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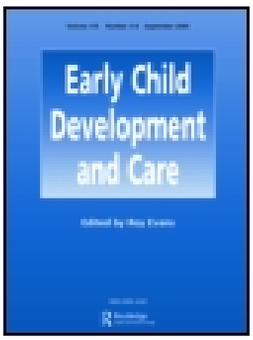

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Maternal satisfaction with professional health care for excessive infant crying: does it meet maternal needs?

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ABSTRACT

Providing adequate parental support is pivotal when treating excessive infant crying, but there are indications that parents may not feel supported by professional health care. This study investigated maternal satisfaction with health care and health care needs, comparing mothers of infants with (N = 110) and without a medical cause for the crying (N = 101). Hierarchical cluster analysis was used to detect patterns in health care needs. Dissatisfaction with health care (often related to feelings of not being taken seriously) was reported by 55.0%. Mothers of infants with a medical cause for the crying rated health care as more effective but were also more often dissatisfied with health care. Most mothers needed help both for the crying of their infant and their own well-being. The results suggest that offering effective reassurance to parents without downplaying the seriousness of the situation and being sensitive to the specific needs of each family is essential.

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Excessive crying; infancy; mothers; health care use; health care satisfaction; health care needs

Introduction

About 20% of new-born infants show prolonged bouts of inconsolable crying (Benninga et al., 2016), which is often labelled as 'excessive infant crying'. Excessive crying can be caused by medical conditions like cow's milk allergy or gastroesophageal reflux (Douglas & Hiscock, 2010), but in many cases no medical explanation for the crying is found. In such cases, the crying is suggested to represent the upper extreme of the normal crying behaviour of infants (Zeevenhooven, Koppen, & Benninga, 2017). Excessive crying usually resolves after the first four months of the infant's life and is thus self-limiting (Barr, 1990). However, this does not negate the large, negative impact it has on young families. Excessive infant crying is an important predictor of postnatal maternal depression as well as anxiety (Petzoldt, 2017) and even increases the risk of child abuse (Barr, Trent, & Cross, 2006; Reijneveld, van der Wal, Brugman, Sing, & Verloove-Vanhorick, 2004). Health care use among these families is high (Mahon et al., 2017; Morris, James-Roberts, Sleep, & Gillham, 2001). It is the most common reason why parents visit paediatric healthcare providers in a baby's first year (Lindberg, 2000) and the estimated health care costs are substantial (Mahon et al., 2017; Morris et al., 2001). Unfortunately, there are multiple indications in the literature that parents of excessively crying infants are not satisfied with the health care they receive, and feel misunderstood or even ignored (Landgren & Hallstrom, 2011; Long & Johnson, 2001; Megel, Wilson, Bravo, McMahon, & Towne, 2011). This is very worrisome because reassuring and comforting parents is one of the key components in treatment

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advice for excessive crying (Vandenplas et al., 2016). The present study, therefore, aims to investigate (a) parental satisfaction with professional health care for excessive infant crying in the Netherlands; and (b) what health care needs parents have.

The fact that parents frequently seek out health care and sometimes are desperate for a treatment for excessive crying is not surprising. Apart from the fact that parents are worried that their child suffers from a serious illness, the sound of a crying infant affects humans on a physiological level, triggering a stress response in both parents and non-parents (Out, Pieper, Bakermans-Kranenburg, & van Ijzendoorn, 2010). This stress-response prepares us for action to try and stop the crying; from an evolutionary standpoint, enabling us to ensure the survival of our offspring (Murray, 1979; Zeifman, 2001). However, one of the key features of excessive crying in infants is that the crying is difficult to sooth. Thus, the human physiological response drives parents to act, but their actions will often be non-effective; an utterly frustrating situation which propels parents to browse through books and the internet for possible solutions (Harb, Matsuyama, David, & Hill, 2016; Smart & Hiscock, 2007) as well as seek out professional help.

Current treatment guidelines for excessive infant crying emphasize reassuring parents of the benign nature of the condition and give general care-giving advice (Vandenplas et al., 2016), keeping the prescription of medication to a minimum. However, research shows that the reassurance health care professionals try to give, often fails to have its intended beneficial effect. One qualitative study found that the very act of reassurance by health care professionals causes parents to feel that the professional is downplaying the seriousness of the problem and the stress it brings to the family, resulting in parents feeling misunderstood (Megel et al., 2011). Indeed, other qualitative studies also show that parents feel misunderstood by doctors and nurses, reporting that they are not taken seriously or even feel ignored (Landgren & Hallstrom, 2011; Long & Johnson, 2001); this distrust in the health care system has even been found to persist for up to four years (Landgren, Lundqvist, & Hallstrom, 2012).

