78	1,93	0,057
N	30	50			
increase crying 0,002* **1 and 5 months**	2,57 (2,91)	5,26 (4,00)	2,69	3,21	
N	25	37			
increase crying 1 mth and 1½ yrs	- ,76 (2,88)	2,00 (3,17)	2,76	3,55	0,001*

*** Significant p<0,005**

The outcomes are in Graph 3 reproduced. The difference between both groups in increase of crying is obvious according the parents after three months and becomes greater during time.



There is no difference in the period from one month to three months [t(80)=1,93,p<0,1]. The difference however in the period one month to five months is significant [t(78)=3,21,p<0,05]. The difference begins in the third month. Which is just after the guidance. With one and a half year the difference becomes more [t(60)=3,55,p<0,05]. The increase of the crying of the VHT/VIG group is at all measure moments the least. As one sees in graph 3 the crying at one and an half year becomes less and is below the level of one month. This attracts attention of this group.

H2 Differences in the feelings of the parents about their contact with the baby

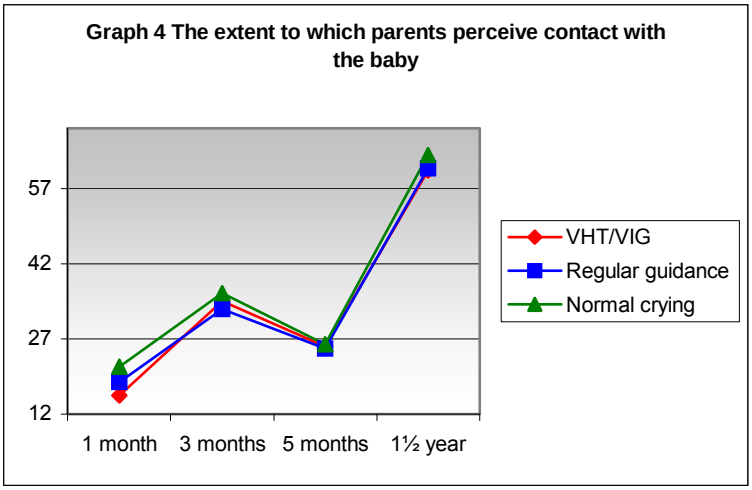
The feelings of the VHT/VIG guided parents were compared with the feelings of regular guided parents about having contact with their baby. The feelings of the parents with normal crying babies were used as a reference point. The volume of the contact is measured at four moments (one month, three months, five months and one and a half year). An analysis of variance with repeated measures gave the differences between the two groups. The reliability of the variable was α=0,89 met N=364 en 40 items. Table 5 gives the scores.

Table 5 Difference feelings of parents about the volume of contact

	N	1 mth	3 mth	5 mth	1½ year	mean difference	F	p
		M (SD)	M (SD)	M (SD)	M(SD)	1mth en 3mth		
VHT/VIG guided	23	15,70 (3,27)	34,57 (4,18)	25,52 (2,17)	60,61 (6,00)	18,87		
Regular guided	33	18,42 (3,59)	32,97 (4,11)	25,06 (3,33)	61,03 (34,78)	14,55		
Normal crying	*308*	*21,42 (1,92)*	*36,18 (2,81)*	*25,96 (2,04)*	*63,64 (3,83)*	*14,76*		
Between groups							0,113	0,738
Within groups							5,26	0,003*

***significant p< 0,005**

The feeling of having contact with the baby increases during the first three months. This goes for all parents. In the period three till five months these feelings become less. During one and a half year all parents experience more contact feelings with the baby, with a great increase after five months. So this is a normal pattern, as one can see in graph 4.



Difference between the groups
The VHT/VIG guided group feel more contact with the baby until three months. Between three and five months is becomes less. From five months on the feelings get stronger. The regular guided parents have the same pattern and the parents of normal crying babies as well. Analysis proves there are no significant differences [F(1,54)=0,11, p<1,0] between the groups.

