Preventive education about sleep in young children: parents' experiences

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Introduction

Sleeping problems in young children, such as bedtime problems and night-time awakening, influence their psychological (Mindell et al. 2006), cognitive (Dahl 1998) and social development (Lavigne et al. 1999). Short sleep duration also seems to be related with a higher risk for obesity (L'Hoir et al. 2008b). Worldwide studies show that bedtime problems and night-time awakenings are prevalent in approximately 20-30% of the young children up to five years, and can persist for years (Mindell et al. 2006). In the Netherlands, in two to fourteen year old children, the prevalence of sleeping problems is 25% (van Litsenburg et al. 2010).
The definition of sleep problems as given by Mindell is: "Sleeping problems are repeated difficulty with the initiation, duration, consolidation or quality of sleep, which occurs despite age-appropriate time and opportunity for sleep" (Mindell et al. 2006).

The development of sleep-wake patterns in children is a complex developmental process. It takes substantial involvement from the parents and is a challenge for parents during the first years (Burnham et al. 2002). This complex process is described by the transactional model. This model emphasizes the ongoing bidirectional associations between parenting and infant sleep. Parents' beliefs, expectations, emotions and behaviours related to infant sleep are influenced by various aspects such as: their culture, their own developmental memories, the child's age and the child's own sleep patterns (Sadeh et al. 2010). According to the transactional model preventive education of parents can influence child behaviour and prevent sleeping problems in young children.

In the Netherlands the interventions to prevent sleeping problems are offered in Child Health Care (CHC) centres. However, none of the specific interventions used in the Netherlands are evidence based. According to the Guideline 'Contact moments' (Dunnink, Lijs-Spek 2008), CHC nurses are responsible for parental education concerning prevention of sleeping problems of young children. In the first years after birth, in the Netherlands, parents have five to nine contacts with the CHC nurse. The first contact is a home-visit at two weeks. During these contacts parents can ask questions and the child's development and health is checked. CHC nurses provide verbal and written information. Education about sleep is provided at first to parents of children up to one month, i.e. the 'newborn' children.

Prevention of sleeping problems through education during pregnancy and the first months after birth is effective. Four randomised controlled (RCT) studies and one prospective cohort study found significant longer and more consolidated sleep periods for young children whose parents had received preventive education (Adair et al. 1992, Pinilla, Birch 1993, Kerr et al. 1996, St James-Roberts et al. 2001, Symon et al. 2005). Although the study of Pinilla (1993) was small, it was the only study in which women were educated before and after giving birth. The other study samples varied between 169 and 610 respondents and education was either provided before the child was three months old or between three and six months. These findings underline the importance of preventive education and providing it to parents as soon as possible.

Furthermore, several studies show that parents welcome preventive education. It can be both informative, giving information about a subject, and behavioural, giving advice about how to behave in relation to the subject (Hewitt, Galbraith 1987, Thorndike 2009). In the current study 'education' is used for both informative and behavioural preventive education. Thorndike's study was only a descriptive survey, but it gave insight in parents' wishes to be educated by internet about sleep in children up to three years.

Measured by a stress scale and the parent efficacy scale, Wolfson's RCT found that behavioural education enhances self-confidence and decreases stress (Wolfson et al. 1992). Behavioural education is effective for parents who are willing and able to apply the new knowledge (St James-Roberts et al. 2001). It is therefore important to tailor the informative and behavioural education to the specific needs and abilities of parents.

A systematic literature review to identify effective elements in preventive education gave insight in determinants of preventive education (Bakker-Camu et al. 2011). This review demonstrated a variety in written instruction materials and the different ways they were provided to parents. No study however, described the parents' experiences with the content of the education, the education method, or the educator and how the instruction material was offered to them.

Problem definition

Educating parents can influence the behaviour of a child's sleeping pattern as explained by the transactional model. In the Netherlands preventive sleep education is given by CHC nurses in CHC centres. It is important to tailor education to the specific needs and abilities of parents, as parents must be willing and able to apply new knowledge. It is unknown how parents experience the verbal and written preventive education about sleep in young children.

The study

Aim

The aim of the study was to explore parents' experiences with the preventive education about sleep in young children, provided by CHC nurses in CHC centres, when their child was newborn. This experience could be used to improve the preventive education.

Research question

How do parents of newborn children experience the sleep education given by CHC nurses?