However, these indications of dissatisfaction were put forth by qualitative studies with limited sample sizes (N = 13–25), which poses the question whether such negative experiences with health care can be generalized. Moreover, these studies exclusively focused on families of infants for which no medical cause could be found to explain the crying; such 'failure' to find a clear cause for the crying might fuel parental frustration with health care. Therefore, the current study evaluated parental satisfaction with health care in a large sample, comparing parents of infants with no medical cause for the crying to parents of infants for which a medical cause for the crying *was* found (e.g. cow's milk allergy, gastroesophageal reflux).

Evaluating satisfaction with health care is a challenging task as this satisfaction is built from many different experiences and components (Hudak & Wright, 2000). Large multidimensional questionnaires have been developed to measure this concept, which are valuable because they give detailed information on which specific aspects of health care are valued and which are not. However, such inquiry after specific elements that might contribute to satisfaction also has a disadvantage, because it may not capture the overall impression that patients have of the health care in question; it is unknown how much weight all of these details carry for each individual patient in their overall satisfaction. Global assessments of satisfaction (e.g. 'All things considered, how satisfied are you with the care you received'; Hudak & Wright, p. 3168) are more suitable to measure that overall satisfaction but have the disadvantage that they will not give concrete suggestions as to what can be improved (Hudak & Wright, 2000). Therefore, the present study measured parental satisfaction with health care by using a global assessment of overall satisfaction, combined with an open-ended question to get a sense of what might be improved. Moreover, to be able to provide a clear context on what types of health care experiences parents encountered and are thus reporting satisfaction about, we studied which types of professional health care families visited and how effective parents rated these types of health care with regard to the core goals of treatment for excessive crying, namely (a) decreasing the crying of the infant, and (b) helping parents cope with the crying (St James Roberts et al., 2019).

The second goal of this study was to explicitly evaluate parental needs regarding health care, which is essential to be able to provide parents with effective reassurance and support during the period of excessive crying (Bartholomew Eldredge et al., 2016). Parental needs regarding the topic or format of support have, however, to our knowledge not been systematically investigated in a quantitative study. Obviously, the most important need for parents is to reduce or stop their child's crying, which was confirmed in a qualitative study of fourteen families (Helseth, 2002). However, parents also describe other needs related to dealing with the effects of the crying on their own mental and physical well-being (e.g. anxiety, helplessness, doubts about their coping abilities (Helseth, 2002)). Helseth found that parents put these needs secondary to the need to stop their infant's crying, which is not surprising since parents will most likely see their infant's crying as the cause of their own problems. The present study investigated (a) what type of support parents of excessively crying infants need, and (b) if all parents have similar needs or if specific patterns in needs can be identified. Moreover, we studied what format of support would be preferred (e.g. online or face-to-face).

In summary, the present study aimed to answer the following questions: (1) What types of professional health care do parents of excessively crying babies seek out, and how satisfied are they with this health care? (2) What type and format of support do parents of excessively crying infants need, and can patterns in need for types of support be distinguished? For both research questions, we tested whether there are differences between parents of excessively crying infants with and without medical cause.

Methods

Sample

From April 2018 to March 2019, 211 mothers that took care of a child that cried excessively in the last two years filled out questionnaires (see Table 1 for demographics of the sample). Although explicit efforts were made to invite fathers to join the study, only mothers responded.

Table 1. Sample description (N = 211).

	Mean (SD) or %
Maternal/family characteristics	
Age at study participation	31.6 years (4.08)
Biological mother of the child	100%
Education level mother	
Primary, middle or lower vocational school	32.9%
Higher education or college	48.1%
University	19.0%
Maternal ethnicity	
Dutch	83.4%
Moroccan	1.4%
Turkish	4.7%
Surinamese	0.5%
Other	9.9%
Two-parent family at period of excessive crying	97.6%
Number of children in the family	
One	53.6%
Two	36.5%
More than two	9.9%
Infant characteristics	
Age at study participation	11 months (7.47)
Age at peak of crying	3.87 weeks (3.05)
Gender (boys)	53.6%
Medical cause for crying[a]	52.1%
Fulfills Wessel's criteria of excessive crying[b]	70.6%
Duration of period of excessive crying	17.2 weeks (16.0)

[a]Gastroesophageal reflux (39.1%), cow's milk allergy (34.5%) or a combination of both (9.1%) were mentioned most often as medical causes.

[b]Wessel's criteria for excessive crying: more than three hours of crying for more than three days a week for at least three weeks.