Difference within the groups
However, when the VHTVIG-group is being compared with the regular-group at points over the first five months there is a difference obvious. The VHT/VIG-group feels with one month less contact with the baby than the regular group and with three months it is the other way around. The VHT/VIG-group feels more contact then the regular group. The increase of feelings of contact is greater for the VHT/VIG group. The difference is significant [F(3,52)=5,26, p<0,005].

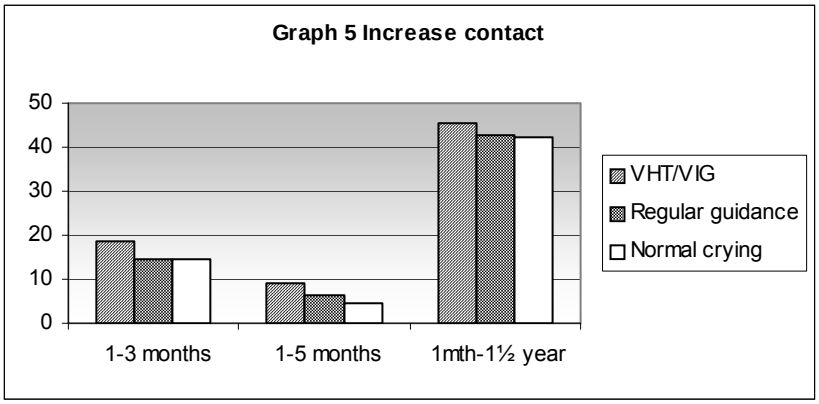
The increase of feeling contact according the parents
The increase of the feelings of having contact with the baby begins in the first three months, the period the parents received VHT/VIG. Whether the differences originated after the guidance, after the first measurement and before the second measurement, some additional analyses were add. An independent t-analysis of the difference between the mean increase of feeling contact in both groups during the period from one month to three months, during the period one month to five months and during the period one month to one and a half years proved that the mean increase of feeling contact with the baby is the most in the VHT/VIG, according to the parents. The scores are in table 6.

Table 6 Mean increase of contact according the feelings of parents

	VHT/VIG guided parents M(SD)	Regular guided parents M(SD)	mean difference	t	p
N	32	50			
increase contact 0,000* 1 en 3 months**	18,53 (4,10)	14,64 (4,12)	3,89	4,18	
N	30	51			
increase contact 1 en 5 months	9,30 (3,90)	6,24 (3,67)	3,06	3,55	0,001*
N	26	37			
increase contact 1 mth en 1½ year	45,35 (5,62)	42,78 (4,22)	2,56	2,07	0,043*

***** Significant p<0,001, ** Significant p<0,005, * Significant p<0,05**

Graph 5 shows that the increase of feelings of contact with the baby in the VHT/VIG-group is the most at all moment of measurement.



The difference is the most in the period one month till three months en has the most significance [t(80)=4,18, p<0,001]. It is the period the parents received the guidance. The difference in the period one month until five months is still significant [t(79)=3,55, p<0,005] . With one and a half year the difference becomes smaller, but stays significant [t(61)=2,07, p<0,05]. VHT/VIG guided parents feel in the beginning the least contact with their baby and catch up with the regular group after three months and stay that way. With five months and one and a half year the differences are small.

H3 The satisfaction of the parents with the guidance received

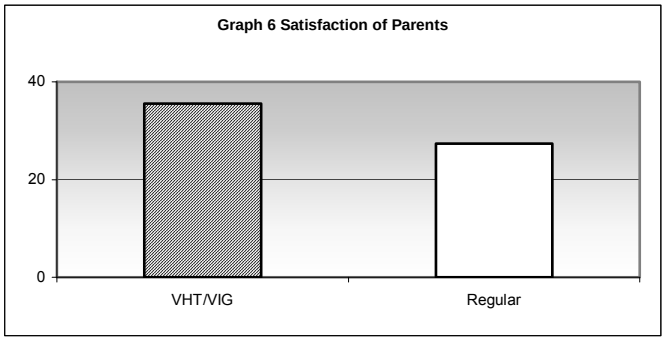
For organisations it is important to know how satisfied their clients are about their service. The level of satisfaction about the guidance was measured for both intervention groups. The variable had a reliability α=0,87 with N=209 and 12 items. Table 7 gives the scores.