Methods

A qualitative design to capture parents' experiences with sleep education, was employed, using semi-structured interviews. Qualitative research explores the behaviour, perspectives, feelings and experiences of people and what lies at the core of their lives (Holloway, Wheeler 2006).

Setting

The study was carried out between January and April 2011, in four CHC centres. These centres participated as experimental group in the ongoing 'Sleep study', part 1, conducted by the Netherlands Organization for Applied Scientific Research (TNO) (L'Hoir et al. 2008a). The centres are located in the western, eastern and centre of the Netherlands and contain rural and urban areas. All interviews took place at the participants' homes.

Participants

A criterion sampling method was used. In accordance with the transactional model the sample was as heterogeneous as possible in cultural, environmental and family aspects.

Inclusion criteria

- Parents who participate in the ongoing TNO 'Sleep study" part 1, and received preventive education regarding sleep in young children when their child was two to four weeks old.
- Parents who signed for 'approach me for a related study', in the questionnaire of the study of TNO, Leiden, 'Sleep study', part 1.
- At least one of the parents was able to speak and understand Dutch.

Preventing sleeping problems can be of concern for both parents (Moore et al. 2008, St James-Roberts 2007). Therefore parents were both asked to participate.

Recruitment

At the moment the current study was conducted, parents of 175 newborn children, distributed over ten CHC teams, were included in the TNO 'Sleep study'. Parents were selected according to wishes of heterogeneity and contacted by telephone to assess their interest in being interviewed. If interested, an information letter was send. After a minimum of five days a definitive appointment was made.

Data collection

Tape-recorded, individual, semi-structures interviews (see Table 1) took place at the parents' homes. The following demographical data were obtained; age and education of both parents, number of children, cultural background and age of the child involved.

Add Table 1 Semi-structured interview guide

Ethical considerations

According to Dutch Law, approval by an Institutional Review Board is not required for this type of research. Nevertheless, other Dutch laws concerning research, such as the Dutch Law of Data Protection Act (Wet Bescherming Persoonsgegevens) were taken into account.

Data analysis

All data were transcribed and loaded into Kwalitan computer system version 6 (Wester, Peters 2009). Data analysis was carried out using the steps of Wester and Peters including open, axial and selective coding (Wester, Peters 2009). The first three interviews where initially coded, examining the data line by line and identifying segments which were given labels; the open coding. Constant comparison of new data extended the list of codes from 17 to 79 codes. All codes were categorized and related to nine subcategories; the axial coding. Four main themes emerged from the data by selective coding: preventive education, the influence on behaviour, providing information and the educator. Data saturation was achieved since no new codes emerged after the twelfth interview.

Rigour

This study was carried out by one researcher without a current professional relationship with the participants. Objectivity of the researcher was enhanced by feedback of a co-researcher for the following aspects. All the written interviews were read by the co-researcher and feedback on interview one, three and five was given. In this manner the researcher was also schooled further. The first three interviews were analysed separately by the researcher and the co-researcher, resulting in minor differences. Subsequent analyses and findings were discussed with the co-researcher.

Furthermore, the following aspects were provided to enhance the quality of the research. Audit trail is made possible by recording and transcribing verbatim the interviews, field notes, memos and the use of a computer system. Member-checking was done at the end of each interview by summarising the participants' words. This did not change the researchers' notes. Reflexive thoughts of the researcher were written down in the memo's.

Findings

Of the 16 couples approached, 14 agreed to be interviewed and signed the consent form. One couple was not interested and the other couple said they did not have sufficient time. In five interviews both parents were present. The other nine were with only the mother, the father did not have time or was not interested. The interviews lasted between 20 and 70 minutes. The participants varied in age, education, age of the child involved, number of children and cultural background (see Table 2). The non-Dutch parents were from a Portuguese, Surinam-Hindustan, French or Angolan culture.

Add Table 2 Demographics

The main themes arising from the data were: the education, the influence on behaviour, providing the information and the educator. They are described in the following paragraphs. Figure 1 shows the connection between the themes and categories.

Add Figure 1 Connection between the 4 themes and the 9 categories

The education

General findings

All parents welcomed preventive education about young children's sleep. Parents mentioned the importance of sleeping soundly for children and the positive effect on themselves. The preventive education provided recognition and confirmation, which empowered them in parenting. Most parents, including parents with a first child, found the education necessary, especially for parents with a first child. Parents who had already experienced sleeping problems with a previous child, recognized the information, and believed that the education might have prevented their problems.