Procedure

The study was approved by the Ethical Review Board of Education and Child Studies, Leiden University, protocol number ECPW-2017/191. Participants were invited to join the study through messages on several Facebook pages related to excessive crying with one reminder message per Facebook page. Additionally, e-mails were sent to a list of 9,998 Dutch parents with a child aged 0–2 years old, who had ordered a free gift box containing baby merchandise from 'WIJ Special Media'. Invitations were sent by 'WIJ Special Media', ensuring the privacy of the addressees. More than half of the sample (58.3%) was recruited via this route, while 40.8% reached the questionnaire through Facebook. Participants received detailed information on the goals of the study prior to filling out the questionnaire, and were informed they could stop filling out the questionnaire at any time. Twenty gift tokens of 10 euros were raffled among the participants.

Measures

Use of and experience with professional health care

To generate a list of professional health care sources a parent may visit, we made use of the results of a literature search we performed for a systematic review on the effectiveness of treatment methods (including both medical, psychosocial, alternative methods, etc.) for excessive infant crying (manuscript in preparation). We added the option 'other' to make sure that parents could write down any other source of professional health care that was not included in our list. For every source, we established (1) whether parents made use of this source and if so, (2) whether they found it to be effective in decreasing the crying of their infant and/or helping them cope with the crying of their infant using a three-point scale (yes/somewhat/no). Following this evaluation of received health care, we asked parents about their overall satisfaction with the provided health care. Parents could select one of the following three answers: 'I am satisfied with the health care we received'; 'There are certain things I missed or that I would have wanted to be dealt with differently in the health care we sought and received'; 'I didn't need any help during this period'. If parents indicated they had missed something, they were invited to write down what they had missed specifically.

Needs assessment

For the needs assessment, we asked parents to think back to the period when their child was crying excessively, and indicate on which predefined topics they would have liked to receive information during that time. The list of topics was based on qualitative studies describing parental health care experiences and needs (Helseth, 2002; Landgren & Hallstrom, 2011; Long & Johnson, 2001) as well as on the content of existing interventions for excessive crying that focus on parents (e.g. Barr et al., 2009). The format of the needs assessment was based on a structured needs assessment previously used in a different sample (Vavani, Kraaij, Spinhoven, Amone-PÓlak, & Garnefski, 2020). We added the option 'other' to make sure participants could list any other needs they might have that were not included in our list. A total of 11 topics were listed, which fell into two broad categories: information regarding the crying of the infant and how to reduce it, and information regarding the well-being of the parent and their ability to cope with the crying. Participants could indicate whether they were interested in this information using a three-point scale (no/maybe/yes).

Next, we asked parents about their preferences regarding the format of such information (i.e. an app, a website, a book, contact with a health care professional, contact with other parents of excessively crying infants). They could make use of the same three-point scale while answering this question. If parents indicated that they were interested in contact with a health care professional or other parents (answers 'maybe'/'yes'), they were asked about their preferences on what this contact should look like. For contact with professionals, parents were asked to rank the following options according to their preference: conversations at home, conversations at a different location (e.g. the office of the health care provider), telephone calls or digital contact. For contact with other parents, participants

could rank the following options: Personal contact with a group of other parents, personal contact with one or two other parents, telephone calls or digital contact.

Medical cause

To assess whether a medical cause was determined that could explain the excessive crying, a multiple choice question was used with the following answering options: No medical diagnosis/Cow's milk allergy/Gastroesophageal reflux disease/Lactose-intolerance/Other.

Statistical analyses

IBM SPSS statistics version 25 was used to analyse the data. To study professional health care use and perceived effectiveness, we calculated frequency of use and mean effectiveness ratings and ranked the sources accordingly. To study overall maternal satisfaction with health care, we calculated how many mothers fell in each of the categories of satisfaction. Answers on the open-ended question regarding what mothers might have missed in health care were analysed by reading all answers and coding all of the unique themes that were mentioned. After an initial coding process, all answers were read a second time to fine-tune the codes. Finally, the final set of codes were sorted into distinct themes to be able to summarize the findings. To study maternal health care needs, we calculated how often mothers expressed interest in each topic and performed a cluster analysis on the different topics to study whether there might be distinct patterns in needs. Hierarchical cluster analyses were performed, using Ward's method and squared Euclidean distances. The cluster analysis was repeated 10 times with different random orderings of the data file to overcome unwanted sorting effects in clustering and to be able to see which clusters reproduced stably (IBM Knowledge Center, 2021). Next, the data was randomly split in half, making sure that the number of mothers of infants with and without a medical cause was evenly distributed over the two samples, to test whether the derived cluster solution would replicate in these subsamples as well (Clatworthy, Buick, Hankins, Weinman, & Horne, 2005). Finally, we calculated which format of help was most preferred. For all research questions, Chi-square tests or Mann–Whitney U-tests were used to test for differences between infants with or without a medical cause.