Table 7 Mean satisfaction about the guidance

	VHT/VIG guided group M(SD)	Regular guided group M(SD)	mean difference	t	p
N	20	30			
Satisfaction	35,50 (3.60)	27,37 (3,30)		8,13	8,25
0,000*					

*** Significant verschil bij p<0,001**

The parents who were guided with VHT/VIG are more satisfied about the guidance then the regular guided parents. This is the mean in one and a half year. An independent t-test shows that the difference is significant [t(48)=8,25, p<0,001]. The outcomes is in Graph 6.



Is this difference obvious right from the beginning? To find that out an analysis of variance with repeated measures is done at four points, right after the guidance at three months, at five months and again at one and a half year, as can be seen in table 8.

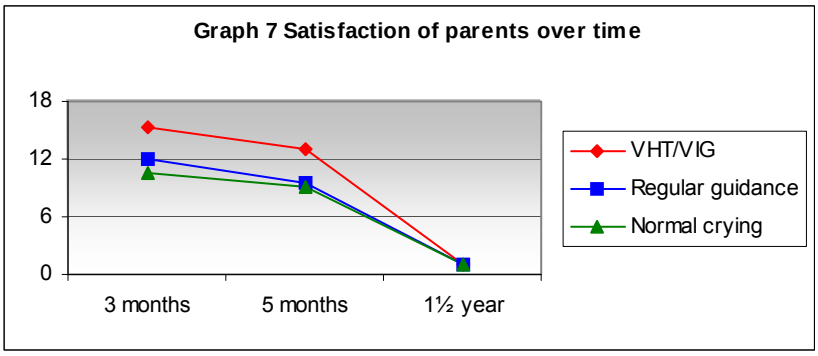
Table 8 Scores of the differences of the mean satisfaction on repeated moments

	N	3 mth M (SD)	5 mth M (SD)	1½ year M(SD)	F	p
VHT/VIG guided	20	15,30 (1,89)	13,00 (1,56)	1,10 (0,40)		
Regular guided	31	11,94 (1,50)	9,48 (1,21)	1,10 (0,45)		
Normal crying	*168*	*10,45 (0,75)*	*9,11 (0,47)*	*1,02 (0,19)*		
Between groups					67,12	0,000*
Within groups					41,09	0,000*

*** Significant p<0,001**

The outcomes are in graph 7.

Graph 7 Satisfaction of parents over time



There is a difference found between the VHT/VIG guided group and the regular guided group [F(1,49)=67,12, p<0,001]. The VHT/VIG parents are more satisfied. As one can see in graph 7, specifically in the first period, right after the guidance. At the second measuring the difference is still there. With one and a half year the difference is gone, but during the whole period it still significant. Also within the groups there are differences. The satisfaction becomes less by all parents, but the most for the parents who are guided with VHT/VIG, because this group was most satisfied in the beginning and at one and a half year equally satisfied as the rest. This gives the decrease difference [F(2,48)= 41,09, p<0,001].
It is fascinating that , on average, the parents of extreme crying babies are more satisfied about the guidance than the parents of normal crying babies. This gives significant differences between the groups [F(1,217)=150, 63, p<0,001] and within the groups [F(2, 216)=90,75, p<0,001].

H4 Consumtion of medical care

It is important to ask whether the VHT/VIG –method gives parents the opportunity to make less use of the medical care about their non-medical questions t about their child during the first one and a half years. The reliability of the variable was α = 0,84 with N=207 and 16 items.
A variance-analyse with repeated measures is used to search for answers. Table 9 gives the scores.