> *I think education about sleep behaviour is very important, I hear very weird stories about sleep behaviour of children.* Mother 13
>
> *As a parent it is important to know if the sleep behaviour of your child is normal.* Mother 1

Three parents, who had a baby that was admitted to a hospital for a medical reason, experienced the booklet as very helpful.

> *We used the information when we came home from the hospital because we had lost our regularity.* Father 10

The content of the booklet

Of all the information in the booklet, three items were mentioned most often: 1) a rhythm in sleep, awakening and playing, 2) putting the child to sleep awake and in his own bed and 3) signs of tiredness.

> *What I remember the best is the rhythm in sleep and awakening.* Mother 14

According to personal interest, parents also mentioned the following items.

> *The importance of parental time, to regain energy.* Mother 11
>
> *We read that crying could also mean that your baby is too tired.* Mother 10

There were suggestions for additions to the booklet. Some were related to swaddling, pacifier use and Sudden Infant Death Syndrome.

> *What I missed was information about changing to a rhythm of short, long, short naps when the baby is about 4 months old.* Mother 12

Mainly fathers missed specific information concerning spoiling their child.

> *I was always worried about spoiling if I comforted our child. Now I know this is not an issue in the first weeks.* Father 12

The influence on behaviour

The parents

At the moment of interview nearly all babies slept well and their parents expected this to continue. Applying a rhythm in sleep, awakening and playing had been an important issue for them. Two of the five parents who breastfed their baby found it difficult to combine breastfeeding on demand, and following the rhythm of sleep and awakening of the child. The parent with twins experienced difficulties in combining the differences in rhythm of both children.

The booklet helped first time parents to interpret the kind of crying and thus helped them decide whether waiting shortly or immediate comforting was required. They also learned to put their baby asleep when tired, but awake.

> *Sometimes I leave him to cry, and after a little while he falls asleep.* Mother 9

In accordance with the education, all parents were putting their baby to sleep in a quiet place.

A few parents were confused by the amount-of-sleep-table in the booklet, because their child slept either more or less than the indicated time.

> *Now I have learned to follow the patterns of my child.* Mother 10
>
> *Breastfeeding on demand, putting asleep when tired, that all is difficult.* Mother 8

Parents who had previous children with sleeping problems did not change their behaviour now, as they had already changed in line with the booklet and with good result. Some parents' behaviour was intuitively similar to the advices.

It was important for parents that no behavioural changes upset other family issues (e.g. walking the dog, bringing another child to school). Also parents mentioned that both parents should behave in the same way for best results.

The child

Parents who learned to be aware and follow signs of the rhythm in sleeping, awakening and playing of the child, mentioned that this enhanced control and calm. Baby's learned to fall asleep without parental interference. In two cases the baby did not sleep well, even though their parents followed the advices. One parent eventually solved the problem; the other parent did not, due to the child's medical problem.

> *The same with playtime, he knows what follows and can wait a little time without getting impatient or upset.* Mother 6

Culture

Three fathers were not-Dutch. The mothers spent most of the time with the baby, read the booklet, followed the advice and convinced their partner of their newly learned approach. It seemed that the maternal culture was of the most influence. However the non-Dutch mother who preferred co-sleeping, laid her baby down in its own room, because her husband could not sleep. She also responded very quickly to her child's distress, but considered this a personal and not a cultural characteristic.

Providing the information

Verbal or written information

Parents preferred verbal information if they had questions and written information if they did not. This was independent of the number of children. If parents had no questions about their child's sleep, verbal information was just an extra reminder to the booklet. When verbal information was given, it had to be to the point.

Education about sleep had no impact if other, more pressing, problems were present (e.g. problems with breastfeeding).

> *But I don't know, if you will listen to the information if you are not open to it.* Mother 10
> *Verbal information at this moment is not necessary, and if so, you can ask the CHC nurse at the centre.* Mother 11

Booklet or internet

All parents preferred the booklet above information on the internet, regardless of demographics. A booklet is handy, directly available and reliable. Information on the internet could be of additional value but only if from a reliable website, such as from the CHC centre.