Results

Professional health care use and perceived effects on crying and coping with crying

Total group results

Table 2 shows the percentage of health care use in the total sample and maternal perceptions of effectiveness. Nearly all families (95.7%) visited at least one form of professional help. Most families used three types of professional help; on average, families used 4.2 types of professional help (sd = 2.26; range 0–10).

The three types of professional health care that were sought out most often were child welfare centres, general practitioners and osteopaths. With regard to effects on crying, chiropractors, homeopaths and paediatricians scored top three, with 41–66.7% of mothers indicating that these forms of health care helped to reduce the crying. However, chiropractors and homeopaths were visited very infrequently. When looking at the types of health care that were used more frequently (>25% use), paediatricians, osteopaths and physical therapists were rated as the most effective. There was a large variability in the perceived effectiveness of this top 3, however, with 14–41% of mothers rating it to be effective in reducing the crying.

With regard to how effective professional health care was to help mothers cope with the crying of the infant, chiropractors, 'other', and psychologists were rated as the most effective (44–80% of mothers rating it as effective), but as mentioned above, these sources of help were used infrequently. Looking at the types of help that were sought out more frequently (>25% use), again paediatricians,

osteopaths and physical therapists were rated as the most effective. Note, however, that 'most effective' in this case means that only 15–27% of families that used this type of health care, rated it as effective.

Differences between families with or without a medical cause to explain the crying

Families of infants with a medical cause for the crying, made more use of nearly all forms of health care. Total professional health care use was also higher for this group, as all families in this group made use of at least one source of professional health care, whereas in the group without a medical cause, 91% did (Fisher's exact test $p < .01$). Families of infants with a medical cause for the crying rated several traditional medical professionals (general practitioners, paediatricians, medical specialists, physical therapists) as more effective in reducing the crying than the group without a medical cause (see Table 2). However, there were no significant differences between the two groups in effectiveness ratings.

Satisfaction with health care

About one-third of mothers (33.7%) indicated to be satisfied with the professional health care they received, whereas 55.0% of mothers reported to have missed something or would have wanted something to have gone differently during treatment. Mothers that indicated to have missed something more often belonged to the medical cause group (65.8 versus 34.2%; χ^2 (2; N = 202) = 29.38; $p < .01$). The remaining 11.4% of mothers indicated that they had felt no need for professional health care during this period; most of these mothers had infants with no medical cause to explain the crying (95.7%).

Almost all mothers that indicated to have missed something, explained their answer in an open-ended question (110 out of 111 participants). Two unique recurring themes could be identified: dissatisfaction with received health care, and specific needs regarding health care.

Theme 1: dissatisfaction with received health care

This theme was mentioned by most (89.1%) mothers that filled out the open-ended question. There was no significant difference in how many mothers of infants with or without a medical cause mentioned this theme (χ^2 (1) = .30; $p = .58$). This theme contained a number of specific topics, dissatisfaction with how parents were treated by health care professionals being one of them. Mothers reported feelings of not being taken seriously, that their maternal instinct was being ignored by health care professionals, that professionals did not understand or acknowledge how hard it is to have an excessively crying infant, that they were labelled as overconcerned, inexperienced or insecure, and that the crying was labelled as normal behaviour that is self-limiting, which made mothers feel that professionals were downplaying the seriousness of the situation. Another topic that was mentioned under this theme was the feeling that provided support was inadequate, or not tailored to the individual child or family. Mothers also said that they would have wanted to be referred to more specialized help more quickly, or that health care should have paid more attention to finding a cause for the crying. The final two topics that were mentioned were the feeling that actually no sufficient help is available at all, and that there is no clear overview of health care, or that communication between health care providers is lacking.

Theme 2: specific needs regarding health care

Thirty mothers expressed specific needs regarding health care that they had missed. There was no significant difference in how many mothers of infants with or without a medical cause mentioned this theme (χ^2 (1) = .54; $p = .46$). Mothers mentioned that they would have liked practical assistance at home (e.g. to help out with daily chores, taking care of other children, taking care of the baby at night so parents could sleep). Also, several mothers mentioned they would have liked a professional to visit at home to observe the crying behaviour of the infant and offer solutions. Help for parental

Table 2. Perceived effects of professional health care on infant crying and coping with crying.