Table 9 Different means medical consumption

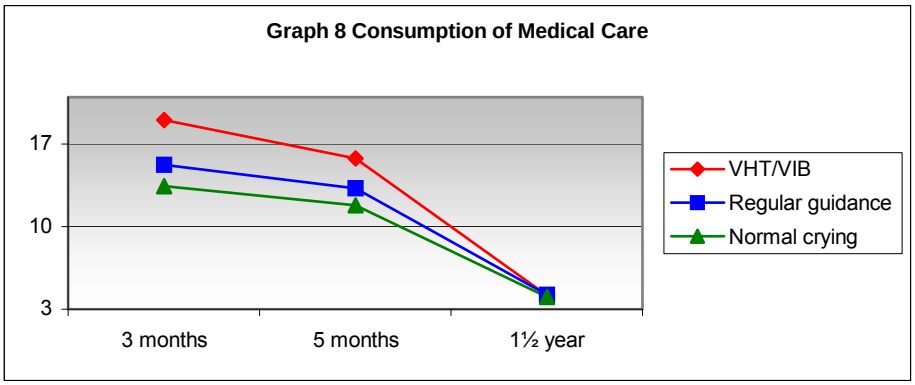
	3 mth M (SD)	5 mth M (SD)	1½ year M(SD)	F	p
VHT/VIG guided	19,06 (2,17)	15,81 (2,35)	4,19 (0,63)		
N	32	26	26		
Regular guided	15,25(1,79)	13,26 (2,09)	4,19 (0,64)		
N	49	49	41		
Normal crying	*13,44 (0,78)*	*11,82 (1,05)*	*4,06 (0,43)*		
N	*221*	*278*	*323*		
Between groups				37,28	
0,000*					

Within groups		35,09
0,000*		

*** Significant p<0,001**

Table 9 shows that the VHT/VIG guided parents visit the medical carers or ask questions in the medical circuit the more at three months and at five months compared with the other parents. So this is the most vulnerable group with the most questions and insecurities. At one and a half year they are even with the regular guided group and also even with the parents of normal crying babies.

Graph 8 Consumption of Medical Care



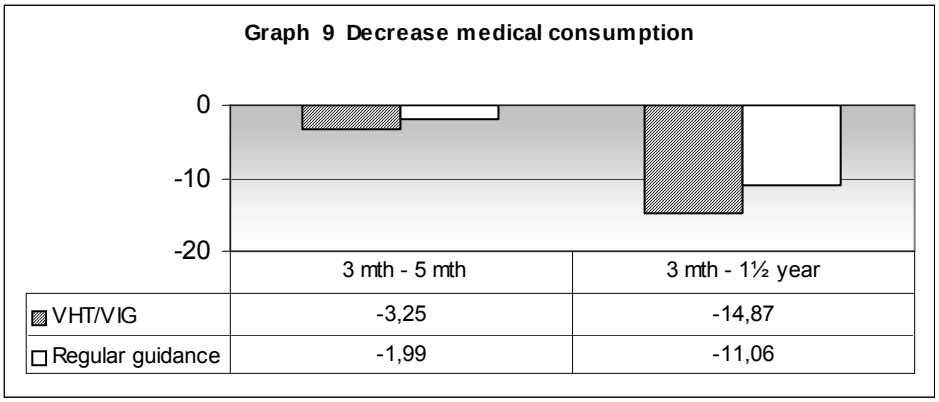
The difference is proved between the groups [F(1,48)=37,28, p<0,001] as within the groups [F(2,47)=35,09,p<0,001]. Seen in time there is a decrease at all groups as one can see in graph 8. Whether there is a difference in the volume of the decrease, is analysed with an independent t-test.

Table 10 Mean decrease of the medical consumption

	VHT/VIG guided M(SD)	**Regular guided M(SD)**	**mean difference**	**t**	**p**
N	24	43			
Decrease med.cons	3,50 (1,67)	1,72 (1,62)	1,78	4,26	0,000*
3 and 5 months					
N	24	35			
Decrease med.cons	14,87 (1,89)	11,03 (1,50)	3,84	8,67	0,000*
3 mth en 1½ year					

*** Significant p<0,001**

Graph 9 shows that the need for medical care decreases the most in the VHT/VIG-group



This analysis proves a significant difference in decrease between the VHT/VIG guided group and the regular guided group during the period three till five months [t(65)=4,26, p<0,001] and also during the period till one and a half year [t(57)=8,67, p<0,001].

H5 The feelings of the parents about the eating, sleeping behaviour and the temperament of the babies.