> *On paper is easy, you can give it a quick look.* Mother 3
> *It is easy to have it close, to know you have all of the information together in one booklet. Even in this internet era.* Mother 6

Time of education

Almost every parent preferred education about sleep to take place when their child was between two and four weeks old. One parent would have liked to be informed during pregnancy.

Because questions could arise after the maternity nurse leaves on day eight, some parents felt they should be educated at two weeks. These parents read the booklet during the many times the baby was asleep. Even if they had no questions the information served as recognition and confirmation.

> *It is the right time for education because you may have questions about normal sleep.* Mother 11

Other parents experienced the first two weeks with a newborn child as a demanding period and preferred to be educated at four weeks. This difference was not dependent on the number of children they already had.

> *It is nice if it is available, but it can also be given somewhat later (editor: instead of at two weeks).* Father 7

Instead of educating all parents at a fixed moment, parents thought it more important that their questions were answered, either by the booklet or at the CHC centre.

Appearance of the booklet

All parents appreciated the booklet. The information is interpreted and explained. The index, headings, subheadings, coloured pictures and schedules looked reliable. Even if parents had no specific questions, the booklet triggered them to read more.

Sectioning the booklet in different age groups enabled parents to read it in parts. The size fitted with all the other CHC centre booklets.

> *The booklet is short.... a book about sleep of young children would not have fascinated me.* Mother 2
>
> *I think it is handy, organized and yes, it is clear.* Mother 6

Some additional remarks were made. Well educated parents wondered if less educated parents would read all 24 pages, however the few lesser educated parents did not seem to find this a problem.
Because it should not get lost among the many booklets provided by the CHC nurse, three parents advised giving it a more attractive design (e.g. a calendar, a ring binder through it, on DVD). Another parent suggested making the information available in parts, the first part in the booklet and the other parts on the internet. Most parents found the font type too small. Although a summary was available with the booklet, not all parents received it. Especially fathers who would have welcomed it.

The educator

All parents appreciated that the education was given by a CHC nurse. Reasons given were: professionalism, continuity and the fact she could follow-up.
Other professionals who could have been able to provide the education were: general practitioner, maternity nurse and midwife. However, these are available for only a short period (maternity nurse, midwife) or only consulted in case of health problems (general practitioner). One parent preferred the maternity nurse as she does not provide as much written information compared to the CHC nurse, enabling parents to focus more.
Some parents stressed that the information should be given in a way that they still feel free to make their own choices. Also the advice given by CHC professionals must be consistent.
Parents appreciate practical support and prompt reply in case of questions.

> *You visit a CHC Centre for advice and support with young children, the CHC nurse is therefore the most appropriate person to educate you about children's sleep.* Mother 9
>
> *I think the CHC nurse is appropriate because you also see her in the CHC Centre.* Father 12

Discussion

Study limitations and strengths

Although this study was conducted rigorously there are some limitations. As thus far in the ongoing TNO "Sleep study", the overall educational level of the participants was moderate to high, and only a few participants came from a different culture. A sample with lower education and more intercultural background might have elicited different results.

Three parents could not find their booklet and used the researcher's. This might have influenced their comments and resulted in socially desirable answers.
All respondents also participated in the TNO 'Sleep study' and might therefore been positively biased about the subject 'sleep of young children'.
Although the translation of the personal answers in quotes was done carefully, mistakes cannot be ruled out.

There are several strengths. To the researcher knowledge, this is the first study examining the experiences of parents receiving preventive education about young children's sleep.
Secondly, the fact saturation was reached.
Thirdly, several parents mentioned they felt at ease during the interview, due to the open and relaxed manner of the researcher. It helped them extend the answer. Also parents seemed comfortable giving critique.
Fourthly, the fact the researcher was coached enhanced objectivity.

Preventive education

This qualitative study gave insight in the experiences of parents with preventive education provided at the moment their child was newborn. The general reaction to the education was positive. It also was helpful when a child was discharged from hospital. The fact that parents welcome education about sleep of young children was found previously (Hewitt, Galbraith 1987, Thorndike 2009). Contrary to Thorndike, participants in our study preferred the written material over the internet. Perhaps this was due to providing parents only with a booklet. Thorndike's study participants consisted of expectant parents and parents with a child up to three years. The children in our study were between two and four months. Parents with older children could prefer internet information because they have less questions and more time to search. If using the internet, the information has to be easily accessible, clear, authoritative and with illustrations for low-literate parents (Williams et al. 2008).