	Percentage of families using professional health care	Mothers who indicated it helped to decrease crying		Mean (sd) helpfulness[a]			Mothers who indicated it helped to cope with crying		Mean (sd) helpfulness [a]		*p* Mann–Whitney U
		%	Rank	Without medical cause	With medical cause	*p* Mann–Whitney U	%	Rank	Without medical cause	With medical cause	
Child welfare centre	79.6	14.0	9	.42 (.69)	.48 (.77)	.78	10.8	9	.47 (.66)	.47 (.71)	.83
General practitioner	64.0	13.8	10	.22 (.57)	.53 (.77)	.02*	9.8	11	.51 (.68)	.49 (.67)	.85
Osteopath	61.7	29.1	6	.98 (.89)	.85 (.79)	.46	22.5	6	.80 (.85)	.84 (.73)	.63
Paediatrician	55.0	41.1	3	.65 (.78)	1.25 (.82)	.00**	27.3	5	.75 (.80)	.95 (.80)	.25
Baby-massage	40.8	4.9	13	.38 (.60)	.40 (.57)	.83	10.1	10	.44 (.71)	.57 (.66)	.31
Lactation consultant	34.9	12.5	11	.57 (.69)	.66 (.71)	.61	9.5	12	.57 (.75)	.55 (.63)	.94
Obstetrician	29.2	5.5	12	.41 (.63)	.31 (.55)	.53	6.1	13	.48 (.59)	.38 (.65)	.38
Physical therapist	28.0	14.3	8	.11 (.32)	.76 (.79)	.00**	15.4	8	.35 (.61)	.74 (.78)	.08
Medical specialist	10.8	25.0	7	.25 (.50)	1.13 (.72)	.05*	33.3	4	.60 (.89)	1.15 (.80)	.25
Homeopath	10.1	42.1	2	1.40 (.89)	1.07 (.83)	.50	22.2	7	1.00 (.82)	.71 (.83)	.57
Baby-yoga	4.8	0	14	0 (–; N = 1)	.25 (.46)	NA[b]	0	14	0.00 (–)	.38 (.52)	NA[b]
Psychologist	4.3	33.3	5	1.00 (1.00)	1.33 (.58)	NA[b]	44.4	3	1.33 (.58)	1.33 (.82)	NA[b]
Chiropractor	2.8	66.7	1	1.67 (.58)	1.67 (.58)	NA[b]	80.0	1	1.67 (.58)	2.00 (.00)	NA[b]
Other	13.4	37.5	4	1.18 (.76)	1.31 (.63)	.73	50.0	2	.91 (.83)	1.41 (.62)	.21

[a]Helpfulness was coded as follows: 0 = did not help; 1 = helped somewhat; 2 = helped.
[b]Difference between samples with and without a medical cause for the crying was not tested due to low sample sizes.
*$p < .05$.
**$p < .01$.

fatigue and sleeping problems was also mentioned. Several mothers mentioned that they would have liked support that focused on strengthening their parenting skills and confidence in parenting. Others expressed they would have liked to talk to other parents of excessively crying infants, to be able to share experiences. Finally, some mothers mentioned they would have appreciated psychological help for their symptoms of depression.

Health care needs

The results show that overall need for support was high, with 77–93% of mothers reporting moderate to high need for information on the various topics (see Table 3). On average, mothers scored higher on their needs for support related to the crying of their infant (M = 1.61, sd = .50) than for support regarding their own psychological well-being (M = 1.35, sd = .65; t(201) = 6.52; $p < .01$). Mothers of infants with a medical cause for the crying scored higher on their needs for information regarding treatment methods, where to find help, how to cope with feelings of depression, and learning about experiences of other parents.

To investigate whether patterns in types of support needs could be distinguished, a series of 10 cluster analyses was performed for the entire sample. Four distinct clusters appeared reliably in the dendograms of 9 out of the 10 performed analyses; solutions with a higher number of clusters were not stable across the different cluster analyses. After randomly splitting the data in half, the four-cluster solution was replicated in these two subsamples as well. The profiles of the final four clusters are displayed in Figure 1; the left part of the graph displays maternal needs regarding help related to the crying of the infant, whereas the right displays maternal needs regarding help related to the well-being of the mother.

The largest group of mothers was labelled the *High need* group (N = 98), as these mothers indicated high interest in both help regarding the crying and help regarding their own well-being. The second largest group (N = 36) showed a distinct pattern of high interest in general information on crying and soothing options, somewhat less interest in options for professional help, and only moderate interest in help regarding their own well-being. We, therefore, labelled this group *Largest need for help with infant crying*. The two final clusters were comparable in size. The *Low need* cluster (N = 19) described an overall low need for help. Mothers in this cluster expressed some interest in information on crying and soothing/treatment methods, but no interest in help

Table 3. Maternal needs for information on various topics.