In the daily practice paediatricians, nurses and pedagogic workers sense that children who cry excessively remain a vulnerable group. These children come again in the hospital with other complaints such as feeding and sleeping difficulties. It may be difficult for the parents to attune to the 'crying' baby which leads to a pattern of finding other behaviours (eg sleeping/feeding) difficult to manage. If these parents are helped from the beginning with the attunement (which is the goal if VHT/VIG) with their baby, later problems might be prevented. Therefore, it is interesting to know whether the crying babies develop more eating and/or sleeping problems than the normal crying children. Tested variables were "the feelings of parents about the eating behaviour" with reliability α =0,70 with N=386 and 15 items, "the feelings of parents about the sleeping behaviour" with reliability α =0,85 with N=304 en 19 items and "the feelings of parents about the temperament" with reliability α =0,71 with N=405 en 8 items. Again a variance-analyse with repeated measures at four moments, one month, three months, five months and one and a half year for the variables "eating" and "sleeping" and an independent t-test for the variable "temperament". Table 11 and 12 give the scores.

Table 11 Differences of the mean eating ,- and sleeping behaviour

	N	1 mth	3 mth	5 mth	1½ year	mean difference	F p
		M (SD)	M (SD)	M (SD)	M(SD)	1mth en 1½ year	
Eating							
Abnormal crying	62	3,11 (1,03)	6,65 (2,28)	2,86 (1,14)	10,26 (2,91)	7,13	
Normal crying	*324*	*2,76 (0,83)*	*5,38 (1,43)*	*2,52 (0,78)*	*9,82 (2,53)*	*7,06*	
Between the groups							19,73 0,000**
Within the groups							7,03 0,000**
Sleeping							
Abnormal crying	30	9,57 (2,69)	8,33 (2,47)	8,47 (2,93)	14,50 (5,04)	4,93	
Normal crying	*274*	*7,34 (2,16)*	*5,63 (2,07)*	*7,26 (2,60)*	*10,99 (2,96)*	*3,65*	
Between the groups							49,19 0,000**

Within the groups	
6,06	0,001*

****significant p< 0,001, *significant p< 0,005**

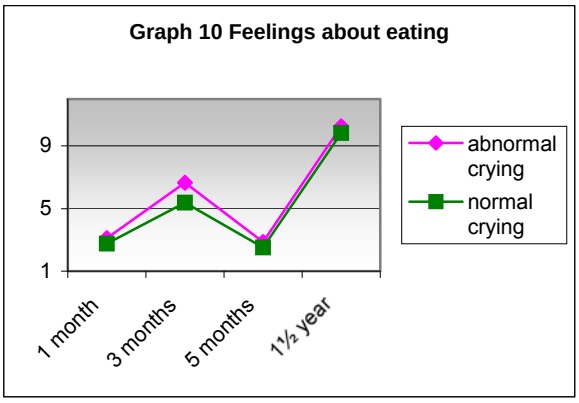
Table 12 Differences of the mean temperament of the baby

	Abnormal crying M(SD)	Normal crying M(SD)	mean difference	t	p
N	65	321			
"difficult" behaviour	21,4 (4,84)	18,18 (3,72)	3,22	6,04	0,000*
N	65	326			
"overactive" behaviour	14,72 (4,23)	13,19 (3,21)	1,53	3,32	0,001**

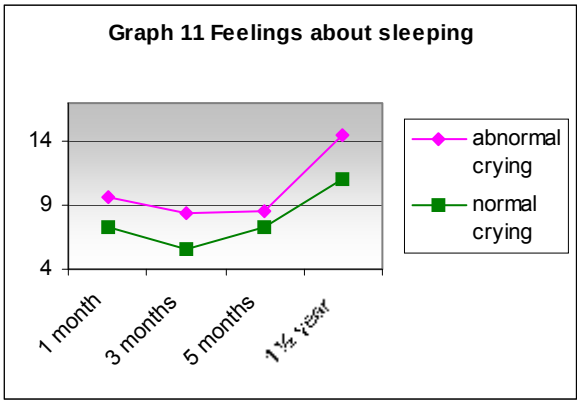
*** Significant verschil bij p<0,001, **Significant verschil bij p<0,005**

Table 11 and 12 in Graphs.