To explain the influence of education on behaviour of the parents, the Attitude Social influence Efficacy (ASE) model can be used (De Vries et al. 1998). According to the ASE-model, changing behaviour is influenced by attitudes, social influence and self-efficacy. In this study parents deled with social influence from relatives, friends and colleagues. They followed their own thoughts even though they heard examples which did not fit with their own ideas. They had the attitude and intention to stick to or improve their child's sleep behaviour. All parents found one or more advices in the booklet suitable for them (e.g. putting to bed awake, differentiating the different types of crying).

It is obvious that this is why all parents changed in one or more behavioural aspects. They were also, according to St. James Roberts, able and willing to apply their new knowledge (St James-Roberts et al. 2001).
The fact that the child's sleep improved, empowered parents. This is in line with the finding that behavioural education enhances self-confidence and reduces stress (Wolfson et al. 1992). Similar to the findings of Adachi, the educational booklet was effective in modifying parental behaviour (Adachi et al. 2009).
As stated in the introduction, preventive education is effective, educating parents of newborns could therefore prevent sleeping problems in young children.

Conclusion

The findings in this study gave insight in experiences of parents with preventive sleep education in newborn children. Experiences of parents with the content and performance of the booklet were predominantly positive but constructive remarks were made. The behavioural advices were thought feasible and led to behavioural changes, followed by sleep improvement.
All parents preferred information by booklet over the internet.
Parents experienced the CHC nurse as the appropriate educator and felt free whether or not to follow the advice. Parents stressed this as an important aspect.

Recommendations

Future research should focus on a combination of education by internet and booklet. Furthermore, future research should include lower educated parents, parents from different cultures and of older children.

Implications for practice

There are some recommendations for improving the booklet. The relation between the rhythm of sleep and awakening and breastfeeding on demand has to be explained further. Parents also want to be informed about several new aspects as mentioned previously. The table with the sleep duration was interpreted by some parents as too imperative. This confused them if their child could not sleep according to the table. The booklet has to be clear about that aspect.
The parents, who preferred timetables for feeding and sleeping, because they were puzzled about how to breastfeed on demand and cope with the rhythm of sleep and awakening, probably need more assistance. This also applies to parents of twins.

There seems to be an overdose of written information at the two week home visit. Spreading out some of the messages should be considered, instead of a more attractive designed booklet.
The CHC nurse should continue offering the preventive education between two and four weeks after birth, considering her way of communicating the information and furthermore for parents, answering urgent questions is prior to education.

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Tables and figure

Table 1 Semi-structured interview guide

1. Could you tell me about your thoughts in general of education in sleep of young children?
2. Can you tell me about the aspects you mostly liked in the content of the booklet? Where there aspects you missed?
3. How did you experience the moment of education?
4. What do you think of the fact that the CHC nurse was your educator?
5. What were your experiences with the way the education was performed i.e. the booklet and verbal information?
6. Can you tell me what you thoughts about sleep in young children before? How did the education affect your thoughts?
7. Which part of the information changed your behaviour? In which way was it changed?
8. Did your changed behaviour affect your child's behaviour? Can you tell me how it changed?
9. What is your cultural experience/ or the experience between both parents regarding sleep in young children?
10. Do you have any other points to make?

CHC nurse= child health care nurse

Table 2 Demographics

interview	part.	child's age in months	number of kids	cultural back-ground mother	cultural back-ground father	age m	age f	educ. m	educ. f
1	m	2 +	3	D	D	36	34	WO	WO
2	m	3 -	1	D	D	30	34	MBO	MBO
3	m	twins 4 +	4	D	D	31	34	MBO	VMBO
4	m	4	2	D	Non-Dutch	24	25	HBO	MBO
5	m and f	4	1	D	D	24	24	MBO	VMBO/TL
6	m	3	1	D	Non-Dutch	29	30	MBO+	MBO
7	m and f	3 1/2	2	D	D	26	26	HBO	MBO
8	m	4	1	D	D	32	32	HBO	HBO
9	m and f	3 (1month prema-ture)	1	D	D	40	46	WO	HBO
10	m and f	3 1/2	1	D	D	37	38	HBO	HBO
11	m	4 -	2	D	Non-Dutch	35	37	WO	WO
12	m and f	4	1	Non-Dutch	D	36	39	WO	HBO
13	m	3 1/2	2	D	D	31	32	HBO	WO
14	m	2 -	1	D	D	34	36	HBO	HBO

part.= participant(s), m=mother, f=father, D=Dutch, WO and HBO= education level high, MBO(MBO+) and VMBO(VMBO/TL)= education level moderate