			Mean (sd) need[a]		
	Yes (%)	Yes/maybe (%)	Without medical cause	With medical cause	*p* Mann–Whitney U
Information related to crying					
Causes of crying	78.2	93.1	1.64 (.64)	1.78 (.54)	.06
Treatment methods	71.3	92.1	1.45 (.70)	1.80 (.51)	.00**
Where to find help	71.0	90.5	1.49 (.69)	1.72 (.61)	.00**
Soothing techniques	70.3	83.7	1.55 (.73)	1.53 (.79)	.95
General info on crying	64.4	88.2	1.55 (.65)	1.50 (.74)	.84
Information related to well-being mother					
How to make the crying bearable	63.4	84.7	1.40 (.75)	1.55 (.74)	.10
How to cope with feelings of anxiety/stress	56.7	81.6	1.27 (.82)	1.48 (.73)	.06
How to balance caring for baby with other aspects of day-to-day life	56.0	77.5	1.26 (.84)	1.40 (.81)	.22
How to cope with feelings of depression	51.5	77.2	1.10 (.86)	1.45 (.74)	.00**
Ways to relax	46.5	77.7	1.20 (.78)	1.28 (.81)	.44
Other needs					
Experiences of other parents	64.2	87.1	1.37 (.73)	1.64 (.68)	.00**
Other	15.6	20.6	.25 (.61)	.47 (.83)	.10

[a]Need was coded as follows: 0 = no; 1 = maybe; 2 = yes. N varied from 200 to 202 (N of variable 'other' was 172).
*$p < .05$.
** $p < .01$.

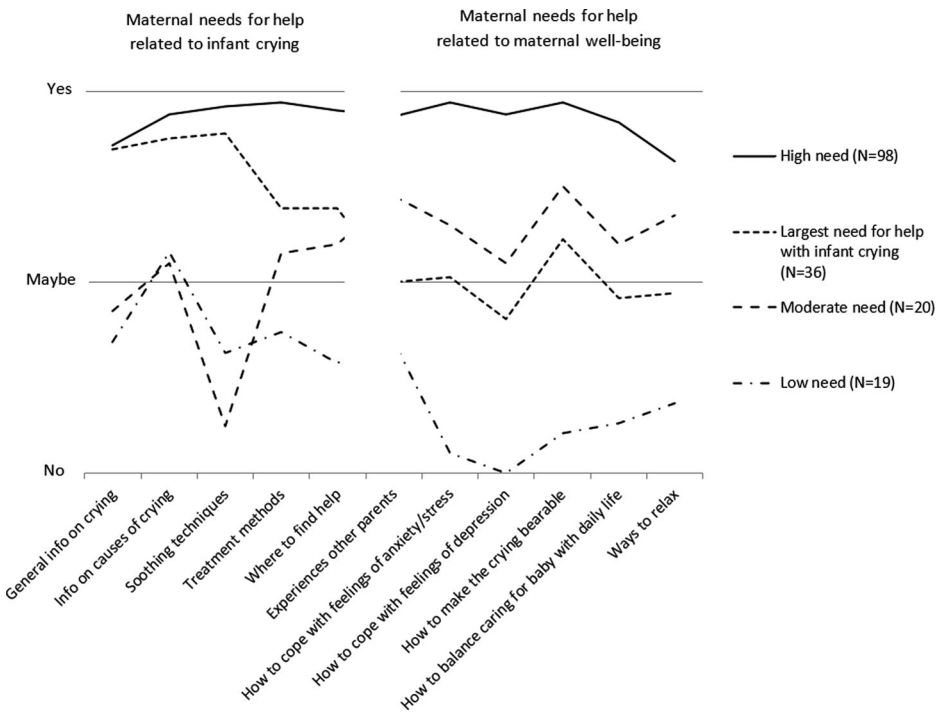

Figure 1. Profiles of clusters of maternal needs for help.

regarding the impact of the crying on their own well-being. The final cluster of mothers (*Moderate need*; N = 20) were more interested than the low need cluster in options for professional help and experiences of other parents. They also expressed more (although still moderate) interest in help regarding the impact of the crying on their own well-being; their interest in this topic was a bit higher than their interest in the topic on infant crying.

Mothers of infants with a medical cause for the crying were more often part of the clusters *High need* (62.2% versus 37.8%) and *Moderate need* (60.0% versus 40.0%), the clusters that scored highest on needs related to maternal well-being (χ^2 (3) = 13.01; $p < .01$).

Preferred format of support

Tables 4 and 5 show that mothers were interested in a variety of formats for support, a book being the only format that was less popular. No differences were found in preferred format of support between the medical cause and no medical cause groups. Those mothers that indicated to be interested in contact with a professional had a preference for home visits over the other suggested formats. Most important to note, however, is that preference in that specific format varied greatly, as a quarter of the mothers also indicated home visits as the *least* preferred option. The same was true for the format of contact with other parents; online contact through chat or e-mail was most often preferred, but this was closely followed by personal contact with a group or one or two other parents. Telephone calls with other parents were least preferred.

Discussion

The present study investigated parental satisfaction with professional health care available in the Netherlands for excessive crying in infants, as well as parental health care needs. In a sample of

Table 4. Maternal needs regarding format of support.