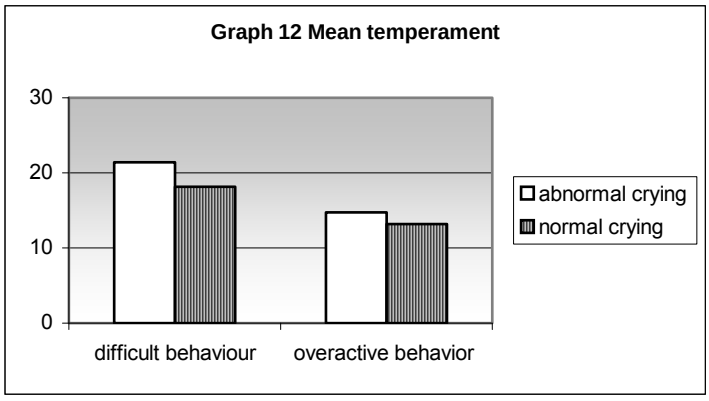
Graph 10 Feelings about eating



Graph 11 Feelings about sleeping



Graph 12 Mean temperament



Difference between the groups

All parents of the extreme crying babies say at all moments that they have more problems with feeding their babies. At the age of five months the parents feel less problems, but they increase substantially from one to five months. There is at all moments a difference as to the feelings of the parents of normal crying babies. Analyse shows a significant difference [F(1,384)=19,73, p<0,001].

With sleeping ,all parents say that the babies develop more difficulties to get into sleep from five months on. Before that time there are less sleeping problems, so the parents say. The parents of the abnormal crying babies experience all the time more sleeping problems. Analysis gives a difference of [F(1,302)=49,19,p<0,001].

Within the groups
As for the eating problems, they increase during time in both groups. The difference in time is significant. [F(3,382)=7,03,p<0,001]. The same result for the feelings about the sleeping. Parents don't have many problems with the feeding until five months, when many difficulties appear. This means in time a significant difference [F(3,300)=6,06,p<0,005].

Temperament of the children
When the abnormal crying babies are compared with the normal crying baby's as for the temperament, the parents of abnormal babies find their babies at the age of one and a half year more 'difficult' and more 'overactive' as in graph 12 is shown. Analyses give [t(384)=6,04, p<0,001] about "difficulty" and [t(389)=3,32, p<0,005] about "overactive".

Discussion

Parents of extreme crying babies come with their 'concerns' to the health centre of to the paediatrician in the hospital. Effective care is at that moment very important. Within the clinical care there is research done on the effects of VIG who were in the hospital for all kind of health reasons in an academic children's hospital (Kat, 2002) and where positive effects were evident. This study is the first one on the effect of supporting parents in this way. In this research VHT/VIG is compared with the standard guidance.

The results of this research prove that the VHT/VIG is effective in reducing the stress of a crying baby on its parents. As a bonus the parents also feel more contact with the baby even when the babies' crying grows, especially in the first three months. It could be that the parents feel after the first four weeks that they are getting to know their baby and that's why they feel more contact. Another explanation could be that the baby has more social skills (Brazelton, 1985; Papoušek & Papoušek, 1990), which makes that parents feel more contact, in spite of the crying.

A few earlier research studies show that the VHT had specific effect because of the changes in feelings of competence in handling problems, which in turn caused a positive change of the behaviour of the child. (Kemper & Janssens, 1997; Wels et al., 1994; Wels, 2001). Possibly the effect of VHT/VIG at parents of crying babies is as a result of increasing the tolerance threshold. Maybe the child cries as many as it did , but the feeling of the parent changes. Perhaps the parents gets less negative feelings about the crying.