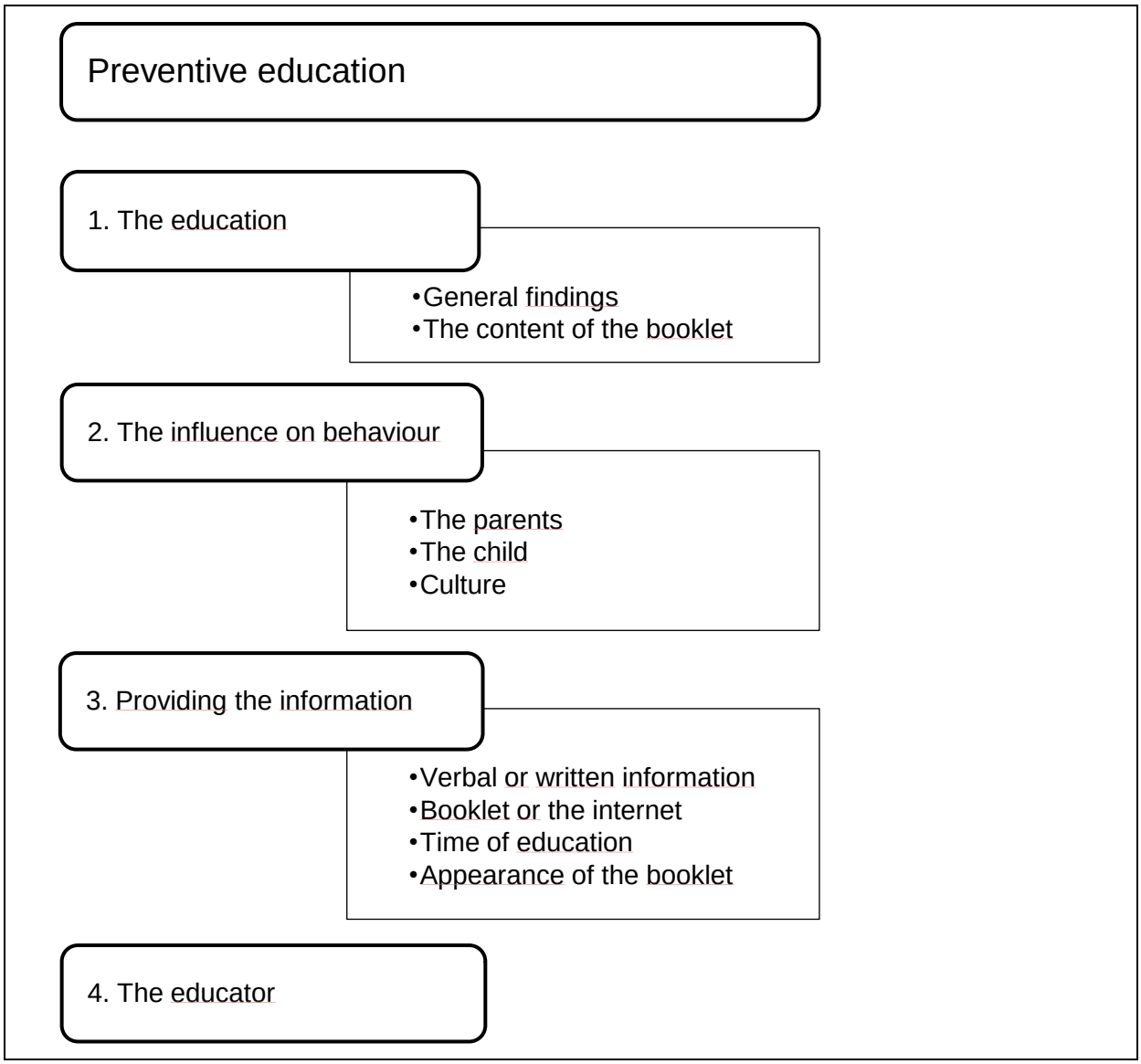

Figure 1 Connection between the 4 themes and the 9 categories