			Mean (sd) need[a]		
	Yes	Yes/ maybe	Without medical cause	With medical cause	*p* Mann–Whitney U-test
Contact with a health care professional	54.5	79.2	1.22 (.85)	1.44 (.74)	.06
Website	53.0	85.1	1.41 (.70)	1.35 (.77)	.74
Contact with other parents	53.0	81.7	1.25 (.77)	1.44 (.76)	.05
App on phone or tablet	51.0	74.8	1.25 (.85)	1.27 (.83)	.88
Book	25.2	60.4	.88 (.79)	.83 (.80)	.64

[a]Need was coded as follows: 0 = no; 1 = maybe; 2 = yes. N was 202.
*$p < .05$.

211 mothers, we showed that levels of satisfaction with health care are rather low, with only about one-third of mothers stating they were satisfied with the health care they received. This is not for a lack of reaching out to health care by the families, as data on health care use showed that most families visited three to four different types of health care. However, more than half of the sample reported to have missed something in the health care they received. The needs assessment showed that, when all mothers were analysed together as one group, mothers have a higher need to resolve the crying of their infant than to receive help regarding their own well-being. However, we also clearly found different subgroups of mothers displaying separate patterns of need for help, and the largest group of mothers showed a distinct need for help in both areas. As such, for most mothers, finding help with regard to their own well-being does not seem less important than finding help to decrease the crying of the infant. Finally, maternal preferences with regard to the format of support differed largely; help in the form of a book or a telephone call was, however, clearly least preferred.

Maternal satisfaction with professional health care

In line with previous qualitative studies and with our hypothesis, this large quantitative study showed that many mothers express dissatisfaction with the health care they received while their baby cried excessively. About one-third (33.7%) indicated to be satisfied with the care they received,

Table 5. Maternal preferences regarding contact with health care professionals and other parents.

			Mean (sd) preference[a]		
	% Most preferred	% Least preferred	Without medical cause	With medical cause	*p* Mann–Whitney U
Format of contact with a health care professional[b]					
Home visits	51.9	24.0	2.05 (1.22)	2.05 (1.29)	.90
Online contact through chat or e-mail	22.7	29.2	2.53 (1.21)	2.69 (1.08)	.43
Face-to-face contact at other location	16.9	27.9	2.79 (1.01)	2.50 (1.09)	.10
Telephone calls	8.4	18.8	2.64 (.89)	2.76 (.86)	.34
Format of contact with other parents[c]					
Online contact through chat or email	36.9	27.5	2.35 (1.24)	2.40 (1.24)	.76
Personal contact with a group of other parents	26.3	26.9	2.50 (1.17)	2.48 (1.14)	.89
Personal contact with one or two other parents	25.0	7.5	2.27 (.90)	2.13 (.91)	.30
Telephone calls	11.9	38.1	2.88 (1.06)	3.00 (1.01)	.49

[a]Preference was ranked as follows: 1 = most preferred; 4 = least preferred.
[b]N was 154.
[c]N was 160.

but more than half (55.0%) of the mothers reported to have missed something or that they would have wanted something to have gone differently during treatment.

The results we found regarding health care use and its effectiveness may provide some context to these data. As mentioned, most families visited more than one health care professional, which was in line with our hypothesis. However, those health care professionals that were visited most often, like child welfare centres and general practitioners (visited by 64–80% of families), ranked lowest 30/40% regarding maternal perceptions of effectiveness. As such, many parents may have encountered an unsatisfactory experience because the primary sources of help did not have the desired beneficial effect. Since we asked parents about their global satisfaction with all of the health care they received, experiences with unsuccessful primary care might have lowered overall scores.

However, the results from our more qualitative analysis on what mothers had missed specifically in health care, show a somewhat different picture. When a person is asked to evaluate their satisfaction with health care, there are multiple aspects they can focus on between the quality and the effectiveness of the care they received (Hudak & Wright, 2000). Our results clearly showed that only a few of the remarks made by mothers concerned the lack of an effective solution; the vast majority concerned problems relating to the quality of care. In line with previous research (Landgren et al., 2012; Landgren & Hallstrom, 2011; Long & Johnson, 2001; Megel et al., 2011), mothers mentioned feelings of not being taken seriously, health care professionals underestimating the impact of having a child that cries excessively, and doctors and nurses stressing that the crying is normal in an effort to reassure the family, but in doing so downplaying the seriousness of the situation and reinforcing the feeling of not being taken seriously. Providing reassurance that the crying is generally normal and self-limiting (considered a key element in current treatment guidelines for excessive infant crying) defeats its purpose when it results in mothers feeling misunderstood or not being taken seriously.