Of course, there could exist other variables, like changing food or other techniques to comfort the baby, that parents tried during the guidance. However this could happen in the regular group also. Sometimes the crying disappears by itself (St. James-Roberts et al., 1998). Babies "grow out of it". So there is always the uncertain factor of what had happened if there was no guidance. However this goes for the regular group as well. Parents, who are guided with VHT/VIG did have extra attention from the caretakers. This could influence the effects and it could confound for the results. Parents get the feelings that they are listened to, their problem is 'taken serious', there has been extra activity to help the parents (house-visits, video-takes, reviews). This has not happened in the regular guided group, because they got the standard support. The satisfaction outcomes show that it is important to take time and to listen to the parents carefully . The group who received the least attention (the normal crying) were the least satisfied. The VHT/VIG group were most satisfied about the way they were treated, so maybe it is just the personal attention that gives the effect.

One could assume that the problems with the baby become less but this is not the case. The analyses about eating problems, sleeping problems, and problems with the temperament show that these problems are increasing in time as for the parents of crying babies. There are many questions posed.
What happens here? Do these parents keep their questions to themselves?
Are they not heard, seen or signalled by the professionals?
Must there be a crisis before parents get help?

Conclusion

Although VHT/VIB has been practiced for a considerable time within in Youth Healthcare and in paediatric departments of hospitals, very little research has been undertaken into its effectiveness. This research is a first step to study the effect of the method, to develop it further and to give it a more "evidence based" character. The answers to the research questions around how does the VHT/VIG guided groups compare with the regular guided group and the normal crying group on the following 4 measures each at four moments (one, three, five and 18 months) are summarized below (H1-H5).

H1 The feelings of the parents about the crying of the baby
All parents, including those of normally developing infants, experienced an increase in crying in the initial five months. The results show that there are great differences in the emotional burden that parents experience as a result of their babies crying. The extent to which the crying increased differed significantly between the groups. The increase in crying was less for those parents who were supported using Video Home Training or Video Interaction Guidance, compared with the parents who had regular guidance. The difference was particularly significant in the long term (18 months).

H2 The feelings of the parents about their contact with the baby
All parents indicate that they feel increasing contact with the baby during the first few months. However, the increase in the contact between parent and child who were guided with VHT/VIG was significantly larger than the increase in the contact between parent and child who received regular guidance. It did not matter whether the guidance was given from youth health care or clinical health care.An independent t-test showed that the difference between the two intervention groups occurred immediately after VIG/VHT intervention in the first 3 months of the treatment. VIG/VHT supports the parents to feel more in contact with the baby straight after the intervention and up to 18 months.

H3 The satisfaction with the guidance received
The difference in the satisfaction of the parents about the support they received was also measured. Parents who had been supported with VHT/ VIG were more satisfied about the support than parents who had been supported with the regular methods.

H4 The use of medical services
The use of medical services for both groups was also recorded during the first 18 months. The VHT/VIG group made less use of medical services than the regular group. Again, it did not matter whether the guidance was given from youth health care or clinical health care.

H5 The feelings of the parents about the eating, sleeping behaviour and the temperament of the babies.
Parents of crying babies (both intervention groups) feel at the age of one and a half year there are more problems with the eating, the sleeping and the temperament of their child than the normal group.
This research show that together with Zeifman (2001), St. James-Roberts et al. (1998), Strassburg et al. (1990) Elliot et al. (1997) these extreme crying baby's stay baby's at risk

Recommendations

The following recommendations follow from this research

- VIG should be a possibility for all parents of crying babies in every hospital as a standard part of effective social-emotional guidance.
- VHT should be a standard method to help parents and to be available for the nurses who visits the parents in an early stages or have the opportunity to signal problems in an early stages when the parents come to the health centre. Since it doesn't matter whether the method is offered by the hospital or by the health centre, hospitalisation can be prevented by offering the guidance from outpatient clinic or from health centre.
- The possibly preventive effects reduction of the use of medical services requires more research.
- VHT should be offered as standard educational guidance to parents as soon as they have problems with the crying of their babies. Perhaps toddler problems will be prevented and the satisfaction will stay high.
- Further research should focus on .....

1. further implementation in the outpatient clinic of the hospitals and full implementation of the method in healthcentres with a larger population where longer term effects should be investigated.
2. changes in actual interaction/sensitivity patterns (as shown on the videotapes) as well as on questionnaires about feelings. This will give triangulated data which should give more understanding of the process of change.

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