Differences between mothers of infants with and without a medical cause for the crying

We expected that mothers of infants without a medical cause might be more frustrated with health care because of its 'failure' to find an explanation for the crying, resulting in higher rates of dissatisfaction for this group. However, we found the reverse pattern: mothers of infants *with* a medical cause were more often dissatisfied (65.8% versus 34.2%), even though these mothers tended to be more optimistic about the effectiveness of various sources of health care on the crying of the infant. This discrepancy between effectiveness ratings and satisfaction underlines how the quality of care might be more important to mothers with regard to health care satisfaction than the effectiveness of that care. As to *why* this discrepancy occurred, a likely explanation lies in the fact that many mothers of infants with a medical cause described a long road of visiting numerous professionals before the appropriate diagnosis was made and an effective treatment plan was installed. Indeed, this is reflected in the finding that these mothers made more use of nearly every form of professional health care. Several mothers in this group described that if not for their own tenacity, they would not have been referred to more specialist care, and their infant would have continued crying. It is not surprising that this may result in lower satisfaction with health care, even if a diagnosis was made and appropriate treatment was offered in the end.

Maternal health care needs

The results from our needs assessment showed that, when all mothers were analysed as one group, mothers expressed a higher average need for information regarding reducing the crying of their infant than regarding their own well-being, which is in line with previous research (Helseth, 2002). However, our cluster analysis showed four distinct groups of mothers with differing patterns of needs, and the largest group of mothers (N = 98) indicated a high need for help in *both* areas. These results clearly add to the literature by revealing that many mothers do not necessarily prioritize help to reduce the crying, and that supporting maternal well-being is equally needed. However, most

available support packages merely provide parents with information on soothing techniques, without focusing on the mental health of the parent (St James Roberts et al., 2019). Even though a few recent support programmes have added this component, and some programmes have been available in English for a while, like the Period of Purple Crying (Barr et al., 2009), or the REST Routine (Keefe, Barbosa, Froese-Fretz, Kotzer, & Lobo, 2005), in general these programmes are few and far between, and no such programmes appear to exist in the Netherlands. A first step to improving help for parents of excessively crying infants would be to introduce support for maternal well-being. Since the present study shows that mothers of excessively crying infants are a heterogeneous group with differing needs, providing tailored health care to fit those needs might be most effective. A second, very important step is a change in the way health professionals generally approach parents of excessively crying infants. The mothers in our study repeatedly indicated that they felt that they were not being taken seriously, or that they felt professionals underestimated the impact of the excessive crying. Training professionals to provide *adequate* reassurance and support thus appears essential.

Our final research question focused on maternal preferences regarding the format of support. The results showed that mothers were open to various forms of support, a book being the least popular. Most mothers indicated that they would like contact with a health care professional or with other parents; as such, a self-help app or website without any options for contact with others will probably be less suitable. Finally, our open-ended questions on health care experiences yielded some specific suggestions for support programmes that are worth mentioning. Specifically, mothers mentioned that they would have appreciated practical assistance at home (e.g. related to chores in the household, taking care of other children or allowing parents some rest) or for a professional to visit them at home to be able to better judge the situation. Also, some mothers mentioned they would have liked support that focused on strengthening their parenting skills. Parental support programmes for excessive infant crying might take these suggestions into consideration.

Limitations

The present study has a number of limitations that should be mentioned. First, despite explicit efforts to recruit fathers, the questionnaire was only filled out by mothers. Second, our sample mostly included mothers with a higher education, which decreases generalizability. Third, our measures, though based on previous literature, were specifically designed for this study and therefore lack formal information on validity and reliability. Finally, our question about maternal satisfaction with health care did not allow mothers to rate their level of satisfaction; instead, mothers were asked to indicate whether they were satisfied in a yes or no format. This might have resulted in underestimations of satisfaction with overall health care.

Conclusion

The present study clearly shows that health care consumption among families of excessively crying infants is high, but the perceived effects of this health care are less than ideal. Many mothers expressed dissatisfaction with some form of health care they received, feelings of not being taken seriously being an important recurrent theme. Moreover, our needs assessment showed that, contrary to expectations, many mothers express a need for help both with regard to their infant's crying and their own well-being. It thus seems highly important to better support those parents struggling with the immense task of caring for an excessively crying baby. The present study suggests important recommendations for future intervention efforts. When considering the enormous impact excessive crying can have on families, from post-natal depression to child-abuse, and the substantial health care costs that are involved, two main targets emerge. First, offering support for the well-being of the parents is as important as offering help with the crying behaviour itself. Second, professionals in (primary) health care should be educated to offer *effective* reassurance and comfort, so parents will at least feel understood by the people they so desperately turn to for help.

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Data availability statement

The data that support the findings of this study are available on request from the corresponding author. The data are not publicly available due to ethical restrictions.

Disclosure statement

No potential conflict of interest was reported by the author(s).

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